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**LANDFILL FOR NON-HAZARDOUS WASTE
REVIEW OF A WASTE LICENCE
Recommended Decision**

Licence Register No:	W0017-04
Licensee:	Limerick County Council
Location of Facility:	Gortadroma Landfill, Gortadroma, Ballyhahill, County Limerick

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This licence is for the continued operation and development by Limerick County Council, County Hall, Dooradoyle, County Limerick of a landfill facility at Gortadroma, Ballyhahill, County Limerick. The licensee must manage and operate the facility to ensure that the activities do not cause environmental pollution. The licensee is required to carry out regular environmental monitoring and submit all monitoring results and a range of reports on the operation and management of the facility to the Agency.

The licence sets out in detail the conditions under which Limerick County Council will operate and manage this facility.

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Glossary of Terms

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Acts 1996 to 2008, (the Acts), unless otherwise defined in this section.

Aerosol	A suspension of solid or liquid particles in a gaseous medium.
Adequate lighting	20 lux measured at ground level.
AER	Annual Environmental Report.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of this licence application.
Application	The application by the licensee for this licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
BAT	Best Available Technology.
Bi-annually	All or part of a period of six consecutive months.
Biennially	Once every two years.
Biodegradable waste	Waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, paper and cardboard etc.
Biodegradable municipal waste (BMW)	The biodegradable component of municipal waste, not including bio-stabilised residual waste. Biodegradable municipal waste is typically composed of food and garden waste, wood, paper, cardboard and textiles.
Bio-stabilised residual waste	Residual biodegradable municipal waste that has been treated to achieve an EPA-approved biodegradability stability standard (as defined in this licence) prior to landfilling or alternative use agreed.
BOD	5 day Biochemical Oxygen Demand.
CEN	Comité Européen De Normalisation – European Committee for Standardisation.
Characterisation of waste	The sampling and analysis of waste to determine, amongst other things, its nature and composition, including the proportions of biodegradable, recyclable and other materials in waste.
Classification of waste	The classification of waste as inert, non-hazardous or hazardous for the purpose of article 4 of Council Directive (1999/31/EC) on the landfill of waste.
Coding of waste	The allocation of a European Waste Catalogue/Hazardous Waste List code and a concise/standardised description of the waste, including information on the source of the waste, e.g. municipal, industrial, construction and demolition etc.
COD	Chemical Oxygen Demand.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities. Chapter 17 of the EWC or as otherwise may be agreed.

Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses or from further contaminating watercourses.
Daily	During all days of plant operation, and in the case of emissions, when emissions are taking place; with at least one measurement on any one day.
Day	Any 24 hour period.
Daytime	0800 hrs to 2200 hrs.
dB(A)	Decibels (A weighted).
DO	Dissolved Oxygen.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
EMP	Environmental Management Programme.
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule B: Emission Limits</i> , of this licence.
Environmental Damage	Has the meaning given it under 2004/35/EC.
EPA	Environmental Protection Agency.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 2000/532/EC and any subsequent amendment published in the Official Journal of the European Community.
Facility	Any site or premises used for the purposes of the recovery or disposal of waste.
Fortnightly	A minimum of 24 times per year, at approximately two week intervals.
GC/MS	Gas Chromatography/Mass Spectroscopy.
Green waste	Waste wood (excluding bonded/treated/coated timber), plant matter such as grass cuttings, and other vegetation.
Hours of Operation	The hours during which the facility is authorised to be operational.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.

Incident	The following shall constitute an incident for the purposes of this licence: <ul style="list-style-type: none"> a) an emergency; b) any emission which does not comply with the requirements of this licence; c) any exceedence of the daily duty capacity of the waste handling equipment; d) any trigger level specified in this licence which is attained or exceeded; e) any indication that environmental pollution has, or may have, taken place; f) any breakdown of enclosed flare/utilisation plant; and g) any malfunction of any environmental control system.
Inert waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Initial Development Works	Means such works, actions or constructions as may be specified, which for the purposes of environmental protection and safe construction and operation of the facility, have to be carried out in the initial stages of site development, and in any case prior to the commencement of construction of the landfill cells.
K	Kelvin.
kPa	Kilo Pascals.
Landfill Directive	Council Directive 1999/31/EC.
LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Leq	Equivalent continuous sound level.
Licensee	Limerick County Council.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter.
List I	As listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.
List II	As listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.
Local Authority	Limerick County Council.
Maintain	Keep in a fit state, including such regular inspection, servicing, calibration and repair as may be necessary to adequately perform its function.
Mass Flow Limit	An Emission Limit Value which is expressed as the maximum mass of a substance which can be emitted per unit time.
Mass Flow Threshold	A mass flow rate, above which, a concentration limit applies.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.

Municipal solid waste (MSW)	Household waste as well as commercial and other waste which, because of its nature or composition, is similar to household waste. Excluding municipal sludges and effluents.
Night-time	2200 hrs to 0800 hrs.
Noise Sensitive Location (NSL)	Any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.
PER	Pollution Emission Register.
Quarterly	All or part of a period of three consecutive months beginning on the first day of January, April, July or October.
Regional Fisheries Board	Shannon Regional Fisheries Board.
Residual waste	The fraction of collected waste remaining after a treatment or diversion step, which generally requires further treatment or disposal.
Sanitary Effluent	Waste water from facility toilet, washroom and canteen facilities.
Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment, with greater than 2% dry matter.
SOP	Standard Operating Procedure.
Standard Method	A National, European or internationally recognised procedure (eg, I.S. EN, ISO, CEN, BS or equivalent), as an in-house documented procedure based on the above references, a procedure as detailed in the current edition of "Standard Methods for the Examination of Water and Wastewater", (prepared and published jointly by A.P.H.A., A.W.W.A & W.E.F), American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA; or, an alternative method as may be agreed by the Agency.
Storm Water	Rain water run-off from roof and non-process areas.
The Agency	Environmental Protection Agency.
TOC	Total Organic Carbon.
Treated Sludge	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
Treatment/pre-treatment	In relation to waste, any manual, thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.
Trigger Level	A parameter value, the achievement or exceedence of which requires certain actions to be taken by the licensee.
Weekly	During all weeks of plant operation, and in the case of emissions, when

emissions are taking place; with at least one measurement in any one week.

WWTP

Waste Water Treatment Plant.

Decision & Reasons for the Decisions

Reasons for the Decision

The Environmental Protection Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this licence, any emissions from the activity will comply with and will not contravene any of the requirements of Section 40(4) of the Waste Management Acts 1996 to 2008.

In reaching this decision the Environmental Protection Agency has considered documentation received from the licensee, all submissions received from other parties and the reports of its inspector.

Part I Schedule of Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Acts 1996 to 2008, the Environmental Protection Agency (the Agency) proposes, under Section 46(8) of the said Acts to grant this Waste Licence to Limerick County Council to carry on the waste activities listed below at Gortadroma, Ballyhahill, County Limerick subject to conditions, with the reasons therefore and the associated schedules attached thereto set out in the licence. For the purposes of Article 48 of the Waste Management Licensing Regulations 2004 (S.I. No. 395) this facility is classed as a non-hazardous waste landfill.

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2008

Class 1.	Deposit on, in or under land (including landfill).
Class 5.	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.
Class 6.	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.
Class 7.	Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule (including evaporation, drying and calcination).
Class 11.	Blending or mixture 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.

*Licensed Waste Recovery Activities, in accordance with the Fourth Schedule
of the Waste Management Acts 1996 to 2008*

Class 2.	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological 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 10.	The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.
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 such waste is produced.

Part II Conditions

Condition 1. Scope

- 1.1 Waste activities at this facility shall be restricted to those listed and described in Part I Activities Licensed and shall be as set out in the licence application or as modified under Condition 1.5 of this licence and subject to the conditions of this licence.
- 1.2 Activities at this facility shall be limited as set out in *Schedule A: Limitations* of this licence.
- 1.3 The facility shall be controlled, operated, and maintained and emissions shall take place as set out in this licence. All programmes required to be carried out under the terms of this licence, become part of this licence.
- 1.4 For the purposes of this licence, the facility authorised by this licence, is the area of land outlined in red on Drawing No. B.5 of the application. Any reference in this licence to "facility" shall mean the area thus outlined in red. The licensed activities shall be the carried on only within the area outlined.
- 1.5 No alteration to, or reconstruction in respect of, the activity or any part thereof which would, or is likely to, result in
- (a) a material change or increase in:
 - The nature or quantity of any emission,
 - The abatement/treatment or recovery systems,
 - The range of processes to be carried out,
 - The fuels, raw materials, intermediates, products or wastes generated, or
 - (b) any changes in:
 - Site management infrastructure or control with adverse environmental significance,
- shall be carried out or commenced without prior notice to, and without the agreement of, the Agency.
- 1.6 Waste Acceptance Hours and Hours of Operation
- 1.6.1 Landfill
- (a) Waste may be accepted at the facility for disposal at the landfill only between the hours of 8.00am and 5.00pm Monday to Friday inclusive and between 8.00am and 5.00pm on Saturdays preceding Bank Holidays.
 - (b) Waste shall not be accepted at the landfill on Sundays or Bank Holidays.
 - (c) The landfill at the facility may be operated only during the hours of 7.30am to 8.00pm Monday to Friday inclusive, 7.30am to 6.30pm on Saturdays and 8.00am to 4.30pm on Sundays and Bank Holidays.
 - (d) Operations on Sundays and Bank Holidays are limited to essential maintenance and fly spraying activities only.
 - (e) Construction activities at the facility are allowed only during the hours 7.30am to 8:00pm Monday to Friday inclusive. No construction activities are allowed on Sundays and Bank Holidays.
- 1.6.2 Civic Waste Facility
- (a) Waste shall be accepted at the Civic Waste Facility only between the hours of 8.00am to 5.00pm Monday to Friday inclusive and 8.00am to 5.00pm on Saturdays preceding Bank Holidays.

- 1.7 This licence is being granted in substitution for the waste licence granted to the licensee on 25/09/2005 and bearing Waste Licence Register No.W0017-03. The previous waste licence (Register No: W0017-03) is superseded by this licence.

Reason: To clarify the scope of this licence.

Condition 2. Management of the Facility

2.1 Facility Management

2.1.1 The licensee shall employ a suitably qualified and experienced facility manager who shall be designated as the person in charge. The facility manager or a nominated, suitably qualified and experienced, deputy shall be present on the facility at all times during its operation or as otherwise required by the Agency.

2.1.2 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience, as required and shall be aware of the requirements of this licence. In addition, the facility manager and his/her deputy shall successfully complete FAS waste management training programme or equivalent agreed by the Agency.

2.2 Environmental Management System (EMS)

2.2.1 The licensee shall establish and maintain an Environmental Management System (EMS). The EMS shall be updated on an annual basis.

2.2.2 The EMS shall include as a minimum the following elements:

2.2.2.1 Management and Reporting Structure.

2.2.2.2 Schedule of Environmental Objectives and Targets.

The licensee shall prepare and maintain a Schedule of Environmental Objectives and Targets. The schedule shall, as a minimum, provide for a review of all operations and processes, including an evaluation of practicable options, for energy and resource efficiency, the use of cleaner technology (including emissions prevention/reduction), and the beneficial recovery/recycling of waste in subsequent landfill engineering operations. The schedule shall include time frames for the achievement of set targets and shall address a five-year period as a minimum. The schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

The licensee shall ensure insofar as practicable that environmental objectives and targets are met according to the stated schedule.

2.2.2.3 Environmental Management Programme (EMP)

The licensee shall maintain, and update where necessary, an EMP, including a time schedule, for achieving the Environmental Objectives and Targets. It shall include:

- (a) designation of responsibility for targets;
- (b) the means by which they may be achieved;
- (c) the time within which they may be achieved.

The EMP shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

A report on the programme, including the success in meeting agreed targets, shall be prepared and submitted to the Agency as part of the AER. Such reports shall be retained on-site for a period of not less than seven years and shall be available for inspection by authorised persons of the Agency.

2.2.2.4 Notwithstanding the provisions of Condition 2.2.2.3, the operator shall prepare, operate and maintain a Landfill Environmental Management Plan (LEMP) covering aspects not already included in the EMP. The LEMP shall be regularly reviewed (at least annually) in light of operational experiences at the facility, the stage of development of the facility (active, closure, aftercare), evolving legislative and BAT requirements, as well as any Agency instructions that may issue, with updates notified to the EPA as part of the AER.

2.2.2.5 Documentation

- (i) The licensee shall establish and maintain an environmental management documentation system which shall be to the satisfaction of the Agency.
- (ii) The licensee shall issue a copy of this licence to all relevant personnel whose duties relate to any condition of this licence.

2.2.2.6 Corrective Action

The licensee shall establish procedures to ensure that corrective action is taken should the specified requirements of this licence not be fulfilled. The responsibility and authority for initiating further investigation and corrective action in the event of a reported non-conformity with this licence shall be defined.

2.2.2.7 Awareness and Training

The licensee shall establish and maintain procedures for identifying training needs, and for providing appropriate training, for all personnel whose work can have a significant effect upon the environment. Appropriate records of training shall be maintained.

2.2.2.8 Communications Programme

The licensee shall establish and maintain a Communications Programme to ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility.

<p><i>Reason: To make provision for management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.</i></p>
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Condition 3. Infrastructure and Operation

- 3.1 The licensee shall establish all infrastructure referred to in this licence prior to the commencement of the licensed activities or as required by the conditions of this licence unless otherwise agreed in writing by the Agency.
- 3.2 The landfill footprint (maximum lateral extent of landfilling) shall be as indicated in Drawing Reference B.5 of the Application.
- 3.3 Wastes shall not be deposited in any new cell without prior written agreement of the Agency.
- 3.4 Facility Notice Board
- 3.4.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.
- 3.4.2 The board shall clearly show:-
- a) the name and telephone number of the facility;
 - b) the normal hours of opening;
 - c) the name of the licence holder;
 - d) an emergency out of hours contact telephone number;
 - e) the licence reference number; and
 - f) where environmental information relating to the facility can be obtained.
- 3.5 The licensee shall install on all emission points such sampling points or equipment, including any data-logging or other electronic communication equipment, as may be required by the Agency. All such equipment shall be consistent with the safe operation of all sampling and monitoring systems.
- 3.6 Sampling equipment shall be operated and maintained such that sufficient sample is collected to meet both internal monitoring requirements and those of the Agency. A separate composite sample or homogeneous sub-sample (of sufficient volume as advised) should be retained as required for EPA use.
- 3.7 The licensee shall clearly label and provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 3.8 Tank and Drum Storage Areas
- 3.8.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.8.2 All tank and drum storage areas shall, as a minimum, be bunded; either locally or remotely, to a volume not less than the greater of the following:-
- (i) 110% of the capacity of the largest tank or drum within the bunded area; or
 - (ii) 25% of the total volume of substance which could be stored within the bunded area.
- 3.8.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.8.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.

- 3.8.5 Bunds shall be designed having regard to Agency guidelines '*Storage and Transfer of Materials for Scheduled Activities*' (2004). The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency as per *Schedule E* of this licence.
- 3.9 The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.
- 3.10 The licensee shall install and maintain an oil separator at the facility to ensure that all storm water discharges (excluding storm water from roof buildings) from the facility pass through an oil separator prior to discharge. The separator shall be a Class I full retention separator and be in accordance with I.S. EN 585-2:2003 (separator systems for light liquids).
- 3.11 All pump sumps or other treatment plant chambers from which spillage of environmentally significant materials might occur in such quantities as are likely to breach local or remote containment or separator, shall be fitted with high liquid level alarms (or oil detectors as appropriate).
- 3.12 The provision of a catchment system to collect any leaks from flanges and valves of all over ground pipes used to transport material other than water shall be examined. This shall be incorporated into a schedule of objectives and targets set out in Condition 2.2 of this licence for the reduction in fugitive emissions.
- 3.13 The licensee shall install and maintain in a prominent location on the site a windsock, or other wind direction indicator, which shall be visible from the public roadway outside the site.
- 3.14 The licensee shall operate a weather monitoring station on the site at a location agreed by the Agency, which records conditions of wind speed and wind direction.
- 3.15 A Buffer Zone within the facility, in which no waste shall be landfilled and which shall be used for the planting of forestry in keeping with the planting scheme described in Section 2.2.3 of the EIS, shall be provided and maintained. The Buffer Zone shall be of a minimum width of 50m from the facility boundary on the north, east and south sides of the proposed development.
- 3.16 The licensee shall, no later than three months prior to the commencement of site extension development, submit to the Agency for its agreement a construction schedule, sequence and timescale (Construction Plan) incorporating the requirements of this licence and to give effect to the commitments in the application documentation. This Plan shall have regard to the following development phases:
- (a) Initial Development Works,
 - (b) Main infrastructure development works (pre acceptance of waste for disposal), and
 - (c) Future/planned works (in parallel with waste disposal, e.g. future cell development/phasing). The Construction Plan for cell development shall have regard to the sequencing necessary to provide short, medium and long term screening of the operational areas.
- 3.17 Specified Engineering Works
- 3.17.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule D: Specified Engineering Works*, of this licence, to the Agency for its agreement at least two months prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.

- 3.17.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.
- 3.17.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance validation. The validation report shall be made available to the Agency on request. The report shall, as appropriate, include the following information:-
- (a) A description of the works;
 - (b) As-built drawings of the works;
 - (c) Records and results of all tests carried out (including failures);
 - (d) Drawings and sections showing the location of all samples and tests carried out;
 - (e) Name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
 - (f) Records of any problems and the remedial works carried out to resolve those problems; and
- Any other information requested in writing by the Agency.
- 3.18 Unless otherwise agreed in writing, the landfill lining system shall comprise:-
- (a) A composite liner consisting of a 0.5m layer of BES with a hydraulic conductivity of less than or equal to 1×10^{-10} m/s, overlain by a 2mm thick high density polyethylene (HDPE) layer;
 - (b) A geotextile protection layer placed over the HDPE layer;
 - (c) A 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of 1×10^{-3} m/s, of pre-washed, uncrushed, granular, rounded stone (16-32mm grain size) incorporating leachate collection drains;
 - (d) The lining system on the base of the facility shall be laid to a minimum slope of 1:50;
 - (e) The sidewalls shall be designed and constructed to achieve an equivalent protection; and
 - (f) Formation levels of the cells shall be as agreed under Condition 3.17.
- 3.19 Facility Security
- 3.19.1 Security and stockproof fencing and gates shall be installed and maintained. The base of the fencing shall be set in the ground. Subject to the implementation of the restoration and aftercare plan and to the agreement of the Agency, the requirement for such site security may be removed.
- 3.19.2 Gates shall be locked shut when the facility is unsupervised.
- 3.19.3 The licensee shall remedy any defect in the gates and/or fencing as follows:-
- (a) A temporary repair shall be made by the end of the working day; and
 - (b) A repair to the standard of the original gates and/or fencing shall be undertaken within three working days.
- 3.20 Facility Roads and Hardstanding
- 3.20.1 Effective site roads shall be maintained to ensure the safe movement of vehicles within the facility.
- 3.20.2 The facility entrance and hardstanding areas, shall be appropriately paved and maintained in a fit and clean condition.
- 3.21 Facility Office

- 3.21.1 The licensee shall maintain an office at the facility. The office shall be maintained in a manner suitable for the processing and storing of documentation.
- 3.21.2 The licensee shall maintain a working telephone and a method for electronic transfer of information at the facility.
- 3.22 Waste Inspection and Quarantine Areas
- 3.22.1 A Waste Inspection Area and a Waste Quarantine Area shall be maintained at the facility.
- 3.22.2 These areas shall be maintained in a manner suitable, and be of a size appropriate, for the inspection of waste and subsequent quarantine if required. The waste inspection area and the waste quarantine area shall be clearly identified and segregated from each other.
- 3.22.3 Drainage from these areas shall be directed to the leachate management system.
- 3.23 Weighbridge and Wheel Cleaner
- 3.23.1 The licensee shall maintain a weighbridge and wheel cleaners at the facility.
- 3.23.2 The wheel cleaner shall be used by all vehicles leaving the facility as required to ensure that no process water or waste is carried off-site. All water from the wheel cleaning area shall be directed to the leachate management system.
- 3.24 Leachate Management Infrastructure
- 3.24.1 Leachate management infrastructure shall be provided and maintained at the facility as described in the Application documentation, or as may be varied by a licence condition.
- 3.24.2 Unless otherwise agreed in writing with the Agency, leachate management infrastructure consisting of the following shall be provided at the facility:
- a) A leachate collection system for the collection of leachate from each cell at the facility;
 - b) A minimum of three leachate abstraction wells inside the bentonite cut-off wall (Cells 1-4);
 - c) A minimum of three leachate level monitoring points in cell 11 and all future constructed cells;
 - d) A lined lagoon for the storage of raw leachate prior to treatment;
 - e) A lagoon for the storage of treated leachate;
 - f) A leachate treatment plant and associated works; and
 - g) An automated control system for the control of leachate flow and monitoring.
- 3.25 Landfill Gas Management
- 3.25.1 Landfill Gas management infrastructure shall be provided and maintained at the facility as described in the Application documentation, or as may be varied by a licence condition.
- 3.25.2 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions.
- 3.26 Groundwater

- 3.26.1 All wells & boreholes shall be adequately sealed to prevent surface contamination and, as may be appropriate, decommissioned according to the UK Environment Agency guidelines 'Decommissioning Redundant Boreholes and Wells' (or as otherwise may be agreed).
- 3.26.2 Groundwater monitoring wells shall be constructed having regard to the guidance given in the Agency's landfill manual "Landfill Monitoring".
- 3.27 Effective surface water management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall consist of the following:-
- a) A system for the collection and diversion of run off from the facility such that contaminated water is prevented from discharging into surface watercourses. This run-off shall be diverted to a stormwater settling and holding ponds;
 - b) Control measures shall be incorporated into the design of the stormwater settling and holding ponds such that, if necessary, its contents can be isolated and discharged to the leachate management infrastructure or tankered off-site; and
 - c) A 24-hour composite sampler shall be installed and maintained at the outlet of the treated leachate storage lagoons.
- 3.28 The licensee shall maintain a Civic Waste Facility. All waste types shall be collected and stored in appropriate containers or in appropriately bunded storage areas as necessary.
- 3.29 Appropriate infrastructure to a maximum of 1000m³ for the composting of green waste shall be maintained at the facility prior to any waste being composted. This infrastructure shall at a minimum comprise the following:-
- a) An impermeable concrete slab; and
 - b) Collection and disposal of all run-off to the leachate collection system.
- 3.30 Daily and intermediate cover
- Bio-stabilised residual waste shall only be used as landfill cover where it has been stabilised in accordance with Condition 8.8.4, complies with any requirements of the Department of Agriculture, Fisheries and Food relating to the management of animal by-products and has been agreed in advance with the Agency.

REASON: To provide for appropriate operation of the facility to ensure protection of the environment.

Condition 4. Interpretation

- 4.1 Emission limit values for emissions to atmosphere shall be interpreted in the following way, they shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of:
- 4.1.1 Continuous Monitoring:
- (i) No 24 hour mean value shall exceed the emission limit value.
 - (ii) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.
 - (iii) No 30 minute mean value shall exceed twice the emission limit value.

- 4.1.2 Non-Continuous Monitoring
- (i) For any parameter where, due to sampling/analytical limitations, a 30 minute sample is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value.
 - (ii) For flow, no hourly or daily mean value, calculated on the basis of appropriate spot readings, shall exceed the relevant limit value.
 - (iii) For all other parameters, no 30 minute mean value shall exceed the emission limit value.
- 4.2 The concentration limits for emissions to atmosphere specified in this licence shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of :-
- a) In the case of landfill gas flare:
Temperature 273 K, pressure 101.3 kPa, dry gas at 3% oxygen; and
 - b) In the case of landfill gas combustion plant:
Temperature 273 K, pressure 101.3 kPa, dry gas; 5% oxygen.
- 4.3 Emissions to Surface Water
- Emission limit values for emissions to waters in this licence shall be interpreted in the following way:-
- 4.3.1 Continuous monitoring:
- (i) No flow value shall exceed the specified limit.
 - (ii) No pH value shall deviate from the specified range.
 - (iii) No temperature value shall exceed the limit value.
- 4.3.2 Composite Sampling:
- (i) No pH value shall deviate from the specified range.
 - (ii) For parameters other than pH and flow, eight out of ten consecutive composite results, based on flow proportional composite sampling, shall not exceed the emission limit value. No individual result similarly calculated shall exceed 1.2 times the emission limit value.
- 4.3.3 Discrete Sampling
- For parameters other than pH and temperature, no grab sample value shall exceed 1.2 times the emission limit value.
- 4.4 Where the ability to measure a parameter is affected by mixing before emission, then, with agreement from the Agency, the parameter may be assessed before mixing takes place.
- 4.5 Noise from the activity shall not give rise to sound pressure levels (Leq,T) measured at noise sensitive locations of the activity which exceed the limit value(s).

Reason: To clarify the interpretation of emission limit values fixed under the licence.

Condition 5. Emissions

- 5.1 No specified emission from the facility shall exceed the emission limit values set out in *Schedule B: Emission Limits* of this licence. There shall be no other emissions of environmental significance.
- 5.2 The licensee shall ensure that the activities shall be carried out in a manner such that emissions including odours do not result in significant impairment of, and/or significant interference with amenities or the environment beyond the facility boundary.
- 5.3 No substance shall be discharged in a manner, or at a concentration which, following initial dilution, causes tainting of fish or shellfish.
- 5.4 Emissions to Surface Water
- 5.4.1 Unless otherwise agreed in writing by the Agency, treated leachate shall be discharged from the facility only when:
- (a) It meets the emission limit values as outlined in *Schedule B: Emission Limits*, of this licence;
 - (b) The flow in the receiving water is greater than 50 litres per second; and
 - (c) There are greater than 40 dilutions in the receiving water.
- When either of the criteria (a), (b) or (c) is not satisfied any treated effluent shall be returned to the treated leachate storage lagoon.
- 5.4.2 No untreated leachate shall be discharged to the White River.
- 5.4.3 All flow meters shall be calibrated, operated and maintained as necessary so they will accurately reflect both the effluent discharge and the receiving water flow.
- 5.4.4 The equipment, including backup equipment, specified in *Table C.6.5: Leachate Treatment Plant Control*, of this licence, shall be provided on-site. All treatment/abatement control and monitoring equipment shall be calibrated and maintained at all times when in use, in accordance with the manufacturer's instructions.
- 5.5 The licensee shall ensure that vermin, birds, flies, mud, dust, litter and odours do not give rise to nuisance at the facility or in the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.
- 5.6 The licensee shall maintain trigger levels for Ammonia for water entering the storm water settling ponds as agreed by the Agency. The licensee shall maintain a trigger level for the concentration of ammonia from the storm water settling ponds to be discharged to the White River; this level shall be agreed by the Agency. The trigger level for ammonia shall take account of the water quality in the receiving waters upgradient of the landfill. No surface water shall be discharged to the White River when any trigger level is exceeded.

Reason: To provide for the protection of the environment by way of control and limitation of emissions.

Condition 6. Control and Monitoring

- 6.1 The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations as set out below and as in accordance with *Schedule C: Control & Monitoring*, of this licence:
- 6.1.1 Analysis shall be undertaken by competent staff in accordance with documented operating procedures.
- 6.1.2 Such procedures shall be assessed for their suitability for the test matrix and performance characteristics determined.
- 6.1.3 Such procedures shall be subject to a programme of Analytical Quality Control using control standards with evaluation of test responses.
- 6.1.4 Where analysis is sub-contracted it shall be to a competent laboratory.
- 6.2 All automatic monitors and samplers shall be functioning at all times (except during maintenance and calibration) when the activity is being carried on unless alternative sampling or monitoring has been agreed in writing by the Agency for a limited period. In the event of the malfunction of any continuous monitor, the licensee shall contact the Agency as soon as practicable, and alternative sampling and monitoring facilities shall be put in place. Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency.
- 6.3 Monitoring and analysis equipment shall be operated and maintained as necessary so that monitoring accurately reflects the emission or discharge.
- 6.4 The frequency, methods and scope of monitoring, sampling and analyses, as set out in this licence, may be amended with the agreement of the Agency following evaluation of test results.
- 6.5 The licensee shall prepare a programme, to the satisfaction of the Agency, for the identification and reduction of fugitive emissions. This programme shall be included in the Environmental Management Programme.
- 6.6 The integrity and water tightness of all underground pipes and tanks and their resistance to penetration by water or other materials carried or stored therein shall be tested and demonstrated by the licensee. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.
- 6.7 Process Effluent
- 6.7.1 The drainage system, bunds, silt traps and oil separators shall be inspected weekly, desludged as necessary and properly maintained at all times. All sludge and drainage from these operations shall be collected for safe disposal.
- 6.8 Storm water
- 6.8.1 A visual examination of the storm water discharge shall be carried out daily. A log of such inspections shall be maintained.
- 6.8.2 The drainage system, bunds, silt traps and oil separators shall be inspected weekly, desludged as necessary and properly maintained at all times. All sludge and drainage from these operations shall be collected for safe disposal.
- 6.8.3 The licensee shall carry out continuous monitoring of Electrical Conductivity, pH and Temperature at the outlet of the storm water settling ponds.
- 6.9 The licensee shall carry out a noise survey of the site operations annually. The survey programme shall be undertaken in accordance with the methodology specified in the 'Environmental Noise Survey Guidance Document' as published by the Agency.

6.10 Pollution Emission Register (PER)

The licensee shall prepare and maintain a PER for the site. The substances to be included in the PER shall be agreed by the Agency each year by reference to the list specified in the Agency's AER Guidance Note. The PER shall be prepared in accordance with any relevant guidelines issued by the Agency and shall be submitted as part of the AER.

6.11 Automated Control System

6.11.1 Unless otherwise agreed in advance with the Agency an automated control system shall be maintained at the facility. All facility operations linked to the automated control system shall have a manual control which will be reverted to in the event of break in power supply or during maintenance.

6.11.2 This system shall include for:-

- (i) Recording of leachate levels in the lined cells and lagoon;
- (ii) Recording of flows at the outlet of the storm water settling ponds;
- (iii) Quality of the surface water at the outlet of the storm water settling ponds (in accordance with Condition 6.8.3); and
- (iv) Permanent gas monitoring system to be installed in the site office and any other enclosed structures at the facility.

6.12 Leachate Management

6.12.1 Leachate levels in the lined cells shall not exceed a level of 1.0m over the top of the liner at the base of the landfill.

6.12.2 The level of leachate in the pump sumps shall be monitored as outlined in *Schedule C: Control & Monitoring*, of this licence.

6.12.3 The frequency of leachate removal from the leachate holding tank shall be such that a minimum freeboard of 0.75m shall be maintained in the tank at all times. The required freeboard shall be clearly indicated in the tank.

6.12.4 Unless treated on the facility, leachate and contaminated storm water shall be disposed of by transporting off-site in fully enclosed road tankers, to a WWTP to be agreed in advance with the Agency.

6.12.5 Recirculation of leachate or other contaminated water shall only be undertaken at the facility with the prior agreement of the Agency and in any case, within cells which have been lined to the satisfaction of the Agency.

6.13 The licensee shall monitor meteorological conditions as specified in *Schedule C.5*.

6.14 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.

6.15 Landfill Gas

6.15.1 Unless otherwise agreed by the Agency the licensee shall submit for agreement a specification for the construction, location and installation phasing of landfill gas monitoring locations.

6.15.2 At least two rounds of landfill gas sampling (one during falling atmospheric pressure) in locations external to the disposal cells should be completed prior to commencement of filling of any new area.

6.15.3 Flares shall be operated to ensure a burn chamber residence time of minimum 0.3 sec and burn temperature of minimum 1000°C.

6.15.4 In relation to landfill derived gases the following shall constitute a trigger level:

- (a) Methane greater than 1% v/v; or,
 - (b) Carbon Dioxide greater than 1.5% v/v,
- measured in any monitoring borehole, service duct, manhole or other point as may be specified, located external to the body of waste.

6.16 Odour Monitoring

6.16.1 The licensee shall inspect the facility, its environs and odour sensitive locations daily for nuisances caused by odours.

6.16.2 As part of the odour control programme in place at the facility, the licensee shall carry out a monthly review of odour control measures in place at the facility. This shall include:

- (i) consideration of odour complaints received (including details and nature of the complaints, times and weather conditions);
- (ii) details of any monitoring carried out (including to validate complaints and identify the source of the complaint and actions taken, where relevant); and
- (iii) recommendations to deal with odour problems and implementation of these recommendations.

The licensee shall maintain these reports on site and forward them to the Agency on request.

6.17 Subject to the agreement of the well owners, all private wells within 500m downgradient of the facility shall be included in the monitoring programme set out in Schedule C.3 Groundwater Monitoring, of this licence.

6.18 Within three months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC.

6.19 Litter Control

6.19.1 The measures and infrastructure as described in Attachment C.7 entitled *Litter Control* and Attachment H.1 entitled *Active Litter Management Plan* of the application documentation for licence register 17-3 shall be applied to control litter at the facility.

6.19.2 All litter control infrastructure shall be inspected on a daily basis. The licensee shall remedy any defect in the litter netting as follows:-

- (a) A temporary repair shall be made by the end of the working day; and
- (b) A repair to the standard of the original netting shall be undertaken within three working days.

6.19.3 All loose litter or other waste, placed on or in the vicinity of the facility, other than in accordance with the requirements of this licence, shall be removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day after such waste is discovered.

6.19.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.

6.20 Prior to exiting the facility, all waste vehicles shall use the wheelwash.

6.21 Birds shall be prevented from gathering on and feeding at the facility by the use of birds of prey and/or other bird scaring techniques. The birds of prey and/or other techniques shall maintain their presence every day, from before dawn to after dark, until the waste activities cease and all the waste is capped to the written satisfaction of the Agency. The use of gas operated bird scaring devices is prohibited at the facility.

6.22 A stability assessment of the side slopes of the facility shall be carried out annually.

6.23 Operational Controls

6.23.1 Only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials.

6.23.2 The working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide and no more than 50 metres horizontal depth and have a slope no greater than 1 in 3.

- 6.23.3 All waste deposited at the working face shall be compacted, using a steel wheeled compactor, and covered as soon as is practicable and at any rate prior to the end of the working day.
- 6.23.4 The working face, or faces, shall each day at the end of the day, be covered with suitable material.
- 6.23.5 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 6.23.6 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over with the exception of works associated with the construction and installation of necessary infrastructure or otherwise only with the prior agreement from the Agency.
- 6.23.7 Any cover material at any location within the facility which is eroded, washed off or otherwise removed shall be replaced by the end of the working day.
- 6.23.8 Scavenging shall not be permitted at the facility.
- 6.23.9 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 6.23.10 No smoking shall be allowed at the facility.
- 6.23.11 Gypsum wastes shall not be placed in any landfill cell accepting biodegradable waste.

Reason: To provide for the protection of the environment by way of treatment and monitoring of emissions.

Condition 7. Resource Use and Energy Efficiency

- 7.1 The licensee shall carry out an audit of the energy efficiency of the site within one year of the date of grant of this licence. The audit shall be carried out in accordance with the guidance published by the Agency; "Guidance Note on Energy Efficiency Auditing". The energy efficiency audit shall be repeated at intervals as required by the Agency.
- 7.2 The audit shall identify all opportunities for energy use reduction and efficiency and the recommendations of the audit will be incorporated into the Schedule of Environmental Objectives and Targets of the AER.
- 7.3 The licensee shall identify opportunities for reduction in the quantity of water used on site including recycling and reuse initiatives, wherever possible. Reductions in water usage shall be incorporated into Schedule of Environmental Objectives and Targets.

Reason: To provide for the efficient use of resources and energy in all site operations.

Condition 8. Materials Handling

- 8.1 Disposal or recovery of waste shall only take place in accordance with the conditions of this licence and in accordance with the appropriate National and European legislation and protocols.
- 8.2 Waste Acceptance and Characterisation Procedures

- 8.2.1 Waste shall only be accepted at the facility, from Local Authority waste collection or transport vehicles or holders of waste permits, unless exempted or excluded, issued under the Waste Management (Collection Permit) Regulations 2007. Copies of these waste collection permits must be maintained at the facility.
- 8.2.2 Whole used tyres (other than bicycle tyres and tyres with an outside diameter greater than 1400mm) shall not be disposed of at the facility. Shredded tyres shall not be disposed of at the facility.
- 8.2.3 No hazardous wastes or liquid wastes shall be disposed of at the facility.
- 8.2.4 The licensee shall submit to the Agency for its agreement written procedures for the acceptance and handling of all wastes. These procedures shall include details of the pre-treatment of all waste to be carried out prior to acceptance at the facility and shall also include methods for the characterisation of waste in order to distinguish between inert, non-hazardous and hazardous wastes. The procedures shall have regard to the EU Decision (2003/33/EC) on establishing the criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste.
- 8.2.5 No sludge shall be accepted at the facility.
- 8.2.6 No waste which in the conditions of the landfill, is explosive, corrosive, oxidising, highly flammable or flammable as defined in EU Council Directive 91/689/EEC shall be accepted at the landfill.
- 8.2.7 The dilution or mixture of waste solely in order to fulfil relevant waste acceptance criteria established under Condition 8.2.4, is prohibited.
- 8.2.8 The waste acceptance procedures established under Condition 8.2.4 shall provide:-
- (i) For the checking of waste documentation on receipt of waste in the waste reception area;
 - (ii) For non pre-cleared customers, the visual inspection and testing of waste in the waste inspection area pending acceptance/rejection;
 - (iii) For the visual inspection of waste when deposited at the working face;
 - (iv) For the keeping for two months of any samples associated with on-site verification sampling of waste accepted at the facility.
- 8.2.9 The licensee shall provide a written acknowledgement (to carrier/waste contractor) of receipt of each delivery of waste to the facility (for disposal in the landfill).
- 8.3 Waste sent off-site for recovery or disposal shall be conveyed only by an authorised waste contractor. The waste shall be transported only from the site of the activity to the site of recovery/disposal in a manner which will not adversely affect the environment and in accordance with the appropriate National and European legislation and protocols.
- 8.4 Waste shall be stored in designated areas, protected as may be appropriate, against spillage and leachate run-off. The waste is to be clearly labelled and appropriately segregated.
- 8.5 With the exception of use of recovered fuels as may be approved by the Agency, no waste shall be burnt at the facility.
- 8.6 Only waste that has been subject to treatment shall be accepted for disposal at the landfill facility.
- (i) Treatment shall reflect published EPA technical guidance as set out in *Municipal Solid Waste – Pre-treatment and Residuals Management*, EPA, 2009.
 - (ii) With the agreement of the Agency, this condition shall not apply to:

- inert wastes for which treatment is not technically feasible;
- other waste for which such treatment does not contribute to the objectives of the Landfill Directive as set out in Article 1 of the Directive by reducing the quantity of the waste or the hazards to human health or the environment.

8.7 Limit on acceptance of biodegradable municipal waste

8.7.1 Unless otherwise as may be specified by the Agency, the following limits shall apply:

- (i) For the calendar years 2010, 2011 and 2012, a maximum of 40% by weight of municipal solid waste (MSW) accepted for disposal to the body of the landfill shall comprise biodegradable municipal waste (BMW),
- (ii) For the calendar years 2013, 2014 and 2015, a maximum of 24% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW, and
- (iii) For the calendar year 2016 and thereafter, a maximum of 15% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW, unless an alternative has been agreed in writing by the Agency in accordance with Condition 8.7.2.

8.7.2 Two or more licensed landfills may seek the agreement of the Agency that collectively they will arrange to comply with Condition 8.7.1. Any agreements entered into become part of this licence. In seeking agreement the following factors, as a minimum, shall be addressed in any proposal submitted to the Agency:

- BAT;
- age, intake rate and life expectancy of the facility;
- waste intake characterisation;
- potential for odour generation;
- proximity to sensitive receptors;
- capacity of landfill gas and leachate infrastructure; and
- consideration of any potential environmental impact or change to operational practices.

8.8 Determination of biodegradable municipal waste content of municipal waste

8.8.1 The licensee shall determine the biodegradable municipal waste content of MSW accepted for disposal to the body of the landfill. Waste that has been bio-stabilised in accordance with Condition 8.8.4 shall not be considered BMW.

8.8.2 Bio-stabilised residual wastes meeting the requirements of Condition 8.8.4 received at the landfill facility may be included in the determination of MSW quantities accepted at the landfill facility may be included in the determination of MSW quantities accepted at the facility for the purposes of Condition 8.7.1.

8.8.3 In determining BMW content, the licensee shall use approved calculation factors for BMW content of municipal waste streams published by the EPA. With the agreement of the EPA, alternative factors can be used if they have been determined following waste characterisation carried out in accordance with EPA-approved characterisation protocols including, where appropriate, the use of EPA-approved contractors.

8.8.4 In the case of bio-stabilised residual wastes, stabilisation means the reduction of the decomposition properties of the waste to such an extent that offensive odours are minimised and that the respiration activity after four days (AT_4) is $<10\text{mg O}_2/\text{g DM}$ until 1 January 2016 and $<7\text{mg O}_2/\text{g DM}$ thereafter.

- 8.8.5 Bio-stabilised residual wastes shall be monitored in accordance with Schedule C.6.
- 8.8.6 Waste that was accepted to the body of the as stabilised but subsequently is found not to meet the stabilisation standard set out in Condition 8.8.4 shall be notified to the Agency and included in the calculation of BMW accepted to the body of the landfill when assessing compliance with Condition 8.7.1. In the event of failure to meet the stabilisation standard, each and every load of bio-stabilised residual waste accepted following receipt of the failed test result shall be tested notwithstanding the testing frequency set out in Schedule C.6, until otherwise agreed with the Agency.
- 8.8.7 The licensee is required to maintain on-site as part of their waste acceptance procedures and associated documentation, evidence to demonstrate compliance with Condition 8.7.1, which shall be available for inspection by Agency personnel.
- 8.9 All wastes shall be checked at the working face. Any waste deemed unsuitable for acceptance at the facility and/or in contravention of this licence shall be immediately separated and removed from the facility at the earliest possible time. Temporary storage of such wastes shall be in a designated Waste Quarantine Area. Waste shall be stored under appropriate conditions in the quarantine area to avoid putrefaction, odour generation, the attraction of vermin and any other nuisance or objectionable condition.

Reason: To provide for the appropriate handling of materials and the protection of the environment.

Condition 9. Accident Prevention and Emergency Response

- 9.1 The licensee shall ensure that a documented Accident Prevention Policy is in place which will address the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.
- 9.2 The licensee shall ensure that a documented Emergency Response Procedure is in place, which shall address any emergency situation which may originate on-site. This Procedure shall include provision for minimising the effects of any emergency on the environment. This procedure shall be reviewed annually and updated as necessary.
- 9.3 In the event of an incident the licensee shall immediately:-
- (a) isolate the source of any such emission;
 - (b) carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
 - (c) evaluate the environmental pollution, if any, caused by the incident;
 - (d) identify and execute measures to minimise the emissions/malfunction and the effects thereof;
 - (e) identify the date, time and place of the incident;
 - (f) provide a proposal to the Agency for its agreement within one month of the incident occurring or as otherwise agreed by the Agency, to:-
 - identify and put in place measures to avoid reoccurrence of the incident; and
 - identify and put in place any other appropriate remedial action.

Reason: To provide for the protection of the environment.

Condition 10. Closure, Restoration & Aftercare

- 10.1 The licensee shall restore the facility on a phased basis. Unless otherwise agreed, filled cells shall be permanently capped within twenty-four months of the cells having been filled to the required level.
- 10.2 Landscaping
- 10.2.1 Landscaping of the facility as described in Attachment C.8 entitled *Landscape/Cultural Heritage* of the application documentation.
- 10.2.2 Unless otherwise agreed by the Agency, the finished (post settlement) restored levels of the landfill shall be 132mOD as indicated in Drawing Reference No. B5 of the Application.
- 10.2.3 Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate. Any depressions arising after profiling shall be rectified by the emplacement of suitable capping or restoration materials.
- 10.3 Final Capping
- 10.3.1 Unless otherwise agreed by the Agency, the final capping shall consist of the following:-
- 10.3.1.1 Top soil (150 -300mm);
- 10.3.1.2 Subsoils, such that total thickness of top soil and subsoils is at least 1m;
- 10.3.1.3 Drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s or a geosynthetic material that provides equivalent transmissivity;
- 10.3.1.4 Compacted mineral layer of a minimum 0.6m thickness with a permeability of less than 1×10^{-9} m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent protection; and
- 10.3.1.5 Gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.
- 10.4 No material or object that is incompatible with the proposed restoration of the facility shall be present within one metre of the final soil surface levels.
- 10.5 Soil Storage
- 10.5.1 All soils shall be stored to preserve the soil structure for future use.
- 10.5.2 Excavated peat from the landfill extension works shall be deposited in stockpiles no higher than 3m with graded banks to be vegetated immediately by hydroseeding or other agreed method. Stockpiles within the landfill footprint should not be emplaced on previously filled cells. The location of any stockpiles should take account of sensitive receptors and be situated away from drains.
- 10.6 Closure, Restoration & Aftercare Management Plan (CRAMP):

- 10.6.1 Prior to the acceptance for waste for disposal at the site, the licensee shall prepare for agreement by the Agency, a fully detailed and costed plan for the closure, restoration and long-term aftercare of the site or part thereof. This plan shall have regard to the commitments given in Attachment G entitled *Restoration and Aftercare* of the application documentation for Licence Register 17-3.
- 10.6.2 The plan shall be maintained and reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the prior written agreement of the Agency.
- 10.7 The CRAMP shall include as a minimum, the following:-
- 10.7.1 A scope statement for the plan.
- 10.7.2 The criteria, including those specified in this licence, which define the successful closure & restoration of the facility or part thereof, and which ensures minimum impact to the environment.
- 10.7.3 A programme to achieve the stated criteria.
- 10.7.4 Where relevant, a test programme to demonstrate the successful implementation of the plan.
- 10.7.5 Details of the long-term supervision, monitoring, control, maintenance and reporting requirements for the restored facility.
- 10.7.6 Details of costings for the plan and the financial provisions in place to underwrite these costs.
- 10.8 A final validation report to include a certificate of completion for the CRAMP, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.

Reason: To make provision for the proper closure of the activity ensuring protection of the environment.

Condition 11. Notifications, Records and Reports

- 11.1 The licensee shall notify the Agency by both telephone and either facsimile or electronic mail, if available, to the Agency's Regional Inspectorate in Cork as soon as practicable after the occurrence of any of the following:
- 11.1.1 Any release of environmental significance to atmosphere from any potential emission point including bypasses.
- 11.1.2 Any emission which does not comply with the requirements of this licence.
- 11.1.3 Any malfunction or breakdown of key control equipment or monitoring equipment set out in *Schedule C: Control & Monitoring* of this licence which is likely to lead to loss of control of the abatement system.
- 11.1.4 Any incident with the potential for environmental contamination of surface water or groundwater, or posing an environmental threat to air or land, or requiring an emergency response by the Local Authority.

- The licensee shall include as part of the notification, date and time of the incident, summary details of the occurrence, and where available, the steps taken to minimise any emissions.
- 11.2 In the event of any incident which relates to discharges to water, the licensee shall notify the Local Authority and the Shannon Regional Fisheries Board as soon as practicable after such an incident.
- 11.3 The licensee shall make a record of any incident. This record shall include details of the nature, extent, and impact of, and circumstances giving rise to, the incident. The record shall include all corrective actions taken to; manage the incident, minimise wastes generated and the effect on the environment, and avoid recurrence. The licensee shall as soon as practicable following incident notification, submit to the Agency the incident record.
- 11.4 The licensee shall record all complaints of an environmental nature related to the operation of the activity. Each such record shall give details of the date and time of the complaint, the name of the complainant and give details of the nature of the complaint. A record shall also be kept of the response made in the case of each complaint.
- 11.5 The licensee shall record all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the facility.
- 11.6 The licensee shall maintain a written record for each load of waste arriving at the facility. The licensee shall record the following:
- (i) the date and time;
 - (ii) the name of the carrier (including if appropriate, the waste carrier registration details);
 - (iii) the vehicle registration number;
 - (iv) the trailer, skip or other container unique identification number (where relevant);
 - (v) the name of the producer(s)/collector(s) of the waste as appropriate;
 - (vi) the name of the waste facility (if appropriate) from which the load originated including the waste licence or waste permit register number;
 - (vii) a description of the waste including the associated EWC/HWL codes;
 - (viii) the quantity of the waste, recorded in tonnes;
 - (ix) details of the treatment(s) to which the waste has been subjected;
 - (x) the classification of the waste, including whether MSW or other classification;
 - (xi) whether the waste is for disposal or recovery and if recovery for what purpose;
 - (xii) the name of the person checking the load; and
 - (xiii) where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.
- 11.7 The licensee shall as a minimum keep the following documents at the facility:-
- (i) the licences relating to the facility;
 - (ii) the current EMS for the facility;
 - (iii) the previous year's AER for the facility;
 - (iv) records of all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence and all other such monitoring which relates to the environmental performance of the facility;
 - (v) relevant correspondence with the Agency;

- (vi) an up to date site drawings/plans showing the location of key process and environmental infrastructure, including monitoring locations and emission points

and this documentation shall be available to the Agency for inspection at all reasonable times.

- 11.8 The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calendar year. This report, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in *Schedule G: Annual Environmental Report*, of this licence and shall be prepared in accordance with any relevant guidelines issued by the Agency.

11.9 Waste Recovery Reports

The licensee shall as part of the Annual Environmental Report for the site submit a report on the contribution by this facility to the achievement of the waste recovery objectives stated in Condition 2.2.2.2 and as otherwise may be stated in National and European Union waste policies and shall, as a minimum, include tonnages of the following:

- (i) the recovery of Construction and Demolition Waste;
- (ii) the recovery of other waste in landfill operations, including restoration;
- (iii) the recovery of energy through landfill gas combustion.

- 11.10 A full record, which shall be open to inspection by authorised persons of the Agency at all times, shall be kept by the licensee on matters relating to the waste management operations and practices at this site. This record shall be maintained on a monthly basis and shall as a minimum contain details of the following:

- 11.10.1 The tonnages and EWC Code for the waste materials imported and/or sent off-site for disposal/recovery.

- 11.10.2 The names of the agent and carrier of the waste, and their waste collection permit details, if required (to include issuing authority and vehicle registration number).

- 11.10.3 Details of the ultimate disposal/recovery destination facility for the waste and its appropriateness to accept the consigned waste stream, to include its permit/licence details and issuing authority, if required.

- 11.10.4 Written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site.

- 11.10.5 Details of all wastes consigned abroad for Recovery and classified as 'Green' in accordance with the EU Transfrontier Shipment of Waste Regulations (Council Regulation EEC No. 259/1993, as amended). The rationale for the classification must form part of the record.

- 11.10.6 Details of any rejected consignments.

- 11.10.7 Details of any approved waste mixing.

- 11.10.8 The results of any waste analyses required under *Schedule C: Control & Monitoring*, of this licence.

- 11.10.9 The tonnages and EWC Code for the waste materials recovered/disposed on-site.

- 11.11 The licensee shall, in writing, notify the Agency without delay of any waste arriving at the facility that does not meet the waste acceptance criteria.

11.12 Reporting to demonstrate compliance with diversion targets

The Licensee shall report to the Agency such data and records, and at such frequency, as may be specified by the Agency in order to demonstrate compliance with the requirements of Condition 8.7.1. From 1 January 2010, and unless otherwise

advised by the Agency, the licensee shall submit quarterly summary reports to the Agency within one week of the end of each quarter on the quantity of MSW and BMW accepted at the landfill during the preceding quarter and on a cumulative basis for the calendar year to date. The report shall detail the tonnage of MSW and BMW accepted and the basis (including all calculation factors) on which the figures have been calculated.

Reason: To provide for the collection and reporting of adequate information on the activity.

Condition 12. Financial Charges and Provisions

12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of €29,458, or such sum as the Agency from time to time determines, having regard to variations in the extent of reporting, auditing, inspection, sampling and analysis or other functions carried out by the Agency, towards the cost of monitoring the activity as the Agency considers necessary for the performance of its functions under the Waste Management Acts 1996 to 2008. The first payment shall be a pro-rata amount for the period from the date of grant of this licence to the 31st day of December, and shall be paid to the Agency within one month from the date of grant of the licence. In subsequent years the licensee shall pay to the Agency such revised annual contribution as the Agency shall from time to time consider necessary to enable performance by the Agency of its relevant functions under the Waste Management Acts 1996 to 2008, and all such payments shall be made within one month of the date upon which demanded by the Agency.

12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased, the licensee shall contribute such sums as determined by the Agency to defray its costs in regard to items not covered by the said annual contribution.

12.2 Cost of landfill of waste

In accordance with the provisions of Section 53A of the Waste Management Acts 1996 to 2008, the licensee shall ensure the costs involved in the setting up and operation of the facility, as well as the costs of closure and after-care (including cost of provision of financial security) for a period of at least 30 years (post closure) shall be covered by the price to be charged for the disposal of waste at the facility. The statement required under Section 53A(5) of said Acts is to be included as part of the AER.

12.3 Environmental Liabilities

12.3.1 The licensee shall as part of the AER, provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (including closure) or accidents/incidents, as may be associated with the carrying on of the activity.

12.3.2 The licensee shall arrange for the completion, by an independent and appropriate qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) to address the liabilities from past and present activities. The assessment shall include those liabilities and costs identified in Condition 10.6 for execution of the CRAMP. A report on this assessment shall be submitted to the Agency for

agreement within twelve months of date of grant of this licence. The ELRA shall be reviewed as necessary to reflect any significant change on site, and in any case every three years following initial agreement. The results of the review shall be notified as part of the AER.

12.3.3 As part of the measures identified in Condition 12.3.1, the licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities associated with the operation (including closure and aftercare) of the facility. The amount of indemnity held shall be reviewed and revised as necessary, but at least annually. Proof of renewal or revision of such financial indemnity shall be included in the annual 'Statement of Measures' report identified in Condition 12.3.1.

12.3 The licensee shall as part of the AER provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events or accidents/incidents, as may be associated with the carrying on of the activity.

Reason: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.

SCHEDULE A: Limitations

A.1

The following waste related processes are authorised:

- a) Landfilling of waste
- b) Composting
- c) Use of compost & inert waste in landfill operation
- d) Use of landfill gas as a fuel
- e) Storage and treatment of leachate
- f) Storage of waste
- g) Recovery of dry recyclables at a Civic Waste Facility

No addition to these processes are permitted unless agreed in advance by the Agency

A.2 WASTE ACCEPTANCE

Table A.2.1 Waste Categories and Quantities

Waste Type	Maximum (tonnes per annum) ^{Note 1}
Municipal Solid Waste (Household and Commercial)	111,000
Industrial non-hazardous solids	11,000
TOTAL FOR DISPOSAL	122,000
Green waste for composting	Note 2
Wood chippings	2,000
Automobile shredder residue ^{Note 3}	20,000
Soil/stones ^{Note 4}	50,000
Wastes accepted for storage at the civic waste facility prior to recycling, reuse or reclamation	5,000
TOTAL FOR RECOVERY	77,000

Note 1: The quantities of the individual waste types may be adjusted with the prior agreement of the Agency only subject to the respective waste quantities for waste disposal and recovery remaining the same.

Note 2: Limited to 1000m³ of compost and waste at any one time.

Note 3: The licensee shall submit proposals for the handling and acceptance of this waste at least two months prior to the intended date of waste acceptance to include its classification as per the Hazardous Waste List.

Note 4: These may be accepted for recovery for use as cover in site construction works and landfill restoration.

Table A.2.2 Total Permitted Landfill Capacity

Total quantity of waste permitted to be placed at the landfill facility (over authorised life of facility)	2,990,191 m3
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Schedule B Emission Limits

B.1 Emissions to Air

Landfill Derived Gas Concentration Limits:
(Measured in any building on or adjacent to the facility).

Methane	Carbon Dioxide
20 % LEL (1% v/v)	1.5 % v/v



Emission Limits Values for Landfill Gas Plant:
Emission Point Reference numbers: Outlet of enclosed flare and of utilisation plant.
Volume to be emitted: 3000m³/hr
Minimum discharge height: 5m (unless results from modelling suggests otherwise).

Parameter	Flare (enclosed) Emission Limit Value <small>Note 1</small>	Utilisation Plant Emission Limit Value <small>Note 1</small>
Nitrogen oxides (NO _x)	150 mg/m ³	500 mg/m ³
CO	50 mg/m ³	1400 mg/m ³
Total Volatile Organic Compounds (VOCs) as carbon	10 mg/m ³	1000 mg/m ³
Total non-methane VOCs	5 mg/m ³	75 mg/m ³

Note 1: Dry gas referenced to 5% oxygen by volume for utilisation plants and 3% oxygen by volume for flares.



Dust Deposition Limits:
Measured at the monitoring points indicated in *Table C.1.1*

Level (mg/m ² /day) <small>Note 1</small>
350

Note 1: 30 day composite sample with the results expressed as mg/m²/day.

B.2 Emissions to Water

Surface Water Discharge Limits: Measured at the outlet from the stormwater settling ponds.

Level (mg/l)	
Suspended Solids	35
Electrical Conductivity (us/cm) Note 1	1000
PH	6-9

Note 1: Measured at 20°C.

B.3 Emission Limits for Treated Leachate Discharged to Surface Water

Emission Point Reference No.: Treated leachate discharge point

Volume to be emitted: Maximum in any one day: 120m³/day
Maximum rate per hour: 5 m³

Time of emission: No discharge below a river flow in White River of 50 l/s and must be greater than 40 dilutions of effluent at all times.

Parameter	Limit (all units in mg/l except pH)
PH	6-9
BOD	25
Suspended Solids	35
Total P (as P)	2
Total Ammonia (as N)	3

B.4 Emission Limits for Leachate Tankered to Wastewater Treatment Plant

Volume to be emitted: Maximum in any one day: 120 m³ /day (This shall be a maximum of 60m³/day to Castletroy WWTP and 60m³/day to Newcastle West WWTP, unless otherwise agreed in advance by both the Sanitary Authority and the Agency).

Parameter	Emission Limit Value Grab Sample (mg/l)
PH	6-9
BOD	300
COD	750
Suspended solids	400
Total Ammonia (as N)	100



B.5. Noise Emissions

Day dB(A) L_{Aeq} (30 minutes)	Night dB(A) L_{Aeq} (30 minutes)
55 ^{Note 1}	45 ^{Note 1}

Note 1: There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.



Schedule C Control & Monitoring

C.1.1 CONTROL OF EMISSIONS TO AIR

Emission Point Reference No.: Flare Stacks & Utilisation Plant

Description of Treatment: Gas Extraction & Combustion

Control Parameter	Monitoring	Key Equipment ^{Note 1}
Continuous burn	Continuous with alarm/call-out	Flame detector or equivalent approved Pumps/engines
Extraction	Continuous with alarm/call-out	Pressure gauge or equivalent approved Pumps/engines

Note 1: The licensee shall maintain appropriate access to standby and/or spares to ensure the operation of the abatement system.

C.1.2 MONITORING OF EMISSIONS TO AIR

Emission Point Reference No.: Flare Stacks & Utilisation Plant

Parameter	Flare (enclosed) Monitoring Frequency	Utilisation Plant Monitoring Frequency	Analysis Method ^{Note 1} /Technique
Inlet			
Methane (CH ₄) % v/v	Continuous	Weekly	Infrared analyser or equivalent approved
Carbon dioxide (CO ₂) % v/v	Continuous	Weekly	Infrared analyser or equivalent approved
Oxygen (O ₂) % v/v	Continuous	Weekly	Electrochemical or equivalent approved
Process Parameters			
Combustion Temperature	Continuous	Quarterly	Temperature Probe/datalogger
Residence Time	Quarterly	Quarterly	To be agreed.
Outlet			
Carbon monoxide (CO)	Continuous	Continuous	Flue gas analyser/datalogger or equivalent approved
Nitrogen Oxides (Nox)	Biannually	Biannually	Flue gas analyser or equivalent approved
Sulphur dioxide (SO ₂)	Biannually	Biannually	Flue gas analyser or equivalent approved
Particulates	Not applicable	Annually	Isokinetic/Gravimetric or equivalent approved

Note 1: All monitoring equipment used should be intrinsically safe.

C.2.1 MONITORING OF LANDFILL GAS EMISSIONS

Location: Perimeter Landfill Gas boreholes C1 - C15^{Note 1}
 And
 At least one monitoring point per cell (to be Agreed)
 And
 Site Office with other selected locations as may be specified

Parameter	Monitoring Frequency	Analysis Method/Technique ^{Note 2}
Methane (CH ₄)	Monthly	InfraRed Analyser/FID
Carbon Dioxide (CO ₂)		InfraRed
Oxygen (O ₂)		Electrochemical Cell
Atmospheric pressure & Trend		Standard method

Note 1: All perimeter monitoring boreholes must be installed to the standards specified in the Agency Guidance on Landfill Monitoring.

Note 2: Or other method agreed.



C.2.2 CONTROL OF EMISSIONS TO WATER

Emission Control Location: Storm Water Settling Ponds
Description of Treatment: Sedimentation

Control Parameter	Monitoring	Key Equipment ^{Note 1}
Residence time & Flow restriction	Flow rate, depth	Flow meter, overflow alarm, emergency storage.

Note 1: The licensee shall maintain appropriate access to standby and/or spares to ensure the operation of the abatement system.



C.2.3 MONITORING OF EMISSIONS TO WATER

Emission Point Reference No.: Outlet from Storm Water Settling Ponds (SW4)

Parameter ^{Note 1}	Surface Water Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Daily
Lagoon Level	Daily
Dissolved Oxygen	Daily
Electrical Conductivity	Continuous
Ammoniacal Nitrogen ^{Note 5}	Daily
Chloride	Weekly
pH	Continuous

Parameter ^{Note 1}	Surface Water Monitoring Frequency
Total Suspended Solids	Weekly
BOD	Quarterly
COD	Quarterly
Metals / non metals ^{Note 3}	Annually
List I/II organic substances (Screen) ^{Note 4}	Annually
Mercury	Annually
Sulphate (SO ₄)	Annually
Nitrate	Annually
Total P/orthophosphate	Annually
Faecal Coliforms	Annually
Total Coliforms	Annually

- Note 1:** All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.
- Note 2:** Where there is evident gross contamination, additional samples should be analysed and the full suite of parameters shown tested.
- Note 3:** Metals and elements to be analysed by AA/ICP should include as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.
- Note 4:** Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).
- Note 5:** A grab sample shall be taken at the inlet and the outlet of the storm water settling ponds on a daily basis.



C.2.4 FLOW MEASUREMENT OF SURFACE WATER

Parameter	Location	Monitoring Frequency	Analysis Method/Technique
Flow measurements	Weir installed on White River	Continuous	Standard method ^{Note 1.2}

- Note 1:** To be agreed in advance by the Agency.
- Note 2:** Back up equipment to be held on-site e.g. staff gauge.



C2.5 LEACHATE MONITORING

Location: Leachate Holding Tank, Leachate Sumps and Leachate Monitoring Points in the cells [Leachate level monitoring only – three locations in cell 11 of the existing development and all future proposed cells. Two locations in cells 5-10. Three locations within bentonite cut-off wall (Cells 1-4)].

Parameter ^{Note 1}	Leachate ^{Note 2} Monitoring Frequency
Visual Inspection/Odour	Daily
Leachate Level	Weekly
BOD	Quarterly
COD	Quarterly
Chloride	Annually
Ammoniacal Nitrogen	Annually
Electrical Conductivity	Annually
Ph	Annually
Metals / non metals ^{Note 3}	Annually
Cyanide (Total)	Annually
Fluoride	Annually
List I/II organic substances ^{Note 4}	Annually
Mercury	Annually
Sulphate	Annually
Total P/orthophosphate	Annually
Total Oxidised Nitrogen	Annually

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: Visual Inspection and Leachate Levels to be monitored at all leachate monitoring points in the cells, Collection sumps and holding tank. Leachate composition to be monitored at the leachate holding tank.

Note 3: Metals and elements to be analysed by AA/ICP should include as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.

Note 4: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).

C.3 AMBIENT MONITORING

Air Monitoring

Location: D1, D2, D3 and D4., or alternative meteorological station agreed by the Agency.

Parameter	Monitoring Frequency	Analysis Method/Technique
Dust deposition	Quarterly	Bergerhoff
Odour ^{Note 1}	Quarterly	See ^{Note 2}
Evaporation	Daily	Standard
Atmospheric Humidity	Daily	Standard

Note 1: Odour monitoring to be carried out at four noise sensitive locations agreed by the Agency.

Note 2: Analysis for organics, mercaptans, organic acids and hydrogen sulphide.



Groundwater Monitoring

Location: Groundwater Wells [SA1, SA2, GW5, SA4, BH2, BH10, BH13, Collins Well (new)] ^{Note 6}

Parameter ^{Note 1}	Groundwater Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Monthly
Groundwater Level (wells)	Quarterly
Flow (pumped water from interceptor) ^{Note 5}	Continuous
Dissolved Oxygen	Quarterly
Electrical Conductivity	Quarterly
Ammoniacal Nitrogen	Quarterly
Chloride	Quarterly
pH	Quarterly
Sulphate (SO ₄)	Quarterly
Metals / non metals ^{Note 3}	Annually
List I/II organic substances (Screen) ^{Note 4}	Annually
Mercury	Annually
Nitrate	Annually
Total P/orthophosphate	Annually
Faecal Coliforms	Annually
Total Coliforms	Annually

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: Where there is evident gross contamination, additional samples should be analysed and the full suite of parameters shown tested.

Note 3: Metals and elements to be analysed by AA/ICP should include as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.

Note 4: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent), and pesticides (USEPA method 608 or equivalent).

Note 5: Flow (pumped water from interceptor) only to be measured during the operation of the dewatering/groundwater control system.

Note 6: And any additional groundwater monitoring boreholes downgradient of the proposed extension to be agreed by the Agency.

Surface Water Monitoring

Emission Point Reference No.: Surface Water monitoring locations S1, S2, S6, S7, S8, SW1, SW2 and SW3^{Note 1}

Parameter ^{Note 2}	Surface Water ^{Note 2} Monitoring Frequency
Visual Inspection/Odour ^{Note 4}	Weekly
Leachate Level	Not Applicable
Ammoniacal Nitrogen	Quarterly
BOD	Quarterly
COD	Quarterly
Chloride	Quarterly
Dissolved Oxygen	Quarterly
Electrical Conductivity	Quarterly
pH	Quarterly
Total Suspended Solids	Quarterly
Temperature	Quarterly
Metals / non metals ^{Note 5}	Annually
List I/II organic substances ^{Note 6}	Once off
Mercury	Annually
Sulphate	Annually
Total Alkalinity	Annually
Total P/Orthophosphate	Annually
Total Oxidised Nitrogen	Annually
Biological Assessment	Annually ^{Note 7}

- Note 1:** All new monitoring locations to be agreed in advance by the Agency.
- Note 2:** All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.
- Note 3:** See Tables C.2.3 and C.2.4 for flow measurement of the White River and monitoring of stormwater settling ponds.
- Note 4:** Where there is evident gross contamination of leachate, additional samples should be analysed.
- Note 5:** Metals and elements to be analysed by AA/ICP should include, as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.
- Note 6:** Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).
- Note 7:** Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams.

Receiving Water Monitoring

Location: S1- S6

Parameter	Monitoring Frequency	Analysis Method/Technique
Biological Quality (Q) Rating/Q Index	Annually ^{Note 1}	To be agreed by the Agency
Parameters in Table C2.3	Visual Inspection Weekly All others Quarterly unless specified as Annually in Table C2.3	Standard Methods

Note 1: Monitoring period - June to September.

**Meteorological Monitoring**

Location : At the on-site meteorological station.

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily	Standard
Temperature (min/max.)	Daily	Standard
Wind Direction	Daily	Standard
Wind Force ^{Note 1}	Daily	Standard
Atmospheric Pressure ^{Note 1}	Daily	Standard

Note 1: Monitoring frequency for these parameters may be decreased with the agreement of the Agency.

**C.4 ECOLOGICAL MONITORING**

Table C.4.1 Ecological Monitoring

Parameter	Monitoring Frequency	Analysis Method
Ecological Monitoring	Annual	Note 1

Note 1: Ecological monitoring of the site and adjoining habitats to be undertaken. This shall pay particular attention to species listed in Volume 3 of the EIS which are protected under the Wildlife Act 1976, the EU habitats Directive and the EU Birds Directive.



C.5 MONITORING OF COMPOSTING PROCESS

Table C.5.1 Monitoring of Composting Process

Parameter	Monitoring Frequency ^{Note 1}	Analysis Method/Technique
Moisture Content	Weekly	Standard
Temperature (min/max.)	Daily	Standard
Oxygen	Daily	Standard

Note 1: Unless otherwise agreed by the Agency.

C.6 WASTE MONITORING

Waste Class	Frequency	Parameter	Method
Bio-stabilised residual waste	Every 200 tonnes from each source	As agreed	As agreed

Schedule D Specified Engineering Works

Specified Engineering Works
Development of the facility including preparatory works and lining.
Formation Levels.
Final capping.
Excavation and Storage of Peat.
Installation of Landfill Gas Management Infrastructure.
Installation of Leachate Management Infrastructure.
Installation of Groundwater Control Infrastructure.
Installation of Surface Water Management Infrastructure.
Any other works notified in writing by the Agency.

Schedule E Recording and Reporting to the Agency

Report	Reporting Frequency <small>Note 1</small>	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	By 31 st March of each year.
Notification of waste loads not meeting waste acceptance criteria	As they occur	As per Condition 11.11
Compliance with waste diversion targets	As required by the Agency	As per Condition 11.12
Bund, tank and container integrity assessment	Every three years	One month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Biannually	Ten days after end of the quarter being reported on.
Monitoring of Surface Water Quality/Groundwater/Leachate	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Annually	Ten days after the period being reported on.
Biological Monitoring	Annually	One month after end of the year being reported on.
Ecological Monitoring	Annually	One month after end of the year being reported on.
Noise Monitoring	Annually	One month after end of the year being reported on.
Odour Monitoring	Quarterly	Ten days after end of the quarter being reported on.
Slope stability monitoring	Annually	One month after end of the year being reported on.
Topographical monitoring	Annually	One month after end of the year being reported on.
Any other monitoring	As they occur	Within ten days of obtaining results.

Note 1: Unless altered at the request of the Agency.

Schedule F: Standards for Compost Quality

The following criteria are deemed a quality standard for the use of compost as a soil improver and should not be deemed as criteria for fertiliser. In addition N, P, K, NH₄-N, NO₃-N, pH and dry matter content should also be measured.

Compost shall be deemed unsatisfactory if more than 10% of samples fail the criteria below. No sample shall exceed 1.2 times the quality limit values set.

1. Maturity

Compost shall be deemed to be mature if it meets two of the following requirements:-

- a) C/N ratio ≤ 25 ;
- b) Oxygen uptake rate ≤ 150 mg O₂/kg volatile solids per hour;
- c) Germination of cress (*Lepidium sativum*) seeds and of radish (*Raphanus sativus*) seeds in compost must be greater than 90 percent of the germination rate of the control sample, and the growth rate of plants grown in a mixture of compost and soil must not differ more than 50 percent in comparison with the control sample; and
- d) Elimination of the following test organisms (used to evaluate composting system efficiency in removing plant pathogens and weed seeds during the composting process): *Plasmodiophora brassicae*, tobacco-mosaic-virus (TMV) and tomato seeds.

Guidance on test may be obtained from the German document LAGA M10 'Quality Criteria and Application Recommendations for Compost'.

2. Foreign Matter

Compost must not contain any sharp foreign matter measuring over a 2 mm dimension that may cause damage or injury to humans, animals and plants during or resulting from its intended use.

Foreign matter content as a percentage of oven-dried mass	≤ 1.5
Foreign matter, maximum dimensions, in mm	25

3. Trace Elements

Trace Elements

Maximum Trace Element Concentration Limits for Compost^{Note 2}

Trace Elements	(mg/kg, dry mass)
Arsenic (As) ^{Note 1}	15
Cadmium (Cd)	1.5
Chromium (Cr)	100
Copper (Cu)	100
Mercury (Hg)	1
Molybdenum (Mo) ^{Note 1}	5
Nickel (Ni)	50
Lead (Pb)	150
Selenium (Se) ^{Note 1}	2
Zinc (Zn)	350

Note 1: Monitoring of these parameters required if waste is from an industrial source.

Note 2: The above alone should not be taken as an indication of suitability for addition to soil as the cumulative metal additions to soil should be first calculated.

4. Pathogens

Pathogenic organism content must not exceed the following limits:-

- a) *Escherichia coli* = 1,000 CFU/g
- b) *Salmonella* species absent in 25g sample

5. Monitoring

The sampling protocol, methods of analyses and sample numbers shall be agreed in advance by the Agency.

The analyses shall be carried out:

- (a) every six months for plants producing more than 500 and up to 1,000 tonnes of treated biowaste per year;
- (b) at intervals of at least every 1,000 tonnes of treated biowaste produced or every 3 months, whichever comes first, for plants producing more than 1,000 and up to 10,000 tonnes of treated biowaste per year;
- (c) every month for plants producing more than 10 000 tonnes of treated biowaste per year.



Schedule G: Content of the Annual Environmental Report

Annual Environmental Report Content ^{Note 1}

Reporting Period.

Waste activities carried out at the facility.

Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year.

Calculated remaining capacity of the facility and year in which final capacity is expected to be reached.

Area occupied by waste.

Methods of deposition of waste.

Summary report on emissions.

Summary of results and interpretation of environmental monitoring.

Resource and energy consumption summary.

Proposed development of the facility and timescale of such development.

Environmental management programme – report for previous year.

Environmental management programme – proposal for current year.

Pollution emission register – report for previous year and relevance to EPER website.

Pollution emission register – proposal for current year.

Noise monitoring report summary.

Meteorological data summary.

Ambient monitoring summary.

Current monitoring location reference drawing.

Volume of leachate produced and volume of leachate transported / discharged off-site.

Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.

Report on restoration of completed cells/ phases.

Site survey showing existing levels of the facility at the end of the reporting period.

Estimated annual and cumulative quantities of landfill gas emitted from the facility.

Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.

Schedule of Environmental Objectives and Targets for the forthcoming year.

Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.

Tank, pipeline and bund testing and inspection report.

Reported incidents and complaints summaries.

Review of Nuisance Controls.

Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.

Report on training of staff.

Statement on the costs of Landfill.

Review of CRAMP.

Measures taken or adopted at the site in relation to the prevention of environmental damage.

Measures in place in relation to the underwriting of costs for remedial actions following anticipated events or accidents/incidents.

Statement of compliance of facility with any updates of the relevant Waste Management Plan

Statement on the achievement of waste acceptance and treatment obligations.

Updates to Landfill Environmental Management Plan (LEMP)

Review of Environmental Liabilities.

Report on waste recovery.

Any other items specified by the Agency.

Note 1: Content may be revised subject to the agreement of the Agency

