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CITY OF CAPE TOWN
ENVIRONMENTAL HEALTH SPECIALISED SERVICES
AIR QUALITY MANAGEMENT

APPLICATION FORM FOR ATMOSPHERIC EMISSION LICENCE / PROVISIONAL ATMOSPHERIC EMISSION LICENCE IN TERMS OF CHAPTER 5 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT NO. 39 OF 2004)

City of Cape Town
Air Quality Management
246 Voortrekker Road
Vasco 7460
P.O Box 2815
Cape Town
8000

Tel: (021) 590 5200
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Name of Enterprise: Swartland Insulation Pty Ltd

Declaration of accuracy of information provided:

Application for an atmospheric emission licence / provisional atmospheric emission licence as envisaged in chapter 5 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).

I, _____[*delegated by the Accounting Officer*], declare that the information provided in this application or attached to the application is, to the best of my knowledge, in all respects factually true and correct. I am aware that the supply of false or misleading information in the application form is a criminal offence in terms of section 51(1)(f) of the Act.

Signed at_____ on this_____day of _____

_____

SIGNATURE

_____

CAPACITY OF SIGNATORY

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NB: PLEASE COMPLETE ALL SECTIONS. KINDLY MARK WITH AN X IN SPACES WHERE APPLICABLE. IF THE SPACE PROVIDED IS INSUFFICIENT, THE REQUIRED INFORMATION MAY BE SUBMITTED IN THE FORM OF A MEMORANDUM. ATTACH REQUIRED MAPS AND SKETCHES. GRAPHICS MUST BE CLEAR, LABELED AND, WHERE APPLICABLE.

1 TYPE OF APPLICATION

X	New Application		Transfer
	Renewal		Variation/Amendment/Review

Current APPA Permit / Atmospheric Emission Licence Number:	

2 ENTERPRISE INFORMATION

Enterprise Name	Swartland Insulation Pty Ltd
Trading As	Swartland Insulation Pty Ltd
Type of Enterprise, e.g. Company/Close Corporation/Trust, etc	Company
Company/Close Corporation/Trust Registration Number (Registration Numbers if Joint Venture)	2019/198892/07
VAT registration number	
Business partner number	
Registered Address	3 Kotze Street
Postal Address	Po Box 216, Moorreesburg
Telephone Number (General)	086 61102425
Fax Number (General)	022 4332760
Industry Type/Nature of Trade	Manufacturing
Land Use Zoning as per Town Planning Scheme	Industrial
Land Use Rights if outside Town Planning Scheme	N/A

Responsible Person Name or Emission Control Officer (where appointed)	Derrick Nel
Telephone Number	0861102425
Cell Phone Number	082 854 0778
Fax Number	
E-mail Address	Derrick.nel@swartland.co.za
After Hours Contact Details	082 854 0778

3 SITUATION AND EXTENT OF PLANT

3.1 Location and extent of plant

Physical Address of the Plant	3 Charles Matthew street, Atlantis Industrial
Description of Site (Where No Street Address)	
Coordinates of Approximate Center of Operations	North-south: -33.590579° East-west: 18.476267°
Extent (km²)	26929.7 m^2
Elevation Above Mean Sea Level (m)	141
Province	Western Cape
Metropolitan/District Municipality	City of Cape Town
Local Municipality	City of Cape Town
Designated Priority Area	n/a

3.2 Description of surrounding land use (within 5 km radius)

Provide a description of the surrounding land use within a 5 km radius, specifically noting the names and proximity of residential and commercial areas in relation to the site of the works.

Attach map(s), satellite image(s) or aerial photograph(s) detailing location of premises in relation to surrounding community.

The location of the proposed site can be seen in Figure 1. The site is located within the Atlantis Industrial in Atlantis, Cape Town.

Within the immediate areas to the site, there are various light industries. Residential areas are located further away to the north, including Protea Park, Avondale, Saxonsea and Sherwood. Witsand settlement is located less than 1km away to the east from the Atlantis Industrial. Further to the east, there are various farms and small holdings.

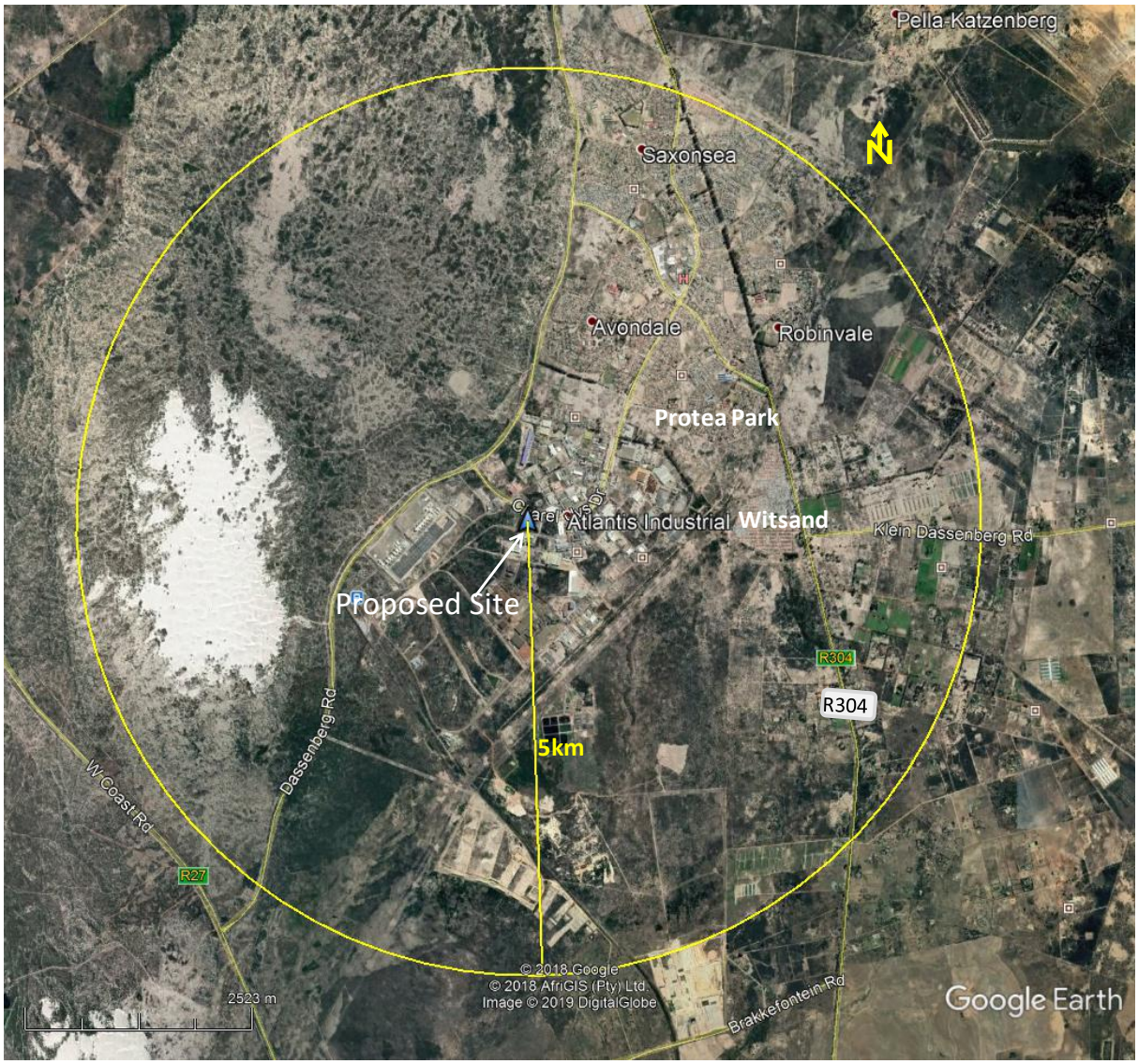

Figure 1. Locality Map

4 NATURE OF PROCESS

4.1 Process description

Please provide a detailed description of the entire production process including reference to the overall balance sheet of inputs, outputs and emissions at the site of the works.

Extruded polystyrene foam (XPS) is produced by a continuous extrusion process. Virgin Polystyrene pellets are mixed with pellets containing flame retardant colour and nucleating agents. This mix is fed into the first extruder where the material is melted from the rotating screw. Once the polymer is melted, one or more gases are injected into the melt stream in their liquid state. These liquified gases are dissolved into the polymer mix. The mix passes from the first extruder to the second extruder via a heated pipe. Both extruders are designed to run at elevated pressures to ensure the dissolved gases do not gasify and foam prematurely.

The second extruder is larger in diameter and is designed to cool the melt to increase the melt strength of the polymer for it to be able to hold the dissolved gases as they come out of solution upon exiting the die. The pressurized melt is cooled from approximately 200°C to around 135°C in this second extruder.

The material exits through a slot die and the gases expand as the pressure drops. The nucleating agent creates a nucleus for bubble formation. The gases coalesce around each nucleus to create bubbles.

The heat of vaporization takes energy from the material which cools the foam further. The foam material expands from the die between two horizontal calibration plates which control the final thickness. Variations in the slot die opening and the calibrator plate position allow board thicknesses between 20 and 200mm.

The board continues through the calibrator and is now cold enough to keep its shape. It continues downstream for a further 30 to 60m to allow it to cool further. After cooling, the board edges are removed by milling to achieve the desired width. The continuous board is then cut to length and can be further treated to add surface patterns or grooves. The retained gases inside the foam structure increase the insulation value of the board.

The potential volatile organic compounds (VOCs) emissions are minimal/negligible, and there will be no stacks or vents required to be installed at the facility.

4.2 Listed activities

List all Listed Activities, as published in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), proposed to be conducted at the premises in terms of this application:

Listed Activity Number	Category of Listed Activity	Sub-category of the Listed Activity	Name of the Listed Activity	Description of the Listed Activity
6	Organic Chemicals Industry	-	-	The production, or use in production of organic chemicals not specified elsewhere including acetylene, acetic, maleic or phthalic anhydride or their acids, carbon disulphide, pyridine, formaldehyde, acetaldehyde, acrolein and its derivatives, acrylonitrile, amines and synthetic rubber. The production of organometallic compounds, organic dyes and pigments, surface=active agents. The polymerisation or co-polymerisation of any unsaturated hydrocarbons, substituted hydrocarbon (including vinyl chloride). The manufacture, recovery or purification of acrylic acid or any ester of acrylic acid. The use of toluene di-isocyanate or other di-isocyanate of comparable volatility; or recovery of pyridine.

4.3 Unit process

List all unit processes associated with the listed activities in operation at the premises by the atmospheric emission licence holder, highlighting unit processes proposed in respect of this application:

Unit Process	Unit Process Function	Batch or Continuous Process
Extrusion	Produce polystyrene boards using Virgin Polystyrene pellets	Continuous
Milling and cutting	The board edges are removed by milling to achieve the desired width. The continuous board is then cut to length and can be further treated to add surface patterns or grooves.	

***Unit process** means a single component (equipment) with identifiable inputs and outputs within a process flow. A series of unit processes make up the full manufacturing process, for example, boiler, furnace, distillation column, etc.

Please provide any other unit processes currently conducted at the site of works.

Name of the Unit Process	Description of the Unit Process

4.4 Hours of operation

Provide the hours of operation of all unit processes associated with the listed activities in operation at the premises by the atmospheric emission licence holder, highlighting unit processes proposed in respect of this application:

Unit Process	Operating Hours	Number of Days Operated per Year
polystyrene board extrusion (with the use of chemicals)	24	365

4.5 Graphical process information

Attach the following for the entire operation being undertaken at the site of the works:

- Simplified block diagram with the name of each unit process in a block; showing links between all unit processes or blocks.
- Process flow chart(s) clearly indicating inputs, outputs and emissions at the site of works, including points of potential fugitive emissions and emergency releases.
- Site layout diagram (plan view and to scale) indicating location of unit processes, plants, buildings, stacks, stockpiles and roads (include true north arrow and scale).

NB: Indicate clearly on the above graphics the listed activity or activities applied for in this application. Alternatively, provide additional graphics for the listed activity or activities applied for.

The simplified block diagram can be seen in Figure 2. The site layout can be seen in Figure 3 and Figure 4 below.

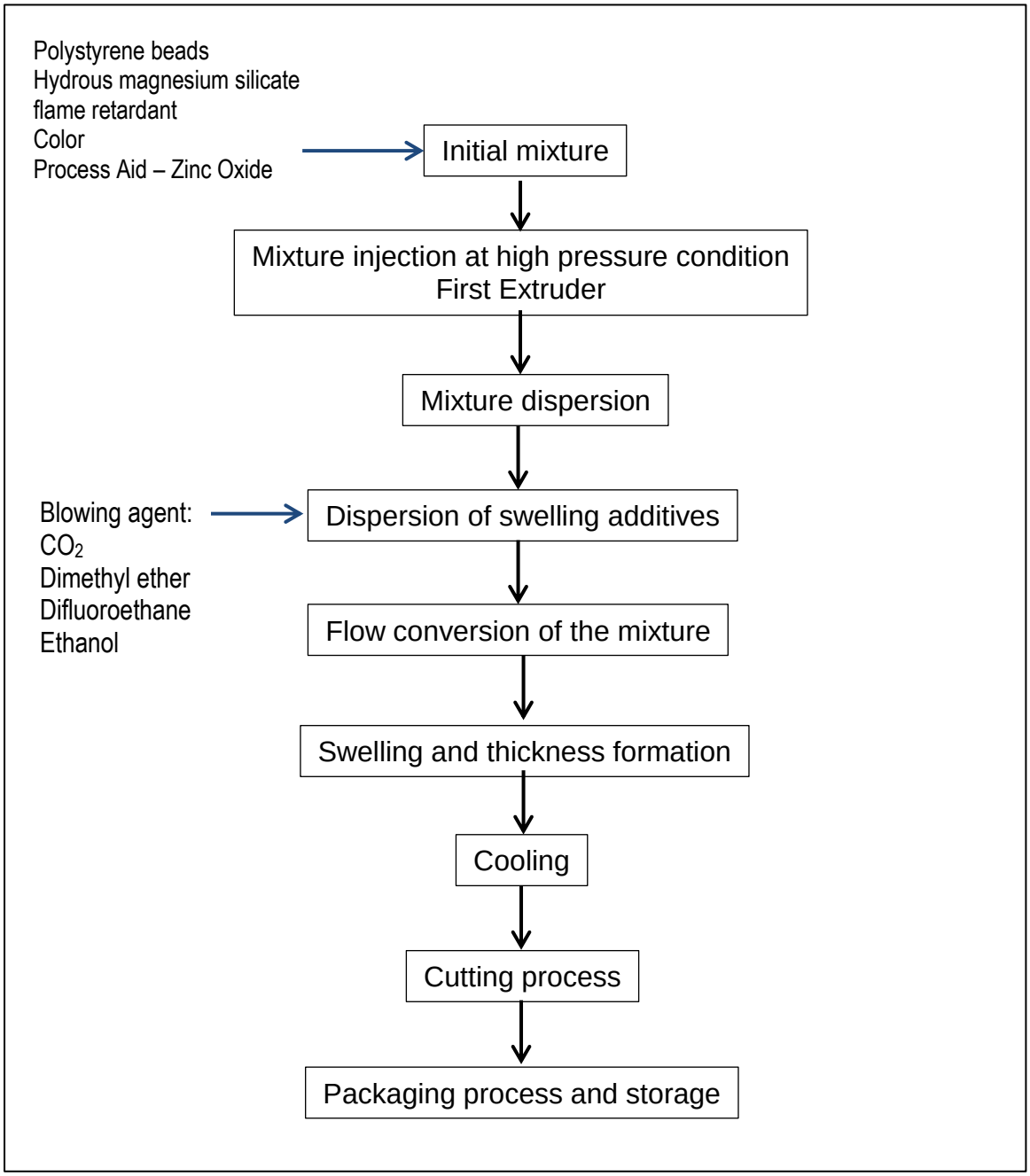

Figure 2. Block flow diagram

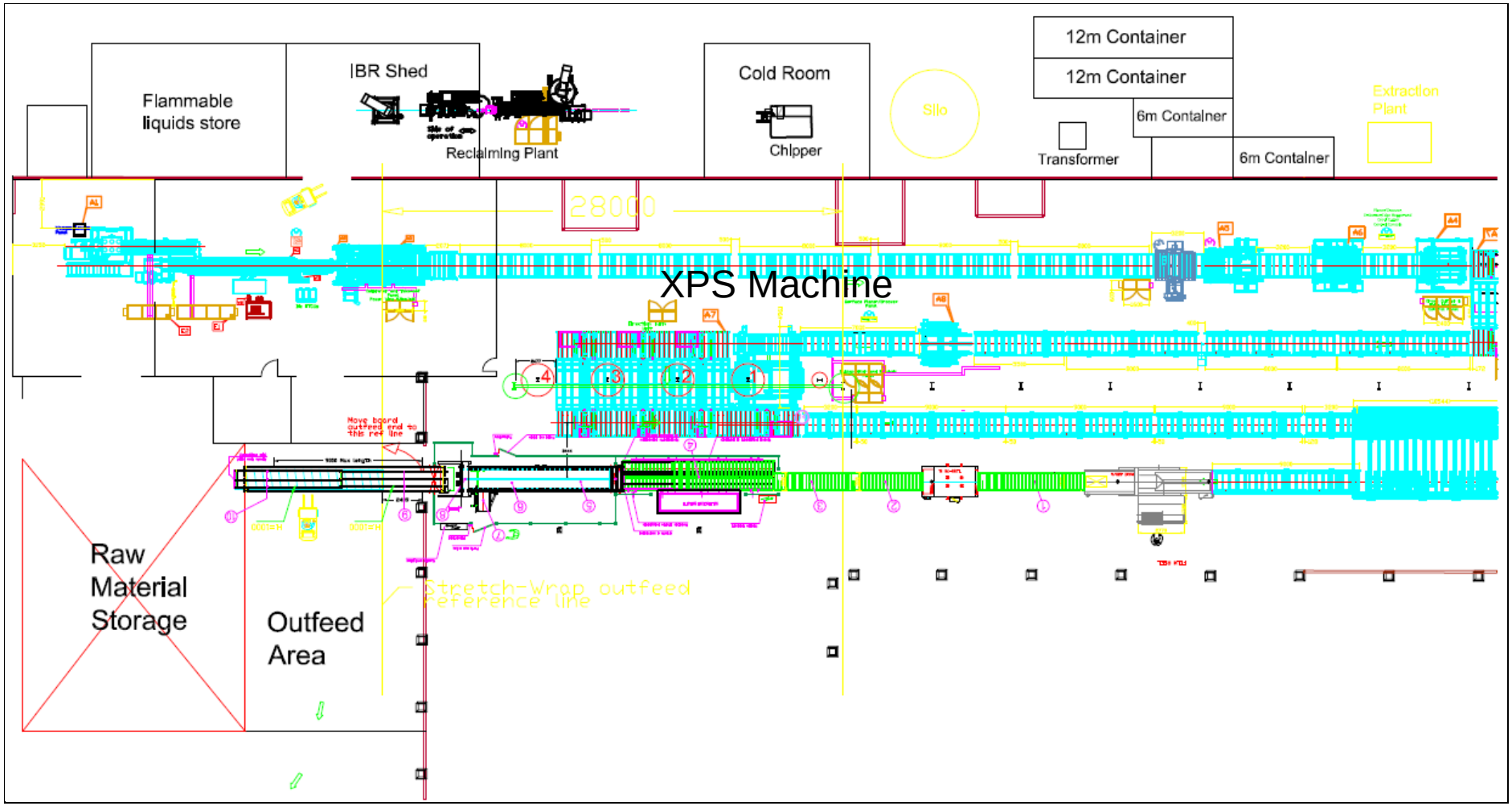

Figure 3. Reclaiming Plant Proposed Position

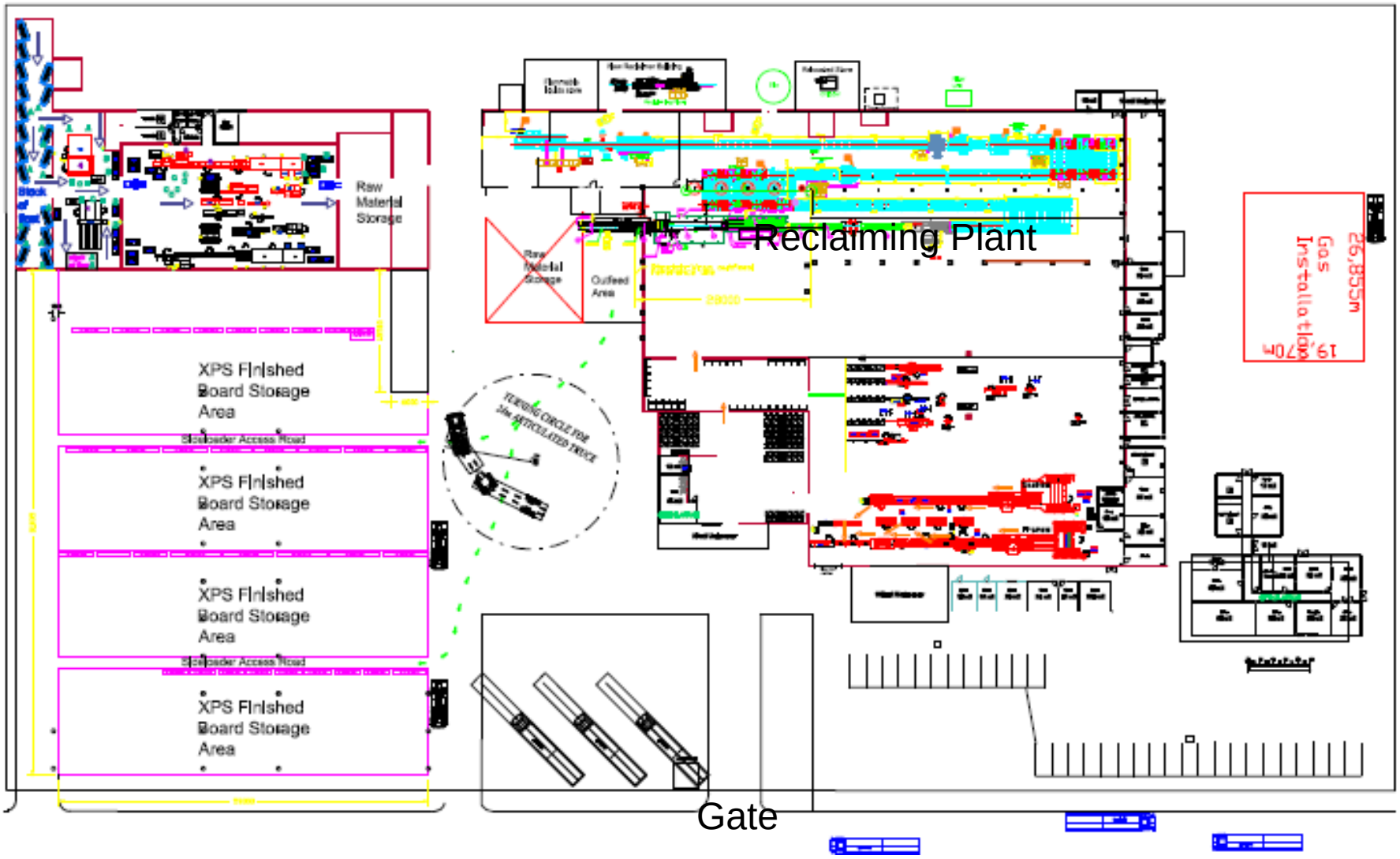

Figure 4. Complete Site Plan

5 RAW MATERIALS AND PRODUCTS

Provide raw material information, production and by-production rates and emissions information.

5.1 Raw materials used

Raw Material Type	Maximum Permitted Consumption Rate (Quantity)	Design Consumption Rate (Quantity)	Actual Consumption Rate (Quantity)	Units (Quantity/Period)
Polystyrene beads (C8H8)	-	18048	-	kg/day
Hydrous magnesium silicate	-	192	-	kg/day
Flame retardant	-	768	-	kg/day
Colour - Blend of organic and inorganic pigments dispersed in an ethylene methylacrylate copolymer	-	96	-	kg/day
Process Aid – Zinc Oxide	-	96	-	kg/day
CO2	-	248.24	-	kg/day
Dimethyl ether(DME) aerosol grade	-	630.15	-	kg/day
152a (gas) – Difluoroethane	-	267.34	-	kg/day
Ethanol - Ethyl alcohol of 99.99 % (volume) purity, denatured with 5 % (volume) ethyl acetate	-	343.72	-	kg/day

5.2 Production rates

Production Name	Maximum Production Capacity Permitted (Quantity)	Design Production Capacity (Quantity)	Actual Production Capacity (Quantity)	Units (Quantity/Period)
30kg/m^3 extruded polystyrene boards	800	-	400	kg/hour

By-Product Name	Maximum Production Capacity Permitted (Quantity)	Design Production Capacity (Quantity)	Actual Production Capacity (Quantity)	Units (Quantity/Period)
n/a				

5.3 Materials used in energy sources

The applicant must specify the materials used in energy sources, namely, coal, oil, gas or wood.

Materials for Energy	Sulphur Content of the Material (%)	Ash Content of Material (%)	Maximum Permitted Consumption Rate (Quantity)	Design Consumption Rate (Quantity)	Actual Consumption Rate (Quantity)	Units (Quantity/ Period)
Electricity	-	-	1063	850	-	Kw
* Diesel generator will be installed to run the plant during power failures or load shedding.						

5.4 Sources of atmospheric emission (including all tiers of greenhouse gas)

Provide emissions averaging periods that correspond to the averaging periods as set out in the national ambient air quality standards published under Government Notice No. 1210, Gazette No. 32816 dated 24 December 2009, and/or the minimum averaging periods of the relevant pollutant in relation to its health impact.

5.4.1 Point source parameters

Unique Stack ID	Source Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Height of Release Above Ground (m)	Height Above Nearby Building (m)	Diameter at Stack Tip / Vent Exit (m)	Actual Gas Exit Temperature (°C)	Actual Gas Volumetric Flow (m^3/hr)	Actual Gas Exit Velocity (m/s)
There will be no stacks required.									

***Point source** means a single identifiable source and fixed location of atmospheric pollution, e.g. stack, chimney, etc.

5.4.2 Point Source Emissions

Provide emission values as being measured under normal conditions of 273 K, 101. 3 kPa, specific oxygen percentage and dry gas.

As per 5.4.1 ID	Pollutant Name	Maximum Release Rate					Emissions Hours	Type of Emissions (Continuous / Routine but Intermittent / Emergency Only)
		(mg/Nm^3)	(mg/Am^3)	g/s	Averaging period	Tons per annum		
	N/A							

5.4.3 Point source current emissions monitoring

Provide information on emission monitoring requirements.

As per 5.4.1 ID	Emission Sampling / Monitoring Method	Sampling Frequency	Sampling Duration	Measured Parameters
There will be no stacks at the plant. However, it is recommended to conduct once-off ambient air quality monitoring (ambient VOCs concentrations) at 3 selected locations within the the building where extrusion takes place. This investigation will serve to verify that the possible emissions from the process are negligible.				

5.4.4 Point source emission estimation information

As per 5.4.1 ID	Basis for Emission Rates
	N/A

5.4.5 Area and/or line source parameters

Unique Area Source ID	Source Name	Source Description	Latitude (decimal degrees) of SW corner	Longitude (decimal degrees) of SW corner	Height of Release Above Ground (m)	Length of Area (m)	Width of Area (m)	Angle of Rotation from True North (°)
There are no area or line sources.								

***Area source** means air pollution source from a specified area, e.g., pollution from a landfill site, fugitive dust from a process.
***Line source** means a moving source of pollutants, e.g., motor vehicles.

5.4.6 Area and/or line source emissions

As per 5.4.5 ID	Pollutant Name	Maximum Release Rate (quantity per period)	Average Annual Release Rate (quantity per period)	Emission Hours	Type of Emission (Continuous / Intermittent)	Wind Dependent (Yes / No)
	N/A					

5.4.7 Area and/or line source – management and mitigation measures

Provide information on management and mitigation measures.

As per 5.4.5 ID	Description of Specific Measures	Timeframe for Implementation of Specific Measures	Method of Monitoring Measure Effectiveness	Contingency Measure
	N/A			

5.4.8 Area and/or line source emission estimation information

As per 5.4.5 ID	Basis for Emission Rates
	N/A

6 APPLIANCES AND MEASURES TO PREVENT AIR POLLUTION

6.1 Appliances and control measures

Provide information on appliances and measures implemented to prevent air pollution for the entire operation at the site of the works, highlighting information for listed activity or activities proposed in respect of this application.

Appliances				Abatement Equipment Control Technology							
Associated Unique Stack ID	Appliance / Process Equipment Number	Appliance Type / Description	Appliance Serial Number	Abatement Equipment Manufacture Date	Abatement Equipment Name and Model	Abatement Equipment Technology Type	Commission Date	Date of Significant Modification / Upgrade	Design Capacity	Minimum Control Efficiency (%)	Minimum Utilization (%)
N/A											

6.2 Start-up, maintenance and shut-down conditions

List potential start up, maintenance, shut down, upset conditions and associated responses related to the operations at the site of the works, highlight possible releases and responses for the proposed listed activity or activities in respect of the current application.

Unit Process	Description of Occurrence of Potential Releases	Pollutants and associated amount of emissions	Briefly Outline Back Up Plan
N/A			

6.3 Complaints register

Is a complaints register maintained at the site works?

	Yes	
	No	no
	To be initiated, by date: commence of plant operations	

7. DISPOSAL OF WASTE AND EFFLUENTS ARISING FROM ABATEMENT EQUIPMENT CONTROL TECHNOLOGY

Provide the following information for any waste and effluent arising from abatement equipment control technology that are currently in place at the site of the works:

Unique Stack or Area ID (As per 5.4.1 or 5.4.5 above)	Waste / Effluent Type	Hazardous Components Present	Method of Disposal
There will be no waste or effluent produced.			