

A. NON-TECHNICAL SUMMARY

A Non-Technical Summary is to be submitted. The summary should include information on those aspects outlined in the Guidance Note and must comply with the requirements of Article 12 (1) (q) of the Waste Management (Licensing) Regulations, S.I. 133 1997. For applications received after 23/06/00 the summary must comply with the requirements of Article 12 (1)(r) of the Waste Management Licensing Regulations, S.I. 185 of 2000.

The Non-Technical Summary should form **Attachment A.1**.

Attachment included	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>
Article 12 (1) (q) of S.I. 133 1997 complied with	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>

A.1 Attachment A.1**A.1.1 Nature of the Facility**

Gortadroma landfill is an existing landfill facility which is located in the townland of Gortadroma, within the parish of Kilcolman, 12km north of Newcastlewest, 9km south of Foynes and 54km from Limerick City. The existing site covers an area of 35 hectares (11 hectares of which is landfilled area) and lies in a rural setting. Landfill operations were commenced by Limerick County Council at Gortadroma Landfill in September 1990.

Limerick County Council propose to develop an extension to Gortadroma Landfill incorporating a landfill area of approximately 19 hectares which will be developed in discrete lined cells, and will include for the provision of leachate collection and treatment and gas extraction and utilisation. A remaining area of approximately 22 hectares is to be used as a buffer area for screening/ landscaping and for the provision of site infrastructure. It is proposed that the existing infrastructure at the site, e.g. entrance area, wheelwash, weighbridge, administration building, inspection and quarantine area, civic amenity, leachate treatment plant, leachate storage lagoons and gas compound will continue to be used and the extension will therefore primarily comprise the new cells and a screening/buffer area. The landfill extension will be capable of accepting a maximum of 130,000 tonnes of waste annually in accordance with its existing EPA licence (17-2) and will have enough capacity to serve Limerick City and County as a non-hazardous landfill for 2 million tonnes of waste.

This waste licence application is for a review of the current Waste Licence 17-2 and is accompanied by an Environmental Impact Statement (EIS), which describes the proposed development, identifies potential impacts and recommends measures for mitigating those impacts.

Geology/Hydrogeology

The proposed extension area is located to the east of the existing site. Ground elevations within the proposed extension area range in height from 105m in the south west corner to 158m in the north east. The site and proposed extension is located within the catchment of the White River. The southern portion of the proposed extension area is wet and boggy and dissected by a series of land drains. The centre of the proposed extension area is flat lying and made up of boggy, poorly drained fields. The east and north west parts of the proposed extension area are located on higher ground with better drained fields.

The bedrock geology map of the area (Geological Survey of Ireland, Sheet 17 Geology of the Shannon Estuary, 1999) indicates that the proposed extension area and existing landfill site is underlain by the Shannon Group (SHG) and is composed of mudstone, siltstone and sandstone. The north eastern corner of the proposed extension area is located on the Clare Shale Formation (CS) and is composed of dark grey shales with bands of siliceous mudstone.

The groundwater flow direction corresponds to the surface water drainage pattern and the topography of the area i.e. in a south westerly direction. Confined groundwater was encountered during drilling in the overburden deposits. Additional information will be gathered during the site investigations in advance of the detailed design phase for the proposed cells. Confined groundwater was also encountered in the bedrock aquifer with the groundwater level rising above ground level (artesian conditions).

A.1.2 Class or Classes of Activity

The activities carried out at the site are specified as follows:

The principal activity is Class 5 of the Third Schedule as given below:

Third Schedule (Waste Disposal Activities)

Class 1: Deposit on, in or under land (including landfill):

This activity is limited to waste disposed of at the landfill prior to 1997 which was placed into unlined cells in the exhausted sand and gravel pit.

Class 4: Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:

This activity entails the storage of leachate in the leachate storage lagoon prior to treatment.

Class 5: Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment:

This activity is limited to the disposal of waste and sludge from municipal water treatment and non-hazardous industrial sludge in lined cells.

Class 6: Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10 of this Schedule:

This activity entails the treatment of leachate at the facility.

Class 7: Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10 of this Schedule (including evaporation, drying and calcinations:

This activity involves the treatment of leachate by settlement, filtration or by chemical precipitation or other physico-chemical means at the leachate treatment plant.

Class 11: Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule:

This activity involves the mixing of sludge with other wastes during the landfilling process to ensure that the waste body is as homogenous as possible.

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

This activity involves the storage of waste prior to its disposal.

Fourth Schedule (Waste Recovery Activities)

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

This activity involves the composting of green waste accepted subject to a limit of 1000m³ of compost and waste at any one time at the facility, the storage of waste oils at the civic waste facility and the use of wood chippings as weekend cover only.

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

This activity involves the storage of metal and metal compounds at the facility.

Class 4: Recycling or reclamation of other inorganic materials:

This activity involves the storage of inorganic materials at the facility prior to reuse or recycling on-site or off-site.

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

This activity involves the provision of a landfill gas recovery and utilisation facility.

Class 10: The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system:

This activity entails the use of organic waste which has been fully composted as intermediate cover and in the closure/restoration stage of the landfill.

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

This activity concerns the use of composted waste as landfill cover material.

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

This activity involves the possible exchange of waste being delivered to the facility in exchange for processed waste subject to the agreement of the Agency.

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

This activity is limited to the temporary storage of waste prior to inspection, recycling, recovery and/or reuse at the facility or elsewhere.

A.1.3 Quantity and Nature of the Waste

The waste categories and quantities of waste to be accepted at the Landfill site for disposal/recovery, according to Schedule A of the EPA Waste Licence 17-2 are given in the table below.

Waste Type	Maximum Tonnes Per Annum for Disposal
Household	72,000
Commercial	39,000
Sewage Sludge	4,770
Industrial Non-Hazardous Sludge	1,200
Industrial Non-Hazardous Solids	11,000
Water Treatment Sludge	2,030
Total for Disposal	130,000
Green Waste for Composting	Note 1
Wood Chippings	2,000
Automobile shredder residue ^{Note 2}	20,000
Soil and Stones ^{Note 3}	50,000
Wastes accepted for storage at the civic waste facility prior to recycling, reuse or reclamation	5,000
Total for Recovery	57,000

Note 1: Limited to 1000m³ of compost and waste at any one time.

The maximum quantity of waste to be accepted for disposal at the proposed extension will remain at 130,000 tonnes per annum.

Note 2: This may be used as weekend cover subject to the material being tested and proven to be non-hazardous to the satisfaction of the Agency.

Note 3: These may be accepted for recovery for use as cover in site construction works and landfill restoration.

A.1.4 Raw and Ancillary Materials

The following indicates the typical amounts of materials used on site to facilitate the operation of the Landfill

Resource	Usage per annum
Electricity	507, 219 units kWh per annum
Diesel	21,753 litres
Hessian Usage	555,000m ²
Hydraulic Oil	4 tonnes

There is a bunded fuel storage container area on the existing site, which houses the diesel and hydraulic oil.

A.1.5 Site Plant, Methods and Operating Procedures

Introduction

The proposed extension to the landfill covers an area of approximately 41 hectares and comprises two distinct areas.

- Buffer zone consisting of landscape/screening/buffer areas – 22 hectares; and
- Waste disposal area – 19 hectares

The waste disposal area will cater for approximately 2 million tonnes of waste over its lifetime. The waste disposal area will consist of 11 individual cells each with areas ranging from approximately 1.1 to 2.3 ha. The cells will be developed on a phased basis. It is proposed that there will be four to five phases of cell construction with two to three cells constructed in each phase.

Buffer Zone and excavated material

The 22 hectares surrounding the proposed landfill area serves two functions. The first is to provide a physical separation between the landfill area and local residents and the second is to provide area for the storage of excavated material. It is envisaged that the excavated material will be regraded and naturally shaped, seeded and planted so that a natural landscape can be created to mitigate against negative views and the operational and construction noise of the landfill. It is recognised that the excavated material will be soft in nature and that careful handling will be required. The proposed screening/landscaping areas are based on a maximum height of 3m. The screening/landscape areas will be developed on a progressive basis over the lifetime of the site in line with the cell construction phases, with some of the excavated material being reused as permanent and temporary capping within the landfill area.

Waste disposal area and phasing of cell construction

The waste disposal area for the proposed extension comprises an area of approximately 19ha in size and will be divided into separate construction phases. There will be 11 individual cells (14-24) in total with 2 - 3 cells being constructed in each phase. The cells will have areas ranging from approximately 1.1 hectares to 2.3 hectares and will typically hold 240,000m³ of waste or approximately 180,000 tonnes. Therefore each cell will have enough void space for 1.5 years on average.

The phasing sequence will allow for the progressive use of the landfill area so that construction, operation and restoration can occur simultaneously within the site.

Leachate Collection

Leachate will be collected in a network of slotted pipes laid in the base of each cell and draining to a leachate collection chamber constructed at the lowest point of each cell, from where it will be pumped to the leachate treatment plant. The plant will treat the leachate to a standard acceptable for discharge to the river in appropriate flow conditions.

Extraction and Utilisation of Landfill Gas

Condition 3.13 of Waste Licence 17-2 lays down the requirements for landfill gas management at the site. There is an enclosed flare of 1,500 m³/hr capacity on site at present and during 2004 it is proposed to install a gas utilisation plant in accordance with the requirements of the licence. The gas management system will be extended over the new cells as they are progressively capped and the BAT principle will apply to all future gas extraction and utilisation systems.

Closure and Aftercare

Closure and restoration of the landfill will be carried out in accordance with the EPA Manual "Landfill Restoration and Aftercare" (1999) or with any conditions set down by the EPA.

The fundamental principle of the closure process however will be that final capping will be progressively placed and sown/planted as the landfill cells are filled.

The leachate collection system, the landfill gas collection facilities, the control facilities (monitoring boreholes) and monitoring points (surface water control points) will be in operation and maintained until the waste has stabilised. In accordance with the EU Directive on Landfill of Waste (99/31/EC) and the EPA Landfill Manuals, the landfill will be remediated on the basis of the EPA licence.

Monitoring of groundwater, surface water, leachate and landfill gas will continue after closure of the landfill as required in the EU Directive on Landfill of Waste (99/31/EC).

Operational Principles

The site will be operated in accordance with best international practices for similar facilities and in accordance with the Waste Management Act, 1996, Waste Management Licensing Regulations 2000 and 2002 (Amendment), the EPA Landfill "Operational Practices" manual (1997), the EU Directive on Landfill of Waste 1999, the EPA Waste Licence (17-2) and any subsequent legislation and licences.

A comprehensive Environmental Management Plan has been prepared for the existing site pursuant to these objectives, the purpose of which is to set out the measures, procedures and guidance "to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, as well as the resulting risk to human and animal health, from landfilling of waste" (from Article 1 of the EU Directive on Landfill of Waste (99/31/EC)). As part of the conditions of any new licence that may be issued for the proposed extension by the EPA, this Environmental Management Plan will be updated.

The Gortadroma Landfill Site hours of opening are currently from 8:00am to 4:30pm on weekdays and from 8:00am to 4:30pm on Saturdays preceding a bank holiday. The civic amenity site is open for acceptance of recyclables on Saturdays from 10am – 1pm on a trial three-month period.

A.1.6 Determination of Section 40(4) of the Act

These issues relate to compliance with emission standards, the avoidance of environmental pollution, application of the BATNEEC and BAT principles, the technical competence and site management by the operator and financial provisions made. Each of these issues are individually summarised below:

(a) Compliance with Emission Standards

Limerick County Council will comply with existing site and proposed emission standards conditioned by the EPA for the existing and proposed site extension as detailed in Waste Licence 17-2 and any future waste licences granted.

(b) Avoidance of Environmental Pollution

The Licence Application sets out control/monitoring procedures which will prevent as far as practicable the specific issues of environmental pollution defined in Section 4 of the Waste Management Act, 1996.

(c) Best Available Technology Not Entailing Costs (BATNEEC) and Best Available Techniques (BAT)

The facility employs BATNEEC and BAT principles as appropriate to reduce emissions from the existing facility as far as is practicable including operation in accordance with the existing Licence conditions. The proposed extension to the facility will incorporate engineered cells, with composite liner systems, leachate and landfill gas collection.

(d) Technical Competence and Site Management

The current site is owned and operated by Limerick County Council. Limerick County Council has overall responsibility for the management and operation of the Gortadroma Landfill site. Limerick County Council will also be responsible for the overall operation and management of the extended site. The Limerick County Council Senior Engineer is responsible for the management of municipal waste and waste facilities in the county. The executive engineer, site manager and a deputy site manager have responsibility for the day to day site operation. Limerick County Council currently operate the facility in accordance with the Conditions set down in Waste Licence 17-2 granted by the EPA.

(e) Financial Provisions

Limerick County Council own and operate the facility and have set a charge for waste accepted at the facility that covers all aspects of the operation of the site including infrastructure development, operation, closure and aftercare and are fully aware of their responsibilities in this matter.

A.1.7 Nature of Emissions at the site

The emissions from a landfill site are: leachate, landfill gas, noise, dust and odours. Each of these individual emissions is considered in this licence application and supporting EIS attachments. The position with regard to each of the above emissions is summarised below:

- **Leachate** – To comply with the EU Landfill Directive, Gortadroma landfill will be designed so as to meet the necessary conditions for preventing pollution of the soil, groundwater or surface water and to ensure efficient collection of leachate. The new landfill cells of the proposed extension will be fully contained with a composite lining and leachate collection system. Leachate will be collected in a network of slotted pipes laid in a collection blanket in the base of each cell and drain to a leachate collection chamber constructed at the lowest point of each cell from where it will be pumped to the leachate treatment plant.
- **Landfill Gas** - Condition 3.13 of the existing Waste Licence (17-2) lays down the requirements for landfill gas management at the site. In compliance with this condition there is an enclosed flare of 1500m³/hr capacity on site at present and during 2004 it is proposed to install a gas utilisation plant in accordance with the requirements of the licence. BAT principles will apply to all future gas extraction and utilisation systems.
- **Dust** – There is a potential for dust emissions to have an impact at the site. Dust emissions may arise from vehicles travelling along access roads. Dust control measures implemented at the site, such as a wheel-wash, construction of paved internal haul roads and spraying road surfaces with water during dry weather conditions should effectively control dust emissions from the landfilling activities at Gortadroma. A separate dedicated wheelwash for construction traffic has also been installed at the site. With these measures in place, the impact of dust emissions will be slight with no significant impact beyond the landfill boundary.
- **Noise** –. Construction work at the proposed extension will increase the noise level in the immediate vicinity of the site. Higher noise levels associated with the excavation and movement of material could cause some annoyance but these operations shall be controlled using the construction of embankments 3 meters high, in order to achieve attenuation of noise emissions. Overall, the predicted

impact of the proposed landfill extension will be slight. Noise emissions during the construction phase will have a significant impact, albeit temporary.

- **Aerosols** – Aerosol concentrations will be primarily due to dust resuspended from the road by passing vehicles. Paving at the proposed facility will reduce dust/ aerosol resuspension as will the on-site wheelwash. A separate dedicated wheelwash for construction traffic has also been installed at the site which will reduce aerosol resuspension during construction operations. Following leachate collection, leachate will be stored in a leachate collection chamber from where it will be pumped to the leachate treatment plant.
- **Odours** – Due to the nature of the activity at Gortadroma, it is not possible to eliminate all sources of malodours from the landfilling operation. However, with ongoing improvements being made to reduce and contain potential malodorous emission sources and regular inspections for odours at the boundary as required under the conditions in the Waste Licence (17-2), it is predicted that impacts of malodours will continue to decline from current levels.
- **Surface Water** – Under Waste Licence 17-2 discharge from the leachate treatment plant of treated leachate is permitted to be discharged to the White river when it passes certain quality parameters and there is sufficient flow in the river. The leachate treatment plant is constantly monitored and controlled by a SCADA system which can direct the flow from the treatment plant to the river or if it hasn't reached sufficient quality back up to the head of the treatment plant for further treatment. If flow rates into the river are not sufficient treated leachate may also be stored in the treated leachate lagoon until such a time that the required flow rate has been reached.

A.1.8 Environmental Impacts

The potential impact of the existing and extended landfill operation on the surrounding environment are detailed in Volume 2, Chapter 3 of the EIS. Impacts are described under the following headings.

- Social and Community
- Human Health
- Landscape and Visual
- Air Quality
- Noise
- Climate
- Traffic
- Geology/Hydrogeology
- Aquatic Ecology
- Terrestrial Ecology
- Material Assets – Agriculture
- Archaeology and Cultural Heritage

A.1.9 Monitoring and Sampling Arrangements

Sampling and monitoring at the existing site is set down in Schedule D of the existing Waste Licence (17-2). Dust, ecological, groundwater, landfill gas, leachate, meteorological data, noise, odour and surface water monitoring will be carried out according to frequencies and analysis methods specified in the current Waste Licence. Monitoring reports will be submitted to the EPA as specified in Schedule D of the Waste Licence. The sampling requirements of waste licence 17-2 will be extended into the proposed extension and will comply with any future licence.

A.1.10 Waste Recovery



Recyclable household wastes (glass, newspaper, magazines, cans, oil, fluorescent tubes, cardboard, mixed metals, plastics, batteries and white goods) are accepted at the site. These wastes are currently recycled or recovered at off-site treatment locations. This will continue to apply during the filling of the proposed extension. These recyclable wastes will continue to be stored on site in recycling banks/skips in the civic amenity area and collected for recycling/recovery as required. The final disposal of these wastes is detailed in the following table.

For inspection purposes only.
Consent of copyright owner required for any other use.

Current off-site Locations For Recovery of Household Waste

Waste	EWC Code	Quantity/Tonnes	Recovery, reuse or recycling	Final Disposal
White Goods	20 01 36	50 tonnes	Munster Metal	Transported to Hammond Lane in Cork for recycling.
White Goods (Fridges)	20 01 35	40 tonnes	M.Baker Recycling, St Helens, Merseyside, UK	M.Baker Recycling, St Helens, Merseyside, UK
Mixed Metals	20 01 40	60 tonnes	Hegarty Metals, Ballysimon Rd., Limerick	Transported to Hegarty Metals recycling plant in Limerick for recycling.
Newspaper & Magazines	20 01 01	3 tonnes	Indavar Dublin	Crosbie Warehousing – permitted by Dublin City Council
Oil Oil filters	20 01 26	3000 litres 0.5 tonne	Atlas Oil IPC:472 Clonminam Ind. Est. Portlaoise Co. Laois.	Oil is reprocessed as an industrial fuel and is distributed to customers throughout the country.
Batteries	20 01 34 20 01 35	5 tonnes	Returnbatt Licence No: 105-1 Unit 35 Kildare Enterprise Centre Melitta Road Kildare	Parts are shipped to Germany and England for further recycling.
Fluorescent Tubes	20 01 21	0.5 tonnes	Irish Lamp Recycling Ltd., Kilkenny Road, Athy, Co. Kildare WCP/LK/057/02b	
Cans	20 01 40	1 tonne	Mr. Binman Ltd., Luddenmore, Grange, Kilmallock. WCP/LK/069/02b	Aluminium Cans go to Alcan UK for recycling. Steel cans go to Hegarty Metals for recycling
Plastics	20 01 39	10 tonnes	Irish Polymers Ltd.	Transported to Irish Polymer facility and recycled
Cardboard	20 01 01	12 tonnes	Transported by Limerick County Council	Transported to DGD Papers permitted facility in Co. Limerick for recycling
Glass	20 01 02	3 tonnes	Mr. Binman Ltd., Luddenmore, Grange, Kilmallock, Co. Limerick. WCP/LK/069/02b	Glass goes to Quinn Glass, Fermanagh for recycling
Paint	20 01 28 20 01 27	5 tonnes	Minchem Environmental Dublin Depot	AVG, Hamburg for incineration

Off-Site Treatment of Liquid Waste

The capacity of the existing Leachate Treatment Plant is 120m³/day. The size of the cells have been designed to ensure that the amount of leachate generated at any stage over the lifetime of the site does not excessively exceed the generation of 120m³/day. During the winter months when rainfall and leachate generation are high some tankering of leachate to local wastewater treatment plants may be required, however the recirculation of leachate into capped cells and the introduction of intercell bunding to divert surface water from newly lined cells should keep this to a minimum.

A.1.11 Emergency Procedures

Emergency Response Procedures (ERP's) will be put into action in the event of one of the following incidences occurring or being imminent.

- Fire/Explosion –occurring both within the cells and outside the cells but within the facility.
- Migration of landfill gas- within the site office, elsewhere within the facility or off-site.
- Spillage of leachate during transport and/or discharge at the waste treatment plant.
- Damage to the integrity of the on site leachate management system which would consist of damage to the liner within the cells or leachate lagoon, leachate discharge within the site or leachate discharge outside the site.
- Contamination of stormwater and settling lagoons.
- Person falling into leachate lagoon.
- The quantity and/or quality of the local wells being impacted.
- Side slope failure within the landfill.

The appointed safety supervisor for the site or safety representative shall activate the required ERP at the time of the incident. The exact response procedure for each event is detailed in Section I of this Application.

A Safety Statement for all specified engineering works carried out at the existing and proposed site extension will be forwarded to the Agency prior to the commencement of any works. ERP's are also detailed in the current Environmental Management Plan for the site as attached in Attachment H.1.

A.1.12 Closure, Restoration and Aftercare Measures

Closure and restoration of the landfill will generally be carried out in accordance with the EPA Manual "Landfill Restoration and Aftercare" (1999) and in accordance with Condition 4 of the current Waste Licence (17-2) and with the approval of the EPA.

The leachate collection system, the landfill gas collection facilities, the control facilities (monitoring boreholes) and monitoring points (surface water control points) will be in operation and maintained until the waste has stabilised.

Monitoring of groundwater, surface water, leachate and landfill gas will continue for 30 years after closure of the landfill as recommended in the EU Directive on Landfill of Waste (99/31/EC) or as required by the Agency.

The performance and condition of all infrastructure, roads and fencing will be inspected regularly during aftercare. A surface water management plan will be implemented as part of the final capping. Ongoing repair and maintenance of the final capping will also be carried out.