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Ireland

WASTE LICENCE
LANDFILL FOR NON-HAZARDOUS WASTE

PROPOSED DECISION

Waste Licence Register Number:	19-1
Applicant:	Tipperary South County Council (Formerly Tipperary (South Riding) County Council)
Location of Facility:	Hardbog Landfill, Hardbog, Grangemockler, County Tipperary.

INTRODUCTION

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

This Waste Licence is for the development of a new engineered municipal landfill by Tipperary South County Council, which is located at Hardbog, Grangemockler, County Tipperary. The proposed facility covers an area of approximately 15.4 hectares and the proposed landfill footprint will be restricted to approximately 4 hectares.

This facility will be designed to accept a total of 40,000 tonnes per annum of treated non-hazardous waste. The licence requires that a buffer zone of 70 metres within which no waste is deposited be maintained between the landfill footprint and the boundary of the facility. The anticipated life span of the facility will be in the order of fifteen years based on an input of 40,000 tonnes per annum.

The infrastructure at the facility includes facility offices, a weighbridge, a wheelwash, waste inspection/quarantine area, leachate collection, treatment and storage infrastructure, a landfill gas collection system with an enclosed flare and surface water collection infrastructure and lined cells. This licence also requires the provision of infrastructure for the utilisation of the landfill gas generated on site. The licence requires that the facility is restored within twenty-four months of the date of cessation of waste deposition at the landfill facility.

The licensee will be required to provide and maintain effective surface water and groundwater management systems during construction, operation, restoration and aftercare of the facility.

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 Tipperary South County Council are required to operate and manage this facility.

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DECISION & REASONS FOR THE DECISION

Reasons for the Decision

The 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 not contravene any of the requirements of Section 40(4) of the Waste Management Act, 1996.

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions and objections received, the Chairperson's report on the Oral Hearing, the issues raised in the application for a Judicial Review, further information submitted by the applicant following the quashing of the licence dated 29 June 2000 and submissions received relating to this information and the reports of its inspector.

Part I: Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency), under Section 40(1) of the said Act hereby grants this Waste Licence to Tipperary (SR) County Council, County Hall, Clonmel, County Tipperary to carry on the waste activities listed below at the proposed Hardbog Landfill, Hardbog, Grangemockler, County Tipperary subject to twelve Conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Act, 1996 as amended in May 1998

Class 1.	Deposit on, in or under land (including landfill).
Class 4.	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.
Class 5.	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.

Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996 as amended in May 1998.

Class 2.	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
Class 3.	Recycling or reclamation of metals and metal compounds.
Class 4.	Recycling or reclamation of other inorganic materials.
Class 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 the Fourth Schedule of the Waste Management Act, 1996.
Class 13.	Storage of waste intended for submission to any activity referred to in a preceding paragraph of Fourth Schedule of the Waste Management Act, 1996, other than temporary storage, pending collection, on the premises where such waste is produced.

Part II: Activities Refused

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency) proposes, under Section 40(1) of the said Act to refuse the following classes of activity.

Refused classes of activity in accordance with the Third Schedule of the Waste Management Act 1996

Class 7.	Physico-chemical treatment not referred to elsewhere in Third Schedule of the Waste Management Act, 1996 (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 calcinations): REASON: No relevant proposals were included in the licence application.
Class 11.	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of Third Schedule of the Waste Management Act, 1996: REASON: No relevant proposals were included in the licence application.

Refused classes of activity in accordance with the Fourth Schedule of the Waste Management Act 1996

Class 10.	The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system: REASON: No relevant proposals were included in the licence application.
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INTERPRETATION

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

Act	The Waste Management Act, 1996 (No. 10 of 1996).
Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Animal by-products	As defined in the EC (Disposal, Processing and Placing on the Market of Animal By-Products) Regulations 1994 and amendments.
Annually	At approximately twelve monthly intervals.
Application	The application by the licensee for this waste licence.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
BAT	Best Available Techniques as defined in Article 2(11) of Council Directive 96/61/EC concerning integrated pollution prevention and control.
Commercial Waste	As defined in the Act.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Cover material	Bricks, crushed concrete, tarmac, earth, soil, sub-soil, stone, rock or other similar natural materials; or other cover material the use of which has been agreed with the Agency.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible.
Daytime	0800 hrs to 2200 hrs.
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.
Emergency	Those occurrences defined in Condition 9.4.
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European Community.
Hours of Operation	The hours during which the facility is authorised to be operational. The hours of operation of a facility are usually longer than the hours of waste acceptance to facilitate preparatory and completion works, such as the removal and laying of daily cover.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.

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.
Intermediate Cover	Refers to placement of material (minimum 300mm if soil is used) for a period of time prior to restoration or prior to further disposal of waste.
Landfill	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
Landfill Footprint	Refers to the area of the facility where waste is deposited in lined cells.
Landfill Gas	Gases generated from the landfilled waste.
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.
Licence	A waste licence issued in accordance with the Act.
Licensee	South Tipperary County Council (formerly Tipperary (South Riding) County Council.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.
Night-time	2200 hrs to 0800 hrs.
Quarterly	At approximately three monthly intervals.
Residual Waste	Residual waste means the fraction of waste remaining after the treatment of the waste.
SCADA system	Supervisory Control and Data Acquisition system.
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with greater than 2% dry matter.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> , of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> , of this licence.
Treated Sludge	Sludge which has been dewatered and has been either lime stabilised and/or thermally treated.
Treatment	Treatment means the physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
Wastewater	Contaminated water including water that has been used, for washing, flushing (including foul water) and so contains waste products.
White Goods	Refrigerators, cookers, ovens and other similar appliances.

EPA Working Day	Refers to the following hours: 0900 hrs to 1730 hrs Monday to Friday inclusive.
Working Face	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

PART III CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in *Schedule A: Waste Acceptance*, of this licence and required by the licence.
- 1.2. For the purpose of this licence, the facility is the area of land outlined in red on Drawing No. 97-02401-03 Rev A. dated October 1997 submitted to the Agency on 15 December 1998. Any reference in this licence to “facility” shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Act, 1996 only and nothing in this licence shall be construed as negating the licensee’s statutory obligations or requirements under any other enactments or regulations.
- 1.4. The following wastes only may be disposed of at the facility subject to the maximum quantities and other constraints listed in *Schedule A: Waste Acceptance*, of this licence:
 - Treated Municipal waste,
 - Treated dewatered industrial non-hazardous sludges,
 - Treated water treatment sludges,
 - Treated sewage treatment sludges.

This provision may not apply to inert wastes for which treatment is not technically feasible nor to any 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.

- 1.5. Waste Acceptance
 - 1.5.1. Waste shall be accepted at the facility, only from customers who are holders of a waste permit, unless exempted, under the Waste Management (Collection Permit) Regulations 2001 or from other licensed/permitted facilities.
 - 1.5.2. 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 from 16 July 2006.
 - 1.5.3. No hazardous wastes, liquid wastes, animal by-products or remains, or loads comprising mainly of loose plastic shall be disposed of at the facility.
 - 1.5.4. Prior to the commencement of waste acceptance at the facility the licensee shall submit to the Agency for its agreement the nature and extent of treatment of waste prior to acceptance at the facility.
- 1.6. Waste Acceptance Hours and Hours of Operation
 - 1.6.1. Landfill
 - 1.6.1.1. Waste may only be accepted at the facility for disposal at the landfill between the hours of 08:30 to 17:00 Monday to Friday inclusive and 10:00 to 12:30 on Saturdays.
 - 1.6.1.2. The landfill at the facility may only be operated during the hours of 08:00 to 18:00 Monday to Friday inclusive and 9:30 to 13:30 on Saturdays.
 - 1.6.1.3. Waste shall not be accepted at the facility on Sundays or on Bank Holidays.
- 1.7. The following shall constitute an incident for the purposes of this licence:-
 - a) An emergency;
 - b) Any emission which does not comply with the requirements of this licence;
 - c) Any trigger level specified in this licence which is attained or exceeded; and
 - d) Any indication that environmental pollution has, or may have, taken place.

- 1.8. Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying.
- 1.8.1. That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice.
- 1.8.2. That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice.
- 1.8.3. That the licensee shall carry out any other requirement specified in the notice.
- When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out. No waste, other than that which is stipulated in the notice, shall be accepted at the facility until written permission is received from the Agency.
- 1.9. Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of 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.
- 2.1.2 Both the facility manager and deputy, and any replacement manager or deputy, shall successfully complete both the FAS Waste Management Training Programme (or equivalent agreed by the Agency) and associated on site assessment appraisal within twelve months of appointment.
- 2.1.3 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.
- 2.2 Management Structure
- 2.2.1 Prior to the commencement of construction activities, the licensee shall submit written details of the management structure of the facility to the Agency. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information:-
- a) The names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager and any nominated deputies;
- b) Details of the responsibilities for each individual named under a) above; and
- c) Details of the relevant education, training and experience held by each of the persons nominated under a) above.
- 2.3 Environmental Management System (EMS)
- 2.3.1 The licensee shall establish and maintain an EMS. Prior to the commencement of licensed activities at the facility, the licensee shall submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS) for the facility. Following the agreement of the Agency, the licensee shall establish and maintain such a system. The EMS shall be updated on an annual basis with amendments being submitted to the Agency for its agreement.
- 2.3.2 The EMS shall include as a minimum the following elements.
- 2.3.2.1 Schedule of Environmental Objectives and Targets

The objectives should be specific and the targets measurable. The schedule shall address a five-year period as a minimum. The schedule shall include a time-scale for achieving the objectives and targets and shall comply with any other written guidance issued by the Agency.

2.3.2.2 Environmental Management Plan (EMP)

The EMP shall include, as a minimum, the following: -

- a) The items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency;
- b) Methods by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets; and
- c) Any other items required by written guidance issued by the Agency.

2.3.2.3 Corrective Action Procedures

The Corrective Action Procedures shall detail the corrective actions to be taken should any of the procedures detailed in the EMS not be followed.

2.3.2.4 Awareness and Training Programme

The Awareness and Training Programme shall identify training needs and provide appropriate training, for personnel who work in or have responsibility for the licensed facility.

This programme shall include procedures to ensure that all facility staff are aware of the presence of and the requirements of the Camphill Community and organic and other specialised farmers in the locality.

2.4 Communications Programme

Within three months of the date of grant of this licence, the licensee shall establish and maintain a Communications Programme to inform and involve the local community and ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility.

REASON: To make provision for the proper management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

CONDITION 3 FACILITY INFRASTRUCTURE

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.

3.2 Phased Construction Plan

3.2.1 Three months prior to the commencement of construction activities, the licensee shall submit to the Agency for its agreement a construction schedule and sequence incorporating the requirements of this licence. This shall include the timescale for site development under the following headings: (i) prior to the commencement of construction, (ii) prior to the commencement of licensed activities and (iii) a Construction Plan for cell development which will maximise the provision of medium and long term screening of the completed cells.

3.2.2 The construction schedule shall incorporate an appropriate scaled drawing showing the proposed landfill footprint including the proposed cell layout and associated phasing of construction taking into account the requirement to provide a 70m buffer zone within the facility boundary.

3.3 Specified Engineering Works

3.3.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: 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.

- 3.3.2 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.
- 3.3.3 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 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) Daily record sheets/diary;
 - f) Name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
 - g) Name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
 - h) Records of any problems and the remedial works carried out to resolve those problems; and
 - i) Any other information requested in writing by 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 Facility Security

3.5.1 Security and stock proof perimeter fencing and gates shall be installed, prior to the commencement of licensed activities at the facility, as shown in Drawing No. 97-02401-14 Rev.A and according to the fencing details - *Post and Wire Fence and Palisade Fence Details* in Drawing No. 97-02401- 09 Rev. A. The base of the fencing shall be set in the ground.

3.5.2 The licensee shall remedy any defect in the gates and/or fencing as follows:

- (i) A temporary repair shall be made by the end of the working day; and
- (ii) A repair to the standard of the original gates and/or fencing shall be undertaken within three working days.

3.5.3 Gates shall be locked shut when the facility is unsupervised.

3.5.4 Proposals for site security including Closed Circuit Television (CCTV) to be installed at the facility shall be submitted to the Agency for its agreement three months prior to the commencement of licensed activities.

3.6 Site Roads

3.6.1 The access road and internal haul roads shall be provided and maintained to the specification described in Attachment D.1. (b,c) - *Access Road and Hard Standing* of the Waste Licence Application and as shown on Drawing No. 97-02401- 09 Rev. A dated October 1997.

- 3.6.2 Prior to the commencement of construction activities the licensee shall install and maintain a livestock grid across the entrance to the facility.
- 3.6.3 Unless otherwise agreed in advance with the Agency traffic control including signage within the facility shall be in accordance with Attachment D.1(j) - *Traffic Control* of the waste Licence Application and as shown on Drawing No. 98-02404-D.1.3 Revision A dated 20 October 1998.
- 3.7 Facility Office
- 3.7.1 The licensee shall provide and maintain an office and store at the facility. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.
- 3.7.2 All liquid fuels and chemicals stored within the store shall be placed on a sump pallet similar to the specification - Hazardous Spillage Containment attached to D.9 of further information submitted to the Agency on 18 November 1998.
- 3.7.3 The licensee shall provide and maintain a working telephone at the facility and an emergency contact number outside normal hours of operation. A method for electronic transfer of information shall also be provided at the facility.
- 3.8 Waste Inspection and Quarantine Areas
- 3.8.1 Prior to the commencement of licensed activities, a Waste Inspection Area and a Waste Quarantine Area shall be provided and maintained at the facility.
- 3.8.2 These areas shall be constructed and 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.
- 3.8.3 Drainage from these areas shall be directed to the Leachate Storage Lagoon.
- 3.9 Weighbridge and Wheel Cleaner
- 3.9.1 Prior to the commencement of licensed activities at the facility, the licensee shall provide and maintain a weighbridge and wheel cleaner at the facility.
- 3.9.2 Drainage from the wheelwash shall be directed to the leachate lagoon.
- 3.10 Wastewater Treatment Plant
- 3.10.1 The licensee shall provide and maintain a sanitary Wastewater Treatment plant at the facility for the treatment of sanitary effluent arising on-site. Any percolation area shall satisfy the criteria set out in the *Wastewater Treatment Manual, Treatment Systems for Single Houses*, published by the Environmental Protection Agency.
- 3.11 Prior to the commencement of waste activities the licensee shall install and maintain a meteorological station at the facility capable of monitoring the parameters listed in *Schedule D.7: Meteorological monitoring* of this licence.
- 3.12 Tank and Drum Storage Areas
- 3.12.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.12.2 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:-
- (a) 110% of the capacity of the largest tank or drum within the bunded area; or
- (b) 25% of the total volume of substance which could be stored within the bunded area.
- 3.12.3 All drainage from bunded areas shall be diverted for collection and safe disposal.

- 3.12.4 All inlets, outlets, vent pipes, valves and gauges must be within the banded area.
- 3.12.5 The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency following its installation and prior to its use as a storage area.
This confirmation shall be repeated at least once every three years thereafter and reported to the Agency on each occasion.
- 3.13 Landfill Lining
- 3.13.1 The landfill liner shall comprise:-
- A composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s, (or equivalent to be agreed with the Agency) overlain by a 2mm thick high density polyethylene (HDPE) layer;
 - A geotextile protection layer placed over the HDPE layer;
 - 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; and,
 - The side walls shall be designed and constructed to achieve an equivalent protection.
- 3.13.2 The liner detailed design and its composition and installation shall be in accordance with the guidelines provided in the Agency's Landfill Manual – Landfill Site Design.
- 3.13.3 The lining of the leachate lagoon and the surface water lagoon shall be a composite liner equivalent to the landfill liner and constructed using the same methods.
- 3.13.4 Following the placement of the liner system in all cells, the leachate lagoon and the surface water lagoon, the licensee shall commission an independent leak detection survey of the liner system.
- 3.13.5 Unless otherwise agreed by the Agency, except during periods of construction of the facility which necessitate the lowering of the groundwater, a hydraulic trap shall be maintained at the facility such that the piezometric level of the groundwater outside the waste is higher than the level of leachate within the waste.
- 3.14 Buffer Zone/Perimeter Bund
- 3.14.1 A Buffer Zone, in which no landfilling of waste shall be undertaken, shall be provided and maintained within the facility boundary. The Buffer Zone shall span a minimum of 70m from the landfill footprint to the facility boundary.
- 3.14.2 A perimeter berm shall be constructed around the landfill footprint. The phasing of the construction of the berm shall be in accordance with the Phased Construction Plan as required by Condition 3.2.1 and 3.2.2.
- 3.15 Leachate Management Infrastructure
- 3.15.1 Prior to the commencement of waste disposal activities in any cell(s) at the facility, the licensee shall provide and maintain a leachate management system at the facility to facilitate the collection, abstraction and storage of leachate.
- 3.16 Landfill Gas Management
- 3.16.1 Three months prior to the commencement of waste activities a proposal for a landfill gas management system incorporating the active collection and flaring of landfill gas at the facility shall be submitted to the Agency for its agreement.

- 3.16.2 Within twelve months of the date on which waste is first disposed of at the facility, infrastructure for the active collection and flaring of landfill gas shall be installed and maintained at the facility.
- 3.16.3 Until the operation of the landfill gas flare, passive landfill gas management at the facility shall be carried out. Landfill gas management and infrastructure shall meet the recommendations given in the Agency Manual on "Landfill Operational Practices".
- 3.16.4 The landfill gas flare shall be of an enclosed type design and the combustion air supply shall be controlled so as to achieve a minimum temperature of 1,000°C and 0.3 seconds retention time at this temperature. The design and operation of the landfill gas flare shall be agreed in advance by the Agency. Flares should be maintained in accordance with the manufacturers recommendations. Full records should be available for inspection at the facility.
- 3.16.5 Flare unit efficiency shall be tested once it is installed and once every three years thereafter.
- 3.16.6 Within twelve months of the date of commencement of waste acceptance and each year thereafter as part of the AER the licensee shall submit an assessment of whether the utilisation of landfill gas as an energy resource is feasible. This shall include an assessment of the local use of the landfill gas, for example, in a horticultural or agricultural project and shall also include proposals regarding the utilisation of heat energy from this plant.
- 3.16.7 The licensee shall ensure that sufficient flaring and/or utilisation capacity is provided for and maintained at the facility to deal with all landfill gas generated at the facility.
- 3.16.8 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.
- 3.16.9 The licensee shall maintain all gas wells, pipework, valves, pumps, flares and other infrastructure that form part of the landfill gas management scheme in a safe and fully operational manner.
- 3.17 Surface Water Management
- 3.17.1 Effective surface water management infrastructure incorporating surface water lagoon(s) and appropriate drainage network shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:
- (i) The prevention of contaminated waste and leachate discharges into surface waste drains and courses; and
 - (ii) The collection/diversion of run-off arising from capped and restored areas.
- 3.17.2 The surface water retention pond(s), associated surface water management infrastructure and the site access roads shall be constructed prior to the commencement of construction of the remainder of the facility.
- 3.17.3 The surface water retention ponds(s) shall be capable of dealing with all surface water run-off arising at the facility. A surface water cut-off drain shall be constructed around the external toe of the perimeter landfill embankment and this cut-off drain shall discharge to the surface water lagoon. The surface water drainage swales shall be designed and constructed in such a manner as to prevent erosion, stagnation and inadequate capacity.
- 3.17.4 The diversion of any site surface water ditch(es) shall not give rise to pollution and shall not occur prior to the construction of the surface water retention ponds.
- 3.17.5 Drainage from hardstanding areas shall be diverted through a Class I by-pass separator to the surface water lagoons or as appropriate to the leachate lagoon(s), in the event of contamination of surface water.

3.18 Groundwater Management

3.18.1 Effective groundwater 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 be capable of the following:

- a) protection of the groundwater resources from pollution by the construction and waste activities.
- b) the protection of other infrastructure, such as the liner, from any adverse effects caused by the groundwater

3.18.2 All groundwater discharge from the facility, other than required to lower the groundwater level for the construction of the stormwater retention pond, shall be via the stormwater retention pond.

3.19 External Access Road

3.19.1 Development works at the facility shall not commence until the road improvements and road signage as described in Attachment D.1(j) and Drawing No. 12 of the application and Figure 3.5 of the EIS, including:

- the road improvements at the junction of the N76 with the Ahenny Road,
 - a cattle pathway from the junction with the N76 to the entrance to the landfill facility. This cattle pathway shall include provision for cattle to cross the road where necessary.
- are carried out.

3.19.2 Development works at the facility shall not commence until appropriate speed limits are applied along the access road to the facility.

3.19.3 Construction and waste disposal vehicles shall only access and depart the facility via the junction of the N76 and the Ahenny Road.

3.19.4 Traffic awaiting access to the landfill shall queue along the facility access road only. No traffic queuing shall be allowed on the public road.

3.20 Fire Control/ Fire water Retention

3.20.1 Leachate shall not be used as a means of fire control.

3.21 Telemetry

3.21.1 Prior to the commencement of licensed activities an appropriate telemetry system shall be installed and maintained at the facility. All facility operations linked to the telemetry system shall also have a manual control which will be reverted to in the event of break in power supply or during maintenance.

3.21.2 The telemetry system shall include for:-

- a) Continuous recording of levels in the lined cells, leachate lagoon(s) and the surface water retention pond(s);
- b) Continuous recording of levels in the surface water lagoon and flows to the perimeter streams;
- c) Quality of the surface water at the inlet to the surface water lagoons and being discharged to the perimeter streams;
- d) Status of penstock chamber on outlet from surface water retention pond;
- e) Status of landfill gas flare; and,
- f) Permanent gas monitoring system in the site office and any other enclosed buildings at the facility.

The monitoring infrastructure (in relation to surface water) required by a), b), c) and d) above shall be operational prior to the commencement of surface water discharges from the surface water lagoon.

3.22 Monitoring Infrastructure

3.22.1 Landfill Gas

Prior to the commencement of licensed activities, the licensee shall install and maintain the following:

- a) a permanent continuous gas monitoring system with an alarm in the site office and any other enclosed structures at the facility.
- b) perimeter landfill gas monitoring boreholes shall be constructed and installed at 45m intervals around the periphery of the landfill footprint. The construction of the boreholes shall be phased so as to match the phased development of cells.
- c) a minimum of two monitoring boreholes per cell within the waste mass.

All landfill gas monitoring equipment, other than permanent monitoring systems within buildings shall be certified as being intrinsically safe.

3.22.2 Groundwater

- a) Prior to the commencement of construction activities the licensee shall install and provide groundwater monitoring points at the locations specified in Table D.1.1.
- b) Prior to the commencement of landfilling in proximity to the peripheral cells, the licensee shall install a minimum of one borehole immediately external to each peripheral cell of the landfill in order to measure the piezometric level of the groundwater in the fractured zone of the bedrock for the purpose of monitoring the hydraulic head. The groundwater levels in these boreholes shall be monitored at a minimum of monthly intervals, except when the groundwater levels are lowered when they should be monitored on a weekly basis, and the results forwarded to the Agency on a quarterly basis.

3.22.3 Leachate

- a) Prior to the commencement of waste disposal activities in each cell, the licensee shall install leachate monitoring points in each cell and in the leachate lagoon(s) to allow for the monitoring, sampling and analyses of leachate.

3.22.4 Surface Water

Prior to the commencement of construction of the facility other than the installation of the surface water retention pond(s) the following shall be installed:

- (i) a penstock for preventing surface water discharges from the retention pond in the event that monitoring should indicate contamination of the surface water;
- (ii) Class I oil interceptor; and
- (iii) A chamber for continuous flow, inlet and discharge quality monitoring.

3.22.5 A benchmark (mAOD Malin) shall be provided at the facility.

3.22.6 Replacement of Infrastructure

- a) Monitoring infrastructure which is damaged or proves to be unsuitable for its purpose shall be replaced within three months of it being damaged or recognised as being unsuitable.

REASON: To provide appropriate infrastructure for the protection of the environment.

CONDITION 4 RESTORATION AND AFTERCARE

4.1. The final profile of the restored landfill shall not exceed 15m above the existing ground level and shall be in accordance with the Restoration Master Plan agreed by the Agency.

4.2. Final Capping

- 4.2.1. The final capping shall consist of the following:-
- a) Top soil (150 -300mm);
 - b) Subsoils, such that total thickness of top soil and subsoils is at least 1m;
 - c) Drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s;
 - d) 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
 - e) Gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.
- 4.3. Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate.
- 4.4. Facility restoration shall be completed within twenty-four months of the date of cessation of waste deposition at the landfill facility subject to ongoing aftercare requirements. The phasing shall be such that filled cells shall be capped within twelve months of the cells having been filled to the required level, unless otherwise agreed or instructed by the Agency.
- 4.5. No material or object that is incompatible with the proposed restoration of the site shall be present within one metre of the final soil surface levels.
- 4.6. In areas where tree planting is proposed to be carried out above waste filled areas, a synthetic barrier shall be used to augment the clay cap and topsoil and subsoil depths shall be a minimum of 1m.
- 4.7. Soil Storage
- 4.7.1. All soils shall be stored in an appropriate manner to preserve the soil structure for future use within the facility.

REASON: To provide for the restoration of the facility.

CONDITION 5 FACILITY OPERATION AND WASTE MANAGEMENT

- 5.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency.
- 5.2 Wastes shall only be accepted at the facility from local authority waste collection or transport vehicles or holders of waste collection permits issued under the Waste Management (Collection) Permit Regulations 2001. Copies of these waste collection permits must be maintained at the facility.
- 5.3 Waste Acceptance and Characterisation Procedures
- 5.3.1 Prior to commencement of waste acceptance at the facility, 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 (2003/22/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.
- 5.3.2 The criteria for the acceptance of inert waste for recovery, for the purpose of site development and site restoration, shall be as specified in *Schedule F: Criteria for the Acceptance of Inert Waste*, of this licence.

5.4 All wastes shall be checked at the working face. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Quarantine Area only. No waste shall be stored in the Waste Quarantine Area for more than three months.

5.5 Working Face

Unless the prior agreement of the Agency is given, the following shall apply at the landfill:-

- a) Only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials; and
- b) The working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide, 25 metres in length and have a slope no greater than 1 in 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.

The working face, or faces, shall each day at the end of the day, be covered with suitable material.

5.6 Daily and Intermediate Cover

- 5.6.1. Cover material shall be placed on the working face of the operational cell at the end of each day to minimise the potential for any nuisances to occur.
- 5.6.2. 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.
- 5.6.3. At the end of the working week a minimum of 150mm of inert material shall be placed over the waste.
- 5.6.4. Within two months of the date of each cells having been filled to the final waste profile, the licensee shall ensure that the waste covered by an intermediate cover of at least 300mm of suitable inert material so that no waste other than cover material or material suitable for specified engineering works is exposed.

5.7 Landscaping

- 5.7.1 Apart from the removal of hedgerow to facilitate the site entrance, the existing hedgerow network which forms the boundary of the facility shall be retained by the licensee as indicated in Figure G.1.1 of further information submitted to the Agency on 18 November 1998.
- 5.7.2 The licensee shall submit a proposal for perimeter planting to the Agency for its agreement within three months of the date of grant of this licence.

5.8 Operational Controls

The landfill shall be filled in accordance with the proposed phased construction plan sequence and propose cell layout agreed in accordance with Condition 3.2.1 and Condition 3.2.2.

- 5.8.1 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 5.8.2 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over unless otherwise agreed from the Agency.
- 5.8.3 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.

- 5.8.4 Filled cells shall be permanently capped within twelve months of the cells having been filled to the required level.
 - 5.8.5 Apart from the temporary storage of waste at the Waste Inspection/ Quarantine Area waste for disposal shall not be stored at any other location within the facility.
 - 5.8.6 Scavenging shall not be permitted at the facility.
 - 5.8.7 Gates shall be locked shut when the facility is unsupervised.
 - 5.8.8 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
 - 5.8.9 Fuels shall only be stored at appropriately bunded locations on the facility.
 - 5.8.10 All tanks and drums, including tankers used to transport leachate from the facility, shall be labelled to clearly indicate their contents.
 - 5.8.11 All vehicles leaving the facility shall use the wheel cleaner as required to ensure that no process water or waste is carried off-site.
 - 5.8.12 No smoking shall be allowed on the facility other than in the site office.
- 5.9 Sludge Handling
- 5.9.1 Treated industrial and treated sewage sludge shall only be accepted at the facility between the hours of 08:30 hrs and 14:00 hrs. Monday to Friday inclusive. All sludge shall be covered immediately with other waste.
 - 5.9.2 Sludge shall only be permitted to be disposed of at the facility from producers who hold a disposal permit. Copies of such permits shall be available for inspection at the facility and shall be presented by the producer on delivery of the sludge consignment to the facility.
 - 5.9.3 In addition to the characterisation required under the Waste Acceptance Procedures, the licensee shall carry out analyses on a minimum of two samples per annum for all industrial sludge being accepted at the facility. The results of these analyses shall be presented in the Annual Environmental Report (AER).
- 5.10 Off-site Disposal and Recovery
- 5.10.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency.
 - 5.10.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency.
 - 5.10.3 All wastes removed off-site for recovery or disposal shall be transported from the facility to the consignee in a manner which will not adversely affect the environment.
- 5.11 Leachate Management
- 5.11.1 Leachate levels in the waste shall not exceed a level of 1.0m over the top of the liner at the base of the landfill.

- 5.11.2 The level of leachate in the pump sumps and in the filled waste shall be monitored continuously by a telemetry system which shall automatically activate leachate pumps to maintain the leachate head at the required level. The telemetry system shall be linked to an automatic level alarm in the administration building, and at another location outside the facility when the administration building is unmanned.
- 5.11.3 Unless otherwise agreed with the Agency leachate stored in the leachate storage lagoon shall be disposed of by tankering off-site in fully enclosed road tankers and discharging to Clonmel Waste Water Treatment Plant. The frequency of removal of leachate shall be such that a minimum freeboard of 0.5 m is maintained at all times in the leachate lagoon(s).
- 5.11.4 Recirculation of leachate or other contaminated water shall not be undertaken without the prior agreement of the Agency and, in any case, shall only be undertaken within cells which have been capped to the satisfaction of the Agency.
- 5.12 Maintenance
- 5.12.1 All treatment/abatement and emission control equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.
- 5.12.2 All lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.
- 5.12.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 5.12.4 The wheel cleaner shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of at the working face or to a skip.

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

CONDITION 6 EMISSIONS

- 6.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule C: Emission Limits*, of this licence. There shall be no other emissions of environmental significance.
- 6.2. The licensee shall ensure that the activities shall be carried out in a manner such that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary.
- 6.3. Landfill Gas
- 6.3.1. The following are the trigger levels for landfill gas emissions from the facility measured in any service duct or manhole on, at or immediately adjacent to the facility and/or at any other point located outside the body of the waste:-
- Methane, greater than or equal to 1.0% v/v; or
 - Carbon dioxide, greater than or equal to 1.5% v/v.
- 6.3.2. 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 :-
- In the case of landfill gas flare:
Temperature 273 K, pressure 101.3 kPa, dry gas at 3% oxygen; and
 - In the case of landfill gas combustion plant:
Temperature 273 K, pressure 101.3 kPa, dry gas; 5% oxygen.

- 6.3.3. Emission limits for emissions from landfill gas flare/combustion plant to atmosphere in this licence shall be interpreted in the following way.
- 6.3.3.1. Continuous monitoring
- a) No 24 hour mean value shall exceed the emission limit value;
 - b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value; and
 - c) No 30 minute mean value shall exceed twice the emission limit value.
- 6.3.3.2. Non-Continuous Monitoring
- a) For any parameter where, due to sampling/analytical limitations, a 30 minute samples is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value;
 - b) For all other parameters, no 30 minute mean value shall exceed the emission limit value; and
 - c) For flow, no hourly or daily mean value shall exceed the emission limit value
- 6.4. Groundwater
- 6.4.1 There shall be no direct emissions to groundwater.
- 6.4.2 Prior to the acceptance of waste at the facility, the licensee shall submit to the Agency for its agreement, groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC.
- 6.5. Emissions to Surface Water
- 6.5.1. No raw leachate, treated leachate or contaminated surface water shall be discharged to surface waters.
- 6.5.2. No substance shall be discharged in a manner, or at a concentration which, following initial dilution causes tainting of fish or shellfish.
- 6.5.3. All surface water emissions at the facility shall only be made to the tributary of the Lingaun River via the outlet from the stormwater retention pond (s) following settlement therein.
- 6.5.4. In the event that monitoring should indicate that contamination of the water in the surface water lagoon the outlet penstock shall be closed and the contaminated water shall be pumped to the leachate lagoon or tankered off-site to an agreed WWTP. This shall continue until such time as monitoring indicates that surface water is no longer contaminated.
- 6.5.5. The licensee shall ensure that the surface water management infrastructure prevents the emission of polluting matter to the surface water resources within and adjacent to the facility during construction of the facility and in particular during construction of the surface water management infrastructure and surface water lagoon.
- 6.6. Trigger Level for PM₁₀
- 6.6.1. The trigger level for PM₁₀ from the facility measured at any location on the boundary of the facility is:-
- a) PM₁₀ greater than 50µg/m³ for a daily sample.
- 6.7. Noise

- 6.7.1. There shall be no clearly audible tonal component or impulsive component in the noise emissions from the facility at the facility boundary.

REASON: To control emissions from the facility and provide for the protection of the environment.

CONDITION 7 NUISANCE CONTROL

- 7.1 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.
- 7.2 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 7.3 Prior to exiting the facility all waste disposal and construction related vehicles shall use the wheel cleaner.
- 7.4 Litter Control
- 7.4.1 Appropriate litter control infrastructure measures and procedures shall be applied to ensure that litter does not give rise to environmental nuisance within or adjacent to the facility.
- 7.4.2 Notwithstanding Condition 7.4.1 prior to the disposal of any waste in any cell appropriate Litter Fencing/Netting shall be installed and maintained around the perimeter of the active tipping area.
- 7.4.3 All litter control infrastructure shall be inspected on a daily basis. The licensee shall remedy any defect in the litter fencing/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 fencing/netting shall be undertaken within three working days.
- 7.4.4 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.
- 7.4.5 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.
- 7.5 Dust Control
- 7.5.1 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.
- 7.6 Bird Control
- 7.6.1 Birds shall be prevented from gathering on and feeding at the facility by the use of falcons and other bird scaring techniques. The falcons and other techniques shall be in place on the facility at least one week prior to any waste being disposed of and 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 unless otherwise instructed by the Agency. The use of gas operated bird scaring devices is prohibited at the facility.
- 7.7 Noise/Disturbance
- 7.7.1 From the date of commencement of construction of the facility, the licensee shall ensure the following:

- (a) that low sound level plant is used on site,
- (b) that appropriate speed restrictions are applied to internal site roads and
- (c) that all heavy machinery and mechanical plant used on-site are fitted with appropriate acoustic controls.

7.8 Vermin Control

7.8.1 Prior to the commencement of waste activities, the licensee shall submit to the Agency for its agreement a proposal for the control and eradication of vermin and fly infestations at the facility. The licensee shall commence control measures prior to the acceptance of waste at the facility. This proposal should include as a minimum;

- (a) details on the rodenticide(s) and insecticide(s) to be used;
- (b) mode and frequency of application and measures to contain sprays within the facility boundary;
- (c) operator training;
- (d) details on the precautions (including supporting documentation) to be used to minimise the secondary poisoning of birds and other species from the use of the insecticides and rodenticides proposed; and
- (e) details of any consultation with *Development Applications Section, Department of the Environment, Heritage & Local Government (formally known as Dúchas)* on the vermin control proposed.

7.9 Within twelve months of the commencement of waste activities at the facility the licensee shall submit a report to the Agency on the effectiveness of the environmental nuisance control measures used at the facility. The report shall also recommend changes and programme for implementation where the study demonstrates that existing measures are ineffective.

REASON: To provide for the control of nuisances.

CONDITION 8 MONITORING

- 8.1 The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring*, of this licence and as specified in this licence. Unless otherwise agreed with the Agency or otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence. Where monitoring infrastructure is required to be installed environmental monitoring shall commence no later than two months after its installation.
- 8.2 Prior to the commencement of licensed activities the licensee shall submit to the Agency an updated Drawing(s) showing the location of all environmental monitoring locations. This shall include any additional monitoring locations required to fulfil this licence. This shall be accompanied by a register of unique coded reference numbers and twelve figure grid reference for each monitoring location.
- 8.3 The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.
- 8.4 Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.
- 8.5 The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.6 Prior to the commencement of licensed activities the following information shall be submitted to the Agency for its agreement: the names, qualifications and a summary of the relevant experience of all persons that will carry out all sampling and monitoring as required by this licence and who carry out the

interpretation of the results of such sampling and monitoring. Any proposed changes to the above shall be submitted to the Agency for its agreement.

8.7 Groundwater Monitoring

8.7.1 The licensee shall within three months from the date of grant of this licence, submit to the Agency a drawing showing the location of the following:

8.7.1.1 All private wells within 1 kilometre downgradient of the facility(boundary).

8.7.1.2 All established groundwater and surface water supplies used for animal drinking within 500m of the facility boundary.

Subject to the Agency's agreement and the agreement of the owners these wells/ supplies shall be included in the monitoring programme set out in *Schedule D.1: Monitoring Locations* of this licence.

8.8 Surface Water Monitoring

8.8.1 Prior to the commencement of the construction activities, the licensee shall submit to the Agency for its agreement proposals for continuous monitoring of water in the surface water/groundwater retention pond(s). These proposals shall include the criteria/trigger levels which will determine when the outlet from these ponds shall be closed. Such continuous monitoring shall, as a minimum, include conductivity, pH and TOC and shall be carried out on the inlet to the stormwater retention pond.

8.9 A topographical survey shall be carried out prior to the commencement of waste disposal activities in the lined cells and shall be repeated annually thereafter and on the completion of each phase of landfilling. The survey shall be in accordance with any written instructions issued by the Agency and shall include a measurement of the remaining available void space.

8.10 Ecological Monitoring

8.10.1 Within three months of the date of grant of this licence, the licensee shall develop and maintain an ecological monitoring programme which shall include the following as a minimum:

- (a) fisheries assessment (with particular reference to salmonids); of the Lingaun catchment immediately upstream and down stream of the facility
- (b) water quality and biological assessment including invertebrates of the Lingaun catchment immediately upstream and down stream of the facility; and,
- (c) onsite and offsite ecological monitoring (including flora, birds, mammals and invertebrates).

8.11 The licensee shall prior to the commencement of construction works at the facility establish the nature and extent of badger use of the site. The findings of this survey shall be submitted to the Agency for its agreement along with proposals to ensure the exclusion of badgers from the facility.

8.12 Archaeological Assessment

8.12.1 Prior to the development of any undisturbed area, the advice of the *Development Applications Section, Department of the Environment, Heritage & Local Government (formally known as Dúchas)* shall be sought. A suitably qualified archaeologist shall carry out appropriate monitoring and recording (as required) during the development of undisturbed areas. The licensee shall ensure the appropriate protection monitoring and recording of any archaeological remains. On completion, a report of the results of any archaeological monitoring shall be submitted to *Development Applications Section, Department of the Environment, Heritage & Local Government (formally known as Dúchas)* and to the Agency.

8.13 Stability Assessment

8.13.1 Within twelve months of the date of commencement of waste disposal activities, and annually thereafter, the licensee shall carry out a stability assessment of the side slopes of the facility.

8.14 Noise Monitoring

8.14.1 The licensee shall within three months of the grant of this licence, submit to the Agency for its agreement noise monitoring proposals for the nearest noise sensitive location(s) surrounding the facility. Such proposals shall address the establishment of baseline noise levels (day time and night time) at the proposed monitoring locations and noise levels resulting from the operations on site during and outside of normal operations at the facility.

8.15 Dust Monitoring

8.15.1 The licensee shall submit within three months from the date of grant of this licence a proposal to the Agency for its agreement, for a monitoring programme for dust at the facility. This shall include additional monitoring locations along the eastern and western boundary of the facility.

8.15.2 Prior to the commencement of construction activities the licensee shall submit results of dust monitoring at the locations specified in *Schedule D.1.1 – Monitoring Locations* Dust and using the approved method.

8.16 Nuisance Monitoring

8.16.1 The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.

8.17 Data Management

8.17.1 The licensee shall, prior to the commencement of waste disposal activities, develop and establish a Data Management System for collation, archiving, assessing and graphically presenting the environmental data generated as a result of this licence.

<p><i>REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.</i></p>
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CONDITION 9 CONTINGENCY ARRANGEMENTS

9.1. In the event of an incident the licensee shall immediately:-

- a) Identify the date, time and place of the incident;
- b) Carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
- c) Isolate the source of any such emission;
- d) Evaluate the environmental pollution, if any, caused by the incident;
- e) Identify and execute measures to minimise the emissions/malfunction and the effects thereof; and
- f) Provide a proposal to the Agency for its agreement within one month of the incident occurring to:-
Identify and put in place measures to avoid reoccurrence of the incident;
Identify and put in place any other appropriate remedial action.

9.2. The licensee shall prior to commencement of construction of the facility submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements

at the facility for fire fighting and fire water retention facilities. The Fire Authority shall be consulted by the licensee during this assessment.

- 9.3. 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.
- 9.4. Emergencies
- 9.4.1. All significant spillages occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
- 9.4.2. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency and immediate action shall be taken to extinguish it and notify the appropriate authorities.
- 9.4.3. In the event that monitoring of local wells indicates that the facility is having a significant adverse effect on the quantity and/or quality of the water supply this shall be treated as an emergency and the licensee shall provide an alternative supply of water to those affected.
- 9.4.4. In the event that monitoring of the slide slopes of the facility indicate that there may be a risk of slope failure this will be treated as an emergency.
- 9.4.5. In the event that monitoring should indicate contamination of the water in the stormwater retention pond, the outlet penstock shall be closed and the contaminated water shall be pumped to the leachate lagoon until such time as the source of the contamination has been identified and appropriate measures introduced to prevent further contamination of surface water.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 10 RECORDS

- 10.1 The licensee shall keep the following documents at the facility office:-
- The current waste licence relating to the facility;
 - The current EMS for the facility;
 - The previous year's AER for the facility; and.
 - All written procedures produced by the licensee which relate to the licensed activities.
- 10.2 The licensee shall maintain a written record for each load of waste arriving at the facility. These documents shall be available electronically for inspection. The licensee shall record the following:-
- The date;
 - The name of the carrier (including if appropriate, the waste carrier registration details);
 - The vehicle registration number;
 - The name of the producer(s)/collector(s) of the waste as appropriate;
 - The name of the waste facility (if appropriate) from which the load originated including the waste licence or waste permit register number;
 - A description of the waste including the associated EWC codes;
 - The quantity of the waste, recorded in tonnes;
 - The name of the person checking the load; and
 - 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.
- 10.3 Written Records

The following written records shall be maintained by the licensee:-

- The types and quantities of waste recovered and disposed of at the facility each year. These records shall include the relevant EWC Codes and any details required to complete National Reports on Waste Statistics.

- (b) All training undertaken by facility staff;
 - (c) Results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
 - (d) Details of maintenance records for the landfill gas flare.
 - (e) Details of all nuisance inspections; and
 - (f) The names and qualifications of all persons who carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring.
- 10.4 The licensee shall maintain a written record of all complaints relating to the operation of the facility. Each such record shall give details of the following:-
- (a) Date and time of the complaint;
 - (b) The name of the complainant;
 - (c) Details of the nature of the complaint;
 - (d) Actions taken on foot of the complaint and the results of such actions; and
 - (e) The response made to each complainant.
- 10.5 A written record shall be kept of each consignment of leachate removed from the facility. The record shall include the following:-
- (a) The name of the carrier;
 - (b) The date and time of removal of leachate from the facility;
 - (c) The volume of leachate, in cubic metres, removed from the facility on each occasion;
 - (d) The name and address of the Waste Water Treatment Plant to which the leachate was transported; and
 - (e) Any incidents or spillages of leachate during its removal or transportation.
- 10.6 A written record shall be kept at the facility of the programme for the control and eradication of vermin and fly infestations at the facility. These records shall where appropriate include the following:-
- (a) The date and time during which spraying of insecticide is carried out;
 - (b) Contractor details;
 - (c) Contractor logs and site inspection reports;
 - (d) Details of the rodenticide(s) and insecticide(s) used;
 - (e) Operator training details;
 - (f) Details of any infestations;
 - (g) Mode, frequency, location and quantity of application;
 - (h) Measures to contain sprays within the facility boundary; and,
 - (i) Daily bird control activities and the numbers of birds observed on the facility.

REASON: To provide for the keeping of proper records of the operation of the facility.

CONDITION 11 REPORTS AND NOTIFICATIONS

- 11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:-
- (a) Be sent to the Agency's headquarters;
 - (b) Comprise one original and three copies unless additional copies are required;
 - (c) Be formatted in accordance with any written instruction or guidance issued by the Agency;
 - (d) Include whatever information as is specified in writing by the Agency;
 - (e) Be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
 - (f) Be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency*, of this licence;
 - (g) Be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
 - (h) Be transferred electronically to the Agency's computer system if required by the Agency.

11.2 In the event of an incident occurring on the facility, the licensee shall:-

- (a) Notify the Agency as soon as practicable and in any case not later than 1000 hrs the following working day after the occurrence of any incident;
- (b) Submit a written record of the incident, including all aspects described in Condition 9.1(a-e), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- (c) In the event of any incident which relates to discharges to surface/sewer water, notify Southern Regional Fisheries Board as soon as practicable and in any case not later than 1000 hrs on the following working day after such an incident; and
- (d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.

11.3 Waste Recovery Reports

Within twelve months of the date of grant of this licence, a report examining off site waste recovery options shall be submitted to the Agency for its agreement. This report shall address methods to contribute to the achievement of the recovery targets stated in national and European Union waste policies and shall include the following:-

- (a) proposals for the contribution of the facility to the achievement of targets for the reduction of biodegradable waste to landfill, going to landfills as specified in the Landfill Directive.
- (b) the treatment of waste as required by the Landfill Directive
- (c) the separation of recyclable materials from the waste.
- (d) the recovery of Construction and Demolition Waste.
- (e) the recovery/treatment of municipal and industrial sludge
- (f) the recovery of commercial waste, including cardboard.
- (g) inert waste to be used for cover/restoration material at the facility.

11.4 Reports relating to Facility Operations

11.4.1. Within twelve months of the date of commencement of waste activities and each year thereafter as part of the AER, the licensee shall submit an assessment of whether the utilisation of landfill gas as an energy resource is feasible. If feasible such a system shall be installed within a timeframe agreed with the Agency. This assessment shall include proposals regarding the utilisation of heat energy from this plant.

11.4.2. Leachate Handling Procedures

- The licensee shall, submit to the Agency for its agreement prior to the use of the leachate storage lagoon, Leachate Handling Procedures for the handling of leachate on the facility and during removal from the lagoon and subsequent transport/discharge to the Waste Water Treatment Plant.

11.4.3. Restoration and Aftercare

- Within nine months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement a detailed Restoration Master Plan (including Aftercare) for the facility. This Plan shall investigate and put forward proposals to minimise the final height to which waste will be deposited within the facility with a view to minimising the long term and short term impact of the landform on the surrounding landscape. These proposals shall include a drawing showing the proposed final profile of the landfill. The licensee shall update the Plan when required in writing by the Agency and submit proposed amendments to the Agency for its agreement.
- The plan shall outline the quantity of inert material likely to be required for the ongoing and final restoration of the facility.

11.4.4. Achievement of Final Profile

- Within twelve months of the date of grant of this licence, the licensee shall submit details of the proposed landfilling to achieve final contours to the Agency for its agreement. The

details shall specify the maximum pre-settlement height to which waste will be deposited to achieve the proposed final profile of the landfill.

- 11.4.5. Operation in Adverse Wind Conditions
- Prior to the commencement of waste disposal activities the licensee shall submit to the Agency for its agreement proposals for the operation of the facility in adverse wind conditions.
- 11.5 The licensee shall ensure European Pollution Emission Register reporting shall be in accordance with any relevant guidance issued by the Agency.
- 11.6 Annual Environmental Report
- 11.6.1. The licensee shall submit to the Agency for its agreement, within thirteen months from the date of grant of this licence, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).
- 11.6.2. The AER shall include as a minimum the information specified in *Schedule G: Content of Annual Environmental Report*, of this licence and shall be prepared in accordance with any relevant written guidance issued by the Agency.

REASON: To provide for proper reports to and notifications to the Agency.

CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

- 12.1 Agency Charges
- 12.1.1 The licensee shall pay to the Agency an annual contribution of €33,526 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 2004 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2003, the licensee shall pay a pro rata amount from the date of this licence to 31st December. This amount shall be paid to the Agency within one month of the date of grant of this licence.
- 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 defraying its costs **in regard to items not covered by the said annual contribution.**
- 12.2 Financial Provision for Closure, Restoration and Aftercare
- 12.2.1 Within six months of the date of grant of this licence, the licensee shall arrange for a risk assessment of the facility to be carried out. The risk assessment shall have particular regard to any accidents, emergencies, or other incidents, which might occur at the facility and their effect on the environment. The risk assessment shall include a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility including the cost of making such Financial Provision as is required for the purposes of Section 53(1) of the Waste Management Act 1996. The financial provision shall include the costs entered into or incurred in the carrying on of the activities to which this licence relates or will relate including the closure, restoration, remediation and aftercare of the facility.
- 12.2.2 Prior to the commencement of waste disposal activities the licensee shall establish and maintain a fund, or provide a written guarantee to the satisfaction of the Agency for the costs determined under Condition 12.2.1. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.
- 12.2.3 The licensee shall within two weeks of purchase, renewal or revision of the financial provision required under Condition 12.2.2, forward to the Agency written proof of such indemnity.

- 12.2.4 The licensee shall provide a statement in writing to the Agency on an annual basis as part of the AER in respect of the determination of charges for the disposal of waste. The statement shall be in accordance with the requirements of S.I. 337 of 2002 European Communities (Amendment of Waste Management (Licensing) Regulations, 2000) Regulation, 2002.
- 12.2.5 Unless otherwise agreed any revision to the fund shall be computed using the following formula:-

$$\text{Cost} = (\text{ECOST} \times \text{WPI}) + \text{CiCC}$$

Where:-

- Cost = Revised restoration and aftercare cost
- ECOST = Existing restoration and aftercare cost
- WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the Central Statistics Office, for the year since last closure calculation/revision.
- CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

12.3 Cost of landfill of waste.

Prior to the commencement of waste activities at the facility, the licensee shall submit a report to the Agency for agreement estimating the cost of closure and of aftercare of the facility for a period of at least thirty years. Using this information the licensee should show how the cost of the landfill of waste will cover these closure and aftercare costs, in accordance with Article 10 of the Landfill Directive (1999/31/EC).

- 12.4 One percent of the gate fees charged for the disposal of waste at the facility, or forty thousand euro per annum, whichever is the greater sum, shall be spent on local environmental and community initiatives each year that the landfill accepts waste for disposal.

<p><i>REASON: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.</i></p>
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SCHEDULE A : Waste Acceptance

Table A.1 Waste Categories and Quantities for disposal.

WASTE TYPE ^{Note 1}	TONNES PER ANNUM ^{Note 2}
Household ^{Note 2}	22,000
Commercial ^{Note 2}	4,000
Sewage Sludge	1,000
Construction and Demolition	2,000
Industrial Non-Hazardous Sludges	2,000
Industrial Non-Hazardous Solids	9,000
Total	40,000

Note 1: Only pre-treated wastes are acceptable for disposal.

Note 2: The tonnage of Household and Commercial waste accepted at the facility may be altered with the prior agreement of the Agency provided that the total amount of all wastes accepted at the facility does not exceed 40,000 tonnes per annum.

Table A.2 Waste Categories and Quantities for site restoration and site development works

Waste Type	Maximum (Tonnes Per Annum)
Construction and Demolition waste and Inert waste	Quantity to be agreed in advance by the Agency as part of the Phased Construction Plan and the Restoration and Aftercare Plan submitted in accordance with the requirements of this licence.

SCHEDULE B : Specified Engineering Works

Specified Engineering Works

Development of the facility including preparatory works and lining.
 Final capping.
 Installation of Landfill Gas Management Infrastructure.
 Installation of Leachate Management Infrastructure.
 Installation of Groundwater Control Infrastructure.
 Installation of Surface Water Management Infrastructure.
 Installation of telemetry system.
 Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions At Noise Sensitive Locations (4 No.) to be agreed in advance with the Agency.

Day dB(A) L_{eq} (30 minutes)	Night dB(A) L_{eq} (30 minutes)
55	40

C.2. Dust Deposition Measured at the dust monitoring points D1, D2, D3, D4 and D5 in Figure 1 of Attachment C.1 of information submitted 19 Jan 1998.

Level (mg/m ² /day) ^{Note 1}
350

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

C.3 (a) Landfill Gas Emission Limits measured in any building at, on or immediately adjacent to the facility.

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

C.4 Surface Water Discharge Limits: (Measured at the outlet from the surface water lagoon).

Parameter	Limit
Suspended Solids	35 mg/l

C.5 Emission Limit Values for Landfill Flare/Utilisation Plant

Emission Point Reference numbers: Outlet of enclosed flare and of utilisation plant (when installed).

Volume to be emitted: 3000m³/hr.

Minimum discharge height: 5m (unless results from modelling suggests otherwise).

Parameter	Flare (enclosed) Emission Limit Value ^{Note 1}	Utilisation Plant Emission Limit Value ^{Note 1}
Nitrogen oxides (NO _x)	150 mg/m ³	500 mg/m ³
CO	50 mg/m ³	1400 mg/m ³
Particulates	Not applicable	130 mg/m ³
Total Volatile Organic Compounds (VOCs) as carbon	10 mg/m ³	1000 mg/m ³
Total non-methane VOCs	Not applicable	75 mg/m ³
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)	5 mg/m ³ (at mass flows > 0.05 kg/h)

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

C.6 Leachate Tankered to Wastewater Treatment Plant

Volume to be emitted: Maximum in any one day: 40m³/day

Maximum rate per hour: 3m³/hour

Parameter	Limit (all units in mg/l except pH and Temperature and apply to Grab Samples)
PH	6-8
Temperature	4-25
BOD	2,500
COD	5,000
Ammoniacal nitrogen (NH ₄ -N)	600
Suspended Solids	15,000
Sulphates (as SO ₄)	1,000

SCHEDULE D : Monitoring

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 and Drawing No. 97-02401-18 Rev.B dated October 1997) of the application. Ecological monitoring locations to be agreed in advance with the Agency.

Table D.1.1 Monitoring Locations

Landfill Gas ^{Note 1}	Landfill Gas Flare/Utilisation Plant ^{Note 2}	Dust ^{Note 3} PM ₁₀ & Odour ^{Note 2}	Noise	Surface Water	Ground Water	Leachate
Gas Vents & Perimeter locations ^{Note 1}	Note 2	PM ₁₀ & Odour ^{Note 2}	See Note 4	SW1, SW2, Sw3, SW4 and Outlet from Surface water lagoon. ^{Note 5}	See Note 6	See Note 7
Site Office		Dust ^{Note 3}				

Note 1: Gas vents (Phase 1 - 4), 2 gas vents per cell & Perimeter Monitoring Locations: G1, G2, G3, G4, G5, G6, G7, G.8, G.9, G.10, G.11. (Refer to Drawing No. 97-02401-18 Rev.B dated October 1997).

Note 2: Monitoring Points to be agreed in advance with the Agency.

Note 3: Dust Monitoring locations: Δ1, Δ2, Δ3, Δ4 (Refer to Drawing No. 97-02401-18 Rev.B dated October 1997) of information submitted 3 April 1998. Additional monitoring locations along the eastern and western site boundary to be submitted to the Agency for agreement.

Note 4: Noise Monitoring Locations: N1, N2, N3, N4, Δ1, Δ2, Δ3, Δ4 (Refer to Drawing No. 97-02401-18 Rev.B dated October 1997) of information submitted 3 April 1998. Nearest Noise Sensitive locations.

Note 5: Monitoring Locations on the River Lingaun to be agreed with the Agency prior to biological and fisheries assessments.

Note 6: Monitoring Locations: Δ1, Δ2, Δ3, Δ4 (Refer to Drawing No. 97-02401-18 Rev.B dated October 1997) of information submitted 3 April 1998. Monitoring of Δ4 upon commencement of waste activities. Private wells within 1 km and livestock drinking supplies within 500m of the facility to be agreed with the Agency.

Note 7: Leachate levels in cells and freeboard level in lagoon continuously during active landfilling period. There shall be at least two monitoring points in each cell. Leachate composition in lagoon to be in accordance with Table D.6.1.

D.2 Landfill Gas

Table D.2.1 Landfill Gas Monitoring Frequency and Technique

Parameter	Monitoring Frequency ^{Note 1}		Analysis Method/Technique ^{Note 2}
	Perimeter Boreholes/Gas Vents/Wells within the waste	Site Office	
Methane (CH₄) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO₂) % v/v	Monthly	Weekly	Infrared analyser/ flame ionisation detector
Oxygen (O₂) % v/v	Monthly	Weekly	Infrared analyser
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard
Minor landfill gas constituents	Annual	Annual	See Note 3

Note 1: From commencement of waste activities.

Note 2: Or other methods agreed in advance with the Agency. All monitoring equipment used should be intrinsically safe. Perimeter boreholes shall be monitored by the use of Flame Ionisation Detector.

Note 3: Sampling to be carried out for minor landfill gas constituents (e.g. H₂S, mercaptans, aliphatic acids etc.) as required by the Agency following evaluation of monthly results.

D.3 Landfill Gas Flare and Landfill Gas Utilisation Plant

Location: Enclosed flare and utilisation plant (note exact location of utilisation plant to be agreed with the Agency in advance).

Table D.3.1 Landfill Gas Enclosed Flare/Utilisation Plant Parameters and Monitoring Frequency

Parameter	Flare (enclosed)	Utilisation Plant	Analysis Method ^{Note 1} /Technique ^{Note 2}
	Monitoring Frequency	Monitoring Frequency	
Inlet			
Methane (CH₄) % v/v	Continuous	Weekly	Infrared analyser/flame ionisation detector/thermal conductivity
Carbon dioxide (CO₂)% v/v	Continuous	Weekly	Infrared analyser/ thermal conductivity
Oxygen (O₂) % v/v	Continuous	Weekly	Electrochemical/thermal conductivity
Total Sulphur	Annually	Annually	Ion chromatography
Total Chlorine	Annually	Annually	Ion chromatography
Total Fluorine	Annually	Annually	Ion Selective Electrode
Process Parameters			
Combustion Temperature	Continuous	Quarterly	Temperature Probe/datalogger
Outlet			
CO	Continuous	Continuous ^{Note 3}	Flue gas analyser/datalogger
NO_x	Annually	Continuous ^{Note 3}	Flue gas analyser
SO₂	Annually	Annually	Flue gas analyser
Total VOCs as carbon	Annually	Annually	Flame ionisation
Total non-methane VOCs	Not applicable	Annually	Adsorption-thermal desorption
Particulates	Not applicable	Annually	Isokinetic/Gravimetric
Hydrochloric acid	Annually	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Annually	Impinger / Ion Chromatography

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

Note 2: Or other methods agreed in advance with the Agency.

Note 3: Continuous monitoring of carbon monoxide and nitrogen oxides is required. Monitoring of one of these parameters may be reduced to quarterly with the prior agreement of the Agency.

D.4 Dust/Odour/ PM10 Monitoring

Table D.4.1 Dust/Odour/ PM₁₀ Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
Dust	Monthly (during construction of lined cells)	Standard Method ^{Note 1}
	Quarterly ^{Note 2}	
Odour	Bi-annually ^{Note 5}	Note 3
PM ₁₀	Quarterly	Note 4

Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algae growth in the gauge should be reported to the Agency.

Note 2: At times other than when construction of lined cells are taking place at the facility, dust deposition monitoring shall be carried out on a quarterly basis (twice during the period May to September).

Note 3: To be agreed with the Agency.

Note 4: Monitoring shall be carried out as described in prEN12341 "Air Quality – field test procedure to demonstrate reference equivalence of sampling methods for PM₁₀ fraction of particulate matter" or an alternative agreed in writing with the Agency.

Note 5: Monitoring to commence within six months of the commencement of disposal of waste and thereafter on a bi-annual basis.

D.5 Noise

Table D.5.1 Noise Monitoring

Parameter	Monitoring Frequency ^{Note 1}	Analysis Method/Technique
L(A) _{EQ} [30 minutes]	Annual	Standard ^{Note 2}
L(A) ₁₀ [30 minutes]	Annual	Standard ^{Note 2}
L(A) ₉₀ [30 minutes]	Annual	Standard ^{Note 2}
Frequency Analysis(1/3 Octave band analysis)	Annual	Standard ^{Note 2}

Note 1: From commencement of construction activities on site.

Note 2: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

D.6 Surface Water, Groundwater and Leachate

Table D.6.1 Water and Leachate - Parameters / Frequency

Parameter ^{Note 1}	SURFACE WATER ^{Note 2, Note 9}	GROUNDWATER ^{Note 10}	LEACHATE Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Continuous
Flow	Continuous ^{Note 8}	Not Applicable	Not Applicable
Ammoniacal Nitrogen	Quarterly	Quarterly	Quarterly
BOD	Quarterly	Not Applicable	Quarterly
COD	Quarterly	Not Applicable	Quarterly
Chloride	Quarterly	Quarterly	Quarterly
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Quarterly
PH	Quarterly	Quarterly	Quarterly
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Quarterly	Quarterly	Quarterly
Metals / non metals ^{Note 3}	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances ^{Note 4}	Once off ^{Note 7}	Annually ^{Note 7}	Once off ^{Note 7}
Mercury	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Alkalinity	Annually	Annually	Not applicable
Total P/orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Annually	Annually
Total Organic Carbon	Continuous	Quarterly	Not Applicable
Residue on evaporation	Not Applicable	Annually	Not Applicable
Faecal Coliforms ^{Note 5}	Not Applicable	Annually	Not Applicable
Total Coliforms ^{Note 5}	Not Applicable	Annually	Not Applicable
Biological Assessment	Annually ^{Note 6}	Not Applicable	Not Applicable

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.

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: In the case where groundwater is used for drinking water, if there is evidence of bacterial contamination, the analysis at up gradient and downgradient monitoring points should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci.

Note 6: Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams.xxx.

Note 7: three surface water locations, three groundwater locations and two leachate locations to be agreed with the Agency.

Note 8: Applicable to two monitoring locations to be agreed by the Agency.

Note 9: Monitoring to commence at least one month prior to the commencement of construction of the facility.

Note 10: Monitoring to commence within six months of the date of grant of this licence.

Table D.6.2 Lingaun catchment - frequency of sampling and analysis.

Monitoring locations to be agreed by the Agency.

Parameter	Monitoring Frequency	Analysis Method/Technique
Visual Inspection of the river	Weekly	Not applicable
Biological Assessment	Annually	Appropriate biological methods (such as EPA Q-Rating System used for the assessment of rivers and streams)
Fisheries Assessment	Annually	Fisheries assessment methods approved in advance with the Southern Regional Fisheries Board

D.7 Meteorological Monitoring

Table D.7.1 Meteorological Monitoring

Monitoring location to be agreed by the Agency.

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation	Daily	Standard
Temperature (min/max.)	Daily	Standard
Wind Speed and Direction	Daily	Standard
Evaporation	Daily	Standard
Atmospheric Pressure	Daily	Standard
Humidity	Daily	Standard

SCHEDULE E : Recording and Reporting to the Agency

Table E.1 Recurring Reports

Report	Reporting Frequency ^{Note1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Eighteen months from the date of grant of licence and one month after the end of each year thereafter.
Record of incidents	As they occur	Within three days of the incident.
Specified Engineering Works reports	As they arise	Two months prior to the works commencing.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year being reported on.
Quarterly Monitoring for landfill gas, surface water quality, groundwater quality, leachate levels & quality	Quarterly	Ten days after end of the quarter being reported on.
Dust and Noise Monitoring	Annually	One month after end of the year being reported on.
Ecological Monitoring & Biological Assessment	Annually	One month after end of the year being reported on.
Void Survey and Stability Survey	<i>Annually</i>	One month after end of the year being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.

Note 1: Unless altered at the request of the Agency

SCHEDULE F : Criteria for the Acceptance of Inert Waste

F.1 Acceptable Waste for Recovery

Only the wastes listed below are acceptable at the facility for site development and site restoration, unless otherwise agreed by the Agency.

WASTE	
Topsoil	Solid Road Planings, Solid Tarmacadam, Solid Asphalt
Subsoil	Brickwork
Stone, Rock and Slate	Natural Sand
Clay, Pottery and China	Concrete

SCHEDULE G : Content of the Annual Environmental Report

Annual Environmental Report Content

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.
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.
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.
Estimated annual and cumulative quantity of indirect emissions to groundwater.
Annual water balance calculation and interpretation.
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.
Any other items specified by the Agency.

Signed on behalf of the said Agency
on the 31st day of December, 2003

Patrick J. Nolan, Authorised Person