Additional Information

Amended Waste Licence Application (17 Dec 2009) to Original Application (22 Dec 2008)

Reference	Comments
SOPs referenced initially in Attachment C.2 have been revised. All references in the Waste Licence Application and EIS are now to the revised SOPs as follows:	
CIR20-128Rev.1	Biostabilisation Plant Operation
CIR20-129Rev.1	Biostabilisation Plant Leachate Management Plan
CIR20-130Rev.1	Biostabilisation Plant Biofilter Management Plan
CIR20-131Rev.1	Odour Management Plan
CIR20-132Rev.1	Biostabilisation Plant Maintenance Plan

Drawings referenced initially in WL application and EIS have been revised. All references in the Waste Licence Application and EIS are now to the revised drawings as follows:

Drwg no:	Description
C(IRL)WL-01 Rev 1	Existing site layout & proposed redline
C(IRL)WL-02 Rev 1	Proposed Site Layout (redline only)
C(IRL)WL-06 Rev 2	Environmental monitoring locations existing with proposed redline only
C(IRL)WL-07 Rev 1	Environmental monitoring locations proposed with proposed redline
C(IRL)WL-08 Rev 1	Emissions to surface waters
C(IRL)WL-09 Rev 1	Emissions to ground
C(IRL)WL-10 Rev 1	Emissions to air
C(IRL)WL-12 Rev 1	Services plan
C(IRL)WL-19 Rev 1	Surface Water Drainage Plan
C(IRL)WL-23 Rev 1	Hardstanded area
C(IRL)WL-25 Rev 1	Noise Emissions
C(IRL)WL-26 Rev 1	Dust Emissions
C(IRL)WL-27 Rev 1	General Arrangements

SECTION F MATERIALS HANDLING

H.1 Waste Types and Quantities – Existing & Proposed

Provide an estimation of the quantity of waste likely to be handled in relation to each class of activity applied for. This information should be included in Table H.1(a).

TABLE H.1(A). QUANTITIES OF WASTE IN RELATION TO EACH CLASS OF ACTIVITY APPLIED FOR

Waste Management Act 3rd Schedule (Disposal) Activities			Waste Management Act 4th Schedule (Recovery) Activities		
Class of Activity Applied For		Quantity (tpa)	Class of Activity Applied For		Quantity (tpa)
Class 1			Class 1		
Class 2			Class 2	P	50,000
Class 3			Class 3	Y	4,000
Class 4			Class 4	Y	2,000
Class 5			Class 5		
Class 6			Class 6		
Class 7			Class 7		
Class 8			Class 8		
Class 9			Class 9	Y	2,500
Class 10			Class 10		
Class 11			Class 11	Y	2,500
Class 12		15,000	Class 12	Y	10,000
Class 13		15,000	Class 13	Y	10,000

In Table H. 1 (B) provide the annual amount of waste handled/to be handled at the facility. Additional information should be included in **Attachment H.1.** The tonnage per annum should be given of that expected for the life of the licence, with at least the next five years tonnages provided. For Landfill Review applications provide an estimate of the quantity of waste already deposited in (i) lined cells; (ii) unlined cells.

TABLE H.1(B) ANNUAL QUANTITIES AND NATURE OF WASTE

Year	Non-hazardous waste (tonnes per annum)	Hazardous waste (tonnes per annum)	Total annual quantity of waste (tonnes per annum)
2009	35,000	500	40,000
2010	62,000	2,600	64,600
2011	62,000	2,600	64,600
2012	62,000	2,600	64,600
2012	62,000	2,600	64,600

A detailed inventory of the types and quantities of wastes currently handled at the site and proposed to be handled should be submitted as Table H.1 (C).

TABLE H.1 (C) WASTE TYPES AND QUANTITIES

WASTE TYPE	TONNES PER ANNUM (existing)	TONNES PER ANNUM (proposed)	TOTAL (over life of site) tonnes 20 years
Household	9,865	28,500	570,000
Commercial	6,308	13,000	200,000
Sewage Sludge		1,500	60,000
Construction and Demolition	5,195	17,500	350,000
Industrial Non-Hazardous Sludges		1,500	60,000
Industrial Non-Hazardous Solids			
Hazardous ***(Specify detail in Table H 1.2)**		2,600	52,000
Inert Waste imported for restoration purposes	COMPLETE FOR LANDFILL & CONTAMINATED LAND FACILITIES ONLY		

* TABLE H.1.2 HAZARDOUS WASTE TYPES AND QUANTITIES

HAZARDOUS WASTE	DETAILED DESCRIPTION *REFERENCE SHOULD BE MADE TO THE RELEVANT EUROPEAN WASTE CATALOGUE CODES AS PRESENTED BY COMMISSION DECISION 2000/532/EC	Tonnes Per Annum (Existing)	(Tonnes Per Annum Proposed)
Waste Oil		0	0
Oil filters	16 01 07*	0	Not Available
Asbestos	17 06	0	130
Paint and Ink	08 01 11/08 11 17/ 08 01 21	0	5
Batteries	16 06 01*	5	50
Fluorescent Light Bulbs	20 01 21*	0.05	0.5
Contaminated Soils		0	0
OTHER HAZARDOUS WASTE (APPLICANT TO SPECIFY)			
Discarded equipment containing hazardous components (^{16}) other than those mentioned in 16 02 09 to 16 02 12	16 02 13*	1.21 (includes 20 01 35)	Not Available
Discarded electric and electronic equipment other than those mentioned	20 01 21/ 20 01 23/ 20 01 35	0	84.5

in 20 02 21 to 20 01 23 containing hazardous components ([21])			
End-of-life vehicles	16 01 04*	0	2250
Components containing mercury	16 01 08*	0	Not Available (Note 1)
Components containing PCB's	16 01 09*	0	Not Available (Note 1)
Explosive components (for example air bags)	16 01 10*	0	Not Available (Note 1)
Brake pads containing asbestos	16 01 11*	0	Not Available (Note 1)
Brake fluids	16 01 13*	0	Not Available (Note 1)
Antifreeze fluids containing dangerous substances	16 01 14*	0	Not Available (Note 1)
Fuel oil and diesel	13 07 01*	0	Not Available (Note 1)
Petrol	13 07 02*	0	Not Available (Note 1)
Other fuels (including mixtures)	13 07 03*	0	Not Available (Note 1)
Soil Stone containing dangerous substances	17 05 03	0	40
Gypsum	17 08 01	0	40

Note 1: Incorporated into 2,250 tpa under End-of-life vehicles

Attachment H.1 should contain any relevant additional information.

It should be noted that an applicant may be issued with a licence which restricts the type of wastes which may be deposited.

RESPONSE

See Attachment H.1

List of Attachments & Contents

Amended Waste Licence Application (17 Dec 2009) to Original Application (22 Dec 2008)

Attachment No.	Contents
Attachment A.1.Rev.1	Non-technical Summary (amended)
Attachment C.2.Rev.1	Environmental Management System (amended)
Attachment C.3.Rev.1	Hours of Operation(amended)
Attachment D.1.Rev.1	Infrastructure(amended) *Also see additional information*
Attachment D.2.Rev.1	Operation (amended) *Also see additional information*
Attachment E.Rev.1	Emissions(amended)
Attachment E.1.Rev.1	Emissions(amended)
Attachment E.6.2.Rev.1	Emissions(amended)
Attachment F.1.Rev.1	Emissions and Abatement(amended)
Attachment F.2.Rev.1	Monitoring and Sampling Points (amended)
Attachment F.5.Rev.1	Monitoring and Sampling Points (amended)
Attachment G.2.Rev.1	Energy Efficiency(amended)
Section H.1.Rev.1 (IPPC Application Form)	Waste Types and Quantities – Existing & Proposed
Additional Information	Drawing revision numbers & SOPs referenced in original application.

F.5 Groundwater

The monitoring locations for emissions from the proposed groundwater are shown below.

LOCATION OF GROUND WATER MONITORING		
Proposed Location	**National Grid Reference**	**Geographical location**
GW1	102790N,165887E	Southeast of facility

The emission to ground water location is illustrated on individual drawing C(IRL)WL-09 included in this Attachment.

TABLE F.2 to F.8 : EMISSIONS MONITORING AND SAMPLING POINTS - (1 table per media)

Emission Point Reference No(s). : GW1

Parameter	Monitoring frequency	Accessibility of Sampling Points
pH	Biannually	Sampling Chamber
COD(mg/L)	Biannually	Sampling Chamber
BOD(mg/L)	Biannually	Sampling Chamber
Suspended Solids (mg/L)	Biannually	Sampling Chamber

Attachments F2-F9

Attachments F2-F9

The following drawings are included in this attachment:

- Drawing C(IRL)WL-06 illustrates the existing monitoring locations.
- Drawing C(IRL)WL-07 illustrates the proposed monitoring locations for this application.

Environmental monitoring and sampling will be conducted by suitable qualified monitoring personnel in accordance with standard sampling procedures. Analysis of samples will be performed by accredited laboratories in accordance with current standards. The monitoring locations provided in Attachments F2-F9 are also the sampling locations.

Attachment F.2 Air

F.2.1 The monitoring locations for emissions from the proposed biofilter is shown below.

LOCATION OF BIOFILTER MONITORING		
Proposed Location	**National Grid Reference**	**Geographical location**
A2-1	102768N, 165880E	South East of Facility

TABLE F.2 to F.8 ***Emission Point Reference No(s).*** : A2-1

Parameter	Monitoring frequency	Accessibility of Sampling Points
Ammonia	Biannually	Not Available
Metcaptans	Biannually	Not Available
Hydrogen Sulphide	Biannually	Not Available
Amines	Biannually	Not Available
TVCs[1]	Biannually	Not Available
Bioaerosols (bacteria & aspergillus fumigatus)	Annually	Not Available

[1]TVC:Total Viable Counts

F.2.2 The monitoring location for the emission from the Biomass Recovery Plant are shown below:

LOCATION OF CHP ENGINE STACK		
Proposed Location	**National Grid Reference**	**Geographical location**
A2-2	102720N, 165889E	South East of Facility

TABLE F.2 to F.8 Emission *Point Reference No(s). :* A2-2

Parameter	Monitoring frequency	Accessibility of Sampling Points
NOx	Annually	Not Available
CO	Annually	Not Available

The emissions to air (AE-1 and AE-2) locations are illustrated on individual drawing C(IRL)WL-10 included in this Attachment.

F.2.3 The fugitive emission from the site include dust, there is no proposed monitoring for the woodchip boiler as this in not related to waste processing activities:

LOCATION OF DUST MONITORING MEASUREMENTS			
Proposed Location	**National Grid Reference**	**Location Type**	**Geographical location**
D1	102716N,166230E	Boundary	North boundary
D2	102794N,166139E	Boundary	Northeastern boundary
D3	102679N,166010E	Boundary	Western boundary
D4	102731N,165869E	Boundary	Eastern boundary
D5	102804N,166012E	Boundary	Southern boundary

The emissions to air (Dust D1-D5) locations are illustrated on individual drawing C(IRL)WL-26 included in this Attachment.

TABLE Ff: Fugitive ENVIRONMENT MONITORING AND SAMPLING LOCATIONS (1 table per media)

Monitoring Point Reference No : D1-D5

Parameter	Monitoring frequency	Accessibility of Sampling point
Dust	Biannually	Accessible

F.1 EMMISIONS AND ABATEMENT

F.1.1 Emissions and Abatement to Atmosphere includes both odour scrubber and biofilter and control is discussed in Section 2.3.2.1 Project Description of the EIS.

F.1.2 Emissions and Abatement to Surface Water includes two oil/silt interceptors and control is discussed in Section 3.4 Hydrology of the EIS.

F.1.3 Emissions and Abatement to Groundwater includes the wastewater treatment plant and the mini-platnium system and is discussed in Section 3.5 Hydrogeology of the EIS.

F.1 4 Tables for emissions are completed in overleaf.

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number *: A2-1 (Biofilter)*

Control[1] parameter	Equipment[2]	Equipment maintenance	Equipment calibration	Equipment back-up
Biofilter Moisture Content (50-60%)	Not available	As per maintenance schedule	As per calibration schedule	On site spares
Biofilter Media Porosity	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Air flow	Not available	As per maintenance schedule	As per calibration schedule	Standby motor & blower for in-vessel tunnels Standby motor for curing building Standby motor for ventilation
Temperature prior to biofilter (30°C to 50°C)	Not available	As per maintenance schedule	As per calibration schedule	As required
pH wet scrubber	Not available	As per maintenance schedule	As per calibration schedule	As required
Constant flow of scrubber liquid	Not available	As per maintenance schedule	As per calibration schedule	As required

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration
Moisture Biofilter	Daily & weekly inspections	Operator: visual & smell Process control system	Not Available
Air flow biofilter	Daily & weekly inspections	Operator: visual & smell Process control system Back pressure on blower	Not Available
Temperature prior to biofilter	Daily & weekly inspections	Operator: visual & smell Process control system	Not Available
pH wet scrubber	Daily & weekly inspections	Operator: visual & smell Process control system	Not Available
Constant flow of scrubber liquid	Daily & weekly inspections	Operator: visual & smell Process control system	Not Available

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number *: A2-2(CHP Engine)*

Control[1] parameter	Equipment[2]	Equipment maintenance	Equipment calibration	Equipment back-up
Not available	Not available	Not available	Not available	Not available

Note Attachment 10 'Additional Information' of EIS contains information on

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number *: SW-1*

Control[1] parameter	Equipment[2]	Equipment maintenance	Equipment calibration	Equipment back-up
Silt	Bypass Separator	As required	Not applicable	Not applicable
Oil	Bypass Separator	As required	Not applicable	Not applicable

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration
Silt	Weekly	Visual Inspection	Not Applicable
Oil	Weekly	Visual Inspection	Not Applicable

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number : *SW-2*

Control[1] parameter	Equipment[2]	Equipment maintenance	Equipment calibration	Equipment back-up
Silt	Bypass Separator	As required	Not applicable	Not applicable
Oil	Bypass Separator	As required	Not applicable	Not applicable

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration
Silt	Weekly	Visual Inspection	Not Applicable
Oil	Weekly	Visual Inspection	Not Applicable

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

TABLE F.1: ABATEMENT / TREATMENT CONTROL

Emission point reference number : *GW-1*

Control[1] parameter	Equipment[2]	Equipment maintenance	Equipment calibration	Equipment back-up
Tertiary Polishing	Mini-platinum	As required	Not applicable	Not applicable
Wastewater treatment	Puraflo	As required	Not applicable	Not applicable

Control[1] parameter	Monitoring to be carried out[3]	Monitoring equipment	Monitoring equipment calibration
Tertiary Polishing	Not Applicable	Not Applicable	Not Applicable
Wastewater treatment	Not Applicable	Not Applicable	Not Applicable

[1] List the operating parameters of the treatment / abatement system which control its function.
[2] List the equipment necessary for the proper function of the abatement / treatment system.
[3] List the monitoring of the control parameter to be carried out.

ATTACMENT E EMISSIONS

Drawing C(IRL)WL-06 outlines the existing emissions/monitoring locations for the facility in Attachment F.

Drawing C(IRL)WL-07 outlines the proposed emissions/monitoring locations for the facility in Attachment F.

Attachment E.1 Emissions to Atmosphere.

Emissions to the atmosphere are discussed in Section 3.6 Air of the EIS. The main emissions to atmosphere includes the Biofilter and CHP engine.

Minor Emissions include:	Diesel Generator Domestic Woodchip burner
Fugitive emissions include:	Dust Odour

Attachment E.2 Emissions to Surface Water

Emissions to surface water are discussed in Section 3.4 Hydrology of the EIS.

Attachment E.3 Emissions to Sewer

Not Applicable.

Attachment E.4 Emissions to Groundwater

Emissions to surface water are also discussed in Section 3.5 Hydrogeology of the EIS.

Attachment E.5 Noise Emissions

Noise emissions are also discussed in Section 3.7 Noise and Vibration of the EIS.

Attachment E.6 Environmental Nuisances

Environmental Nuisances are also discussed in Section 3 of the EIS.

E.6.2 DUST CONTROL

The site is designed to minimise the potential for dust generation during site operations with the introduction of extensive hardstanding areas to the facility. During dry periods dust suppression methods are employed on a routine basis. The waste delivery vehicles will be free from debris that could generate dust.

However, during the processes carried out in the Biostabilisation Plant, dust and bioaerosols can be generated when materials are agitated during the mixing and blending process within the tipping and receiving building, when materials are removed from the dry fermentation, composting tunnels, and when the finished compost is screened.

There has been a lot of concern about dust and bioaerosols associated with composting facilities and their potential impact on public health, especially on people who live near or work at a composting facility. First and foremost, as documented by numerous regulatory agencies (including the U.S EPA), it is now recognised that *composting facilities **do not** pose any unique endangerment to the health and welfare of the general public*. Moreover, where worker health has been studied, for periods of up to ten years on composting sites, no significant adverse health impacts have been found.

Nevertheless, the issue of bioaerosols remains contentious and applicant has consequently designed a system that minimises dust and bioaerosol generation through the use of appropriate technology and proper management, including the following:

- Activities likely to generate dust, such as tipping, feedstock mixing, pile formation and turning, and final screening would take place within a building and therefore would not be subject to wind and be transported off site to create a problem.
- Initially AD and composting materials are enclosed within tunnels and not exposed to the outdoor environment.
- Materials are not turned during the in-vessel composting process, which reduces the release of dust and bioaerosols.
- All process air from the composting tunnels is treated via the biofilter so that all dust and any bioaerosols that are potentially generated can be filtered out of the process air prior to release to the environment.
- Close monitoring and adjustment of moisture avoids excessive dust generation during turning in the aerated static pile curing building and during screening of the finished compost product.
- All air from the tipping and mixing area is drawn through the building ventilation systems (1-4 air changes per hour) and treated by the biofilter prior to discharge to atmosphere.

ATTACHMENT E.4 EMISSIONS TO GROUNDWATER

Emission to groundwater is discussed in Section 3.5 Hydrogeology of the EIS. The existing groundwater emission points GWI at the point of discharge from the wastewater treatment system to the percolation area, will be retained as the proposed emission point GW1 for this application. Only domestic wastewater is treated in the system.

TABLE E.4(i): EMISSIONS TO GROUNDWATER (1 Page for each emission point)

Emission Point or Area:

Emission Point/Area Ref. Nº:	GW1
Emission Pathway: (borehole, well, percolation area, soakaway, landspreading, etc.)	Percolation area
Location :	Southeast corner of facility
Grid Ref. (10 digit, 5E,5N):	102790N, 165887E
Elevation of discharge: (relative to Ordnance Datum)	37.75m OD
Aquifer classification for receiving groundwater body:	Locally important bedrock aquifer, moderately productive in local zones (LI)
Groundwater vulnerability assessment (including vulnerability rating):	High to Extreme (H-E)
Identity and proximity of groundwater sources at risk (wells, springs, etc):	No wells recorded on the GSI database for the area
Identity and proximity of surface water bodies at risk:	Tributary of River Creegh located 0.14km from south of the facility and River Creegh located 0.8km from the north of the facility

Emission Details:

(i) Volume to be emitted			
Normal/day	0.5m^3	Maximum/day	0.5m^3
Maximum rate/hour	0.03m^3		

(ii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up /shutdown to be included):*

Periods of Emission (avg)	60 min/hr 15 hr/day 306 day/yr

TABLE E.1(ii) MAIN EMISSIONS TO ATMOSPHERE (1 Page for each emission point)

Emission Point Ref. N^{o}:	A2-1
Source of Emission:	Biofilter
Location :	Southern boundary
Grid Ref. (12 digit, 6E,6N):	102791,165887
Vent Details Diameter: Height above Ground(m):	Not Available
Date of commencement:	Not Applicable

Characteristics of Emission :

(i) Volume to be emitted: **Not Available**			
Average/day	m^3/d	Maximum/day	m^3/d
Maximum rate/hour	m^3/h	Min efflux velocity	$m.sec^{-1}$
(ii) Other factors			
Temperature	^{o}C(max)	^{o}C(min)	^{o}C(avg)
For Combustion Sources: Volume terms expressed as : ☐ wet. ☐ dry. _____ $\%O_2$			

(iii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up /shutdown to be included):*

Periods of Emission (avg)	60 min/hr 24 hr/day 365 day/yr

TABLE E.1(ii) MAIN EMISSIONS TO ATMOSPHERE (1 Page for each emission point)

Emission Point Ref. N^{o}:	A2-2
Source of Emission:	CHP Engine
Location :	Within Biostabilisation Building
Grid Ref. (12 digit, 6E,6N):	102720,165889
Vent Details Diameter: Height above Ground(m):	 Not Available 8
Date of commencement:	Not Applicable

Characteristics of Emission :

(i) Volume to be emitted: **Not Available**			
Average/day	m^3/d	Maximum/day	m^3/d
Maximum rate/hour	m^3/h	Min efflux velocity	$m.sec^{-1}$
(ii) Other factors			
Temperature	^{o}C(max)	^{o}C(min)	^{o}C(avg)
For Combustion Sources: Volume terms expressed as : ☐ wet. ☐ dry. _____ $\%O_2$			

(iii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up /shutdown to be included):*

Periods of Emission (avg)	Not available min/hr _____hr/day day/yr

TABLE E.1(iii): MAIN EMISSIONS TO ATMOSPHERE - Chemical characteristics of the emission (1 table per emission point)

Emission Point Reference Number: *A2-1*

Parameter	Prior to treatment(1)				Brief description of treatment	As discharged(1)					
	mg/Nm^3		kg/h			mg/Nm^3		kg/h.		kg/year	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
Hydrogen Sulphide	5 ppm	5 ppm			Not Applicable						
Mercaptans	5ppm	5ppm			Not Applicable						
Ammonia	50ppm	50ppm			Not Applicable						
Amines	5ppm	5ppm			Not Applicable						

1. Concentrations should be based on Normal conditions of temperature and pressure, (i.e. 0^{o}C,101.3kPa). Wet/dry should be the same as given in Table E.1(ii) unless clearly stated otherwise.

TABLE E.1(iii): MAIN EMISSIONS TO ATMOSPHERE - Chemical characteristics of the emission (1 table per emission point)

Emission Point Reference Number: *A2-2*

Parameter	Prior to treatment(1)				Brief description of treatment	As discharged(1)					
	mg/Nm^3		kg/h			mg/Nm^3		kg/h.		kg/year	
	Avg	Max	Avg	Max		Avg	Max	Avg	Max	Avg	Max
Nitrogen Dioxide	Not Available	Not Available	Not Available	Not Available	No treatment	500 (note 2)	500 (note 2)	0.85 (note 2)	0.85 (note 2)		
Carbon Monoxide	Not Available	Not Available	Not Available	Not Available	No treatment	1000 (note 2)	1000 (note 2)	1.7 (note 2)	1.7 (note 2)		

1. Concentrations should be based on Normal conditions of temperature and pressure, (i.e. 0^{o}C,101.3kPa). Wet/dry should be the same as given in Table E.1(ii) unless clearly stated otherwise.
2. in dry exhaust at 5% oxygen
3. The frequency of operation has not been devised at this time.

TABLE E.1(iv): EMISSIONS TO ATMOSPHERE - Minor /Fugitive

Emission point Reference Numbers	Description	Emission details[1]				Abatement system employed
		material	mg/Nm$^{3(2)}$	kg/h.	kg/year	
A2-3	Diesel Generator	Diesel oil	Not Available	Not Available	Not Available	Not Applicable

1 The maximum emission should be stated for each material emitted, the concentration should be based on the maximum 30 minute mean.
2 Concentrations should be based on Normal conditions of temperature and pressure, (i.e. 0^{o}C101.3kPa). Wet/dry should be clearly stated. Include reference oxygen conditions for combustion sources.

D.2 FACILITY OPERATION

Emissions related to the activities listed below are limited to those from the use of plant and forklifts with the exception of the Biostabilisation plant and Biomass Recovery Plant.

All other plant is operated using electricity generated on site including the use of a diesel generator. The generator (Model STMO) is a 500kw with a 500kVA and runs for c. 44hrs/week. The facility operates on a three phase electricity supply. It is envisaged that the CHP engine will support the energy demands of the Biostabilisation Plant.

Biostabilisation plant abatement is detailed in EIS Section 2.3.1.1.2 Air Extraction and Section 2.3.2.1.3 Odour Control.

(a) List of Unit Operations

D.2(i) Dry recyclable processing
D.2(ii) Wet waste processing
D.2(iii) Baling of material
D.2(iv) Dropdown skip processing
D.2(v) Timber shredding processing
D.2(vi) Construction and Demolition waste processing
D.2(vii) Biostabilisation Plant
D.2(viii) End of Life Vehicle unit
D.2(ix) Truck wash
D.2(x) Wheel wash
D.2(xi) CHP engine
D.2(xii) Skip storage area

Drawing C(IRL)WL-02 Site Layout Plan illustrates the location of the activities as attached in Attachment B.2.

(b) Flow Diagrams for the following processes are included in Attachment 4 of the EIS Attachments; Sections referenced of the EIS outline the management of the processes:

(i) Dry recyclable processing (Section 2.2.2.4.1)
(ii) Wet waste processing (Section 2.2.2.4.2)
(iii) Baling of material
(iv) Dropdown skip processing (Section 2.2.2.4.3)
(v) Timber shredding processing (Section 2.2.2.4.4)
(vi) Construction and Demolition waste processing (Section 2.2.2.4.5)

Waste Handling Procedures (ref H3) for activities at the facility is defined by two SOP's as included in Attachment C.2 Environmental Management Systems:

- SOP CIR20-100Rev3 Yard Activities
- SOP CIR20-128Rev1 Biostabilisation Plant Operation

(c) Emissions generated as follows:

Emissions to Groundwater- treated domestic wastewater

Emissions to Sewer- None

Emissions to Surface Waters- Stormwater runoff from hardstanded areas only

Emissions to Air-	Environmental Dust and Noise, The Biofilter, CHP engine and diesel generator are sources of emission to air and include biofilter parameters, Bioaerosols, SOx, N0x, C0, NMHC (Non Methane Hydrocarbons) and particulates.

A malfunction in the wastewater treatment unit, biofilter, leachate holding tanks, hydrocarbon bunds, End of Life Vehicle hyrdrocarbon and hazardous waste storage areas, RDF storage containment, integrity of quarantine area or failure to implement environmental procedures under the EMS could potentially result in a release to the environment.

D.1 INFRASTRUCTURE

(a) Site Security arrangements including gates and fencing

The north (front) of the facility is bounded by heavy metal gates with a half concrete/half metal fence on either site. The administrative offices, which has recently received planning permission (P08/P46 17th July 2008) for Material Change of Use (from dwelling to administrative offices) currently is a low rise with an entrance and driveway. Under the planning conditions this access will be closed off to a level of the existing security fencing. The western boundary consists of 7ft high wire mesh fence from the road at the north of the facility to opposite the most north-westerly corner of the processing building. A 9ft high boundary earthen bank continues along the east of the site. The southern boundary is in the form of earthen berms, which is landscaped with Common Alder and Scarlet Willow; post and wire fencing sets the boundary with adjoining lands. The eastern boundary is a combination of post and wire fencing with natural hedgerows at the southern end. Adjacent to the processing buildings the boundary is earthen berms landscaped with trees with a support wall comprising of railway sleepers.

(b) Design for site roads

Waste vehicles may access Clean (Ireland) Refuse and Recycling from an easterly direction only, using the R483 Kilrush to Quilty regional road and the L-6108. The haul routes for the proposed site and the access roads for the site are shown in are included in this attachment.

- C(IRL)WL-17 (Traffic Routes)
- C(IRL)WL-13 (Haul Routes)

(c) Design of hardstanding areas

The extent of the hardstanding and the surface water drainage are shown in drawings included in this attachment.

- C(IRL)WL-23 (Hardstanded area)
- C(IRL)WL-19 (Surface Water Drainage Plan)

(d) Plant

The capacity of the weigh bridge is 50 tonnes. The dimensions are shown in drawing C(IRL)WL-24 which is included in this attachment. The record keeping system for the weighbridge is as follows:

Every vehicle that enters the facility with material for recycling/recovery is weighed and this weight is printed out on a Clean Ireland Recycling weighbridge docket. Printed on this docket is the date, time, a unique transaction number and an initial weight for the material that has entered the facility. Also recorded manually on this docket is the name of customer/driver, the composition of the material (residual, dry recyclables etc.), registration number of the vehicle and the local authority area of origin of the material (Clare, Limerick County, Limerick City, Kerry). The material is then tipped in the appropriate shed and the vehicle returns to the weighbridge and a second weight is obtained. Every transaction is recorded individually on

our system this includes each item referred to above (date, customer name and origin of material). The document that this transaction is recorded in is divided in twelve different sections one for every month. Each month is then divided into sections for recording the date, vehicle registration and customer name and is further separated into approximately forty sections for different material that would be crossing over the weighbridge. These sections are then summarised on a monthly basis and records can be easily obtained in relation to the total quantity of material that entered the facility in a particular month.

Any vehicle that arrives to the facility to transport recyclable material is weighted in the same way as previous described above. The container number, seal number, material that is being collected material is also recorded. The weight of each material that leaves the site is also recorded in a separate document. This document is divided into the different range of products that leaves the site ranging from cardboard, mixed paper plastic bottles etc.

These records then go onto completed our Annual Environmental Report for the year.

(e) Wheelwash

The facility is proposing to install a Speedwash Automatic Underbody & Wheel Wash. This will include the following:

1 No. Single Boom Underbody & Wheel Wash System comprising of Stainless Steel underfloor boom with 12 no. Spray jets fitted at strategic positions to wash underbody and wheels of trucks as they pass over it. 2 No. Side booms each with 3 spray jets to wash outside of wheels and chassis. The main boom and both side booms are rotated through an angle of 90° by a geared motor to give better cleaning effect. The booms are mounted on a heavy duty mild steel frame, galvanised dipped complete with sealed bearings, swivel, control linkage and associated fittings. All of the above equipment is located in an underfloor duct on washbay with heavy duty galvanised gratings on top.

Pump Set

1 No. Grundfos CR32-9 Multistage Pump with 18.5kw close coupled motor, 3 phase 380 volts complete with BSP pump flanges, stainless steel ballvalve, solenoid valve, water filter, stainless steel pipework and fittings. The Pump will deliver up to 600 litres per minute at 150 P.S.I.

Water Supply Tank

1 No. 5000L Polyproplene Water Supply Tank complete with lid, 2” stainless steel ball valve, 2” ballcock & float, low level switch and associated fittings.

Electrical Control Panel

1 No. Electrical Control Panel comprising of contactors, overload, MCB, panel isolator, transformer, relay, timer, loop sensor control unit, start/stop buttons, run & trip lights all housed in an IP65 enclosure.

Automatic Operation

The machine is controlled by under-floor loop sensors located at entrance to the wash, which sends signals to control panel to give ignition. When the truck leaves the washbay the system times out and shuts down.

A second wheel wash will be situated adjacent to the Biostabilisation Plant which will ensure vehicle wheels are cleansed routinely in the vicinity of this building. The specifications have not been finalised as yet. It is anticipated that the leachate in the wheel wash will be routed to the leachate storage tank no. 1 which is designated storage for leachate generated from MBT.

(f) Laboratory facilities

Not applicable

(g) Design and location of fuel storage

The existing fuel storage area will be replaced by a portable 60,000 litre fuel storage portable container will a bund capacity of 110%. All hydrocarbons currently stored in the existing fuel storage are will be relocated to this unit. It is proposed to locate all fuel storage to this area as shown in Drawing C(IRL)WL-02 in Attachment B.2. The fabric will be plastic and the tanks will be covered. The unit will be portable and may be relocated using a crane, putting all environmental measures into place prior to any such procedure on site to eliminate risk of environmental incident. Diesel required for the generator is stored in an individually bunded tank at the east of the facility.

(h) Waste Quarantine Areas

The existing quarantine areas are at located at a designated area in the wetwaste area (indoors) and also in a designated area adjacent to the skip dropdown area. Quarantined items are removed when identified through inspection of waste consignments and are removed to the designated areas where any item is retained in a bunded unit. The proposed waste quarantine area will be relocated to the internal construction and demolition waste storage building which will be constructed as part of the extension to the existing processing buildings.

The facility proposes to introduce the handling of hazardous waste accepted to site which will managed in such a manner that the protection of soil, surface water and ground water is in place. The table overleaf summarizes the proposed hazardous wastes in their designated quarantine areas.

Description of Hazardous Waste	Handling and Storage
Asbestos	Will be stored on timber pallets to facilitate transportation of-site. Asbestos will be double wrapped in 1000 gauge heavy duty plastic and clearly marked. Will then be forwarded onto KTK Landfill Co. Kildare
Waste Paint and Varnish containing organic solvents or other dangerous substances	Stored in 205 Litre UN Drums within drop down skip processing building Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Waste from paint or varnish removal containing organic solvents or other dangerous substances.	Stored in 205 Litre UN Drums within drop down skip processing building Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Waste Paint or Varnish Remover	Stored in 205 Litre UN Drums within drop down skip processing building. Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Sludges from oil/water separators	Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Interceptor sludge	Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Soil Stone containing dangerous substances	Stored on an impermeable concrete slab. Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Gypsum based construction materials contaminated with dangerous substances	Stored on an impermeable concrete slab. Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Discarded electrical and Electronic Equipment	Within waste processing sheds.
Batteries	All stored in leak proof and corrosion proof plastic container pending disposal within drop down skip processing building. Will be forwarded onto Enva Ireland Ltd, Clonminam Industrial Estate, Portlaoise, Co. Laois.
Fluorescent Tubes	Inside in wheeled coffin box. Will then be forwarded onto Irish Lamp Recycling Co. Kildare.
Explosive Components	Stored within covered area for dealing with depollution of ELV's
Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	Stored within covered area for dealing with depollution of ELV's
Other hydraulic Oil	Stored within covered area for dealing with depollution of ELV's

(i) Waste inspection areas

All waste arriving on site is subject to visual inspection, any waste deemed unsuitable for processing and/or in contradiction to the permit shall be immediately separated, stored in a designated quarantined area and removed from the site as soon as possible. Waste inspection will take place for refuse, dropdown, open containers, brown bin and glass at their respective processing areas and as per SOP CIR20-100Rev3 as previously attached in Attachment C.2 Environmental Management System.

(j) Traffic Control

A site speed limit of 10km per hour is enforced around the facility. It is proposed to create a one-way system with the introduction of the new biostabilisation plant at the rear of the site. Traffic will associated with this activity will access the south section of the site from the existing roadway running along the west of the facility. Once waste has been tipped in the biostabilisation building, the vehicles will continue to travel forward to the east perimeter running parallel with the southern boundary. This traffic will then turn left running parallel to the ESB sub station and left again parallel to the south face of the waste processing buildings. This will alleviated any congestion at the rear of the site. All vehicles will enter and leave via the weighbridge. Skip trucks crossing the road to place empty skips into storage in the skip storage area will be infrequent and no traffic impact is anticipated.

(k) Sewerage and surface water draining infrastructure

Domestic Wastewater

The existing onsite Puraflo and mini platinum wastewater treatment system with a P.E. 19 will serves the site and treated wastewater is discharge to a percolation area at the south of the site as shown on drawing C(IRL)WL-02 in attachment B.2. The wastewater treatment systems is sufficient to support the site development, during construction and operational phase.

Surface Water

There will be no alteration to the existing surface water management plan for the site. Details of the surface water drainage are provided in (c) above. The storm water flows from the skip storage area phase 1 will be incorporated into the existing drainage for the north of the site and for employee car park. Phase two is a larger area and may have a second interceptor installed if deemed necessary. All surface water from the facility is passed through a silt/oil interceptor into field drainage ditches and ultimately into the River Cree.

(l) All other Services

Water Requirement & Supply

The proposed development does not require water during waste processing operations. Water is supplied to the site from the on-site bored well or the Drumehilly Group Water Scheme. There is no water mains connection for the site. Water is required to carry out the flowing activities on site:

- Domestic services
- Wheel wash
- Truck washing
- Dust suppression spraying during dry periods
- Fire fighting
- CHP Engine

Drinking Water
Drinking water is supplied from either the on-site bored well, which is passed through a filtration system. Alternatively water is sourced from the Drumehilly-Cree group water scheme.

Rainwater Harvesting
Rain harvesting is currently in practice from roof runoff into a tanker at the west face of the processing building. This water provides flushing water for the toilets.

Telecommunications
Telecommunications are already in place for the facility.

Electricity Supply
The site is served by electricity (underground lines) and ESB substation is currently being built will have an import·capacity·of·420·kva on completion.

(m) Plants sheds, garages and equipment compound
See drawing C(IRL)WL-02 in Attachment B.2

(n) Site Accommodation
See drawing C(IRL)WL-02 in Attachment B.2

(o) A fire control system, including water supply.
There is no fire hydrant at the facility or mains water. Clean firewater is retained in a fire truck for the facility with a capacity of 800 litres. Fire extinguishers are located at various locations around the facility and routinely maintained.

(p) Civic Amenity facilities
The site does not have a civic amenity area.

(q) Any other waste recovery infrastructure
During the fermentation process biogas is released as the biomass in anaerobically fermented. The biogas is extracted from the chamber and routed to a gas storage unit. The CHP unit is supplied with biogas from the respective gas storage units via an individual gas control valve and gas compressor. The CHP units are installed in a separate, noise dampened containerised unit. The electricity produced by the CHP units is fed into the public grid and/or used for internal consumption. The thermal energy generated by the CHP units is needed in small amounts as process heat (approx. 5 %) in the plant (in-floor heating of dry fermentation chambers, heating of buildings etc.); the surplus thermal energy can be provided for external thermal use. In cases where the thermal energy is not used, the CHPs are equipped with a standard emergency cooling mechanism.

(r) Composting Infrastructure
See EIS Section 2.0, subsection 2.3.2.1 for a detailed description of the Biostabilisation Plant. The internal and external layout of the Bio-stabilisation plant is included in this Attachment. This proposed bio-stabilisation plant will be built in one phase and involves footprints of

c.5,182m^2 for the Biostabilisation Plant (including MSW mechanical sorting area) and 496m^2 for the associated biofilter.

The Internal Layout Drawing C(IRL)WL-27 Rev-1 are included in Attachment 3. The plant design is segregated into following waste processing areas:

- Enclosed mixed waste reception area
- Enclosed MSW mechanical separation plant
- Enclosed source separated reception area
- 6 no. Fermentation Chambers (30m x 7m x 5m)
- 3 no. Aerobic Composting Tunnels (30m x 7m x 5m) with single doors
- 1 no. Pasteurisation Tunnels (30m x 7m x 5m) with double doors

- C(IRL)WL-27 (Biostabilisation Plant Layout)

(s) Construction and Demolition waste infrastructure

See EIS Section 2.0, subsection 2.3.2.2 for a detailed description of the trommel infrastructure and proposed C&D waste storage building. The area at the south-west of the processing buildings is currently used for C&D waste storage and C&D waste processing. C&D waste is sorted using a picking line and separation of metals. The C&D waste is passed through a trommel and the fines are collected and transported to landfill for disposal. There is currently no cover over the C&D waste storage area. It is proposed to house the C&D waste which will eliminate contact between rainwater and the stockpiled inert C& D waste while in storage at the facility.

(t) Incineration Infrastructure
Not applicable

(u) Any Other infrastructure
Glass bunkers
See EIS Section 2.0, subsection 2.3.2.1 for details.

End of Life Vehicle units
See EIS Section 2.0, subsection 2.3.2.4 for details.

CHP Engine
See EIS Section 2.0, subsection 2.3.2.7 for details.

Timber Shredder Enclosure
See EIS Section 2.0, subsection 2.3.2.2 for details.

Truck Wash
See EIS Section 2.0, subsection 2.3.2.5 for details.

C. 3 HOURS OF OPERATION

(a) Proposed hours of operation:

7a.m. to 12a.m. Monday to Saturday
8 a.m. to 6p.m. Sunday

(b) Proposed hours of waste acceptance/handling:

8a.m. to 8a.m. Monday to Saturday
8a.m. to 6p.m. Sunday

(c) Proposed hours of any construction and development works at the facility and timeframes

9a.m. to 6p.m. Monday to Friday
9a.m. to 1p.m. Saturday

(d) Not applicable

C.2 ENVIRONMENATL MANAGEMENT SYSTEM

The EMS consists of the following procedures:

CIR20-100	Yard Activities
CIR20-101	Weigh Bridge Activities
CIR20-102	Corrective Action Procedure
CIR20-103	Emergency Response Procedure
CIR20-115	Completion of Waste Analysis Reports
CIR20-116	Skip/Delivery Collection
CIR20-117	Timber Shredder
CIR20-122	Monitoring and Measuring
CIR20-123	Environmental Reporting Procedure
CIR20-125	Objectives and Targets procedure
CIR20-126	Operation and Maintenance of Bypass Separator
CIR20-127	Sorting of Skip Waste
CIR20-128Rev.1	Biostabilisation Plant Operation
CIR20-129Rev.1	Biostabilisation Plant Leachate Management Plan
CIR20-130Rev.1	Biostabilisation Plant Biofilter Management Plan
CIR20-131Rev.1	Odour Management Plan
CIR20-132Rev.1	Biostabilisation Plant Maintenance Plan

Clean (Ireland) Refuse & Recycling Ltd. has an Environmental Policy in place as shown below.

Clean (Ireland) Refuse & Recycling Ltd

Environmental Policy

Clean Ireland Refuse and Recycling recognise that we have a responsibility to demonstrate sound environmental awareness, management and sustainability through the implementation of best practice where possible.

This environmental policy has been developed to cover the operations of Clean Ireland Refuse and Recycling, Ballinagun, Cree, Kilrush, Co. Clare.

Clean Ireland Refuse and Recycling accepts responsibility for, and a commitment to, protection of the environment at all levels within the organisation. We will comply fully with the environmental legislation and aim to reduce our environmental impacts.

- Minimising waste by reduced consumption and operation of effective and environmental sound waste management and recycling.
- Reducing energy consumption through effective education and awareness and installation of energy efficient technology where appropriate.
- Environmental Policy Statement is made available to all Clean Ireland employees.
- Progress in implementing this policy will be regularly reviewed and reported to Clean Ireland senior management by representatives of the Environmental Officer.

A.1 NON- TECHNICAL SUMMARY

This Non-Technical Summary has been prepared in accordance with Article 12(1)(u) of the Waste Management (Licensing) Regulations S.I. 395 of 2004. Sub-articles (a) to (t) of Article 12 are addressed below.

Article 12(1)
(a) General Details

Clean (Irl) Refuse & Recycling Ltd.,
Ballinagun West,
Cree,
Co. Clare.
065 9059092
065 6891349
www.clearnirl.com
Company Registration Number 152666

(b) Planning Authority

The development is proposed for a site in the functional area of
Clare Co. Co.,
New Road,
Ennis,
Co. Clare.
065 6821616
065 6828233

(c) Sanitary Authority
The facility is not connected to mains sewer and treats domestic wastewater using a wastewater treatment unit and tertiary polishing system prior to discharge to a percolation area on site.

(d) Location
The proposed facility will be located in the townland of Ballinagun West, Cree, Co. Clare. National Grid Reference 1660E, 1027N

(e) Nature of the Development
Clean (Irl) Refuse & Recycling Ltd., Cree, Co. Clare operate an existing waste transfer station located in a rural area on a c.2.6ha site in the townland of Ballinagun West. The facility has been in existence since 1984 with the main waste activity being dry recyclables processing. The facility operates a waste collection service from domestic and commercial customers under permits for Co. Clare, Co. Limerick, Limerick City and Co. Kerry. All waste that is collected is processed at this site in Cree, Co. Clare. The proposed development will be located at the existing Clean (Irl) Refuse & Recycling Ltd site to accommodate an increase in annual tonnage intake, the

introduction of new waste processing activities and the expansion of the site area from c2.6ha to c.3.0ha. An Environmental Impact Statement has been prepared in support of a Waste Licence Application to the Environmental Protection Agency and subsequently to support a planning application to Clare County Council. The facility existing annual tonnage intake is capped at 21,000 tonnes for waste handling and at 5,000 tonnes for the annual disposal fraction to landfill. The development of the site will allow the facility to expand the business to include new waste processing methods and increase the current tonnes per annum from 21,000 tonnes to 64,600 tonnes.

The proposed infrastructure development will include:

- Biostabilisation Plant (dry fermentation, in vessel composting tunnels, biofilter)
- Extension to existing processing buildings
- Relocation of glass bunkers
- Provision to End of Life Vehicle unit
- Relocation of existing diesel tank bunded storage area
- Truck wash area
- Wheel wash
- Combined Heat Power (CHP) Plant
- Hardstanding skip storage area
-

The introduction of new waste processesactivities which will include:

- Biostabilisation (dry fermentation and in vessel composting tunnels) of source segregated brown waste and organic fines from Municipal Solid Waste (MSW) using mechanical separation technique
- Utilisation of Biogas from dry fermentation process in a CHP Engine to providing heat and electricity
- End of Life Vehicle processing
- Hazardous waste acceptance and storage
- Storage of Refuse Derived Fuel (RDF)
- Truck wash
- Wheel wash
- Skip storage

Proposed hours of operation:

7a.m. to 12a.m. Monday to Saturday
8 a.m. to 6p.m. Sunday

Proposed hours of waste acceptance/handling:

8a.m. to 8a.m. Monday to **Saturday**
8a.m. to 6p.m. Sunday

(f) Class of Activity

The principal activity will be Class 2 of the Fourth Schedule:

> *'Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).'*

The relevant waste disposal and waste recovery activities, as per the Third and Fourth Schedules of the Waste Management Acts 1996 to 2008 to which this application relates are:

Third Schedule – Waste Disposal Activities

Class 12: 'Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.'

Class 13: 'Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.'

Fourth Schedule – Waste Recovery Activities

Class 2: 'Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).'

Class 3: 'Recycling or reclamation of metals and metal compounds.'

Class 4: 'Recycling or reclamation of other inorganic materials.'

Class 9: 'Use of any waste principally as a fuel or other means to generate energy. '

Class 11: 'Use of waste obtained from any activity referred to in a preceding paragraph of this schedule.'

Class 12: 'Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.'

Class 13: 'Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste is produced.'

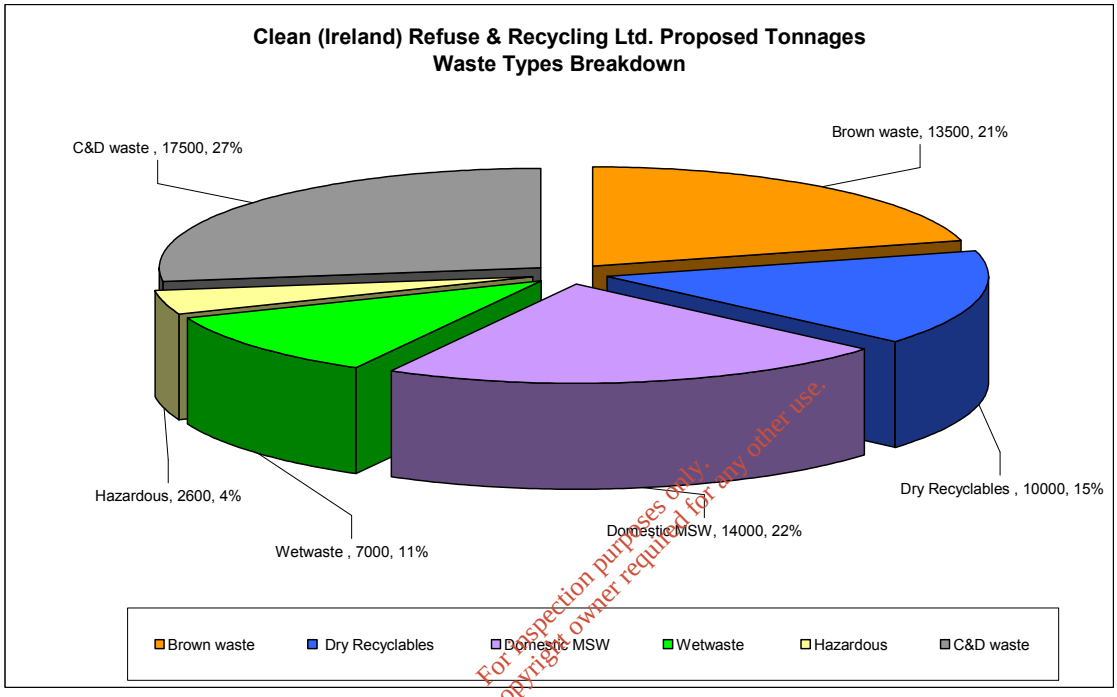
(g) Quantity of Nature of Waste (EWC Code)

Proposed Quantities of Waste to be accepted at Clean (Irl) Refuse & Recycling Ltd household and non-household is as follows:

Brown waste (Household)	7500 tonnes
Dry Recyclables (Household)	7000 tonnes
Domestic MSW	14000 tonnes
Wetwaste & Dry Recyclables (Non-household)	10000 tonnes

Hazardous waste (Household & Non-Household)	2600 tonnes
Brown Waste (Non-Household)	6000 tonnes
C&D waste (Non-Household)	17500 tonnes

The proposed waste type may be represented as follows:



(h) Raw Materials

The raw materials used at the site are limited to hydrocarbons:

- Motor Diesel
- Agricultural·Motor·Diesel·
- Hydraulic Oil
- Engine Oil

(i) Plant, Processes and Operating Procedures

Existing Development

The main existing waste activities on site include:

- Mechanical treatment of mixed recyclable waste
- Mechanical treatment of mixed residual waste
- Mechanical treatment of C&D waste
- Timber Shredding

These activities are carried out in areas within the processing buildings and the yard areas. The areas consist of:

- Dry recyclable processing area
- Wet waste processing area
- Baling of material area
- Dropdown skip processing area
- Timber shredding processing area
- Construction and Demolition waste processing area

Storage of waste on site is conducted according to the conditions set out in the existing Waste Permit 002/07/WPT/CL (Condition 4.11) where it is stipulated that temporary storage of all waste with a putrescible component shall not be stored on site for more than 72 hours. There is a limit of 3 months set for the temporary storage of dry recyclables.

All mixed residual waste (including compostable waste) and dry recyclables (including segregated recyclables) is stored in the designated processing buildings. C&D waste is stored adjacent to the trommel on hardcore at the rear of the west end of the processing building, additional stockpiles may be temporarily stored at the southeast perimeter. Timber waste is stored at the rear of the east end of the processing building. Neither stockpile is currently covered or ring fenced. Glass is stored in three glass bunkers at the rear of the site in front of the bin storage area and is roofed to prevent contact between the waste glass and rain during rainfall events.

The facility processes non-hazardous waste only. All waste arriving at the site is subject to a visual inspection. Any waste deemed unsuitable for processing at the facility is immediately separated and directed to the quarantine area. The waste is stored under appropriate conditions to prevent odour generation, or the attraction of vermin. Occasionally hazardous waste may be included in skips (e.g. lead batteries, WEEE, fluorescent tubes) and these are transferred for further processing or disposal to approved waste brokers under their assigned European Waste Catalogue (EWC) codes.

Several processes on site are carried out at the facility which use both mechanically and manually means to sort the waste. Picking line areas consist of a conveyor belt through which the waste stream will pass at a speed that will allow the employees to remove recyclable material.

Technology and equipment associated with, but not limited to, the waste processing include:

- Feed conveyor to transport waste at variable speeds through the various treatment processes,
- Ballistic separator to separate dry recyclable material such as plastics, pams (paper and magazines), cardboard and Tetrapaks into different units,
- Magnets to extract all ferrous items from the waste stream,

- Eddy currents to extract all non-ferrous items out of the waste stream,
- Balers to create compact units of a pre-determined size,
- Compactors squash and contain waste for disposal off-site,
- Trommel rotates C&D waste to remove fines,
- Timber shredder shreds wood for reuse.

Proposed Development

Biostabilisation Plant

Clean (Irl) Refuse & Recycling Ltd. is proposing to build and operate a state-of-the-art, totally enclosed facility to convert up to 15,000 tonnes per year of biodegradable materials found in the residential and commercial waste streams into fully stable and marketable soil amendment products. This facility will utilise proven, best available control technologies and best management practices for processing biodegradable waste materials, such as landscape materials, food, wood and non-recyclable paper, into valuable soil enhancing products while minimising any potential impacts to the environment or nuisances to neighbours.

The reception and pre-treatment of the bio-waste will occur within the waste reception building. The bio-waste is loaded into dry fermentation chambers for a duration of 28 days. Digestion (AD) process is initiated through the spraying of activated anaerobic percolate onto the biomass. The biomass is heated to 37-40^{o}C and biogas production is facilitated. This biogas is drawn off the tunnels and stored prior to use as fuel in a CHP gas engine. 50% of the load is transferred to incoming stock and 50% is transferred to the composting tunnel, giving each particle a retention time of 56 days. The next step takes involves in-vessel composting of the bio-waste where the treatment takes place is closed aerated tunnels for 14-28 days. Following composting, screening of the material will take pace to separate different size particles. The screened compost is transferred to a pasteurisation tunnel and heated in the presence of oxygen to 60-80 degrees C for sixty minutes in accordance with the Animal by-products regulations. After the pasteurisation, the blowers automatically revert to heat exchange mode to bring the temperature down and thus facilitate further mesophylic maturation during the remaining 4-7 days. The final product is transferred to the compost storage area at the rear of the biosatbilisation plant. .

Since the facility is totally enclosed, potential environmental impacts can be managed and controlled so that there will be negligible impact on the environment and nuisances can be minimised for surrounding neighbours and the community at large. All process and building air will be collected and treated to eliminate offensive odours and dust from migrating off site. Similarly any liquids generated in the tipping area will be collected and reused in the process. This eliminates any potential pollution of ground water or surface water sources under, on or near the facility. Noise is also limited as all activities will take place indoors. Finally, the enclosed nature of the facility restricts access to pests such as rodents, birds or insects so pest control measures within the facility can be effective in eliminating pest infestations or problems.

Provision to End of Life Vehicle unit

This process will involve depolluting the vehicle prior to disassembling the body of the vehicle. All parts will be recycled by incorporating the material into the existing segregation process at the facility. Independent bunding will be put in place for the storage of oil filters, engine oils, lead acid batteries and engine parts retaining grease or other hydrocarbons. Scrap metals will be removed to designated scrap metal area at the facility.

Truck wash

A truck wash area will be situated at the north east perimeter to with a leachate holding tank for washings of trucks. The activity will be fully contained and will not have the potential to contaminate surface water on site.

Wheel wash

A wheel wash will be introduced to the site to ensure that no waste is transferred across the site hardstanded surface or on external roads.

CHP Engine (electricity production)

A CHP engine will be housed in the Biostabilisation plant. Biogas generated during the fermentation process will be stored in gas storage tanks and used as required. The biogas will be used by the engine to generate heat and power, sufficient to meet the demands of the running of the Biostabilisation plant and also with potential to export to the national grid.

Skip storage

The storage area will be located in the extended area to the north of the site which is currently not within the site boundary. The area will be primarily used to store empty skips and will be hardstanded in the two phases. It is estimated that the area will be able to store up to 50 skips. Skip trucks entering the storage area will be infrequent and screening will be put in place.

(j) Regarding Paragraphs (a) to (i) of section 40 (4) of the Waste Management Act (as amended by the Protection of the Environmental Act 2003)

The facility meets the requirements of the waste management act, an ELRA and CRAMP will be carried out subsequent to the application. Information submitted in the waste licence application and the accompanying EIS support this requirement.

(K) Emissions from the Site

Air

There are no existing main emissions from the site, dust deposition is currently monitored. The proposed air emissions for the site include:

Main emissions:	Biofilter CHP Engine
Minor Emissions:	Diesel Generator Domestic Woodchip burner
Fugitive emissions:	Dust Odour

Noise

Noise generated from existing and proposed sources during the operation of the facility from waste activities may arise from the following operations;

- Ballistic Separator
- Tipping of Waste
- Baler
- Skip contact with surface
- Timber shredder
- Trommel
- Shredders, front end loaders
- HGV delivery, Baling of scrap metal
- Engine
- Transfer of skips
- Forklifts, plant, waste vehicles
- Private vehicles

Biannual noise monitoring is currently conducted at four boundary locations and one sensitive noise sensitive location.

Surface Water

Emissions to surface water arise from stormwater generation at the site. Routine monitoring is in place for the existing surface water emission points SW1 and SW2. These emission points and monitoring locations, will be retained as the proposed emission points SW1 and SW2 for this application. All leachate generated on-site will be captured in two leachate storage tanks in the tipping and curing building and contents will either be re-used for the composting process or be tankered off site as required and disposed of with an approved waste contractor.

Groundwater

Emission to groundwater arise from the discharge from the wastewater treatment system to the percolation area. The existing groundwater emission point GW1 will be retained as the proposed emission point GW1 for this application. Only domestic wastewater is treated in the system. The emissions are currently monitored on a biannual basis.

(l) Effects of Emissions

The impacts of emissions to environmental media have been addressed in detail in Section 3.0 of the EIS. In conclusion, the impacts on the environment will be minimised with the implementation of described mitigation measures.

(m) Monitoring and Sampling Points

The monitoring and sampling points for surface water, groundwater, dust and noise will remain similar to existing locations. It is not possible to assign exact monitoring and sampling points to the two main air emissions for the biofilter and CHP engine stack as the infrastructure will be constructed initially and the information will be submitted to the agency when final arrangements are made for these locations. However, estimated grid references have been supplied.

(n) Arrangements for Waste Arising from Activity

Waste generated on site will include

- Waste oils
- Interceptor sludge/silt
- Leachate

(o) Arrangements for Off-Site Treatment or Disposal of Wastes

Wastes will be disposed of with approved waste contractors as required.

(p) Unauthorised or Unexpected Emissions

An Emergency Response Procedure for the facility operation addresses unexpected events and emissions such as odour/dust emissions to air, noise or emission to water and other eventualities e.g. oil spill or plant breakdown.

(r) Not Applicable

(s) European communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulation 2000

Not Applicable

(t) Geological & hydrogeological nature of the land

According to the Geological Survey of Ireland (GSI), the aquifer classification is given as locally important bedrock aquifer which is generally moderately productive only in local zones. Groundwater quality beneath the site is generally clean and free from contamination. Groundwater is used at the facility and locally as a means of domestic water supply as there is no mains water servicing the area. It is assumed that houses have individual private wells for

domestic usage or avail of the Drumehilly Group water Scheme. Groundwater vulnerability is classified by the GSI as high to extreme. The site is covered by hardstanding areas which provide protection to the underlying groundwaters.

Groundwater abstractions on-site are minimal and are considered similar to that of a small farm and domestic residences, water requirements for the composting process and CHP engine will be met for the most part by harvesting roof water in three $30m^3$ tankers located adjacent to this plant. These low abstraction rates will not be significantly increased and are not considered to have a negative impact on the underlying aquifer.

G.2 ENERGY EFFICIENCY

The facility used the following energy sources in 2007:

- Electricity €9,840
- Generator Diesel €15,600 (6,1547 litres p.a.)

A domestic wood burner is used for space heating and hot water to reduce energy consumption from non-renewable resources.

An energy audit has not, as yet, been carried out at the facility. The facility is proposing to review the efficiency of the existing waste processing equipment with the proposed upgrade. For the purpose of the development of the site, an energy balance study was completed to address the carbon benefit of the biostabilsation plant. The findings are detailed below.

1.0 Introduction

The carbon benefit for the facility is calculated as the sum of the benefits from landfill diversion of organic waste, fossil fuel displacement from electrical and thermal energy generation, and compost use as a peat replacement minus the carbon produced from energy consumption within the facility. The net carbon benefit from the facility as illustrated in the following pages is

6,724.4 + 3,760.5 + 1,400 – 850 = 11,034.9 tonnes of CO_2 equivalent per annum

1.1 Carbon Benefits as a result of landfill diversion

Scenario 1: Landfill of All Organic waste i.e. the "Do-Nothing Scenario"

The carbon saving accruing from the anaerobic digestion of waste are calculated against a "Do-Nothing" scenario of land-filling the waste with 60% of the resultant landfill gas being captured and flared and the remaining 40% escaping to the atmosphere. Landfill gas when flared produces 1.96kg CO_2 per m^3 of CO_2 equivalent and when dissipated to atmosphere produces 9.19 kg CO_2 per m3 of CO_2 equivalent[1].

The Clean Ireland Waste facility is being designed to process 8,000 tonnes per annum (tpa) of MBT fines which is mechanically separated from to 16,000 tpa of municipal solid waste (MSW). The facility will also process 7,000 tpa of source separated domestic brown bin feedstock containing both food and green waste which is equivalent to another 21,000 tpa of MSW based on an approximate 33% of MSW being diverted to a brown bin. This gives a total MSW equivalent for the facility of 37,000.

Assuming an average of 25% organic volatile solids by weight in MSW and the UK Environment Agency value of 405 m3 of biogas per tonne of volatile solids[2] gives the following.

MSW Quantity	**Tonnes**	**37,000**
Organic Volatile Solids (VS) Content (25%)	**Tonnes**	**9,250**
Biogas production per ton VS	**M^3 per ton**	**405**
Total biogas production	**M^3**	**3,746,250**
CO2 equivalent generated at landfill	**Tonnes of CO2 equivalent**	*** 19,255**

* (3,746,250m^3 x 40% dissipation x 9.91kg CO_2) + (3,746,250m^3 x 60% flared x 1.96kg CO_2)

The above table shows a quantity of 19,255 tonnes of CO2 equivalent generated per annum for the landfill scenario.

[1] Technical, economic and environmental analysis of energy production from municipal solid waste – Dr JD Murphy UCC.
[2] Guidance on monitoring MBT and other pre-treatment processes for the landfill allowances scheme – Environment Agency UK.

Scenario 2: Anaerobic Digestion with landfill of Residual
The following table shows the CO_2 equivalent emissions produced from anaerobic digestion of 8,000 tonnes of MBT fines plus 7,000 tonnes of source separated domestic brown bin. The table also shows the CO_2 equivalent of biogas produced at landfill due to the organic volatile solids remaining in the MBT overs and the remaining MSW assuming no further removal of bio-degradable dry recyclables (paper and card).

Biogas produced by Anaerobic Digestion	M^3	1,720,000
CO_2 equivalent of biogas from AD (CHP emission)	Tonnes	2,115.6
Biogas produced at landfill from residual	M^3	* 2,026,250
CO_2 equivalent generated at landfill by residual	Tonnes of CO_2 equivalent	** 10,415
Total CO_2 equivalent	Tonnes of CO_2 equivalent	12,530.6

* The total biogas potential of the feedstock is 3,746,250 m^3, so if 1,720,000 m^3 is produced by the AD processing of MBT fines and source separated food waste then the remaining biogas (2,026,250m^3) will be produced at landfill from the organics remaining in the MBT overs and the MSW.

** (2,026,250m^3 x 40% dissipation x 9.91kg CO_2) + (2,026,250m^3 x 60% flared x 1.96kg CO_2)

From the above scenarios it can be seen that there is a net benefit from Anaerobic Digestion over land filling alone of **6,724.4** (i.e. 19,255 – 12,530.6) tonnes of CO_2 equivalent per annum.

1.2 Carbon Benefit from Fossil Fuel Replacement:

The AD process will yield approximately 1,720,000 m3 of biogas per annum which will generate approximately 4,128,000 kwh of electricity and approximately 4,128,000 kwh of usable thermal energy (heat).

SEI specifies carbon benefit values for fossil fuel displaced electrical and thermal energy of 0.637 $kgCO_2$ per kwh and 0.274 $kgCO_2$ per kwh respectively. The following table illustrates the carbon benefit

Quantity of Energy	**$kgCO_2$ per kwh**	**Total Carbon benefit tonnes CO_2 equivalent**
4,128,000 kwh electrical	**0.637**	**2,629.5**
4,128,000 kwh thermal	**0.274**	**1,131**
Total		**3,760.5**

Total carbon benefit from fossil fuel displacement is 3,760.5 tonnes per year.

1.3 Carbon Benefit from Peat Replacement:

The carbon benefit for peat replacement is based on a study produced by Dr. Konrad Schleiss titled “GHG savings from biological treatment and application of compost”. The study shows a GHG saving of 200 – 300 kg CO_2 equivalent per tonne of feedstock processed when the resultant compost is used in horticulture and landscaping as a replacement for fossil peat. As the compost produced from the MBT fines will be disposed of in landfill the benefit can only be calculated for the domestic brown bin feedstock.

Using a value of 200 kg CO_2 equivalent per tonne of feedstock processed yields a carbon benefit of 7,000 (brown bin material processed) x 0.2 = 1,400 tonnes of CO_2 equivalent per annum. The carbon benefit from peat replacement is 1,400 tonnes of CO_2 equivalent per annum

1.4 Energy use within the facility:

The CO_2 equivalent from energy use within the AD / Composting facility is projected to be **850** tonnes per annum from the consumption of electricity and vehicle fuel.