

E.1 Emissions to Atmosphere

The potential emissions to air from the waste activities that will be carried out include dust, vehicle exhausts and odours. Dusts are associated with the location and type of waste processing and associated vehicle movements. Vehicle exhausts contain a range of compounds that affect air quality, for example nitrous oxide, carbon monoxide, methane, carbon dioxide, benzene and particulates. Odours are associated with the types of wastes accepted, the type of processing carried out and the time the wastes are retained on site. Household residual waste and food waste contain materials that are a source of odour.

E1.A Point Emissions to Atmosphere

There are no boilers at the facility. The only point emission source will be the stack on the odour control unit (OCU), which is part of the odour control system that will be installed in Building A1. The location of the emission point (A2-1) is shown on Drawing No. 138-01-Emissions and Sampling Locations. The stack will be 14m high.

The odour control system will be installed before any residual waste and food waste are accepted. The system will comprise an upgrade to the building fabric and the provision of the OCU. The detailed design of the system will be agreed with the EPA before it is installed and commissioned. It will maintain the building under negative air pressure, with a minimum of two full air changes every hour and achieve an exhaust odour threshold concentration of less than 460 odour units OuE/m³ from the OCU.

The odour exhaust threshold value is designed to comply with the Agency's Final Draft BAT Guidance Note on Best Available Techniques for the Waste Sector: Waste Transfer and Materials Recovery (2011). In terms of odours it is BAT to ensure that activities at a MRF are carried out in a manner such that emissions of odours do not result in significant impairment of, and/or significant interference with amenities or the environment beyond the facility boundary.

Building A1 has a steel portal frame with metal cladding. There is a 2.5m high reinforced concrete wall between the steel structural supports and two large vehicular access doors at the southern side. The inside to the building will be cleaned and then a 25mm thick foam spray will be applied to all cladding joints and other parts of the building fabric that could be susceptible to air leaks. Rapid action doors will be fitted to the vehicle access points. The objective of the upgrade is to achieve an air leakage rate of < 2m³/m²/hour

The OCU will be located outside Building A1, at the south-western side. It will have an air extraction system capable of achieving 2 air changes/hour (45,000m³) and comprising two (2No.) 25kw fans. The fans will connect to ceiling mounted galvanised ducting inside building and will have the capacity to draw 50,000m³ of air per hour, providing duty and standby functions.

The air will be drawn through a dust filter and scrubber to remove particulates and then into an activated carbon treatment unit, where odorous compounds in the air will be absorbed. The treated air will then vent to atmosphere via a 14m high stack.

E1.B Fugitive and Potential Emissions.

The primary source of dust emissions are vehicle movements on the paved yards during dry periods and the processing of wastes. PANDA cleans the yards daily using a road sweeper and regularly damps down the yards during dry periods, using hoses and external wall mounted water sprayers. All waste processing will be carried out inside the buildings.

There are dust suppression sprayers inside the Building A1 that are used to control dusts generated during waste processing. Similar sprayers will be mounted in Building A2 before C&D processing begins in this building.

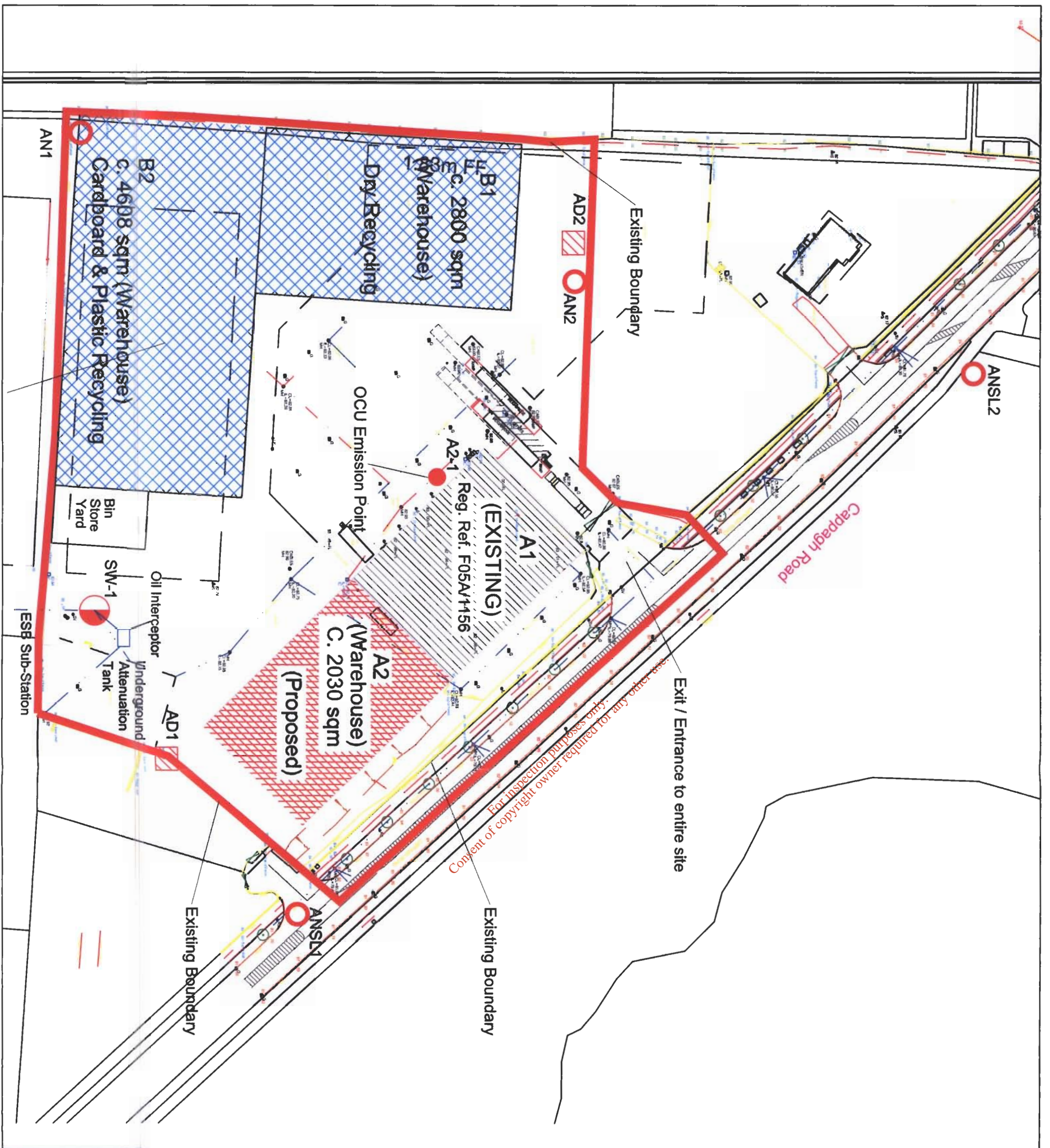
The diesel fuelled heavy goods vehicles based at the facility are fitted with Selective Catalytic Reduction (SCR) systems. A diesel fuel additive (AdBlue) is used in the SCR to reduce the nitrous oxide levels in the exhaust gases.

The only wastes handled at the facility that are a source of malodours will be the household food waste and residual waste. These wastes will only be handled and stored in Building A1. The odour control system that will be installed in the building, which is described in E.1A above, is designed to minimise fugitive odour emissions.

The results of the dust deposition monitoring carried out in 2013 are presented in the Table below.

Sampling Period	AD1 (mg/m ² /day)	AD2(mg/m ² /day)	ELV
May-June 2013	86	50	350
August-September 2013	67	117	

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NOTES

- NOISE MONITORING LOCATION
- DUST MONITORING LOCATION
- OCU Monitoring/Emission
- Surfacewater Sampling/Emission

#	I.D.	EASTING	NORTHING
1	AN1	310786	240435
2	AN2	310825	240564
3	ANSL1	310991	240491
4	ANSL2	310849	240668
5	SW1	310912	240438
6	AD1	310949	240458
7	AD2	310818	240566
8	A2-1	310876	240529

CLIENT
PANDA

TITLE
EMISSIONS AND SAMPLING LOCATIONS

SCALE
 DRAWING No. 138-01

REV.
 A

ED_APP
 DATE: 01/2014

DESCRIPTION
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E.2 Emissions to Surface Water

The only emission to surface water from the facility is rainwater run-off from roofs and paved areas. The run-off is collected in the surface water drainage system and directed to the attenuation tank, as shown on Drawing No.138-01. The tank has a capacity of 1,400m³ and is connected to a Class 1 Full Retention Klargest Oil Interceptor.

The emission does not contain any substances listed in the Schedule of EPA (Industrial Emissions) (Licensing) Regulations 2013 S.I. No. 137 of 2013, are emitted.

The attenuation tank provides temporary storage of surface water. The outflow from the tank is regulated by a hydrobrake, which has a maximum discharge rate of 6 litres/second (l/s). This passes through the interceptor before discharging to the Stadium Business Park storm water sewer at location SW-1 shown on Drawing 138-01- Sampling & Emissions Locations.

The size of the attenuation tank is based on the run-off from an impermeable surface area (roof and paved yards) of 25,284 m² and the requirement to accommodate 1:100 year 6 hour rainfall event (60mm) that will generate 1,517.04m³ of run-off. Assuming a continuous discharge rate of 6l/second, which equates to 129.6m³ over the 6 hour period, the required storage capacity is 1387.44m³

Rainwater run-off from the roof of the new and existing buildings will be collected and diverted to a rainwater harvesting system for use as 'grey water' in the welfare facilities and the dust suppression system. The roofs of Buildings B1, B2 and A2 have a combined area of 9,438m². Based on the annual average annual rainfall at Dublin Airport (732mm), such an area would generate approximately 6,800m³ of run-off annually and its use for 'grey water' would reduce the volume discharged to the storm sewer.

As the emission includes run-off from the paved yards where vehicles are manoeuvred and parked there is the potential for small amounts of hydrocarbons and suspended solids to be present. The current Waste Licence requires weekly visual inspections and testing for pH and electrical conductivity and quarterly monitoring for mineral oil. The results of the quarterly monitoring completed in 2013 and 2014 that were available at the time of the licence application are presented in the Table below.

Date	pH	Conductivity (us/cm)	Mineral Oil (ug/l)
Q1 2013	-	-	172
Q2 2013	7.6	229	149
Q3 2013	7.4	240	26
Q4 2013	7.6	399	<2.5
Q1 2014	7.3	655	292

E.3 Emission to Sewer

The waste processing does not generate a wastewater. Sanitary and sink wastewater from the site welfare facilities is discharged to the facility's foul drainage system, which is shown on Drawing No 6423. The wastewater is collected in a 13.5 m³ concrete storage tank outside the southern side of Building A1, the contents of which are removed off-site on a routine basis and disposed of at the municipal wastewater treatment plant at Ringsend operated by Dublin City Council.

The effluent quality is monitored quarterly in accordance with the Waste Licence monitoring requirements and the results for 2013 are in the Table below.

Parameter	Units	Result 27/03/2013	Result 11/06/2013	Result 26/09/2013	
Ammonia	mg/L as N	12.96	29.14	0.068	
Arsenic	ug/L	4.73	23.38	0.538	
BOD	mg/L	825		<2	
Boron	ug/L	212	396.6	99.52	
Cadmium	ug/L	0.429	1.751	<0.05	
Chloride	mg/L	93.93	101.04	27.16	
Chromium	ug/L	8.682	128.2	9.268	
COD	mg/L	1254	1356	7	
Copper	ug/L	53.45	1659	6.333	
Lead	ug/L	60.96	212.4	1.822	
Mercury	ug/L	0.365		0.121	
Mineral Oil	ug/L	310.9	<2.5	<2.5	
Nickel	ug/L	23.4	84.9	4.461	
pH	pH units	6.8	7.0	7.9	
Selenium	ug/L	<2.12	<2.12	<2.12	
Suspended Solids	mg/L	252	1635	6	
Sulphate	mg/L as SO ₄	248.75	227.78	94.10	
Zinc	ug/L	262.3	1808	25.59	

E 4 Emissions to Ground

There are no existing direct or indirect emissions to ground and the proposed changes will not result in any new direct or indirect emissions to ground. The residual waste and food waste will be handled inside Building A1, which has impermeable concrete floor that prevents any accidental spills or leaks from infiltrating to the underlying ground.

There is the potential for leaks/spills to ground during refuelling of oil storage tanks. The potential pathways to the ground include damaged paving and direct infiltration in unpaved landscaped areas. Other potential sources include leaks from the wastewater storage tank and surface water drainage system.

The proposed changes do not require the provision of either new wastewater storage tanks, or new oil storage areas. The existing underground wastewater storage tank and the oil storage tanks are subject to routine inspection and integrity testing specified in the Waste Licence to confirm they are fit for purpose. These measures minimise the risk of the infiltration of accidental spills/leaks to the ground.

The “first flush” of storm water after a dry period can contain pollutants that accumulate on ground surface e.g. minor leaks from vehicles in parking areas, and sediment. All run-off from the paved yards is directed to the attenuation tank and oil interceptor.

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E5. Noise Emissions

The main existing and new noise sources and associated noise levels in the operational stage are listed in the table below

Table Main Noise Sources and Associated Noise Levels

Item of Plant	Noise Level dBA @ 2m	Comment
OCU Fans(2 x25Kw)	73	Fans will be housed inside An Acoustic Enclosure
Shredder	90	Measurement inside building
Trommel screen	89	Measurement inside building
Transfer conveyor x 2	84	Measurement inside building
Front-end loader x 2	87	Measurement inside building
Forklift	85	Measurement inside building
Yard sweeper	80	
Grab	87	Measurement inside building

Noise emissions will occur during the day time operation (07.00 to 22.00 hours) and night time (22.00 to 23.00 and 06.00 to 07.00). During the night-time hours, the only noise sources will be vehicles exiting and entering the site.

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Point Code	Point Type	Easting	Northing	Verified	Pollutant
Provide label ID's assigned in section F3		6E-digit GPS Irish National Grid Reference	6N-digit GPS Irish National Grid Reference	Y = GPS used	e.g. SO ₂ , HCl, NH ₃
				N = GPS not used	
AN1	Noise			N	
AN2	Noise			N	
ANSL1	Noise			N	
ANSL2	Noise			N	
SW1	Surface Water			N	
AD1	Dust			N	
AD2	Dust			N	
A2-1	Odour			N	

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