ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR THE

PLASTIC BAGS MANUFACTURING FACILITY

Project Location: Industrial Area 11, Sharjah

PROJECT OWNER DETAILS

Multan Plastic Bags Works LLC

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This report has been prepared by Al Maha Environment Consultants with all reasonable skill, care and diligence. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1. EXECUTIVE SUMMARY

1.1 Project Description

Multan Plastic Bags Works LLC is putting up its new plastic bags manufacturing facility at a new location in Industrial Area 11, Sharjah. In accordance with the Environment Permitting Process in the Emirates of Sharjah, Multan Plastic Bags Works LLC is required to prepare and submit an Environmental Impact Assessment (EIA) report to the Environmental Services Department of the Sharjah Municipality in order to obtain the Environment Permit of the facility and subsequently the amendment of the company's industrial license indicating the location of the new manufacturing facility. In this context, Multan Plastic Bags Works LLC has appointed Al Maha Environment Consultants as the EIA Consultant tasked to prepare the EIA report.

The facility is located in Industrial Area 11, Sharjah. The coordinate of the facility location is 25.295199, 55.433508 (25°17'42.7"N 55°26'00.6"E). The facility is located approximately 8 kilometers southeast of the central area of Sharjah City.

Multan Plastic Bags Works LLC is renting three adjoining warehouse shed units (9, 10, 11) and has a total area of 12,000 square feet. The three sheds are divided into three main production areas, that is, extrusion area, bag making area, and product storage area.

1.2 Summary of Findings

The current EIA has identified potential environmental impacts that might be associated with the operation of the facility. Based on the magnitude of the encountered impact, suitable and cost-effective mitigation measures have been recommended. The prime objective of the mitigation measures is to ensure that all potential environmental impacts resulting from the operational activities of the facility will be adequately controlled and eventually will be in compliance with the applicable local laws and regulations. Findings of the Environmental Impact Assessment (EIA) report are presented below.

1.2.1 Environmental Impacts

The summary of impact matrix of different environmental component is presented in Table 1-1.

Table 1-1 Impact Matrix of Different Environment Components

Environmental Component	Activity	Source of Impact	Potential Environmental Impacts	Magnitude	Permanence	Reversibility	Cumulative	Significance
Aesthetics	Material storage and production activities	Processing activities, and stored materials and products	Degradation of visual appearance of the area	1	2	2	1	Low
Daily traffic	Delivery of materials	Delivery vehicles	Increase of localized traffic in the area	2	2	2	2	Low
Noise	Operation of equipment	Noise from the equipment	Increase in ambient noise level	1	2	2	2	Low
	Use of delivery vehicles	Engine noise	Increase in ambient noise level	2	2	2	2	Low
Human health	Process activities associated with the manufacturing of plastic bags	Particulate matters resulting from handling of polyethylene pellets (resin)	Degradation of workplace air quality	1	2	2	2	Low
		Particulate matters resulting from cutting of paper core		1	2	2	2	Low
		Particulate matters resulting from cutting of plastic sheet		1	2	2	2	Low
		Volatile organic compounds resulting from heating melting of resin		1	2	2	2	Low
		Volatile organic compounds from inks and solvents used in printing		2	2	2	2	Medium
	Operation of machinery/equipment	Exposure to elevated noise level	Increase in workplace noise level	1	2	2	2	Medium
Flora and fauna	Operation of the facility	Handling and storage of materials	Habitat loss	1	1	1	1	Low
Soil and land use	Handling, storage, and disposal of wastes	General solid wastes	Soil contamination	1	2	2	2	Low
Water quality	Usage of washroom	Spillage of domestic wastewater	Soil and groundwater contamination	2	2	2	2	Low

Environmental Component	Activity	Source of Impact	Potential Environmental Impacts	Magnitude	Permanence	Reversibility	Cumulative	Significance
Ambient air quality	Handling and mixing of polyethylene pellets (resin)	Particulate matters resulting from the handling and mixing of polyethylene pellets (resin)	Degradation of ambient air quality	1	1	1	1	Low
	Melting of resin and extrusion to from plastic sheet	Volatile organic compounds resulting from heating melting of resin		1	2	2	2	Low
	Printing of design on the plastic bag	Volatile organic compounds from inks and solvents used in printing		2	2	2	2	Low
	Operation of mobile equipment (delivery vehicles)	Dust and combustion gases		1	2	2	2	Low
Climate change	Combustion emission resulting from the operation of mobile equipment	Combustion gases	Increase in global warming	2	2	2	2	Low
Historical and Cultural Heritage Resources	Operation of the facility	Manufacturing activity	Degradation of visual appearance of the area	1	1	1	1	Low

1.2.2 Environmental Management and Action Plan

The summary of the environmental management and action plan is presented in Table 1-2.

Table 1-2 Environmental Management and Action Plan

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
Raw Material Preparation	The raw materials are delivered to the facility and stored in designated areas.	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	Ultralow sulfur fuel should be utilized as fuel of mobile equipment (delivery vehicles, forklift). Idle running of the vehicles should be avoided.	To be implemented continuously during the operation phase
		Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	The delivery vehicle should be switch off during unloading of materials.	To be implemented continuously during the operation phase
Raw Material Mixing	Proportions of PE granules and/or additives that are needed to be combined for production batch are mixed in the mixer. After which, the mixed materials are shifted to the extrusion area and put in the designated container or drum. On the other hand, for PE granules and/or additives that do not require mixing, the bags of this material are shifted to the extrusion area.	Particulate matters during handling and mixing of polyethylene pellets (resin) and additives	Degradation of local ambient air quality	All mixing activity should be conducted inside the warehouse shed.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Low drop height of the material when pouring the pellets into the container in order to minimise the generation of particulates.	To be implemented continuously during the operation phase
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the extruders should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
		Generated solid waste (empty bags of pellets/resin)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (e.g. empty bags) should be segregated and reused as packaging of products.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Extrusion and Rolling	The resin and additives are conveyed feed hopper of the extruder. From the feed hopper, the material passes through a heated chamber and gets melted under the compression of the screw and temperature of the	Volatile organic compounds (VOCs) emissions resulting from the extrusion process	Degradation of local ambient air quality	Optimise the extruder to ensure good operating condition	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide exhaust fans in the shed.	October 2019
		Particulate matters during cutting of paper core	Degradation of local ambient air quality	The cutting of core should be conducted inside the shed.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Designate a room/enclosure that will be dedicated for the cutting of paper core in order to avoid the dispersion of particulates into a wider area.	October 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	barrel. The compaction, melting and kneading of the material is pushed to the moulding discharge end by the homogenized subsequent material. The melted material [or film] at the discharge end of the extruder is blown off with air to form a tubular shape. The plastic sheet is rolled over a paper core as per the required length. After which, the rolled plastic sheet is shifted to the storage area. Depending on the product requirement, the rolled plastic sheet may be further processed in the printing section and/or bag making section.			The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the extruders should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (paper dust and paper core cut-outs)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				Waste disposal record should be kept.	During disposal
Production of Plain Plastic Sheet	Making of plaint plastic sheet involves putting the roll of plastic film in the designated decoiling section of the cutting machine and the roll of plastic is cut as per the product requirement. The produced roll of plain plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.	Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
Production of Plain Plastic Bags	The roll of plain plastic sheet is placed at the decoiling section of the cutting machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic	Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the requirement.	(cut-outs of plastic sheets)		Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (cut-outs of plastic sheets) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Production of Printed Plastic Sheets	Making of printed plastic sheet involves putting the roll of printed plastic film in the designated decoiling section of the cutting machine and cut as per the product requirement. The produced roll of printed plastic film or plastic sheets are then stacked and made	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet	Degradation of local ambient air quality	Minimise the usage of solvent, to the extent practicable.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide an exhaust/ventilation system in the printing room to avoid the accumulation of VOCs in the working area.	September 2019
				The printing area should be an enclosed room to avoid the dispersion of VOCs into other working areas.	December 2019
				Provide a close room for the storage of printing chemicals.	December 2019
				Ensure that the containers of inks and solvent are always kept closed.	To be implemented continuously during the operation phase

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	ready to be dispatched to clients.			The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the printing and cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				The recyclables (empty containers) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
		Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				The spent chemicals should be collected in dedicated containers and disposed properly.	To be implemented continuously during the operation phase
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Production of Printed Plastic Bags	Making of plastic bags involves putting the [printed] roll of plastic film in the designated decoiling section of the bag making	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of	Degradation of local ambient air quality	Minimise the usage of solvent, to the extent practicable.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide an exhaust/ventilation system in the printing room to avoid the accumulation of VOCs in the working area.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the design requirement. The produced plastic bags are then stacked and made ready to be dispatched to clients.	design/graphics on the plastic sheet		The printing area should be an enclosed room to avoid the dispersion of VOCs into other working areas.	December 2019
				Provide a close room for the storage of printing chemicals.	December 2019
				Ensure that the containers of inks and solvent are always kept closed.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the printing and cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (cut-outs of plastic sheets)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (cut-outs of plastic sheets) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
		Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (empty containers) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes

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				Waste disposal record should be kept.	During disposal
		Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				The spent chemicals should be collected in dedicated containers and disposed properly.	To be implemented continuously during the operation phase
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Packing and Dispatch	The finished product is checked, packed, and made ready to be delivered to clients.	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	Ultralow sulfur fuel should be utilized as fuel of mobile equipment (delivery vehicles, forklift). Idle running of the vehicles should be avoided.	To be implemented continuously during the operation phase
		Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	The delivery vehicle should be switch off during loading of materials.	To be implemented continuously during the operation phase

2. PROJECT INTRODUCTION

Multan Plastic Bags Works LLC, hereinafter referred to as “MULTAN PLASTIC”, is a manufacturing company engaged in the manufacturing of plastic bags. Recently, the company has decided to transfer its production facility from Sharjah Industrial Area 3 to a new site in Sharjah Industrial Area 11. In this context, MULTAN PLASTIC is required by the Sharjah Municipality Environment Department to prepare and submit an Environmental Impact Assessment (EIA) report.

MULTAN PLASTIC has commissioned Al Maha Environment Consultants to prepare the EIA report of its new plastic bags manufacturing facility (Project) located in Sharjah Industrial Area 11. The EIA report is required for the issuance of Environment Permit of the new manufacturing facility and subsequently the amendment of the company’s industrial license indicating the location of the new manufacturing facility.

The Project’s objective is to manufacture plastic bags which it will supply to the packaging needs of stores, shops, supermarkets, among others.

3. NAME & ADDRESS OF PROJECT AND PROPONENT

The basic Project information and contact is presented in Table 3-1.

Table 3-1 Summary of Project Details and Contact Information

Trade Name		Multan Plastic Bags Works LLC		
Economic Department License Number		214725		
Details of Name of Owners & Stake holdings		Name	Nationality	Partnership
		Khalid Mohd. Salem Haif	UAE	Partner
		Shahid Aziz	Pakistan	Partner
		Umair Aziz	Pakistan	Partner
		Zeeshan Aziz	Pakistan	Partner
Project Activity		Manufacture of plastic bags		
Physical Address of the Company	**Shed No.**	9, 10, 11		
	Plot No.	2357		
	Area	Industrial Area 11, Sharjah		
Information of the Contact Person	**Name**	Umair Aziz		
	Designation	General Manager		
	Telephone No.	+971 6 543 1560		
	Fax No.	-		
	Mobile No.	+971 55 586 5858		
	Email	multi-pack@hotmail.com		
Website		-		
Working Days		Saturday to Thursday		
Working Hours	**Office**	09:00 AM – 01:00 PM & 03:00 PM - 06:00 PM		
	Production	2 shifts 07:00 AM – 06:00 PM & 07:00 PM - 06:00 AM		

4. PROJECT DESCRIPTION

4.1 Description of Project Concept

The Project is a manufacturing facility that will be engaged in the manufacturing of plastic bags. The main raw material used in production is polyethylene pellets, also called resin. The manufacturing technology is blow-film extrusion process wherein the resin is melted controlled temperature conditions. Air is then injected to the molten plastic that is blown out and extruded through a circular die to form a continuous tube of thin plastic, and the tube is then cut off and while still in molten state is stretched and inflated to obtain the required size and thickness[1]. The inflated bubble of plastic is drawn vertically up a tower so that it has a chance to cool before it is flattened out and wound onto a roll[2]. If the plastic product requires print design, the plastic roll is feed to the print machine for the printing of design. Making of plastic bags involves passing the roll of plastic to the bag making machine wherein the plastic sheet is cut as per the size and design and one end is hot-sealed to give it the shape of the bag[3].

4.2 Project Size

4.2.1 Project Area

MULTAN PLASTIC is renting to three adjoining warehouse shed units, that is, shed number 9, 10, and 11. The area of each shed unit is 4,000 square feet. Hence, the total area of the three adjoining warehouse shed units is 12,000 square feet.

4.2.2 Capacity

The factory has a capacity to produce 780 tons of plastic bags products annually.

4.2.3 Number of Workers

At present, the company has 21 personnel. This include both the administrative and production personnel.

4.2.4 Working Hours

The facility is operating Saturday to Thursday, except public holidays. The work timing of the administrative personnel is 09:00 AM – 01:00 PM & 03:00 PM - 06:00 PM. On the other hand, the production personnel are working on two shifts. The shift schedule is 07:00 AM – 06:00 PM & 07:00 PM - 06:00 AM.

4.3 Project Technology and Alternative Technology(s) Options

4.3.1 Project Technology

As discussed in Section 4.1, the process used in the manufacturing of plastic bags is blow-film extrusion process, also called tubular film process. This is the most common way of making plastic bags.

4.3.2 Alternative Technology(s) Options

At present, the blow-film extrusion process or tubular film process is the common technology used in making plastic bags and no alternative technology has been developed. Suffice to say though that there are advancements in technology in terms of the machineries and equipment in the process. However, in terms of process, it's the same process that has been used by the industry for years.

[1] https://www.slideshare.net/rbottoms85/a-brief-outline-about-plastic-bags-manufacturing-process
[2] https://www.polybags.com/resources/how-polyethylene-bags-are-made/
[3] https://www.slideshare.net/rbottoms85/a-brief-outline-about-plastic-bags-manufacturing-process

Moreover, in terms of materials used, there are alternatives that has emerged in the industry such as the used recycled plastic pellets as additives and the use of les toxic chemicals in the printing process.

4.3.3 Reason for the Selection of Technology

As described in Section 4.3.1, blow-film extrusion process or tubular film process is the common process used in the making plastic bags. Hence, MULTAN PLASTIC is also using the process to make plastic bags. In addition, the company will also be using recycled plastic pellets as additive raw materials and less toxic chemicals during the printing process. These options are recent trends in the industry.

4.4 Future Developmental Plans

As per the company's indication, its future development plan is to increase capacity depending on the market situation. This may entail adding more machines and hiring more personnel for the added works.

4.5 Statement of Need

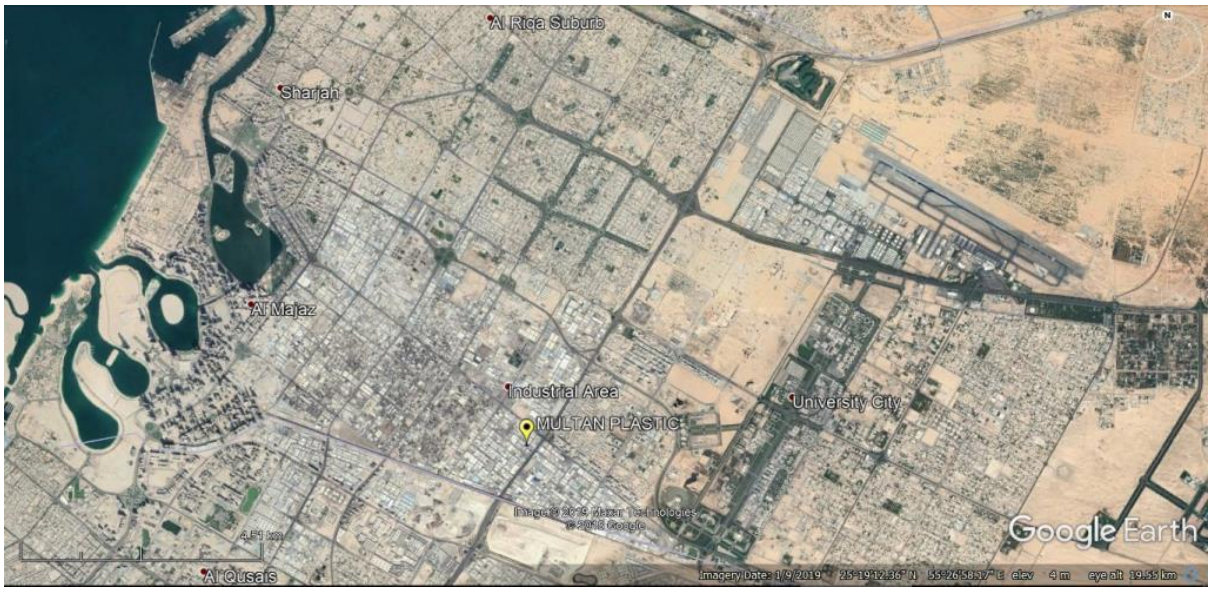
In the recent years, there has been an increasing economic activity in the country. This saw an increase in number of shops, supermarkets, hotels, and restaurants. In turn, this result in the increase of demand of plastic bags for the packaging od materials. In terms of project location, the Project is situated in Industrial Area 11 which is an area dedicated for various types of industrial developments, ruled and governed by the Sharjah Municipality. In relation to social and economic benefits, the facility provides job opportunities for local and international workforce.

5. PROJECT LOCATION

5.1 Location

The facility is located at Plot No. 2357 in Industrial Area 11, Sharjah. The coordinate of the facility location is 25.295199, 55.433508 (25°17'42.7"N 55°26'00.6"E). MULTAN PLASTIC is renting warehouse shed unit numbers 9, 10, and 11. The facility is located approximately 8 kilometers southeast of the central district area of Sharjah City. Location of the Project site relative to the Emirate of Sharjah is depicted in Figure 5-1.

Figure 5-1 Project Location Relative to the Emirate of Sharjah



5.2 Neighbouring Companies

Satellite image showing the Project site boundary and companies/facilities adjacent to the MULTAN PLASTIC facility is presented in Figure 5-2 and Table 5-1.

Figure 5-2 Adjacent Companies and Facilities

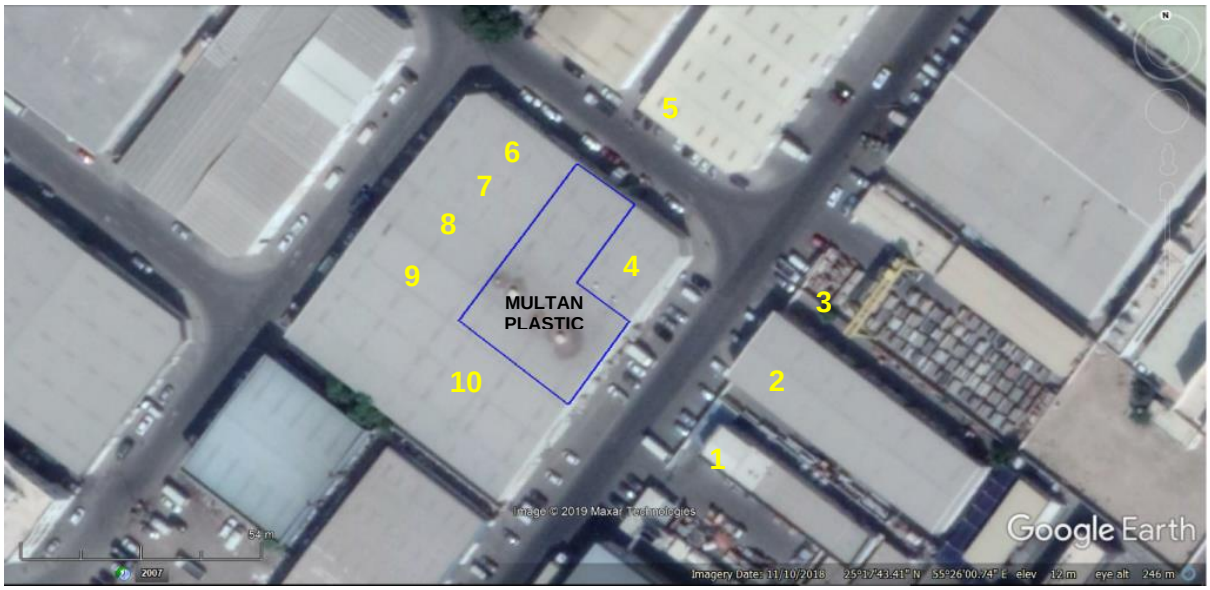


Table 5-1 List of Adjacent Companies and Facilities

SN	Company / Facility Name
1	Ghada Bldg. Cont. Co. LLC
2	Techno Marine Equipment Services LLS
3	Atlas Marbles & Granite Tr.
4	Alorouba Metallic Const. Ind. LLC
5	Elaf Al Arab Meatl Trash Manufacturing
6	Unoccupied shed unit
7	Unoccupied shed unit
8	Al Ehteraf Car Cleaning Equipment Tr.
9	Unoccupied shed unit
10	Environmental Systems International LLC

5.3 Sensitive Receptors

Sensitivity of the receptors typically depends on the duration of the activity generating environmental impact, types and quantities of the environmental releases, direction and distance of the receptors to the proposed activity/site, etc. Based on the site visit conducted on August 4, 2019, sensitive receptor such as schools, hospitals, or residential community within 1,000-meter radius of the facility is presented in Table 5-2 and Figure 5-3.

Table 5-2 Sensitive Receptor

SN	Location ID	Description	Distance to the Project Site	Direction Relative to Project Site
1	SR1	Muweilah residential/ commercial area	500 meters	East

Figure 5-3 1-kilometer Radius of the Facility

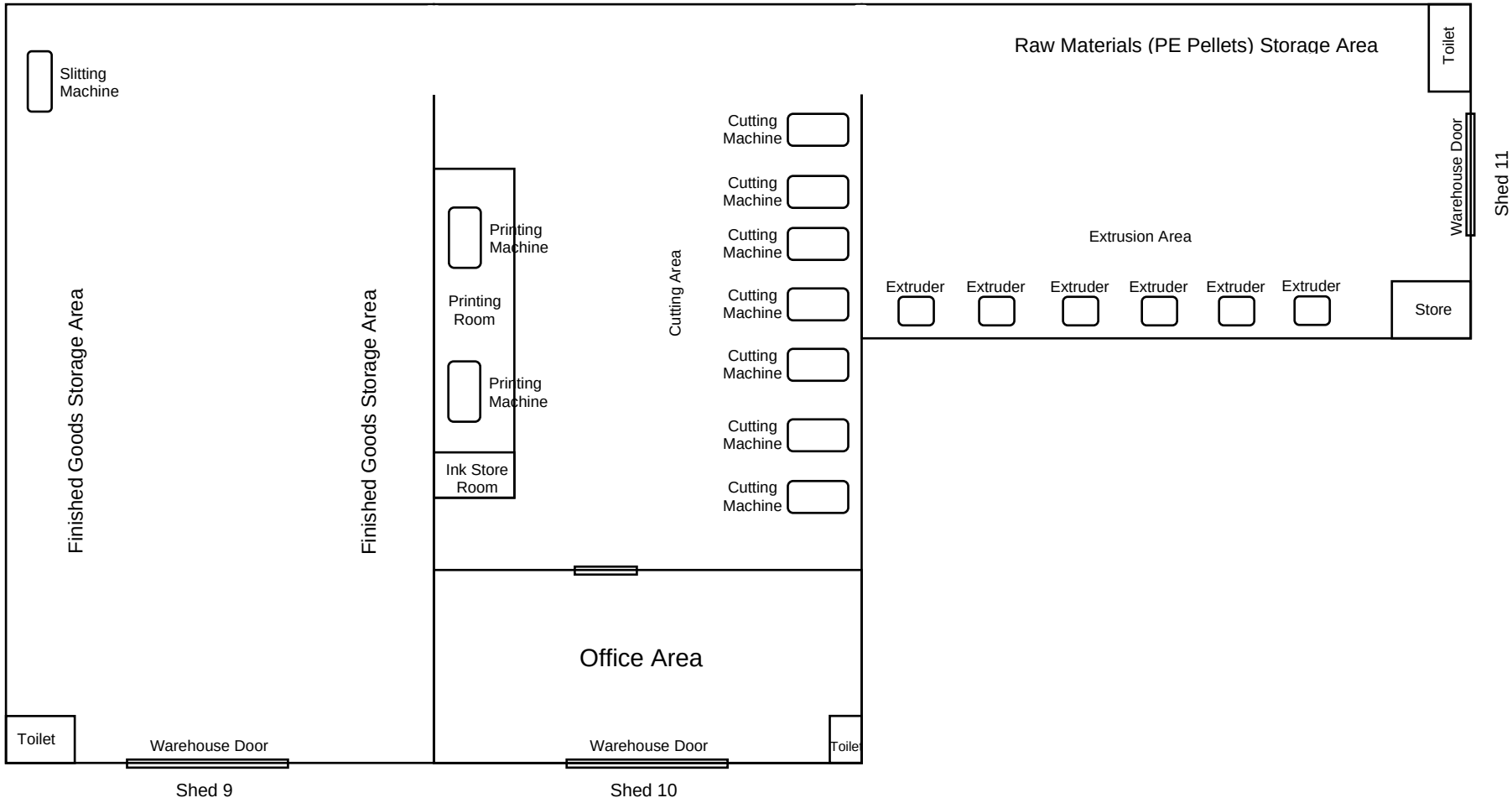
6. PROJECT CONSTRUCTION PHASE

MULTAN PLASTIC is renting three adjoining shed units in an existing warehouse shed. Specifically, MULTAN PLASTIC is renting shed numbers 9, 10, and 11. Considering that the facility is already existing, the project construction phase is excluded in the EIA report.

7. PROJECT (FACILITY) LAYOUT

Layout of the facility is depicted in Figure 7-1.

Figure 7-1 Facility Layout



8. CHARACTERISTICS OF POTENTIAL IMPACTS OF THE PROJECT

8.1 Description of Environmental Impacts

8.1.1 People's Daily Life

8.1.1.1 Aesthetics

Aesthetics and visual effect of a facility in an industrial area is considered minimal, unlike if it is situated in a community area. It is a common to see sheds or warehouses in industrial areas. The activities of MULTAN PLASTIC are conducted inside the closed-type warehouse shed. In this context, adverse impact on this environmental component is unlikely.

8.1.1.2 Daily Traffic

Transportation of materials to and from the facility and transportation of employees is associated with the movements of vehicle in the area. Delivery and dispatched of materials are not anticipated to be continuous during the day. This depends on the production demand. Considering the nature of the activity and number of employees, minimal number of vehicles is associated with the operation of the facility.

8.1.1.3 Noise

Operation of machines/equipment used in the manufacturing of plastic bags is associated with the generation of noise. Considering the nature of the activity and the close-type warehouse shed, the impact on ambient noise is of low significance.

8.1.1.4 Odors

Odour generation is not anticipated with the operation of the facility.

8.1.2 Human Health

The human health is affected by the particulate matters resulting from the handling of polyethylene pellets (resins), and the volatile organic compounds (VOCs) resulting from the heating of resin during extrusion and sealing of plastic bags and from inks and solvents during the printing process. In addition, the workers may be also be affected by the noise generated during the operation of machines/equipment. Prolonged exposure to these pollutants could affect the workers' health.

8.1.3 Flora and Fauna

The low rainfall and high temperatures mean that conditions are difficult for plant growth, except for a few hardy species adapted to this environment. The area where the Project is sited is designated for industrial use. The surrounding area is already developed and several companies and industrial facilities have been operating in the area, thus, it is expected that there will be minimal evidence of flora and fauna in the area. Considering the disturbance in the area, the site is not ecologically sensitive. Potential adverse impact on flora and fauna is unlikely.

8.1.4 Soils and Land Use

The warehouse shed is paved with concrete. Considering that the facility area is paved, there is no direct contact between the materials and soil. In this context, soil contamination resulting from the activity is unlikely. However, soil contamination may result if there is improper handling, storage, and disposal wastes.

In terms of land use, the facility is situated is an area designated for industrial purposes. In this context, the Project is in compliance with regards to land use.

8.1.5 Water Quality

Water supplied to the facility is used for domestic purposes. Groundwater quality may be affected if there is accidental spillage of domestic wastewater which seeped into the ground and reaches the water table.

8.1.6 Ambient Air Quality

Air emissions resulting from the operation of the company are:

- Particulate matters resulting from the handling of polyethylene pellets (resins); cutting of paper core; and cutting of plastic sheets;
- Volatile organic compounds (VOCs) resulting from the heating of resin during extrusion and sealing of plastic bags and from inks and solvents during the printing process; and
- Combustion emissions resulting from the operation of mobile equipment (delivery vehicles)

Particulate Matters

Handling of polyethylene pellets (resins) and cutting of paper core is associated with the generation of particulate matters. The particulates are released when the pellets are mixed in the container of the extruder. The particulates are released in the vicinity of the extruder. However, considering the nature of the activity, the quantity of dust emission is minimal. Cutting of paper core and plastic sheets also results to particulate emissions. The particulates generated are dispersed and settled in the vicinity of the working area. Considering that the production activity is conducted inside the closed-type warehouse shed, dispersion of the particulates to the ambient air unlikely.

Volatile Organic Compounds

Usage of inks and solvent during the printing of design on the plastic bag is associated with the emission of volatile organic compounds (VOCs). The amount of VOCs emissions depends on the quantity of chemicals used and duration of the associated activity. The VOCs is released in the working and dispersed to the ambient environment through the exhaust of the printing room.

Combustion emission

Combustion emission is emitted resulting from the operation of mobile equipment (e.g. delivery vehicles). Gases that will be emitted include the following:

- Oxides of Nitrogen (NO_x);
- Sulphur Dioxide (SO_2);
- Carbon Monoxide (CO);
- Particulate Matter (PM);
- Volatile Organic Carbons (VOCs); and
- Hydrocarbons (HC)

Quantity of the emitted gases will depend on the operation conditions and frequency of use of the vehicles. Movement of delivery vehicles will be very minimal within the facility as they will be mainly used on highways. Considering the relatively limited use mobile equipment, emission from these sources is expected to be minimal.

8.1.7 Climate Change

Combustion emission has the potential to contribute to climate change. The exhaust emission of the mobile equipment is a contributing factor to climate change. However, considering that there only few mobile equipment utilized during the operation of the facility and its operation is for a short duration, this contributing impact is minimal.

8.1.8 Historical and Cultural Heritage Resources

The facility is situated in an area designated for industrial use. In this context, this environmental component is unlikely to be impacted.

8.2 Summary of Potential Environmental Impact

The summary of potential environmental impacts during the project's operation phase are presented in Table 8-1.

Table 8-1 Summary of Potential Environmental Impacts

ENVIRONMENTAL COMPONENT	SOURCES OF IMPACT	POTENTIAL ENVIRONMENTAL IMPACTS
Aesthetics	Material storage and production activities	Degradation of visual appearance of the area
Daily traffic	Delivery of materials	Increase of localized traffic in the area
Noise	Operation of machinery/equipment	Increase in ambient noise level
Human health	Process activities associated with the manufacturing of plastic bags	Degradation of workplace air quality
	Operation of machinery/equipment	Increase in workplace noise level
Soil and land use	Handling, storage, and disposal of wastes	Soil contamination
Water quality	Spillage of domestic wastewater	Soil and groundwater contamination
Ambient air quality	Particulate matters resulting from the handling of polyethylene pellets (resin), cutting of paper core, and cutting of plastic sheet Volatile organic compounds resulting from the printing activity Combustion emission resulting from the operation of mobile equipment	Degradation of ambient air quality
Climate change	Combustion emission resulting from the operation of mobile equipment	Increase in global warming

8.3 Assessment Criteria

8.3.1 EIA Matrix

The EIA Matrix is presented in Table 8-2. It has been developed to reflect the impacts of different elements across the project phases. The environmental impacts are assessed according to the following criteria patterned from the EAD[4] guidelines:

- Magnitude of impact (geographical scale of the impact);
- Permanence of impact (condition is temporary or permanent);
- Reversibility of the impacted condition (impacted condition can be changed or reversed); and
- Cumulative effect of the impact.

Table 8-2 Scoring Criteria for EIA Matrix

Category	Criteria	Score	
Magnitude of impact	Change or effect only within the project site	1	+1
	Change or effect to local conditions or to areas immediately outside	2	+2
	Regional, national, or international changes or effects	3	+3
Permanence of impact	No change / not applicable	1	+1
	Temporary	2	+2
	Permanent	3	+3
Reversibility of the impacted condition	No change / not applicable	1	+1
	Reversible	2	+2
	Irreversible	3	+3
Cumulative effect of Impact	No change / not applicable	1	+1
	Non-cumulative	2	+2
	Cumulative	3	+3

Note: The color-coding of cells indicates the same ranking (e.g., 1 values are green, 2 values are yellow, 3 values are orange). If the impact is positive, then a "+" appear before a rank value

8.3.2 Significance of the Impact

Based on the rankings presented in Table 8-2, an overall judgment on impact significance is made, taking into account the mitigation potential. The following impact ratings is used to identify whether the impacts are Low, Medium or High.

Table 8-3 Impact Assessment Criteria

EIA Matrix Scores	Significance
▪ All scores are "1", or one score is "2" (but not in magnitude) and 3 scores are "1" or ▪ Two scores (but not in magnitude) are "2" and two scores are "1", or ▪ 3 scores are "2" (but not in magnitude) and one score is "1". ▪ All four scores are "2" but mitigation potential is high.	Low
▪ If magnitude is "2" and three are "1", ▪ If the cumulative is "3" and rest are "1", ▪ Two scores are two and the remaining are either "1" or one is "1" and one is "3" ▪ All four scores are "2" but mitigation potential is medium.	Medium
▪ Any impact higher than the low and medium significance	High

[4] Technical Guidance Document for Environmental Impact Assessment (EIA). (2014). Environment Agency – Abu Dhabi

8.4 Summary of Impact Matrix

The summary of impact matrix of the different environment component is presented in Table 8-4.

Table 8-4 Impact Matrix of Different Environment Components

Environmental Component	Activity	Source of Impact	Potential Environmental Impacts	Magnitude	Permanence	Reversibility	Cumulative	Significance
Aesthetics	Material storage and production activities	Processing activities, and stored materials and products	Degradation of visual appearance of the area	1	2	2	1	Low
Daily traffic	Delivery of materials	Delivery vehicles	Increase of localized traffic in the area	2	2	2	2	Low
Noise	Operation of equipment	Noise from the equipment	Increase in ambient noise level	1	2	2	2	Low
	Use of delivery vehicles	Engine noise	Increase in ambient noise level	2	2	2	2	Low
Human health	Process activities associated with the manufacturing of plastic bags	Particulate matters resulting from handling of polyethylene pellets (resin)	Degradation of workplace air quality	1	2	2	2	Low
		Particulate matters resulting from cutting of paper core		1	2	2	2	Low
		Particulate matters resulting from cutting of plastic sheet		1	2	2	2	Low
		Volatile organic compounds resulting from heating melting of resin		1	2	2	2	Low
		Volatile organic compounds from inks and solvents used in printing		2	2	2	2	Medium
	Operation of machinery/equipment	Exposure to elevated noise level	Increase in workplace noise level	1	2	2	2	Medium
Flora and fauna	Operation of the facility	Handling and storage of materials	Habitat loss	1	1	1	1	Low
Soil and land use	Handling, storage, and disposal of wastes	General solid wastes	Soil contamination	1	2	2	2	Low
Water quality	Usage of washroom	Spillage of domestic wastewater	Soil and groundwater contamination	2	2	2	2	Low

Environmental Component	Activity	Source of Impact	Potential Environmental Impacts	Magnitude	Permanence	Reversibility	Cumulative	Significance
Ambient air quality	Handling and mixing of polyethylene pellets (resin)	Particulate matters resulting from the handling and mixing of polyethylene pellets (resin)	Degradation of ambient air quality	1	1	1	1	Low
	Melting of resin and extrusion to from plastic sheet	Volatile organic compounds resulting from heating melting of resin		1	2	2	2	Low
	Printing of design on the plastic bag	Volatile organic compounds from inks and solvents used in printing		2	2	2	2	Low
	Operation of mobile equipment (delivery vehicles)	Dust and combustion gases		1	2	2	2	Low
Climate change	Combustion emission resulting from the operation of mobile equipment	Combustion gases	Increase in global warming	2	2	2	2	Low
Historical and Cultural Heritage Resources	Operation of the facility	Manufacturing activity	Degradation of visual appearance of the area	1	1	1	1	Low

9. BASELINE STUDIES (AIR QUALITY)

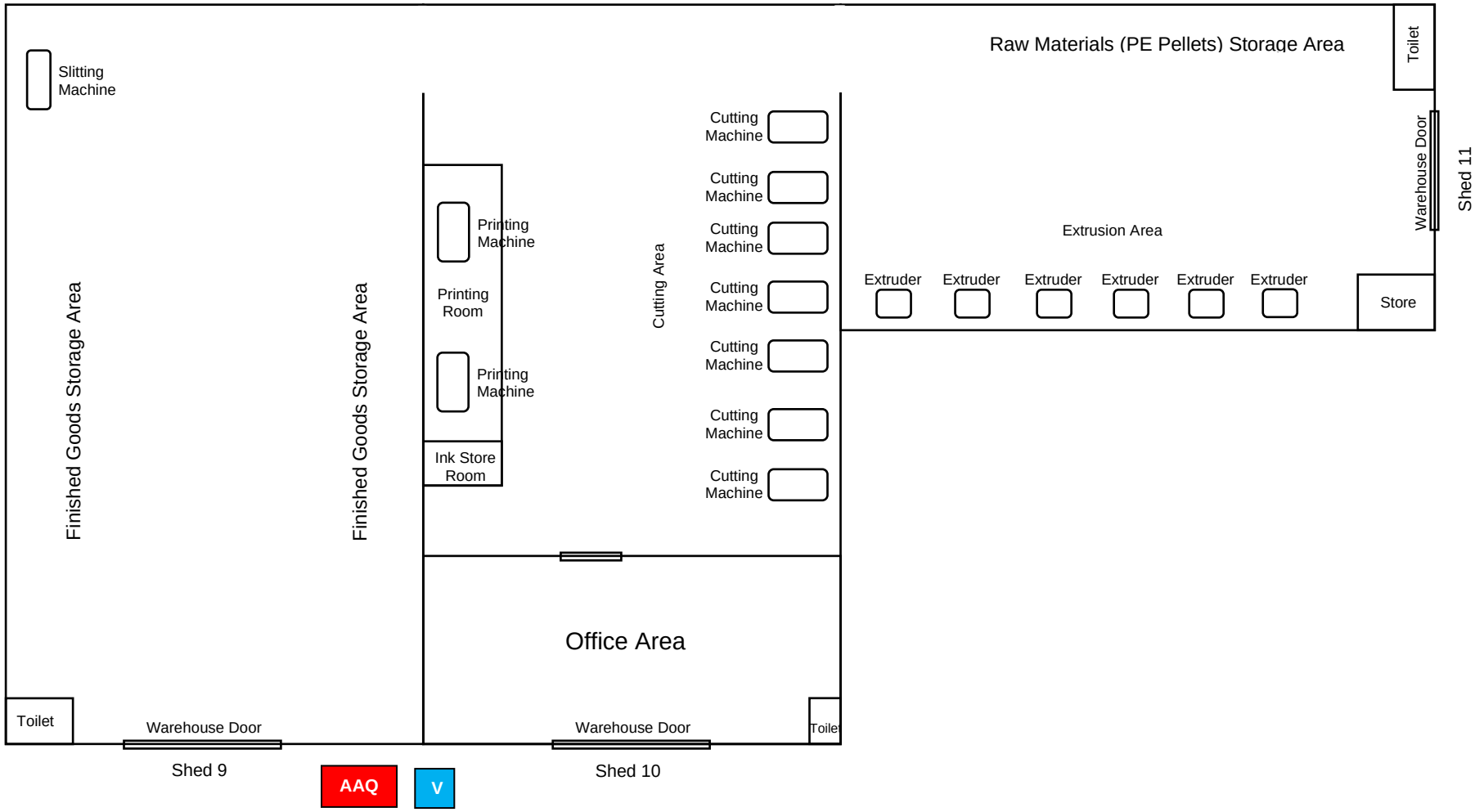
The baseline air quality study was conducted as per the Request Form for Environmental Study issued on July 21, 2019 by the Sharjah Municipality Environmental Services Department. The type of measurement conducted at the site is ambient air quality monitoring and volatile organic compounds monitoring.

9.1 Ambient Air Quality Monitoring

The UAE "State of Environment Report" (2015) indicates that the concentration of sulfur dioxide, nitrogen dioxide, carbon monoxide, and ground level ozone in the different monitoring stations across the country meets the standard while the concentration of particulate matter with diameter less than 10 microns (PM10) increase in certain months of the year namely summer months and decrease in other months, due to the influence of monsoons that cause dust-laden storms, particularly given the UAE semi-desert dry climate. The sources of PM10 vary; they may result from human activities or natural sources. In the project site, the main source of PM10 is the natural source, that is, dust-laden wind blows.

In order to determine the ambient air quality at the Project site, a 24-hour ambient air quality monitoring was conducted at the site on August 19 - 20, 2019. The monitoring location is presented Figure 9-1.

Figure 9-1 Monitoring Location



AAQ = PM, TSP, SO2, NO2, CO, O3 **V = TVOC**

9.1.1 Result of Monitoring

9.1.1.1 Meteorological Data

The meteorological data during the monitoring is presented in Table 9-1. During the monitoring, the ambient temperature is 36.9°C (98.4°F) and the relative humidity is 57.6 percent. In this regard, the heat index is 121°F. The risk level is Very High to Extreme (Table 9-2) which requires more aggressive protective measures for the workers. The associated protective measures for each risk level are presented in Section 20.3.2.

Table 9-1 Meteorological Data

Ambient Temp	Relative Humidity	Wind Speed	Wind Direction	Heat Index[5]	Risk Level[6]
36.9°C (98.4°F)	57.6%	1.3 m/s	WNW	121°F	Very High to Extreme

Table 9-2 Heat Index Risk Level[7]

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

9.1.1.2 Ambient Air Pollutants

The result of the 24-hour monitoring of ambient air pollutants is presented in Table 9-3. Result of the monitoring indicates that the level of ambient air pollutants is below limit the set by the Federal authority.

[5] National Oceanic and Atmospheric Administration [NOAA]. (n.d.). Heat index. Retrieved from United Sates of America National Oceanic and Atmospheric Administration website: https://www.weather.gov/safety/heat-index
[6] Occupational Safety and Health Administration [OSHA]. (n.d.). Using the heat index: A guide for employers. Retrieved from United Sates of America National Occupational Safety and Health Administration website: https://www.osha.gov/SLTC/heatillness/heat_index/index.html
[7] Ibid.

Table 9-3 Ambient Air Quality Monitoring Result

Parameter	Test Method	Test Location	Test Duration	Unit	Result	Standard Limit[8]	Remarks
Total Suspended Particles (TSP)	USEPA eCFR Title 40 Part 50 and 53	Between Shed 10 & 11 (25°18'23.5"N 55°26'18.2"E)	24 hours	µg/m^3	227	230	Below
Particulate Matter (PM10)				µg/m^3	105	150	Below
Sulfur dioxide (SO2)	BSEN 60079-29-2:2015			µg/m^3	< 0.1	150	Below
Nitrogen Dioxide (NO2)	BSEN 50271:2018			µg/m^3	18.8	150	Below
Ozone (O3)			8 hours	µg/m^3	58.9	120	Below
Carbon Monoxide (CO)	BSEN 45544-1:2015			µg/m^3	< 1	10,000	Below

9.1.1.3 Total Volatile Organic Compounds

Result of the monitoring indicates that the concentration of TVOC is below the detection limit of the monitoring instrument, that is, 1 ppm.

[8] UAE Ministerial Order No. 12 of 2006 Concerning the Protection of Air from Pollution. Ambient Air Quality Standards (Air Pollutants Limit in the Ambient Air).

10. List of Machines and their Use in the Process

The machinery/equipment utilized in the process are presented in Table 10-1.

Table 10-1 Machines and Equipments

SN	Equipment Name	Description/ Purpose of Usage	No. of Units
1.	Extruder	The blow film extrusion machine is used for the production of plastic sheets	6
2.	Cutting machine	This is used for cutting the plastic sheet to form into bags.	7
3.	Printing machine	This is used for printing design onto the plastic sheet.	3
4.	Slitting machine	This is used for the cutting of roll adhesive plastic tape to form adhesive of different sizes.	1
5.	Air comporessor	This used for the generation of compressed air needed for the operations of machines/equipment.	3

11. Details of Inputs/Outputs & relevant Quantities

11.1 Details of Inputs

11.1.1 List of Raw Materials

The types and average quantities of input materials are presented in Table 11-1.

Table 11-1 Raw Materials and Consumption

SN	Raw Materials	Physical State	Country of Origin	Annual Consumption	MSDS
1.	Polyethylene pellets (resin)	Solid	Kuwait, Saudi Arabia	780 tons	-
2.	Additives	Solid	Vietnam	3 tons	-
3.	Inks	Liquid	UAE	700 kg	-
4.	Solvents	Liquid	UAE	700 kg	-

11.1.2 Utilities

The energy and water requirement of the facility and estimated average consumption is presented Table 11-2.

Table 11-2 Energy and Water Requirement

SN	Utility	Source	Consumption
1.	Electricity	The required electrical power for the operation of the facility is supplied through the electric grid of Sharjah Electricity and Water Authority (SEWA).	48,200 kWh/month
2.	Water	The water requirement is for domestic use. This is provided through SEWA water network.	11,200 gallons/month

11.2 Details of Outputs

11.2.1 List of Intermediate or By-Products

There is no intermediate or by-product resulting from the activity.

11.2.2 List of End-Products

The end product produced is plastic bags. The annual production output is 780 tons.

12. PROCESS FLOW CHART & PROCESS DESCRIPTION

12.1 Manufacturing of Plastic Bags

12.1.1 Process Flow and Description

The main process steps involve in manufacturing of plastic bags are as follows:

- Material Preparation
- Raw Material Mixing
- Extrusion and Rolling

Material Preparation

The main raw materials used in production are polyethylene (PE) granules [also called resin] and additives. The PE granules and additives are plastic polymers in pellet or granular forms and of varying colours. The bags of PE granules are delivered to the factory and stored in storage area. The bags of PE granules are shifted to the production area using the forklift.

Raw Material Mixing

Proportions of PE granules and/or additives that are needed to be combined for production batch are mixed in the mixer. After which, the mixed materials are shifted to the extrusion area and put in the designated container or drum. On the other hand, for PE granules and/or additives that do not require mixing, the bags of this material are shifted to the extrusion area.

Extrusion and Rolling

In the extrusion process, the PE granules and additives are pneumatically conveyed (by means of flexible hose) from the feed drum/container and then conveyed to the feed hopper of the extruder. From the feed hopper, the material passes through a heated chamber (barrel and screw assembly) and gets melted under the compression of the screw and temperature of the barrel. The compaction, melting and kneading of the material is pushed to the moulding discharge end by the homogenized subsequent material. The melted material [or film] at the discharge end of the extruder is blown off with air to form a tubular shape. Settings on the [blow film] extrusion machine are adjusted to achieve the desired size and thickness of the plastic film.

The extruder machine has a corona treatment section. If the plastic requires printing, the corona treatment is initiated, after which the plastic sheet is rolled. If printing is not required, there is no corona treatment and the plastic sheet is rolled. The plastic sheet is rolled over a paper core as per the required length.

After which, the rolled plastic sheet is shifted to the storage area. Depending on the product requirement, the rolled plastic sheet may be further processed in the printing section and/or bag making section.

The subsequent process steps associated with the production of different plastic products is described below.

12.1.1.1 Production of Plain Plastic Sheet

Making of plaint plastic sheet involves putting the roll of plastic film in the designated decoiling section of the cutting machine and the roll of plastic is cut as per the product requirement. The produced roll of plain plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.

12.1.1.2 Production of Plain Plastic Bags

The roll of plain plastic sheet is placed in the designated decoiling section of the cutting machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the design requirement. The produced plastic bags are then stacked and made ready to be dispatched to clients.

12.1.1.3 Production of Printed Plastic Products

Production of printed plastic products involves printing of the graphics/design on a roll of plastic film [produced as described in Section 12.1.1]. The roll of plastic film from the store is shifted to the printing section for the printing process.

The printing process involves putting the roll of plastic film in the designated decoiling section of the printing machine. The machine operates automatically wherein it uncoils the plastic film and conveys it to the inking section of the machine. The different colours of inks are stored in dedicated storage canisters. If there is a need to mix different inks and solvents, this is carried in the inking station [of the printing machine]. After mixing, the ink is transferred the dedicated storage ink canister.

During the printing process, the machines operates automatically wherein the plastic film passes through several printing cylinders (rollers) for the impression of the graphics/design. Feeding of the ink for each printing cylinders (rollers) is also automatic as per the programmable logic controller of the machine.

From the inking section, the continuous printed plastic film passes through the drying section and then to the coiling section where it is coiled into a roll. After which, the roll of printed plastic film is shifted to the store area for temporary storage. Then, it is shifted to the bag making section or slitting section, depending on the product requirement.

12.1.1.3.1 Production of Printed Plastic Sheets

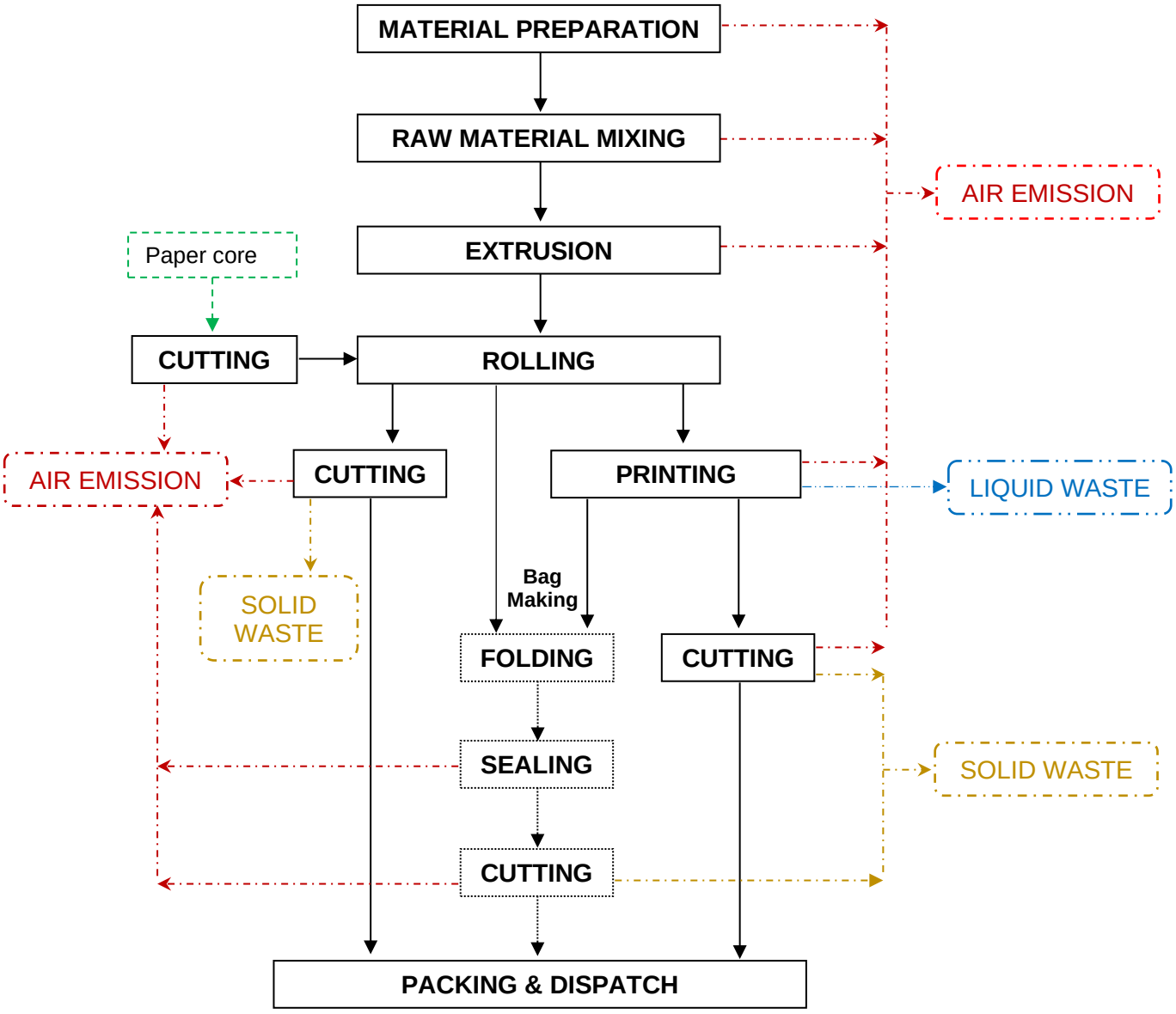
Making of printed plastic sheet involves putting the roll of printed plastic film in the designated decoiling section of the cutting machine and cut as per the product requirement. The produced roll of printed plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.

12.1.1.3.2 Production of Printed Plastic Bags

Making of plastic bags involves putting the [printed] roll of plastic film in the designated decoiling section of the cutting machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the design requirement. The produced plastic bags are then stacked and made ready to be dispatched to clients.

The overall process described in Section 12.1.1 is summarized in the diagram presented in Figure 12-1.

Figure 12-1 Process Flow Chart



12.1.2 Waste Generation

The emission and waste generation depicted in Figure 12-1 is presented in Table 12-1.

Table 12-1 Summary of Waste Generation

Activity	Description of Waste Generation		
	Air Emission	**Solid Waste**	**Liquid Waste**
Material Preparation	Exhaust gasses from mobile equipment (delivery vehicles & forklift)	-	-
Raw Material Mixing	Particulate matters during handling and mixing of polyethylene pellets (resin) and additives	Empty packaging bags of polyethylene pellets (resin) and additives	-
Extrusion and Rolling	Volatile organic compounds (VOCs) emissions resulting from the extrusion process Particulate matters during cutting of paper core	Accumulated paper dust resulting from the cutting of paper core, and cut-out pieces of paper core	-
Production of Plain Plastic Sheet	Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of sheet Particulate matters during cutting of plastic sheet	-	-
Production of Plain Plastic Bags	Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag Particulate matters during cutting of plastic sheet	Cut-outs of plastic sheets	-
Production of Printed Plastic Sheets	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet	Empty packaging containers of inks and solvents	Spent solvent mixture resulting from printing process

Activity	Description of Waste Generation		
	Air Emission	**Solid Waste**	**Liquid Waste**
	Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag Particulate matters during cutting of plastic sheet		
Production of Printed Plastic Bags	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of sheet or bag Particulate matters during cutting of plastic sheet	Empty packaging containers of inks and solvents Cut-outs of plastic sheets	Spent solvent mixture resulting from printing process
Packing and Dispatch	Exhaust gasses from mobile equipment (delivery vehicles & forklift)	-	-

13. WASTE GENERATION

The identified solid and liquid waste streams during operation, estimated quantities, and handling and disposal method are presented in Table 13-1.

Table 13-1 Waste Generation

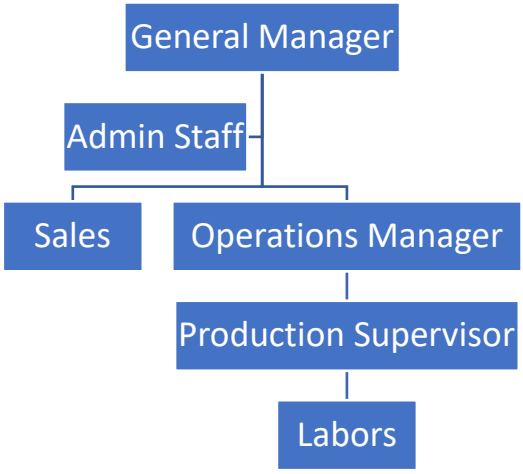
SN	Type of Waste	Physical State	Source	Assessment	Quantity	Handling and Disposal Method
1.	General office waste (paper, plastic, co-mingled containers, etc.)	Solid	Office and administrative activities, employee meals and general housekeeping activities	Non-hazardous	15 kg/ month	Waste bins are provided in the office and production area. The assigned personnel will collect the wastes and put it in the waste skip. After which, it will be collected by Sharjah Municipality-registered waste transporter and dispose to landfill.
2.	Empty bags	Solid	Storage of PE pellets (resin) and additives	Non-hazardous	100 kg/ month	The empty bags are reused as packaging of the products
3.	Plastic cut-outs	Solid	Cutting machines (bag making)	Non-hazardous	1,400 kg/ month	The plastic cut-outs are collected in bags and then sent to third-party company for recycling and process it into plastic pellets which can be used as additives in the plastic bag manufacturing process.
4.	Empty containers	Solid	Ink and solvent storage	Hazardous	-	The empty containers are collected in designated are and dispose to recyclers.
5.	Spent chemicals	Liquid	Printing process	Hazardous	-	The spent chemicals will be collected in containers. When the accumulated volume is practicable for disposal, MULTAN PLASTIC is committed to dispose it properly.
6.	Domestic wastewater	Liquid	Washroom	Non-hazardous	11,200 gal/ month	The domestic wastewater will be collected in septic tank. After which, it will be collected by Sharjah Municipality-registered waste transporter and dispose to the sewage treatment plant.

14. PROPOSED ORGANIZATION, OCCUPATIONAL HEALTH & SAFETY

14.1 Organizational Chart

The organizational chart of the company is presented in Figure 14-1.

Figure 14-1 Organizational Chart



14.2 Number and Categories of Workforce

The number and categories of workforce is presented in Table 14-1.

Table 14-1 Categories of Workforce

Staff Category	Number of Employees
Manager	2
Office staff	1
Sales	1
Supervisor	1
Labor	16
Total	21

14.3 Health and Safety Compliance

The current health and safety compliance status and availability are presented in Table 14-2.

Table 14-2 Health and Safety Checklist Compliance

Compliance to Health & Safety	Availability
Personal Protection Equipment (PPE)	No
First Aid Kit	Yes
Employee Training Programs	No
Periodical Medical Checkups	Yes
Safety Sign Boards	No
Fire Fighting Equipment (Approve By: Civil Defense)	Yes
Emergency Plan	No

MULTAN PLASTIC is committed to comply with the health and safety requirements.

15. CONTINGENCY PLAN

Emergencies can be defined as unforeseen events that might threaten the life of employees and visitors and pose catastrophic impacts on the environment. Emergency situations might occur although the control measures are in place. This section provides for the effective response and management in case of emergency occurrence.

15.1 Roles and Responsibilities

The General Manager shall appoint personnel to assume the following roles:

Environment, Health and Safety (EHS) Coordinator
The EHS Coordinator shall conduct risk assessment to identify the emergency scenarios that might occur and result in significant impacts on the environment as well as threaten the life of the employees, visitors and the contractors.

Emergency Response Team (ERT) Leader
The ERT Leader shall take full responsibility to manage the Emergency Response Team (ERT) during the combat of an emergency situation. The ERT Leader shall act as the focal contact for communication with the emergency response agencies and 'Incident Commander' during an emergency.

Deputy Emergency Response Team (ERT) Leader
In absence of the Emergency Team Leader, the Deputy Emergency Team Leader shall take the full responsibility of managing the Emergency Response Team during combating of an emergency situation.

Emergency Response Team
The Emergency Response Team shall be responsible for responding to an emergency scene and taking all necessary actions to combat the emergency. The Team shall be comprised of properly qualified and trained personnel.

15.2 Emergency Classification

The Emergency Response Team Leader shall classify the potential emergency situations upon occurrence as per the following guidelines.

Table 15-1 Emergency Classification

TIERS	DESCRIPTION
Tier I Emergency	Events are typically of localized significance and can be handled using resources immediately within the facility.
Tier II Emergency	Events are typically of regional or Emirate significance and may require involvement of specialized emergency services
Tier III Emergency	Events are typically of international significance and may require access to national/ international resources and emergency response services.

15.3 Emergency Notification

15.3.1 Internal Notification

The EHS Coordinator shall prepare an internal contact list along with the contact numbers and distribute to every personnel in the facility. The contact list shall also be displayed at the offices and processing areas.

The EHS Coordinator shall prepare an evacuation plan, identifying the escape routes to the assembly point. The evacuation plan shall also be displayed at the offices and processing areas.

All types of emergencies shall be informed to the Emergency Team Leader and in the absence of the Team Leader to the Deputy Emergency Team Leader. In case of Level I emergency, the Emergency Response Team Leader shall determine the type and level of the emergency situation and shall initiate the required actions and manage the team during combating an emergency.

15.3.2 External Notification

The EHS Coordinator shall prepare a list of Emergency Response Agencies in Sharjah to notify the type and level of the emergency. In case of Level II and Level III emergencies, the Emergency Response Team Leader shall determine the type and level of the emergency situation and shall report to Sharjah Police, Civil Defense, Ambulance Services, Sharjah Municipality, and other agencies as appropriate.

15.4 Emergency Management

The Manager shall appoint an adequately trained Emergency Response Team in order to effectively act to save life of the affected personnel and minimize the impact on the asset and environment in case of an emergency. The EHS Coordinator shall develop a suitable ‘Emergency Response Plan’ that prepares for naturally, accidentally and intentionally caused emergency scenarios. The General Manage shall ensure that there are adequate resources to implement the emergency response plan.

Fire protection and alarm systems shall be employed in order to prevent fire and to alert the entire personnel in case of fire. As part of the emergency response plan, the concerned personnel shall prepare the facility drawing showing the evacuation routes and assembly point. The EHS Coordinator in consultation with the Emergency Response Team Leader shall specify the number and locations of the assembly points within the facility.

15.5 Post Emergency Activities

After an emergency situation is over, detailed incident investigation process shall be initiated. Based on the findings of the investigation, a control measure implementation plan shall be formulated and implemented.

15.6 Emergency Response Plan

This section presents the emergency response plan for the different emergencies that may arise in the facility.

15.6.1 Fire in the Facility

Response and Actions

When fire or smoke is discovered in the facility, the Emergency Response Team Leader must respond immediately. The Emergency Response Team may be alerted to smoke through the activation of a smoke alarm or a witness in the facility that discovered the smoke.

Regardless of whether the facility has a history of false alarms, every alarm must be responded to as if it is a real emergency. Only after proper investigation should an alarm is declared as being false.

The response to fire or smoke may vary in order, depending on the circumstances of the fire (including location and time of day). The Emergency Response Team Leader and the team members must give priority to life safety. The following actions shall be undertaken in case of fire:

- Assist any person in immediate danger, only if safe to do so;
- Close office doors to reduce the spread of smoke and contain the fire;
- Ensure the Emergency Response Agencies are notified, as necessary;
- Evacuate the staff from immediate danger;
- If evacuating the entire facility, start with ambulant staff/ visitors who are able to self-evacuate;
- Conduct a search of all rooms, offices, common areas to ensure all residents, staff and visitors have evacuated;
- Proceed to the Assembly Area and remain there until the 'All Clear' is provided by the Emergency Services.

Fire Extinguishers

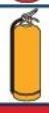
Most fires, on a small scale and if quickly detected, can be controlled. There are different types of extinguishers that may be used very effectively over a wide range of fires.

A guide to the type of fire each extinguisher can be used is presented in the Portable Fire Extinguisher Guide[9] shown in Figure 15-1.

[9] Portable Fire Extinguisher Guide. (2013). Retrieved from http://www.ausfiresupplies.com.au/userfiles/file/fpa%20_%20portable_fire_extinguisher_guideweb.pdf

Figure 15-1 Portable Fire Extinguisher Guide

Type of Fire, Class and Suitability

Pre 1997	Current	Extinguishing Agent		A Wood Paper Plastic	B Flammable & Combustible Liquids	C Flammable Gases	E Electrically Energised Equipment	F Cooking Oils and Fats	Comments	D Metal Fires
		Water		✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	Use only special purpose extinguishers and seek expert advice.
		Wet Chemical		✓	✗	✗	✗	✓	Dangerous if used on energised electrical equipment	
		Foam[1]		✓	✓	✗	✗	LIMITED	Dangerous if used on energised electrical equipment [1] Solvents such as alcohol or acetone mix with water and therefore require special foam	
		Powder	(ABE)	✓	✓	✓	✓	✗	Look carefully at the extinguisher to determine if it is a BE or ABE unit as the capability is different	
			(BE)	✗	✓	✓	✓	✓		
		Carbon Dioxide		LIMITED	LIMITED	✗	✓	✗	Not suitable for outdoor use or smouldering deep seated Class A Fires	
		Vaporising Liquid		✓	LIMITED	LIMITED	✓	✗	Check the characteristics of the specific extinguishing agent. 5 Yearly servicing must be done by ODS & SGG licenced persons.	
		Fire Blanket		LIMITED[2]	LIMITED	✗	✗	✓	[2] Fire blankets may be used to control a fire in clothes being worn by a person or as a thermal barrier against radiated heat.	
		Fire Hose Reel		✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires	

LEGEND ✓ = the class or classes in which agent is most effective ✗ = not recommended for this class of fire
For more information go to: www.fpaa.com.au
LIMITED = indicates the extinguishing agent is not the agent of choice for the class of fire, but it may have a limited extinguishing capability

Fighting Fire with Extinguishers

There is no one type of equipment that is equally suitable and desirable for use on all classes of fire.

It is essential that the correct type of equipment be selected for use with the class of fire that is anticipated.

- Do not panic;
- Try to remain calm and think;
- Warn everybody in the immediate vicinity;
- Instruct someone to advise the Emergency Response Team Leader;
- Determine type of fire and exact location;
- Select right type of extinguisher;
- Be sure you know how to use the extinguisher;
- If in doubt, read the instructions;
- Have another person back you up with another extinguisher;
- Where possible keep the doorway at your back or behind you;
- Keep low to avoid smoke;
- Do not get too close to the fire;
- Direct extinguisher agent at the base of the fire not at smoke; and
- Ensure the fire is extinguished.

If you do not think the fire extinguisher will successfully put the fire out, or the fire becomes too large, leave and close the door behind you.

Using the Fire Extinguisher

- Remove the extinguisher from the wall;
- Walk briskly to the fire — NEVER run;
- Use the correct extinguisher for the class of fire;
- Remember the acronym PASS when operating the extinguisher;
    - Pull the pin;
    - Aim the extinguisher at the base of the fir;
    - Squeeze the trigger; and
    - Sweeping motion at base of fire.

Fighting Fire with Hose Reels

Fire hose reels are primarily used by professional fire fighters and people in company who have been highly trained in its use. If you have training and/or are confident in using a hose reel, proceed as trained. People in the company with little or no training in using hoses **should not attempt** to use them.

Remember, the primary role of the Emergency Response Team in an emergency is to ensure life safety.

Fire hose reels are only to be used on Class A fires.

Do not use on electrical fire or flammable liquids.

Whenever possible, two people should be used to run out a hose reel, (i.e. one to run out the hose and one to ensure hose runs off reel freely and is not caught around doors/corners).

Remember to turn on the water supply at the reel before running out the hose.
The water is capable of being turned on and off at the nozzle.

15.6.2 Loss of body parts associated with direct contact with rotating equipment

Response and Actions

The above listed scenario may result in serious injuries and should be dealt with due care as listed below:

- Take action to make the area safe and prevent escalation of the situation;
- Evacuate people as necessary and prevent unnecessary crowd around the injured personnel;
- Try to calm the injured person down and ask him not to look at the injured area;
- Do not try to provide first aid service unless you are qualified to do so;
- Establish the extent of the medical situation from the first aid staff;
- Call the first aid personnel and the national ambulance services;
- Post an observer at the main entrance to direct the ambulance to the incident scene; and;
- Notify, liaise and observe the requirements of the relevant authorities.

15.6.3 Loss of Body Parts Associated with Direct Contact with Electrical Power

Response and Actions

The above listed scenario may result in serious injuries and should be dealt with due care as listed below:

- Do not try touch the electrocuted person nor attempt to pull the person;
- Switch off the power source;
- Take action to make the area safe and prevent escalation of the situation;
- Call the first aid personnel and the national ambulance services;
- Post an observer at the main entrance to direct the ambulance to the incident scene; and;
- Notify, liaise and observe the requirements of the relevant authorities.

15.6.4 Natural Disasters – Earthquake

Earthquakes strike without warning - you become aware of the building shaking or of a severe tremor. Generally, the safest place to be is in the open, away from buildings. However, if you are in a building when the earthquake strikes, you should not attempt to run from the building. Outside the building, you could be met with falling debris. It is safer for you to remain in the building.

Response and Actions

Basic guidelines for earthquakes are as follows:

- Try to remain calm.
- Move away from the windows and outside walls.
- Keep away from mirrors, light fittings, and other furniture/ equipment which may fall or slide.
- If possible, take cover under a desk from falling debris, or move to an internal corner of an office sit down and protect your face and head.
- Do NOT use telephones straight away, unless reporting serious injury.
- Do NOT go sightseeing (i.e. looking at damage in other areas).
- Do NOT use vehicles unless there is an emergency.

Once the tremor has stopped, look around for injured persons and reassure others on your floor.

The Emergency Response Team Leader should call emergency Personnel into action as soon as possible after the earthquake.
Their duties include:

- Assessing damage to the building or site;
- Ensuring First Aid is given to those injured;
- Notifying the relevant authorities;
- Switching off electric power to appliances, if safe to do so;
- Initiating controlled evacuation (if required);
- Conducting a search of the site, if safe to do so.

15.6.5 Structural Damage

Response and Actions

The Emergency Response Team Leader should call the Emergency Response Team into action as soon as possible after structural / building damage is found. Their duties include:

- Assessing damage to a building or the site.
- Notifying the relevant authorities.
- Initiating controlled evacuation by ERT (if required).
- Conducting a search for further damage, if safe to do so.

15.6.6 Medical Emergencies – Serious Injuries/ Fatalities (i.e. heart attack, brain stroke, etc.)

Medical emergency situations may occur any time within the premises that might result from previous diseases, brain stroke, allergic reactions, food poisoning, etc.

Response and Actions

The Emergency Response Team Leader and the trained first aiders shall grant special attention to provide adequate amount of first aid boxes in the company premises. The first aiders shall be solely authorized to use the first aid kit.

The personnel who notice a medical emergency situation shall immediately notify the Emergency Response Team Leader. The Emergency Response Team Leader shall notify the Sharjah Ambulance Service based on the severity of the situation.

The Emergency Response Team Leader shall take the following actions in case of medical emergency:

- Immediately come to the emergency scene;
- Assess the emergency scene in terms of potential hazards around the emergency scene;
- Determine the severity of the situation;
- Notify the Sharjah Ambulance Service providing your name and designation, exact location of the company, severity of the situation, location of the injured/ ill person and further information that might be requested by the Sharjah Ambulance Service;
- Unless it is a life-threatening situation and you are qualified to respond, do not attempt to render first aid yourself before first aider arrives;
- Do not attempt to move a person who appears to be in pain;
- Avoid unnecessary conversation with, or about, the ill or injured person. You might increase the person's distress or fears, and thereby contribute to medical shock. Limit your communication to quiet reassurances;
- Avoid contact with blood or body fluids;
- Assist the first aider and where required the Sharjah Ambulance Service up on their arrival in the emergency scene.

16. ENVIRONMENTAL RISK MATRIX

The risk matrix is utilized for the risk characterization approach to qualitatively rank the risks identified. The matrix characterizes the risk based on the likelihood that an incident will occur and the potential consequence of that incident. The ensuing discussion regarding the risk matrix, consequence, and likelihood is obtained from the works of Corden, et. al. (2016) and the Abu Dhabi EHSMS Regulatory Framework.

16.1 Risk Matrix

The level of risk is calculated as follows:

Risk = Consequence x Likelihood of Occurrence

The risk rating is presented in Figure 16-1.

Figure 16-1 Risk Matrix

LIKELIHOOD	CONSEQUENCE OF INCIDENT				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Extremely Rare (1)	1	2	3	4	5
Rare (2)	2	4	6	8	10
Occasional (3)	3	6	9	12	15
Likely (4)	4	8	12	16	20
Highly Likely (5)	5	10	15	20	25

Key

Color	Level of Risk	Score
	Low	1 – 3
	Moderate	4 - 6
	High	8 – 12
	Very High	15 - 25

16.2 Consequence

Description of the consequence of the incident taken from Abu Dhabi EHSMS Regulatory Framework is presented in Table 16-1.

Table 16-1 Consequence by Area Impacted

INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Score = 1	**Score = 2**	**Score = 3**	**Score = 4**	**Score = 5**
LAND BASED ECOSYSTEM				
Insignificant environmental impact. Occasional damage by erosion, or of flora and fauna. Some disruption to flora or fauna habitats.	Minor impacts on fauna/flora and habitats, but no negative impacts on ecosystem function. Limited damage to a minimal area of land of no significant value (i.e. no unique habitats). Temporary damage/ disruption (<1 month) to flora or fauna habitats.	Significant changes in flora/fauna populations & habitat. Disruption to, or some death of, rare flora or fauna, but no resulting in eradication of endangered species. Non-persistent but possibly widespread damage to land: that can be remediated without long-term loss; localized persistent damage; or significant temporary damage (<1 year) to ecosystem.	Continuous and serious damage by erosion or to flora or fauna. Major disruption to, or frequent death of, rare flora or fauna. Major destruction of significant habitat.	Long-term and significant change in population (e.g. eradication of endangered species) or habitat with negative impact on ecosystem function. Widespread destruction to a significant area of land, rare flora and fauna and/ or groundwater resource.
AQUATIC ECOSYSTEM				
Occasional short-term impact and / or disruption to aquatic flora and fauna	Minor impact on aquatic ecosystem, including flora, fauna and habitat. No significant impact on water resources	Significant localized impacts but without longer-term impact on aquatic ecosystems, and/or short-term impacts on water resources.	Significant widespread impact on protected wildlife (e.g. migratory shorebirds, marine plants, fish breeding grounds), or aquatic ecosystems of moderate duration.	Damage to an extensive portion of aquatic ecosystem resulting in severe impacts on aquatic populations and habitats and/or long-term impact on water resources.
ATMOSPHERE / WASTE / OTHER				
Temporary nuisance from noise, odor, dust other air emissions, greenhouse gases, vibration, visual impact. Minor use of water, fuels, energy and other natural resources. Results in generation of significant quantities of non-hazardous wastes.	Minor environmental impact due to contained release of pollutant (including odour, dust and noise), fire or explosion with no lasting detrimental effects. No outside assistance required. Significant use of water, fuels, energy & other natural resources.	Creation of noise, odor, dust, other controlled/ uncontrolled air emissions, greenhouse gases, vibration, and visual impact at significant nuisance levels. Results in the generation of significant quantities of hazardous wastes.	Major environmental impact due to uncontained release, fire or explosion with detrimental effects. Outside assistance required	Catastrophic environment impact due uncontained release, fire or explosion with detrimental effects. Outside assistance required. Extensive chronic discharge of persistent hazardous pollutant. Results in the generation of significant quantities of intractable wastes.

INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Score = 1	**Score = 2**	**Score = 3**	**Score = 4**	**Score = 5**
CULTURAL HERITAGE (INDIGENOUS & MODERN)				
Minor repairable damage to commonplace structures.	Minor repairable damage to structures/ items of cultural significance, or minor infringements of cultural values.	Moderate damage to structures/ items of cultural significance, or significant infringement of cultural values/ sacred locations.	Major damage to structures / items of cultural significance, or major infringement of cultural values / sacred locations	Irreparable damage to highly valued structures / items/ locations of cultural significance or sacred value
HEALTH EFFECTS				
Insignificant impact on surrounding communities	Minor complaints or exposure during plant shutdown or maintenance. Maximum occurrence limited to two times per year	Ongoing complaints from community. Significant emission or discharge that impacts on surrounding population	Major ongoing long-term health effects likely to surrounding communities and workers	Extreme health risk potential for death in community
HUMAN HEALTH & SAFETY				
Near miss incident or trivial injuries, which may require self- administered first aid? Injured personnel can continue to perform normal duties	Injuries requiring site treatment by medical practitioner. Personnel unable to continue to perform duties.	Serious injuries requiring off-site treatment by medical practitioner or immediate evacuation to hospital. Potential long-term or permanently disabling effects.	Single fatality	Multiple fatalities

16.3 Likelihood

Table 16-2 provides the description of the likelihood categories.

Table 16-2 Likelihood Categories

Likelihood	Description	Score
Extremely rare	No known events of the risk under review have taken place within the industry	1
Rare	Incidents may have occurred within the industry previously but at a very low frequency	2
Occasional	These are incidents that should not occur under standard practices.	3
Likely	These are incidents which are likely to occur.	4
Highly Likely	These are incidents which are highly likely to occur.	5

16.4 Environmental Risk Matrix Summary

The environmental risk matrix summary associated with the operation of the facility is presented in Table 16-3.

Table 16-3 Environmental Risk Matrix

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
Material Preparation	The raw materials are delivered to the facility and stored in designated areas. The materials (raw materials, in-process, and products) within the facility is transported to the different locations in the factory using the forklift.	Releases to air	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	1	3	3
		Ambient noise	Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	1	3	3
Raw Material Mixing	Proportions of PE granules and/or additives that are needed to be combined for production batch are mixed in the mixer. After which, the mixed materials are shifted to the extrusion area and put in the designated container or drum. On the other hand, for PE granules and/or additives that do not require mixing, the bags of this material are shifted to the extrusion area.	Releases to air	Particulate matters during handling and mixing of polyethylene pellets (resin) and additives	Degradation of local ambient air quality	1	2	2
				Degradation of workplace air quality	1	3	3
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
		Waste management	Generated solid waste (empty bags of pellets/resin)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	2	3	6
				Non-compliance with regulatory requirements	2	3	6
Extrusion and Rolling	The resin and additives are conveyed feed hopper of the extruder. From the feed hopper, the material passes	Releases to air	Volatile organic compounds (VOCs) emissions resulting from the extrusion process	Degradation of local ambient air quality	1	3	3
				Degradation of workplace air quality	1	3	3

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
	through a heated chamber and gets melted under the compression of the screw and temperature of the barrel. The compaction, melting and kneading of the material is pushed to the moulding discharge end by the homogenized subsequent material. The melted material [or film] at the discharge end of the extruder is blown off with air to form a tubular shape. The plastic sheet is rolled over a paper core as per the required length. After which, the rolled plastic sheet is shifted to the storage area. Depending on the product requirement, the rolled plastic sheet may be further processed in the printing section and/or bag making section.		Particulate matters during cutting of paper core	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	4	4
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
		Waste management	Generated solid waste (paper dust and paper core cut-outs)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	1	3	1
				Non-compliance with regulatory requirements	1	3	3
Production of Plain Plastic Sheet	Making of plaint plastic sheet involves putting the roll of plastic film in the designated decoiling section of the cutting machine and the roll of plastic is cut as per the product	Releases to air	Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
			Particulate matters during cutting of plastic sheet	Degradation of local ambient air quality	1	1	1

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
	requirement. The produced roll of plain plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.			Degradation of workplace air quality	1	1	1
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
Production of Plain Plastic Bags	The roll of plain plastic sheet is placed at the decoiling section of the cutting machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the requirement.	Releases to air	Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
			Particulate matters during cutting of plastic sheet	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
		Waste management	Generated solid waste (cut-outs of plastic sheets)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	2	3	6
				Non-compliance with regulatory requirements	2	3	6
Production of Printed Plastic Sheets	Making of printed plastic sheet involves putting the roll of printed plastic film in the designated decoiling section of the cutting machine and cut	Releases to air	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet	Degradation of local ambient air quality	1	3	3

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
	as per the product requirement. The produced roll of printed plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.			Degradation of workplace air quality	2	4	8
			Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
			Particulate matters during cutting of plastic sheet	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
		Waste management	Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	2	3	6
				Non-compliance with regulatory requirements	2	3	6
			Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	1	2	2
				Offsite impacts on waste management infrastructure	1	3	3
				Non-compliance with regulatory requirements	2	3	6
Production of Printed Plastic Bags	Making of plastic bags involves putting the [printed] roll of plastic film in the designated decoiling section of the bag making machine.	Releases to air	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet	Degradation of local ambient air quality	1	3	3
				Degradation of workplace air quality	2	4	8

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
	The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the design requirement. The produced plastic bags are then stacked and made ready to be dispatched to clients.		Volatile organic compounds (VOCs) emissions resulting from heating of plastic sheet for the sealing of bag	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
			Particulate matters during cutting of plastic sheet	Degradation of local ambient air quality	1	1	1
				Degradation of workplace air quality	1	1	1
		Ambient noise	Operation of machinery/ equipment	Increase in ambient noise level	1	3	3
		Workplace noise	Operation of machinery/ equipment	Increase in workplace noise level	2	4	8
		Waste management	Generated solid waste (cut-outs of plastic sheets)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	2	3	6
				Non-compliance with regulatory requirements	2	3	6
			Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	1	1	1
				Offsite impacts on waste management infrastructure	2	3	6
				Non-compliance with regulatory requirements	2	3	6
			Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	1	2	2
				Offsite impacts on waste management infrastructure	1	3	3
				Non-compliance with regulatory requirements	2	3	6

Activity	Sub-Activity	Aspect	Causes	Effects / Consequence	Risk		
					C	L	RR
Packing and Dispatch	The finished product is checked, packed, and made ready to be delivered to clients.	Releases to air	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	1	3	3
		Ambient noise	Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	1	3	3

17. ENVIRONMENTAL MANAGEMENT & ACTION PLAN

17.1 Environmental Management Plan

The environmental management and action plan for the environmental risks identified in Section 16.4 is presented in Table 17-1.

Table 17-1 Environmental Management and Action Plan

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
Raw Material Preparation	The raw materials are delivered to the facility and stored in designated areas.	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	Ultralow sulfur fuel should be utilized as fuel of mobile equipment (delivery vehicles, forklift). Idle running of the vehicles should be avoided.	To be implemented continuously during the operation phase
		Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	The delivery vehicle should be switch off during unloading of materials.	To be implemented continuously during the operation phase
Raw Material Mixing	Proportions of PE granules and/or additives that are needed to be combined for production batch are mixed in the mixer. After which, the mixed materials are shifted to the extrusion area and put in the designated container or drum. On the other hand, for PE granules and/or additives that do not require mixing, the bags of this material are shifted to the extrusion area.	Particulate matters during handling and mixing of polyethylene pellets (resin) and additives	Degradation of local ambient air quality	All mixing activity should be conducted inside the warehouse shed.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Low drop height of the material when pouring the pellets into the container in order to minimise the generation of particulates.	To be implemented continuously during the operation phase
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the extruders should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
		Generated solid waste (empty bags of pellets/resin)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (e.g. empty bags) should be segregated and reused as packaging of products.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Extrusion and Rolling	The resin and additives are conveyed feed hopper of the extruder. From the feed hopper, the material passes through a heated chamber and gets melted under the compression of the screw and temperature of the	Volatile organic compounds (VOCs) emissions resulting from the extrusion process	Degradation of local ambient air quality	Optimise the extruder to ensure good operating condition	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide exhaust fans in the shed.	October 2019
		Particulate matters during cutting of paper core	Degradation of local ambient air quality	The cutting of core should be conducted inside the shed.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Designate a room/enclosure that will be dedicated for the cutting of paper core in order to avoid the dispersion of particulates into a wider area.	October 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	barrel. The compaction, melting and kneading of the material is pushed to the moulding discharge end by the homogenized subsequent material. The melted material [or film] at the discharge end of the extruder is blown off with air to form a tubular shape. The plastic sheet is rolled over a paper core as per the required length. After which, the rolled plastic sheet is shifted to the storage area. Depending on the product requirement, the rolled plastic sheet may be further processed in the printing section and/or bag making section.			The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the extruders should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (paper dust and paper core cut-outs)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				Waste disposal record should be kept.	During disposal
Production of Plain Plastic Sheet	Making of plaint plastic sheet involves putting the roll of plastic film in the designated decoiling section of the cutting machine and the roll of plastic is cut as per the product requirement. The produced roll of plain plastic film or plastic sheets are then stacked and made ready to be dispatched to clients.	Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
Production of Plain Plastic Bags	The roll of plain plastic sheet is placed at the decoiling section of the cutting machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic	Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the requirement.	(cut-outs of plastic sheets)		Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (cut-outs of plastic sheets) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Production of Printed Plastic Sheets	Making of printed plastic sheet involves putting the roll of printed plastic film in the designated decoiling section of the cutting machine and cut as per the product requirement. The produced roll of printed plastic film or plastic sheets are then stacked and made	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of design/graphics on the plastic sheet	Degradation of local ambient air quality	Minimise the usage of solvent, to the extent practicable.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide an exhaust/ventilation system in the printing room to avoid the accumulation of VOCs in the working area.	September 2019
				The printing area should be an enclosed room to avoid the dispersion of VOCs into other working areas.	December 2019
				Provide a close room for the storage of printing chemicals.	December 2019
				Ensure that the containers of inks and solvent are always kept closed.	To be implemented continuously during the operation phase

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	ready to be dispatched to clients.			The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the printing and cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				The recyclables (empty containers) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
		Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				The spent chemicals should be collected in dedicated containers and disposed properly.	To be implemented continuously during the operation phase
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Production of Printed Plastic Bags	Making of plastic bags involves putting the [printed] roll of plastic film in the designated decoiling section of the bag making	Volatile organic compounds (VOCs) emissions from inks and solvent used during printing of	Degradation of local ambient air quality	Minimise the usage of solvent, to the extent practicable.	To be implemented continuously during the operation phase
			Degradation of workplace air quality	Provide an exhaust/ventilation system in the printing room to avoid the accumulation of VOCs in the working area.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
	machine. The machine operates automatically wherein it uncoils the plastic sheet and passing it to the folding section which folds the plastic sheet as per the design requirement. The folded plastic sheet then passes through the sealing section where heat is applied to seal the bottom part of the plastic bag. After which, it moves to the cutting section wherein the plastic bag is cut as per the design requirement. The produced plastic bags are then stacked and made ready to be dispatched to clients.	design/graphics on the plastic sheet		The printing area should be an enclosed room to avoid the dispersion of VOCs into other working areas.	December 2019
				Provide a close room for the storage of printing chemicals.	December 2019
				Ensure that the containers of inks and solvent are always kept closed.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as mask. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Operation of machinery/ equipment	Increase in ambient noise level and workplace noise level	Regular inspection and maintenance of the printing and cutting machines should be conducted to ensure good running condition.	To be implemented continuously during the operation phase
				Idle running of the machine should be avoided.	To be implemented continuously during the operation phase
				The employees should be provided with PPEs such as hearing protection. Ensure that the workers are using their PPEs.	To be implemented continuously during the operation phase
				Provide signage in the processing area to remind workers to use their PPEs.	September 2019
		Generated solid waste (cut-outs of plastic sheets)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (cut-outs of plastic sheets) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
		Generated solid waste (empty packaging containers of inks and solvents)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				Provide a designated container/bin for the collection of wastes.	September 2019
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
				The recyclables (empty containers) should be segregated and dispose to recycling companies.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes

Activity	Sub-Activity	Causes	Effects / Consequence	Proposed Mitigation Measures	Timeframe of Implementation
				Waste disposal record should be kept.	During disposal
		Generated liquid waste (Spent solvent mixture resulting from printing process)	Soil contamination	Designate an area for the collection of different type of wastes.	September 2019
				The spent chemicals should be collected in dedicated containers and disposed properly.	To be implemented continuously during the operation phase
				The waste collection area should be paved/ covered to avoid direct contact of the materials with the soil.	Completed. The warehouse shed is paved with concrete
			Offsite impacts on waste management infrastructure	Dispose the wastes through Municipality-registered waste transporters.	To be implemented continuously during the operation phase
			Non-compliance with regulatory requirements	Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.	Prior to the disposal wastes
				Waste disposal record should be kept.	During disposal
Packing and Dispatch	The finished product is checked, packed, and made ready to be delivered to clients.	Operation of mobile equipment (delivery vehicles and forklift)	Degradation of local ambient air quality	Ultralow sulfur fuel should be utilized as fuel of mobile equipment (delivery vehicles, forklift). Idle running of the vehicles should be avoided.	To be implemented continuously during the operation phase
		Noise from the operation of mobile equipment (delivery vehicles and forklift)	Increase in ambient noise level	The delivery vehicle should be switch off during loading of materials.	To be implemented continuously during the operation phase

17.2 Monitoring Plan

The monitoring plan is presented in Table 17-2.

Table 17-2 Monitoring Plan

Environmental Component	Parameter	Frequency	Measurement Method / Unit	Location	Responsibility
Workplace Air Quality	PM 10 SO_2 NO_2 CO O_3 TVOC	Annually or as required by Authority	Workplace air quality monitoring should be conducted using air quality monitoring machine	Production area	General Manager
Workplace Noise Level	dB(A)	Annually or as required by Authority	Workplace noise level monitoring should be conducted using noise meter	Production area	General Manager
Waste Management	Solid wastes (general wastes)	During disposal	kg, Waste Disposal Record	Overall facility	General Manager
	Solid wastes (recyclables, e.g. plastic cut-outs, empty containers)	During disposal	kg, Waste Disposal Record	Overall facility	

18. GENERAL RECOMMENDATIONS

1. Ultralow sulfur fuel should be utilized as fuel of mobile equipment (delivery vehicles, forklift).
2. Idle running of the vehicles should be avoided.
3. The delivery vehicle should be switch off during landing/unloading of materials.
4. All mixing activity should be conducted inside the warehouse shed.
5. Low drop height of the material when pouring the pellets into the container in order to minimise the generation of particulates.
6. Regular inspection and maintenance of the process machines (extruders, cutting machines, printing machines, etc.) should be conducted to ensure good running condition.
7. Idle running of the process machines should be avoided.
8. Optimise the extruder to ensure good operating condition.
9. Provide exhaust fans in the shed.
10. The cutting of paper core should be conducted inside the shed.
11. Designate an area dedicated for the cutting of paper core in order to avoid the dispersion of particulates into a wider area.
12. Minimise the usage of solvent, to the extent practicable.
13. Provide an exhaust/ventilation system in the printing room to avoid the accumulation of VOCs in the working area.
14. The printing area should be an enclosed room to avoid the dispersion of VOCs into other working areas.
15. Provide a close room for the storage of printing chemicals.
16. Ensure that the containers of inks and solvent are always kept closed.
17. Designate an area for the collection of different type of wastes.
18. Provide a designated container/bin for the collection of different types of wastes.
19. Regular cleaning and housekeeping of the facility should be conducted.
20. Proper storage of materials to avoid scattering in the area.
21. The spent chemicals should be collected in dedicated containers and disposed properly.
22. The recyclables (e.g. empty bags) should be segregated and reused as packaging of products.
23. The recyclables (cut-outs of plastic sheets, empty chemical containers) should be segregated and dispose to recycling companies.
24. Dispose the wastes through Municipality-registered waste transporters.
25. Obtain the necessary permit for the disposal of wastes and engage the services of registered waste transporters.
26. Waste disposal record should be kept.
27. Provide signage in the production area to remind the workers on the use of PPEs.
28. The workers should be provided with PPEs, but not limited to safety shoes, mask, gloves, goggles, hearing protection, etc. Ensure that the workers are using their PPEs.

19. PROPONENT'S COMMITMENT OF COMPLIANCE

Multan Plastic Bags Works LLC hereby certifies that the information on this EIA Report are true and correct to the best of our knowledge.

Multan Plastic Bags Works LLC is committed to implement all proposed recommendations and guidelines mentioned in the study and its attachments within the given time schedule.

Name of Signatory:	Omair Aziz
Designation:	General Manager.
Signature:	
Date:	02/10/19

P.O. Box: 20408
Sharjah - U.A.E.
MULTAN PLASTIC BAGS WORKS LLC

Multan Plastic Bags Works LLC
P.O. Box 20408, Sharjah

20. REFERENCES

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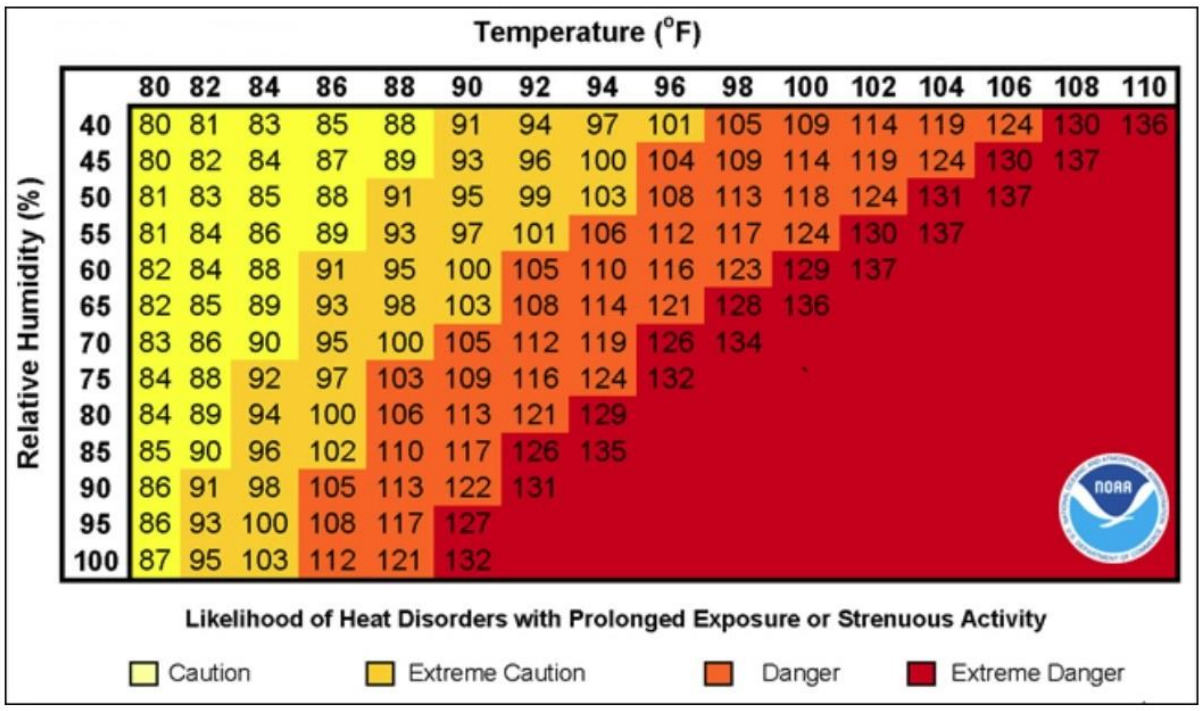
20.3 Related Literatures

20.3.1 Heat Index

"The Heat Index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature"[10].

"*The U.S. National Oceanographic and Atmospheric Administration (NOAA) developed the heat index system. The heat index combines both air temperature and relative humidity into a single value that indicates the apparent temperature in degrees Fahrenheit, or how hot the weather will feel. The higher the heat index, the hotter the weather will feel, and the greater the risk that outdoor workers will experience heat-related illness*"[11]. The NOAA Heat Index chart is presented in Figure 20-1.

Figure 20-1 Heat Index[12]



20.3.2 Protective Measures to Take at Each Risk Level

The U. S. Occupational Safety and Health Administration (OSHA) has provided a guidance for outdoor workers who are exposed to hot and humid conditions which are at risk of heat-related illness. The heat index is used to help determine the risk of heat-related illness for outdoor workers, what actions are needed to protect workers, and when those actions are triggered. The risk for heat-related illness can range from lower to very high to extreme, depending on the heat index value. As the heat index value increases, more preventive measures are needed to protect workers. Heat index values are divided into four bands associated with four risk levels and these bands differ from those appearing in the NOAA Heat

[10] National Oceanic and Atmospheric Administration [NOAA]. (n.d.). Heat index. Retrieved from United Sates of America National Oceanic and Atmospheric Administration website: https://www.weather.gov/safety/heat-index

[11] Occupational Safety and Health Administration [OSHA]. (n.d.). Using the heat index: A guide for employers. Retrieved from United Sates of America National Occupational Safety and Health Administration website: https://www.osha.gov/SLTC/heatillness/heat_index/about.html

[12] National Oceanic and Atmospheric Administration [NOAA]. (n.d.). Heat index. Retrieved from United Sates of America National Oceanic and Atmospheric Administration website: https://www.weather.gov/safety/heat-index

Index chart, which was developed for the public. The NOAA bands have been modified for use at worksites[13]. The OSHA heat index band is presented in Table 20-1.

Table 20-1 OSHA Heat Index Risk Level[14]

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

Table 20-2 presents the most critical actions employers should take to help prevent heat-related illness at each risk level[15].

Table 20-2 Summary of Risk Levels and Associated Protective Measures[16]

Heat Index	Risk Level	Protective Measures
<91°F	Lower (Caution)	▪ Provide drinking water ▪ Ensure that adequate medical services are available ▪ Plan ahead for times when heat index is higher, including worker heat safety training ▪ Encourage workers to wear sunscreen ▪ Acclimatize workers **If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.***
91°F to 103°F	Moderate	In addition to the steps listed above: ▪ Remind workers to drink water often (about 4 cups/hour)** ▪ Review heat-related illness topics with workers: how to recognize heat-related illness, how to prevent it, and what to do if someone gets sick ▪ Schedule frequent breaks in a cool, shaded area ▪ Acclimatize workers ▪ Set up buddy system/instruct supervisors to watch workers for signs of heat-related illness **If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*** ▪ **Schedule activities at a time when the heat index is lower**

[13] Occupational Safety and Health Administration [OSHA]. (n.d.). Using the Heat Index to Protect Workers. Retrieved from United Sates of America National Occupational Safety and Health Administration website: https://www.osha.gov/SLTC/heatillness/heat_index/using_heat_protect_workers.html
[14] Occupational Safety and Health Administration [OSHA]. (n.d.). Using the heat index: A guide for employers. Retrieved from United Sates of America National Occupational Safety and Health Administration website: https://www.osha.gov/SLTC/heatillness/heat_index/index.html
[15] Occupational Safety and Health Administration [OSHA]. (n.d.). Protective Measures to Take at Each Risk Level. Retrieved from United Sates of America National Occupational Safety and Health Administration website: https://www.osha.gov/SLTC/heatillness/heat_index/protective_measures.html
[16] Ibid.

Heat Index	Risk Level	Protective Measures
		▪ **Develop work/rest schedules** ▪ **Monitor workers closely**
103°F to 115°F	High	In addition to the steps listed above: ▪ Alert workers of high risk conditions ▪ Actively encourage workers to drink plenty of water (about 4 cups/hour)** ▪ Limit physical exertion (e.g. use mechanical lifts) ▪ Have a knowledgeable person at the worksite who is well-informed about heat-related illness and able to determine appropriate work/rest schedules ▪ Establish and enforce work/rest schedules ▪ Adjust work activities (e.g., reschedule work, pace/rotate jobs) ▪ Use cooling techniques ▪ Watch/communicate with workers at all times **When possible, reschedule activities to a time when heat index is lower**
>115°F	Very High to Extreme	**Reschedule non-essential activity for days with a reduced heat index or to a time when the heat index is lower** **Move essential work tasks to the coolest part of the work shift; consider earlier start times, split shifts, or evening and night shifts.** **Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F.** If essential work must be done, in addition to the steps listed above: ▪ Alert workers of extreme heat hazards ▪ Establish water drinking schedule (about 4 cups/hour)** ▪ Develop and enforce protective work/rest schedules ▪ Conduct physiological monitoring (e.g., pulse, temperature, etc) ▪ Stop work if essential control methods are inadequate or unavailable.

*The heat index is a simple tool and a useful guide for employers making decisions about protecting workers in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear

**Under most circumstances, fluid intake should not exceed 6 cups per hour or 12 quarts per day. This makes it particularly important to reduce work rates, reschedule work, or enforce work/rest schedules.

21. ANNEXES

21.1 Company License

GOVERNMENT OF SHARJAH
Economic Development Department

حكومة الشارقة
دائرة التنمية الاقتصادية

الشارقة عاصمة عالمية للكتاب 2019
SHARJAH WORLD BOOK CAPITAL

رخصة صناعية
Industrial License

License Details تفاصيل الرخصة

Issue Date	1992/07/20	تاريخ الإصدار	License No.	214725	رقم الرخصة
Expiry Date	2020/07/17	تاريخ الإنتهاء	Registration No.	63660	رقم السجل

Trade Name	MULTAN PLASTIC BAGS WORKS LLC.	الاسم التجاري	مشغل مولتان لاكياس البلاستيك ذ.م.م.
Legal status	Limited Liability Company	الشكل القانوني	شركة ذات مسؤولية محدودة

License Members أطراف الرخصة

الحصص	الصفة	رقم الهوية / الجواز	الجنسية	إسم المستثمر	رقم المستثمر
Shares	Type	ID/Passport No.	Nationality	Investor Name	Investor No.
%51	شريك	784196546487537	الإمارات	خالد محمد سالم هيف الحمادي	8693
%16	شريك	BJ1813131	باكستان	زيشان عزيز شاهد عزيز	95224
%16	شريك	784198902483282	باكستان	عمير شاهد عزيز عزيز	95225
%17	شريك	BM1813111	باكستان	شاهد عزيز بن عبدالعزيز	70811

المدير	شاهد عزيز عبدالعزيز, زيشان عزيز شاهد عزيز
أنشطة الرخصة	صناعة الاكياس البلاستيكية
العنوان	الشارقة-صناعية رقم11/الشارقة-- خلف شارع الرابع الصناعي -شبرة رقم 9+10+11 ملك الفارس للاستثمار العقاري ذ م م

رقم الهاتف المتحرك:	0555865858
صندوق البريد:	20408 الشارقة

Notes الملاحظات

- تغيير عنوان موقع العمل -إلغاء تصريح مستودع رقم 711974

تاريخ الطباعة	2019/08/04
رقم المستخدم	39819

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للتأكد من صحة البيانات يرجى زيارة موقع الدائرة: www.sedd.ae
- يحظر منعاً باتاً توزيع الإعلانات في الأماكن العامة و الأحياء السكنية. التوزيع فقط عن طريق الصحف، المجلات وصناديق البريد

21.2 Laboratory Test Report

21.2.1 Ambient Air Quality Monitoring Report

Rak Lab
RAK Lab L.L.C
Independent Testing Laboratory

ENAS
Emirates National Accreditation System
NAL 030
17025

راك لاب
راك لاب ذ.م.م.
مختبر فحص مستقل

Report No: RP-297832-19

Date: 21/08/2019

REPORT ON AMBIENT AIR QUALITY MONITORING

CUSTOMER : AL MAHA ENVIRONMENT CONSULTANTS

Project Name	**Multan Plastic Bags Works LLC**	**Report date**	**21/08/2019**	
Address	**Multan Plastic Bags Works LLC Industrial area 11 Sharjah U.A.E**	**Instrument used**	**Dust Sampler**	**RL-EN-04**
			Gas detector	**RL-GD-08,13**
			Weather Station	**RL-WE-01**
Report number	**RP-297832-19**	**Monitoring duration**	**24.00 Hours (10.00 – 10.00)**	
Job order number	**JO-641-18**	**Monitoring date**	**19/08/2019 – 20/08/2019**	
Sample number	**SA-187651-19**	**Monitored by**	**ZT/KN**	
Monitoring Location	**Near entrance**			

RESULTS

Coordinates- N 25°17'42.7"
E 55°26'00.6"

Parameters	Units	Sampling Test Method	Location Near entrance	MOCCAE UAE Limits (Ref1)
*Total Suspended Particulate Matter (TSPM)	µg/m³	USEPA eCFR Title 40 Part 50 and 53	227	**230**
*Respirable Suspended Particulate Matter (PM 10)			105	**150**
*Sulphur-dioxide (SO_2)	µg/m³	BSEN 60079-29-2-2015 BSEN 50271;2018 BSEN 45544-1:2015	< 0.1	**150**
*Total Volatile Organic Compounds (TVOC)	ppm		< 1	-
*Carbon monoxide (CO)	µg/m³		< 1	**10000****
*Nitrogen Dioxide (NO_2)	µg/m³		18.8	**150**
*Ozone (O_3)	µg/m³		58.9	**120****

Notes
1: Ref1 - Ministry of Climate Change and Environment (MOCCAE)
2: ppm - Parts per million
3: **Indicates Limits for 8 Hrs. Monitoring (CO & O_3)
4: *This test is accredited by ENAS (Emirates National Accreditation System) & GAC (GCC Accreditation Center)

P.O.Box 86, Ras Al Khaimah, U.A.E.
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E info@raklab.com W www.raklab.com

ilac-MRA

GCC ACCREDITATION CENTER GAC
Testing
ISO/IEC 17025:2005
ATL 0033

ص.ب : ٨٦، رأس الخيمة، إ.ع.م.
هـ : ٨٣٤١ ٢٦٦ ٧ ٩٧١+، ف: ٨٢٩٢ ٢٦٦ ٧ ٩٧١+
البريد الإلكتروني: www.raklab.com/info@raklab.com

Report No: RP-297832-19

Date: 21/08/2019

Metrological data during air monitoring

Time (Hours)	Temp Dry (ºC) Avg.	Relative Humidity (%) Avg.	Wind Speed (m/s)	Wind Direction (º)	Solar Radiation (W/m²)	Dew point (ºC)
19/08/ 2019 - 10:12	41.49	49.36	1.2	330	722	28.71
19/08/ 2019 - 11:12	40.07	55.97	2.4	312	788	29.59
19/08/ 2019 - 12:12	39.43	55.17	2.2	292	821	28.75
19/08/ 2019 - 13:12	40.24	53.36	3.8	266	865	28.92
19/08/ 2019 - 14:12	39.55	53.83	2.7	269	804	28.43
19/08/ 2019 - 15:12	38.94	52.49	2.3	277	655	27.44
19/08/ 2019 - 16:12	38.85	50.72	2.5	6	352	26.77
19/08/ 2019 - 17:12	39.07	46.55	1.7	291	202	25.52
19/08/ 2019 - 18:12	37.51	46.33	2.3	291	95	24.03
19/08/ 2019 - 19:12	36.21	49.65	0.7	291	0	24
19/08/ 2019 - 20:12	36.42	48.4	0	291	0	23.77
19/08/ 2019 - 21:12	36.5	51.48	0	291	0	24.87
19/08/ 2019 - 22:12	35.74	54.72	0	291	0	25.19
19/08/ 2019 - 23:12	34.58	62.92	0	291	0	26.47
20/08/ 2019 - 00:12	34.43	63.73	0	291	0	26.55
20/08/ 2019 - 01:12	34.14	68.13	0	291	0	27.41
20/08/ 2019 - 02:12	34.9	72.02	1.6	291	0	29.09
20/08/ 2019 - 03:12	33.52	75.11	0.9	291	0	28.49
20/08/ 2019 - 04:12	32.45	70.32	0	291	0	26.34
20/08/ 2019 - 05:12	32.51	70.04	0	291	0	26.33
20/08/ 2019 - 06:12	33.22	70.72	3	291	33	27.17
20/08/ 2019 - 07:12	34.55	65.91	2.4	291	154	27.23
20/08/ 2019 - 08:12	39.34	52.35	0	291	232	27.76
20/08/ 2019 - 09:12	41.29	45.71	0	291	388	27.21
20/08/ 2019 - 10:12	38.46	54.41	4	2	611	27.61

راك لاب ذ.م.م. ص.ب: ٨٦ راس الخيمة - إ.ع.م.
Rak Lab
P.O. Box : 86
RAK - UAE
RAK LAB L.L.C.

Joseph Rego, Laboratory Manager
For RAK lab L.L.C. Ras Al Khaimah

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ATL 0033

ص.ب : ٨٦، رأس الخيمة، إ.ع.م.
هـ : ٨٣٤١ ٢٦٦ ٧ ٩٧١+، ف: ٨٢٩٢ ٢٦٦ ٧ ٩٧١+
البريد الإلكتروني: www.raklab.com/info@raklab.com

ECOTECH INSTRUMENTS

CENTRE FOR CALIBRATION SERVICES

(A ISO Certified Company 9001:2015)

(A Division of Ecotech Instruments)

K-127, UPSIDC Industrial Area, Site - V, Kasna, Greater Noida, Distt. Gautam Budh Nagar, - 201310 (UP)

Telefax : 91-120-2341127 Cell : 9810392043, E-mail : ccsecotech@gmail.com, Website : www.ecotechinstrumentsindia.com

CC - 2864

CALIBRATION CERTIFICATE

Calibration Certificate No:- FF0472	**ULR No:-** CC286419000000072F	**Calibration Date :-** 06.04.2019	**Date of Receipt of UUC:** 06.04.2019
Suggested Date of Next Calibration :- 05.04.2020		**Calibration at: Site**	Page 1 of 3

Customer Name :- **M/s Rak Lab LLC.**

Address :- **(Independent Testing Laboratory)**
P.O. Box – 86, Ras Al Khaimah
United Arab Emirates

Reference :- S.R.F. No. - 2018/2434 **Date :-** 11.03.2019

01. UUC Fitted in instrument

Name	Make	Model	Sl.No.	ID. No.
Respirable Dust Sampler	Envirotech	APM 460 DXNL	37 - DTJ - 2008	RL - EN - 04

02. Details of (UUC)

		Environmental Conditions During Calibration	
Name	Orifice Manometer Flow		
Make/Trade Mark	Envirotech	Temperature(°C)	25 ± 10
Model	APM 460 DXNL	Relative Humidity (%)	45 to 75
Sl.No./ID.No.	37 - DTJ - 2008 / RL - EN - 04	Barometric Pressure (mmHg)	758.2
Range	0.6 - 1.5 m^3/min		
Resolution	(0.6 - 0.8 & 1.3 - 1.5 m^3/min) 0.025 m^3/min (0.8 - 1.3 m^3/min) 0.01 m^3/min		

03. Standard Equipment used for calibration

Sl.No.	Standard Equipment Name	Range	ID. No.	Certificate No.	Valid Up to
1.	Top Loading Calibrator	0.6 - 1.4 m^3/min	EI-CCS/R-1061	CC286418000000931F	07.12.2019

Standards used are traceable to National Standards

04. Calibration Procedure :- EI-CCS/WI/31/FF/03

Remark : Refer page 2 of 3 for Calibration Results and page 3 of 3 for Calibration Curve

Notes :-
1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
4. This certificate shall not be reproduced, except in full without the written approval of Ecotech Instruments - CCS. Greater Noida (U.P.)

Centre For Calibration Services * Gr. Noida * Ecotech

Authorized By

Dr. Lokendra Upadhyaya
(Quality Manager)

REVIEWED
20 APR 2019
Sign:

Ecotech Instruments - CCS

CC - 2864

Calibration Certificate No:- FF0472	ULR No:- CC286419000000072F	Calibration Date :- 06.04.2019	Date of Receipt of UUC: 06.04.2019
Suggested Date of Next Calibration :- 05.04.2020		Calibration at: Site	Page 2 of 3

05. Calibration Results For Orifice Manometer Flow

S.No.	Test piece measured Indicated flow rate (m^3/min)	Reference True Measured flow rate in Calibration Curve (m^3/min)	Error (%)
1	1.22	1.237	-1.374
2	1.10	1.122	-1.961
3	0.93	0.947	-1.795
4	0.81	0.821	-1.340
5	0.700	0.712	-1.685

(Curve Enclosed)

Expanded Uncertainty at (0.700) m^3/min	±	2.14	%
(1.22) m^3/min	±	0.75	%

Remarks:-

1. The value mentioned above is the mean of 5 readings (rounded off)
2. Our NABL Certificate No. is CC - 2864 Valid up to 03.10.2020
3. The Reported Expanded Uncertainty in calibration is at a coverage factor k = 2 & at 95% confidence level.
4. Calibration Status : Sticker indicating 'CAL STATUS' is affixed on the instruments.
5. Calibration Place - Laboratory at M/s Rak Lab LLC., UAE

Notes :-

1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
4. This certificate shall not be reproduced, except in full without the written approval of Ecotech Instruments - CCS. Greater Noida (U.P.)

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Authorized By

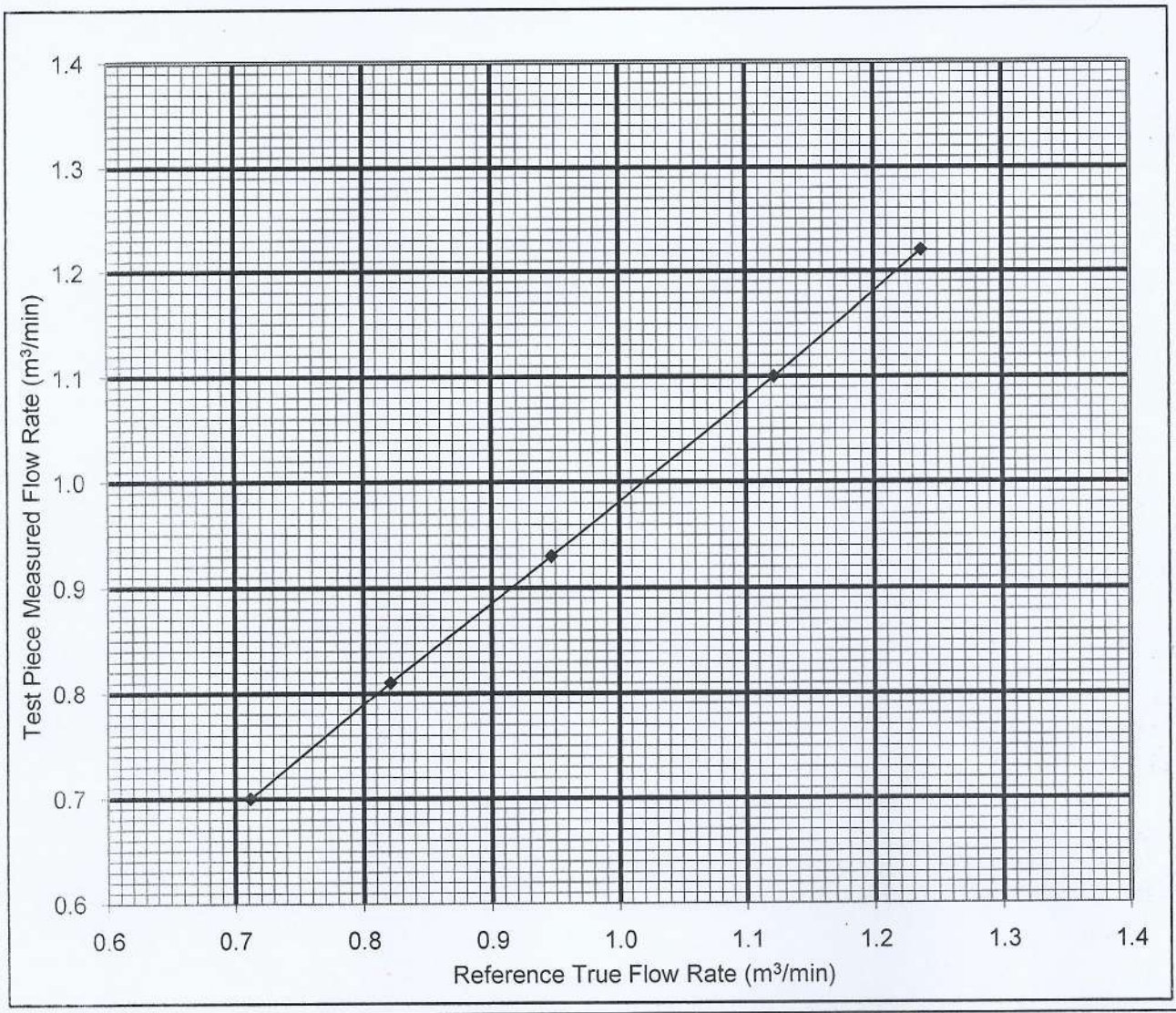
Dr. Lokendra Upadhyaya
(Quality Manager)

Ecotech Instruments-CCS

Certificate No. FF0472 **ULR No.** CC286419000000072F
Date of Calibration:- 06.04.2019

CC - 2864

CALIBRATION CURVE FOR ORIFICE MANOMETER FLOW



Sl.No.	Reference True Flow Rate (m^3/min)	Test Piece Measured Flow Rate (m^3/min)
1	1.237	1.22
2	1.122	1.10
3	0.947	0.93
4	0.821	0.81
5	0.712	0.700

Name of the Instrument	Respirable Dust Sampler Model APM 460 DXNL
Sl./ID.No. of the Instrument	37 - DTJ - 2008 / RL - EN - 04
Name of the unit calibrated	Orifice Manometer Flow
Name of the Party	M/s Rak Lab LLC.
	(Independent Testing Laboratory)
	P.O. Box – 86, Ras Al Khaimah
	United Arab Emirates

Notes :-

1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
4. This certificate shall not be reproduced, except in full without the written approval of Ecotech Instruments - CCS. Greater Noida (U.P.)

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(Quality Manager)

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Telefax : 91-120-2341127 Cell : 9810392043, E-mail : ccsecotech@gmail.com, Website : www.ecotechinstrumentsindia.com

CALIBRATION CERTIFICATE

Calibration Certificate No:- ET0477	**ULR No:-** CC286419000000077F	**Calibration Date :-** 06.04.2019	**Date of Receipt of UUC:** 06.04.2019
Suggested Date of Next Calibration :- 05.04.2020		**Calibration at: Site**	Page 1 of 1

Customer Name :- M/s Rak Lab LLC.

Address :- (Independent Testing Laboratory)
P.O. Box – 86, Ras Al Khaimah
United Arab Emirates

Reference :- **S.R.F No. :-** 2018/2434 **Date :-** 11.03.2019

01. UUC Fitted in instrument

Name	Make	Model	Sl.No.	ID. No.
Respirable Dust Sampler	Envirotech	APM 460 DXNL	37 - DTJ - 2008	RL - EN - 04

02. Details of (UUC)

Name	Time Totalizer	**Environmental Conditions During Calibration**	
Make/Trade Mark	CE Germany	**Temperature (°C)**	25 ± 10
Model	629 - 631	**Relative Humidity (%)**	45 - 75
Sl.No./ID.No.	T - 4215-4 / RL - TT - 04	**Barometric Pressure (mmHg)**	758.2
Range	0 - 99999.99 hr		
Resolution	0.01 hr		

03. Standard Equipment used for calibration

Standard Equipment Name	Range	Sl.No./ID.No.	Calibration Certificate No.	Valid Up to
Digital Timer	up to 8 hrs	EI-CCS/R-2834	CC286419000001765F	08.02.2020

Standards used are traceable to National Standards

04. Calibration Procedure EI-CCS/WI/32/ET/03

05. Calibration Results :

UUC has been calibrated for following Parameter (S) ranges (S)

S.No.	Displayed Value on UUC hrs(min)	Reference Time (min)	Error (%)	Expanded Uncertainty at 95 % of Confidence level (k =2)
1	0.50 (30.00 min) (Final Reading of TTR at the end of Calibration - 2.75 hrs)	30.003	-0.01	± 20.79 sec

Remarks:-

1. The value mentioned above is the mean of 5 readings (rounded off)
2. Our NABL Certificate No. is CC - 2864 Valid up to 03.10.2020
3. The Reported Expanded Uncertainty in calibration is at a coverage factor k = 2 & at 95% confidence level.
4. Calibration Status : Sticker indicating 'CAL STATUS' is affixed on the instruments.
5. Calibration Place - Laboratory at M/s Rak Lab LLC., UAE

Notes :-

1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
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Dr. Lokendra Upadhyaya
(Quality Manager)

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CALIBRATION CERTIFICATE

Calibration Certificate No:- FF0481	**ULR No:-** CC286419000000081F	**Calibration Date :-** 06.04.2019	**Date of Receipt of UUC:** 06.04.2019
Suggested Date of Next Calibration :- 05.04.2020		**Calibration at: Site**	Page 1 of 2

Customer Name :- M/s Rak Lab LLC.

Address :- (Independent Testing Laboratory)
P.O. Box – 86, Ras Al Khaimah
United Arab Emirates

Reference :- S.R.F. No.:- 2018/2434 **Date :-** 11.03.2019

01. UUC Fitted in instrument

Name	Make	Model	Sl.No.	ID.No.
Thermo Electrically Cooled Gaseous Sampling Attachment	Envirotech	APM 411 TE	596 - DTI - 2008	RL - GA - 04

02.Details of UUC

Name	Rotameter	**Environmental Conditions During Calibration**	
Make/Trade Mark	-	**Temperature(°C)**	25 ± 10
Model	-	**Relative Humidity (%)**	45 - 75
Sl.No./ID.No.	AG12E7582 / RL - RO - 06	**Barometric Pressure (mmHg)**	758.2
Range	0 - 2 lpm		
Resolution	0.1 lpm		

03. Standard Equipment used for calibration

Sl.No.	Standard Equipment Name	Range	ID. No.	Certificate No.	Valid Up to
1	Flow Calibrator	0 - 40 lpm	EI-CCS/R3604	EI-CCS/FF/FC/66	23.09.2019

Standards used are traceable to National Standards

04. Calibration Procedure :- EI-CCS/WI/31/FF/09

Remark : Refer page 2 of 2 for Calibration Results

Notes :-

1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
4. This certificate shall not be reproduced, except in full without the written approval of Ecotech Instruments - CCS. Greater Noida (U.P.)

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(Quality Manager)

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20 APR 2019
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Ecotech Instruments - CCS

CC - 2864

Calibration Certificate No:- FF0481	ULR No:- CC286419000000081F	Calibration Date :- 06.04.2019	Date of Receipt of UUC: 06.04.2019
Suggested Date of Next Calibration :- 05.04.2020		Calibration at: Site	Page 2 of 2

05. Calibration Results for Flow of Rotameter

S.No.	Test meter (UUC) Indicated reading (lpm)	Reference True flow rate (lpm)	Error (%)
1	0.5	0.51	-1.961
2	1.0	1.02	-1.961
3	1.5	1.51	-0.662
4	2.0	2.03	-1.478

Expanded uncertainty at 2.0 lpm	± 2.3 %

Remarks:-

1. The value mentioned above is the mean of 5 readings (rounded off)
2. Our NABL Certificate No. is CC - 2864 Valid up to 03.10.2020
3. The Reported Expanded Uncertainty in calibration is at a coverage factor k = 2 & at 95% confidence level.
4. Calibration Status : Sticker indicating 'CAL STATUS' is affixed on the instruments.
5. Calibration Place - Laboratory at M/s Rak Lab LLC., UAE

Notes :-

1. Reference used are directly traceable to national standard through unbroken chain of calibration .
2. Results reported are valid at the time of and under the stated conditions of measurement
3. This Certificate refers only to the particular item calibrated.
4. This certificate shall not be reproduced, except in full without the written approval of Ecotech Instruments - CCS. Greater Noida (U.P.)

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Authorized By

Dr. Lokendra Upadhyaya
(Quality Manager)

OMEGA MEASURING & CALIBRATION LABORATORY

CALIBRATION CERTIFICATE

CERTIFICATE NO. : 190708.11.4

DATE OF ISSUE	08/07/2019
CUSTOMER NAME	RAK LAB LLC
Address	P.O. BOX No- 86 Ras Al Khaimah , UAE PH- +971 7 2668341, Fax- +971 7 2668292
UUT DETAILS	
Name	Gas Detector
Make	Rae
Model No.	Multi Rae Lite
Range	As per Instrument
Resolution	As per Instrument
Serial No.	M01C011750
ID Mark	RL-GD-08
Receipt Date	07/07/2019
Calibration Carried Out	Lab
Visual Inspection	Ok
REFERENCE EQUIPMENT DETAIL	
Name	Standard Calibration Gas
Gas Concentration	10 ppm HCHO, 10 ppm SO_2, 50 ppm CO, 50 ppm H2S, 100 ppm VOC(Iso-Butylene), 5 ppm NO2
Batch No.	B201218-A4, A201218-D1, A201218-B5, A171118-C6, B310119-B4, A171118-C2
ENVIRONMENTAL CONDITIONS	
Temperature	$20^0C \pm 2^0C$
Humidity	50% RH ± 10% RH

CALIBRATION METHOD

The above mention instrument was calibrated according to our W.I No- 20 (as per BS EN 60079-29-2:2015) under observation of ISO / IEC 17025:2005 certified Quality Assurance System.

The Unit Under Test (UUT) was calibrated by using Standard Calibration Gas.

REVIEWED

08 JUL 2019

Sign.

P.O.Box : 125349, Dubai - U.A.E., Tel.: 04 - 341 3680, Fax: 04 - 341 3690, Al Quoz Industrial Area 4

E-mail : omcl@emirates.net.ae / sbem@emirates.net.ae

www.sanbookomega.com

OMEGA MEASURING & CALIBRATION LABORATORY

CALIBRATION CERTIFICATE

CERTIFICATE NO. : 190708.11.4

CALIBRATION RESULTS

Sl. No.	Channel	Applied Standard Gas	Instrument Reading	Error	Expended Uncertainty in
1	HCHO	10 ppm HCHO	9.9 ppm HCHO	-0.1 ppm HCHO	0.5 ppm
2	SO2	10 ppm SO2	10.1 ppm SO2	0.1 ppm SO2	0.5 ppm
3	CO	50 ppm CO	50.1 ppm CO	0.1 ppm CO	0.7 ppm
4	H2S	50 ppm H2S	50.2 ppm H2S	0.2 ppm H2S	0.7 ppm
5	VOC	100 ppm	99.8 ppm	-0.2 ppm	1.1 ppm
	(Iso-Butylene)	VOC (Iso-Butylene)	VOC(Iso-Butylene)	VOC(iso-Butylene)	
6	NO2	5 ppm NO2	5.0 ppm NO2	0.0 ppm NO2	0.5 ppm

The reported expanded uncertainty of measurement is statedas the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%

DATE OF CALIBRATION: 08/07/2019

RECOMMENDED DUE DATE: 07/07/2020

OMEGA MEASURING & CALIBRATION LABORATORY

Calibrated By
Anshul Tiwari
(Lab Engineer)

Verified By
Saroop Singh
(Technical Manager)

TRACEABILITY

The traceability used in calibration is traceable to national / International standards.which realize the physical units of measurements (SI) , has been demonstrated to Emirates International Accreditation Center (EIAC). The EIAC is a signatory to the Mutual Recognition Arrangement with International Laboratory Accreditation Cooperation (ILAC).

1-The result of calibration refers only to the particular item(s) submitted for calibration.

2- The above results are valid at the time of and under the stated conditions of measurement.

3- The certificate shall not be reproduce, except in full, without the written permission of the laboratory.

4- Recommended due date as per agreed by customer request.

P.O.Box : 125349, Dubai - U.A.E., Tel.: 04 - 341 3680, Fax: 04 - 341 3690, Al Quoz Industrial Area 4
E-mail : omcl@emirates.net.ae / sbem@emirates.net.ae
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MARINE AUTOMATION
(ISO 9001 : 2015 Certified Company)

P.O. Box: 119218, Dubai Maritime City, Dubai - U.A.E.
voyage@voyagemarine.ae
calibration@voyagemarine.ae
+971 4 363 8100
+971 4 363 9501

CERTIFICATE OF CALIBRATION

Client : RAK LAB LLC
: P.O Box: 86
: Ras Al Khaimah- UAE

Certificate No : **SA1811091.03**
Cal.Date : 10.01.2019
Rec.Due : 09.01.2020
Cer.Issued : 10.01.2019

UNIT UNDER TEST : Multigas Detector
Make : BW
Model : Gas Alert Micro5 IR
Serial No. : SS318-002174
Asset No. : RL-GD-13
Range : Various

Environmental Condition	
Temperature	Humidity
21.4°C	62.4%

Master Equipments			
Descrtiption	Make	Sl No.	Batch.No.
Nitrogen	Air Products	--	--
Carbon Dioxide	Air Products	--	7086443

--

Test Methods and Refererence Standards		
Work instruction No.	BS standards	Test Method Variations
WI 01,WI 02,WI 03	BS EN 60079-29-4:2010 BS EN 50241: 1: 2002	Nil

Calibrated By
Sherin

Approved By
Suresh.S.panicker

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 for a level of confidance of approximately 95%.
Voyage Marine Autamation certifies the above instruments meet or exceeds all specifications and has been calibrated using reference standards or instruments whose accuracy are traceable to the National or International standards.

ISO CERTIFIED COMPANY ★ CERTIFIED ★ Tel 04 3638100, DUBAI - UAE ★ Voyage Marine Automation

REVIEWED
13 JAN 2019
Sign:

فويـاج مارين اوتـوميـشـن
VOYAGE
MARINE AUTOMATION
(ISO 9001 : 2015 Certified Company)

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+971 4 363 9501

Cert.No.: SA1811091.03

Calibration Result								
Test Gas	Concentration	Indication		Error		Alarm		Measurement Uncertainty
		As Found	As Left	As Found	As Left	*Low*	*High*	
Oxygen	0%Vol	0%Vol	0%Vol	0%Vol	0%Vol	19.5%Vol	23.5%Vol	3.2%
Carbondioxide	5%Vol	4.8%Vol	5%Vol	0.2%Vol	0%Vol	0.5%Vol	3%Vol	2.4%
Ozone	0.5PPM	0.5PPM	0.5PPM	0PPM	0 PPM	0.2PPM	1PPM	3.5%

****END OF CERTIFICATE****

ISO CERTIFIED COMPANY ★ CERTIFIED ★ Voyage Marine Automation Tel 04 3638100, DUBAI - UAE

Form No.: QP 10 – 01 - 01 Date: 04/09/2014 Rev:1

21.3 Photographic References

21.3.1 Photographs During Air Quality Monitoring

	
View of the ambient air quality monitoring	Dust sampler and gas detectors
	
Dust sampler	Gas detectors

21.4 Request for Environmental Study

21.4.1 Environmental Monitoring Request

Al Maha Environment Consultants

From: (Env)Mariam Mohamed Ahmed Mohamed Alkaabi <m.alkaabi@shjmun.gov.ae>
Sent: 08 August 2019 10:20
To: Al Maha Environment Consultants
Subject: RE: Letter Request for Environmental Monitoring at Multan Plastic Bags Works LLC

Approved.

From: almahae1@emirates.net.ae [mailto:almahae1@emirates.net.ae] **On Behalf Of** Al Maha Environment Consultants
Sent: Monday, August 5, 2019 12:05 PM
To: (Env)Mariam Mohamed Ahmed Mohamed Alkaabi <m.alkaabi@shjmun.gov.ae>
Cc: (Env)Meera Khalid Majid Alshamsi <meerak.alshamsi@shjmun.gov.ae>; (Env)Mubarak Saleh Belal <mubarak.belal@shjmun.gov.ae>; (Env)Mahdi Adel Jamil Awad <mahdi.adel@shjmun.gov.ae>; (Env)Adnan Saeed AlSawmahi <adnan.saeed@shjmun.gov.ae>; (Env)Saeed Nasir Alshamsi <s.nasir@shjmun.gov.ae>
Subject: Letter Request for Environmental Monitoring at Multan Plastic Bags Works LLC

Dear Ms. Mariam,

Attached are the requirements for the proposed schedule of Environmental Monitoring at **Multan Plastic Bags Works LLC** on **August 19, 2019** subject to your approval.

Below is the details of the testing.

<table>
<tr><td colspan="5">Request Date: August 19 - 20, 2019</td></tr>
<tr><td colspan="2">Company Name:
Multan Plastic Bags Works LLC</td><td colspan="2">License No:
214725</td><td>Address:
Industrial Area 11, Sharjah</td></tr>
<tr><td colspan="4">Lab Name:
- Rak Lab LLC</td><td>Type Of Study
EIA</td></tr>
<tr><td>Date</td><td>Test Type
AAQ / IAQ / D / N / TVOC</td><td>Parameters
CO_2, SO_2, NO_2</td><td>No. of Points
1 / 2 / 3</td><td>Period Time
From - To</td></tr>
<tr><td>19.08.2019 – 20.08.2019</td><td>AAQ</td><td>SO2, NO2, CO, O3, TSP, PM10</td><td>1</td><td>10:00 am – 10:00 am</td></tr>
<tr><td>19.08.2019</td><td>TVOC</td><td>TVOC</td><td>1</td><td>10:00 am – 10:30 am</td></tr>
<tr><td colspan="5">Consultant Mobile No: 055 144 8833 (Mr. Ronald)</td></tr>
<tr><td colspan="5">Company Mobile No: 055 586 5858 (Mr. Umair Aziz)</td></tr>
<tr><td colspan="5">Laboratory Mobile No:
- Rak Lab: 055 386 5456 (Mr. Raj)</td></tr>
</table>

Best regards,
Ronald Española
Al Maha Environment Consultants
Sharjah Abu Dhabi Dubai
Tel: +971 6 535 2444
Tel: +971 2 582 2203
Mob: +971 55 144 8833
Email: almahae1@eim.ae

CONTRACT AGREEMENT
for the
Preparation of Environmental Impact Assessment (EIA) Report

This Agreement is entered into as of 25 July 2019, between **Multan Plastic Bags Works LLC**, with License No. 214725, ("the Client") and **Al Maha Environment Consultants** ("the Consultant"). Whereas, the Client wishes to have the Consultant performing the services hereinafter referred to as the Preparation of Environmental Impact Assessment (EIA) Report that will be submitted to Sharjah Municipality.

This Agreement covers the Technical Aspect of the Techno-Commercial proposal submitted by the Consultant to the Client on 25 July 2019 with reference number AEC/O/220719/0233R2. The Commercial Aspect is as per the agreement stipulated therein in the Techno-Commercial proposal.

Scope of Work
The Consultant shall prepare the Environmental Impact Assessment (EIA) Report as per the format below:

1. Executive Summary
2. Project Introduction
3. Name & Address of Project & Proponent
4. Project Description
5. Project Location
6. Project Construction Phase
7. Project (Facility) Layout
8. Characteristics of Potential Impacts of the Project
9. Air Quality Baseline Studies
10. List of Machines and their Use on the Process
11. Details of Inputs/Outputs & Relevant Quantities
12. Process Flow Chart & Process Description
13. Waste Generation
14. Proposed Organization, Occupational Health & Safety
15. Contingency Plan
16. Environmental Risk Matrix
17. Environmental Management & Action Plan
18. General Recommendations
19. Proponent's Commitments of Compliance
20. References
21. List of Annexes

As part of the preparation of the EIA report, the Consultant shall engage the services of a testing laboratory to conduct the following environmental monitoring:

- 24-hr ambient air quality monitoring in 1 location at the site. Details of the monitoring are as follows:
  - 24-hr monitoring of TSP, PM10, SO_2, and NO_2.
  - 8-hr monitoring of CO and O_3.
- Spot monitoring of VOC in 1 location at the site.

P. O. Box: 339, Sharjah, UAE
Tel: +971 6 535 2444
Fax: +971 6 535 2282
Email: almahae1@eim.ae

صندوق البريد: ٣٣٩ الشارقة ا.ع.م
تليفون: ٩٧١٦٥٣٥٢٤٤٤+
فاكس: ٩٧١٦٥٣٥٢٢٨٢+
البريد الاكتروني : almahae1@eim.ae

Contract Agreement for the Preparation of Environmental Impact Assessment (EIA) Report
Multan Plastic Bags Works LLC

Responsibilities of the Client

- Provide data and information needed for the preparation of the EIA report.
- Provide power supply (electricity) during the environmental monitoring. If there is no electivity at the site, Multan Plastic Bags Works LLC shall provide the generator for the 24-hr monitoring.
- Provide manpower at night during the 24-hour monitoring.

Work Schedule

The proposed work schedule is presented in Table 1 below. The schedule may vary depending on the availability of information from the Client and the availability of the testing laboratory. The EIA Report is expected to be completed within 2-month period and submitted to the Sharjah Municipality.

Table 1. Proposed Project Schedule

No	Description of Task and Deliverable	Project Milestones
1	Al Maha shall give the Client the Checklist of Information needed for the preparation of EIA.	Upon project award
2	The Client shall provide the needed information described in the checklist.	One (1) week after the project award
3	Al Maha shall conduct the environmental monitoring at the site.	Two (2) – three (3) weeks after the project award, depending on the availability of the testing laboratory
4	Al Maha shall submit the draft EIA report to the Client for review	Five (5) – 6 (six) weeks after the project award, depending upon the completion of the environmental monitoring
5	Submission of Final EIA Report	One (1) week from receiving comments from the Client on the draft EIA Report

In witness whereof, the undersigned have executed this Agreement as of the date first written above.

For and in behalf of "the Client"

Multan Plastic Bags Works LLC
Contact Person: Umair Aziz
Contact No.: +971 55 586 5858

مشغل مولتان لاكياس البلاستيك ذ.م.م
P.O. Box: 20408
Sharjah - U.A.E.
MULTAN PLASTIC BAGS WORKS LLC.

For and in behalf of "the Consultant"

Al Maha Environment Consultants
Ibrahim Al Mulla

المها للاستشارات البيئية
P.O.Box: 339
Sharjah - U.A.E.
AL MAHA ENVIRONMENT CONSULTANTS

بلدية الشارقة
SHARJAH MUNICIPALITY
إدارة الخدمات البيئية
قسم حماية البيئة
28/07/2019

Sharjah Municipality Approval

P. O. Box: 339, Sharjah, UAE
Tel: +971 6 535 2444
Fax: +971 6 535 2282
Email: almahae1@eim.ae

صندوق البريد: ٣٣٩ الشارقة ا.ع.م
تليفون: ٩٧١٦٥٣٥٢٤٤٤+
فاكس: ٩٧١٦٥٣٥٢٢٨٢+
البريد الاكتروني : almahae1@eim.ae

الإمارات العربية المتحدة – حكومة الشارقة
بلدية مدينة الشارقة
United Arab Emirates – Sharjah Government
SHARJAH CITY MUNICIPALITY

نموذج طلب دراسة بيئية
Request form for Environmental Study

إدارة الخدمات البيئية — Environmental Services Department

• التاريخ: 21/9/2019
• الموقع: الصناعية رقم (١)
• اسم المنشأة: مشغل مولتاكس لأكياس البلاستك
• رقم الرخصة: 214725

• نوع الدراسة البيئية المطلوبة (والغرض منها):

☑ تقييم أثر بيئي/EIA (رخصة جديدة/اضافة نشاط/نقل موقع)
☐ تقييم مخاطر بيئية/ERA (مشاكل بيئية)
☐ تقييم جودة هواء/AQM (فحص دوري)
☐ انبعاثات مولد كهربائي/GE (تصريح مولد)

• ملاحظات (عند طلب دراسة تقييم المخاطر): .....

• عدد النقاط و نوعية القياسات المطلوبة:

Type of Measurements	Number of Points	Remarks
Indoor Air Quality (IAQ)*		
Ambient/Outdoor Air Quality (AAQ)*	1	point # as layout
Stack Emission (SE)		
Dust (D)		
Total Volatile Organic compounds (TVOC)	1	point # as layout
Noise (N)		
Illumination (I)		
Other Measurements (O)		

*IAQ/AAQ (PM_{10}, TSP, SO_2, NO_2, CO, O_3)

ارفاق مخطط (Layout) محدد به جميع نقاط القياس المطلوبة

اسم المفتش: مبارك صالح

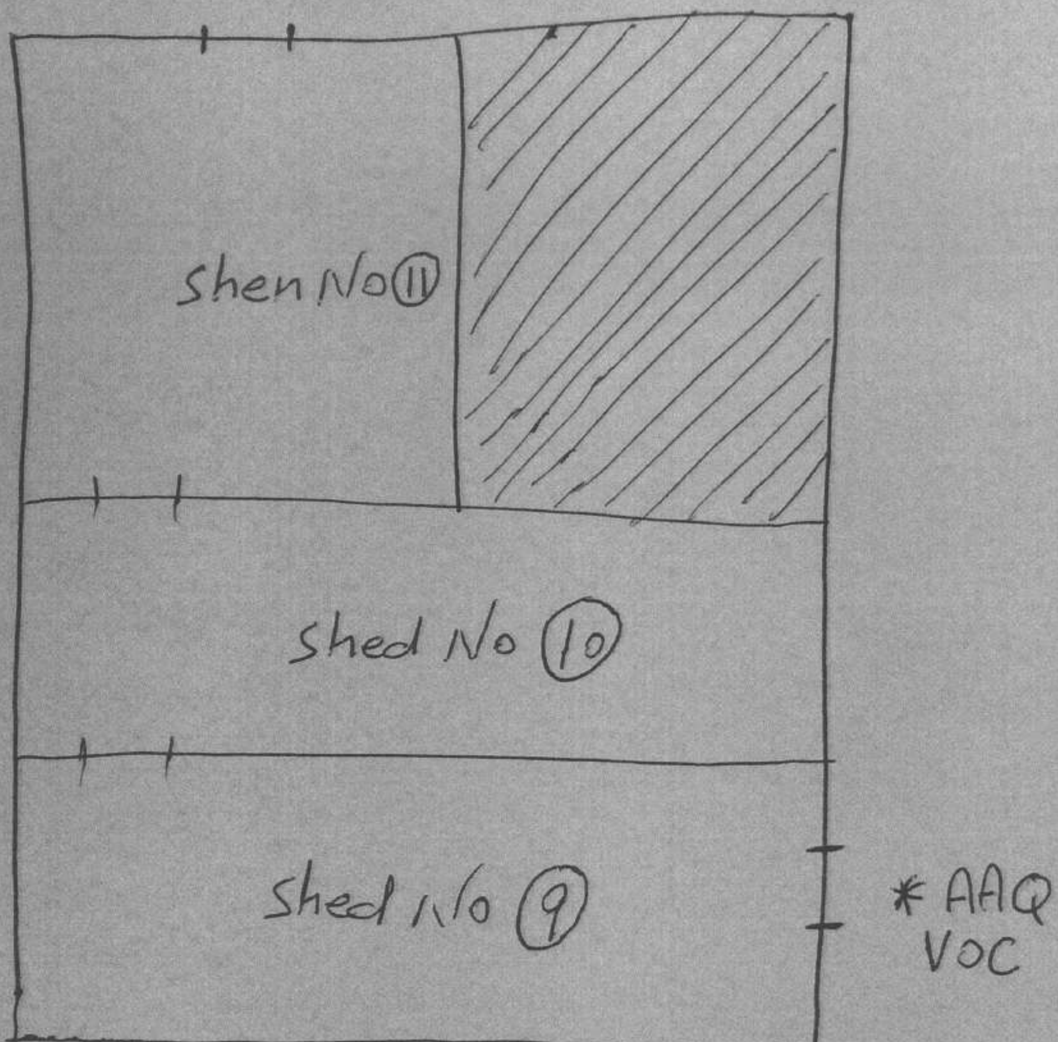
التوقيع:

للوصول لقائمة شركات الاستشارات البيئية المعتمدة يرجى الدخول على الرابط التالي
https://portal.shjmun.gov.ae/ar/Pages/environmentconsultationccompanies.aspx

To access Environment Consultation Companies ,Please visit this link
https://portal.shjmun.gov.ae/en/Pages/environmentconsultationcompanies.aspx

هاتف: ٥٦٢ ٣٣٣٣ ٠٦+٩٧١ ، فيراكس: ٥٦٢٦ ٥٥٤ ٠٦+٩٧١ ، ص.ب: ٢٢ الشارقة ، إ.ع.م.
Tel: +971 6 562 3333 - Fax: +971 6 5626 455 - P.O.Box: 22 Sharjah U.A.E.
www.shjmun.gov.ae e-mail: info@shjmun.gov.ae

مشغل مولتاني للأكياس البلاستيك
رخصة 214725
دراسة تقييم أثر بيئي
الرصد عينة رقم (11)



مبارك صالح
2019/7/21

109837

نقل موقع

سجل التفتيش والمتابعة Inspection Follow up Record

1

- اسم المفتش: مبارك صالح
- البريد الإلكتروني للمفتش:
- اسم المنشأة: مشغل هولندا لأكياس البلاستيك
- رقم الرخصة: 214725
- فئة المنشأة: ☐ منخفضة الخطورة ☐ متوسطة الخطورة ☑ عالية الخطورة
- تاريخ التفتيش: 2019/7/21
- العنوان: الفاعسية رقم (11)
- رقم المكتب:
- رقم الهاتف المتحرك:
- رقم الفاكس:
- البريد الإلكتروني
- طبيعة التفتيش: ☑ تصريح جديد / تفتيش ☐ تفتيش مفاجئ ☐ شكوى ☐ متابعة

أولا طبيعة المنشأة :

- طبيعة النشاط: ☑ صناعي ☐ مهني ☐ تجاري ☐ مستودع
- تقيد المنشأة بالنشاط المرخص: ☐ نعم ☐ لا — المنشأة جديدة
- تبليط الأرضية المخصصة بمزاولة النشاط بالخرسانة الاسمنتية: ☑ نعم ☐ لا
- موقع العملية الصناعية: ☑ مغلق ☐ شبه مغلق ☐ مفتوح
- وصف المنشأة والنشاط: الموقع عبارة عن مبنى ثلاث [illegible] بمجاورة [illegible]

* الأرضية مبلطة بالخرسانة الاسمنتية

النشاط صناعة - الأكياس البلاستيك

ثانيا : متطلبات الصحة والسلامة المهنية :

نوع المتطلب	متوفر	غير كاف	غير متوفر
النظافة العامة	☑	☐	☐
تنظيم العمل	☐	☐	☐
الترتيب والتخزين السليم للمواد (مواد أولية /منتجات)	☐	☐	☐
مسافة أمان كافية بين المواد / مناطق العمل	☐	☐	☐
خطوط أرضية ارشادية وتوضيحية	☐	☐	☑
وسائل الوقاية الشخصية المناسبة	☐	☐	☑
صندوق اسعافات أولية	☐	☐	☑
لافتات إرشادية وتحذيرية	☐	☐	☑

نقل موقع - المنشأة جديدة

109837

2

سجل التفتيش والمتابعة Inspection Follow up Record

ثالثا: تقييم جودة الهواء:

☐ مقبول

☐ غير مقبول

رابعا: تقييم المخاطر الفيزيائية :

- الضجيج: ☐ مقبول ☐ غير مقبول
- الإنارة ☑ جيدة ☐ مقبولة ☐ ضعيفة
- المسافة بين العمال ومصدر الضجيج :
- الاهتزازات المصاحبة لنشاط المنشأة ☐ شديدة ☐ خفيفة ☑ لا توجد
- درجة الحرارة
- الرطوبة النسبية

خامسا: تقييم التعامل مع المواد الكيميائية :

نوع المتطلب	نعم	لا
● استخدام المنشأة لمواد كيميائية خلال مزاولة النشاط	☐	☐
● توفر مخازن منفصلة حسب طبيعة المواد الكيميائية	☐	☐
● توفير تهوية / تبريد مناسب لتخزين المواد الكيمائية	☐	☐
● الالتزام بكشف السلامة للمواد الكيمائية التداول لتخزين المواد	☐	☐

ملاحظات :

109837

نقل موقع

سادسا: تقييم النفايات المتولدة

- طبيعة ونوع النفايات

تصنيف النفايات	طبيعة النفايات	نوع النفايات	جمع وتخزين النفايات بشكل سليم		لديه تصريح تخلص من النفايات		كمية النفيات المتولدة بالشهر
			نعم	لا	نعم	لا	
نفايات غير خطر	صلبة						
	سائلة						
نفايات خطرة	صلبة						
	سائلة						
	حمأة						

- طريقة التخلص من النفايات

☐ معالجة النفايات :

☐ مكب النفايات :

☐ إعادة تدوير/ استخدام :

☐ بيع النفايات :

☐ التخلص من النفيات بطرق غير قانونية :

سابعا: التوصيات

الاهتمام بالنظافة العامة والتخلص السليم من النفايات

الاهتمام بالترتيب والتخزين للمواد الخام والمنتجات

الزام جميع العمال بادوات السلامة المهنية كاملة

عمل لوحات ارشادية وخطوط ارضية ارشادية واضحة

توفير صندوق اسعافات اولية

التعاقد مع شركة استشارية معتمدة من مديرية الشارقة لعمل دراسة تقييم اثر بيئي EIA

عدم ممارسة النشاط الا بعد تطبيق التوصيات الواردة في الدراسة البيئية

السعي لتسليم التعاقد

109837

4

سجل التفتيش والمتابعة Inspection Follow up Record

ثامنا : الإجراء النهائي

- [ ] مستوفي الاشتراطات البيئية
- [ ] كتابة تعهد لتنفيذ التوصيات خلال فترة
- [ ] دفع تأمين لتنفيذ التوصيات خلال فترة
- [ ] تعديل الوضع البيئي خلال فترة
- [x] إعداد دراسة EIA
- [ ] استخراج تصريح التخلص من النفايات
- [ ] تحرير مخالفة بند رقم

تاسعاً : التقييم العام للمنشأة

☐ ممتاز	☐ جيد جدا	☑ جيد	☐ تحتاج لتعديل الوضع البيئي	☐ ضعيف وتسبب تلوث للبيئة
★★★★★	★★★★	★★★	★★	★

اسم المفتش مبارك صالح

التوقيع

2019/07/21

اسم الشخص المسؤول

التوقيع

UMAIR AZIZ