

Headquarters
P.O. Box 3000
Johnstown Castle Estate
County Wexford
Ireland

Closed Landfill Recommended Certificate of Authorisation

Certificate of Authorisation Number:	H0167-01
Certification of Authorisation Holder:	Fingal County Council
Location of Facility:	Barnageeragh Landfill, Barnageeragh Cove, Skerries, County Dublin.

Glossary of Terms

All terms in this Certificate of Authorisation should be interpreted in accordance with the definitions in the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008 (S.I. No. 524 of 2008) unless otherwise defined in the Certificate of Authorisation.

Agency Environmental Protection Agency.

Agreement Agreement in writing.

Annually At approximately twelve-monthly intervals.

Application The application by the local authority for this Certificate of

Authorisation including the risk assessment, any amendments to the risk assessment, additional information received from the local authority and other documents provided by the local authority.

Certificate of Authorisation

Includes this document and the application.

Unlicenced Waste Disposal and Recovery Activity) Regulations

2008.

Code of Practice As defined in the Waste Management (Certification of Historic

Unlicenced Waste Disposal and Recovery Activity) Regulations

2008.

Biannually All or part of a period of six consecutive months.

Documentation Any report, record, results, data, drawing, proposal, interpretation

or other document in written or electronic form which is required

by this Certificate of Authorisation.

Drawing Any reference to a drawing or drawing number means a drawing

or drawing number contained in the application, unless otherwise

specified in this Certificate of Authorisation.

Environmental Pollution

As defined in the Waste Management Act 1996 as amended.

Heavy Metals This term is to be interpreted as set out in "Parameters of Water

Quality, Interpretation and Standards" published by the Agency

in 2001. ISBN 1-84095-015-3.

Incident

The following shall constitute an incident for the purposes of this Certificate of Authorisation:

- (i) an emergency;
- (ii) any emission which does not comply with the requirements of this Certificate of Authorisation;
- (iii) any trigger level specified in this Certificate of Authorisation which is attained or exceeded; and
- (iv) any indication that environmental pollution has, or may have, taken place.

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.

Maintain

Keep in a fit state, including such regular inspection, servicing, calibration and repair as may be necessary to perform its function adequately.

Necessary Measures

As defined in the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008.

Relevant Heavy Metals

Heavy metals for analysis shall include, as a minimum, those metals identified as relevant, having regard to the risk assessment and surface water and groundwater monitoring results as required by this Certificate of Authorisation.

Risk Assessment

As defined in the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008.

Sample

Unless the context of this document indicates to the contrary, the term sample or samples shall include measurements taken by electronic instruments.

Status

As defined in the Water Framework Directive, in relation to surface water and groundwater.

The Local Authority

Fingal County Council, County Hall, Main Street, Swords, County Dublin.

Trigger Level

A parameter value the achievement or exceedance of which requires certain actions to be taken by the local authority.

Part I Authorisation of a Closed Landfill

The Environmental Protection Agency (the Agency) proposes to grant, under Regulation 7(5) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008 (the Regulations), this Certificate of Authorisation to Fingal County Council, County Hall, Main Street, Swords, County Dublin, in respect of the closed landfill at Barnageeragh Cove, Skerries, County Dublin, subject to conditions set out in Part II and the Reasons for the Decision in Part III.

Part II Conditions

Condition 1. Scope

- 1.1 For the purposes of this Certificate of Authorisation, the closed landfill authorised by this Certificate of Authorisation is the area of land outlined in red on Drawing No. MGE0755-RPS-00-XX-DR-C-DG0001-02 (Revision F01 dated 13/11/20) titled 'Barnageeragh historical landfill site location map contour map' submitted with the application. Any reference in this Certificate of Authorisation to "closed landfill" shall mean the area thus outlined in red. Activities associated with the closed landfill shall be carried on only within the area outlined.
- 1.2 No waste shall be accepted at the closed landfill.
- 1.3 No waste shall be burned at the closed landfill.
- 1.4 The facility shall be controlled, operated and maintained, and emissions shall take place as authorised by this Certificate of Authorisation. No material change that will result in an increase in the actual or potential nature or quantity of any emission shall be carried out or commenced without the agreement of the Agency.
- 1.5 Nothing in this Certificate of Authorisation shall prohibit authorised beneficial uses of the site of the closed landfill provided that such uses do not interfere with the integrity of the remediation measures adopted.

Reason: To clarify the scope of this Certificate of Authorisation.

Condition 2. Notifications, Records and Reports

- 2.1 The local authority shall notify the Agency, in a format as may be specified by the Agency, two months in advance of the intended date of commencement of the remediation works.
- 2.2 The local authority shall notify the Agency as soon as practicable after the occurrence of any incident. The incident notification shall be provided in a format as may be specified in relevant guidance issued by the Agency.
- 2.3 The local authority shall keep the following documents available for inspection by the Agency at all reasonable times and to members of the public by request:
 - (a) Records of all sampling, analyses, measurements, examinations, calibrations and maintenance;
 - (b) Records of incidents;
 - (c) Records of all complaints of an environmental nature;
 - (d) The validation report prepared on completion of the remediation; and
 - (e) Other documentation required by this Certificate of Authorisation or as may be otherwise directed by the Agency.
- 2.4 The local authority shall assign the necessary resources, including financial, to complete the remediation measures specified in this Certificate of Authorisation and risk assessment and to respond to any incident.
- 2.5 The local authority shall annually pay to the Agency €1,083, or such sum as the Agency from time to time determines in accordance with charges policy, for the performance of its functions under the Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008 in relation to the closed landfill regulated by this Certificate of Authorisation.

Reason: To provide for the collection and reporting of adequate information on the activity. To provide for adequate resources for monitoring and measures to protect the environment.

Condition 3. Management and Monitoring

- 3.1 The local authority shall implement the following measures within 18 months of the date of grant of this Certificate of Authorisation, or as otherwise agreed by the Agency:
 - (a) Minimise the disturbance of deposited waste to the extent possible;
 - (b) Install a low permeability landfill cap, minimum 1m, with 1mm thick low permeability geomembrane having a hydraulic conductivity of less than or equal to 1x10⁻⁹m/s; The landfill cap shall be installed over the waste body, as shown on Drawing No. MGE0755-RPS-00-XX-DR-C-DG0001-02 (Revision F01 dated 13/11/20) titled 'Barnageeragh historical landfill site location map contour map', and over the grassed area opposite houses No. 27 to No. 32.
 - (c) Install passive gas venting system, in the following areas within six months of the date of grant of this Certificate of Authorisation:
 - Area 1 where waste is deposited;
 - In the made ground of Area 2; and
 - Unless otherwise agreed by the Agency, any area outside of the above, where elevated gas concentrations were recorded in the Tier 2 Assessment (>1.0% methane, >1.5% carbon dioxide).

The passive gas venting system shall include the following elements:

- (i) gas vent pipes with cowls for gas extraction. The gas vent pipes shall not be perforated above the ground level;
- (ii) 6m high gas vent stack(s) and associated underground gas collection pipe(s);
- (iii) Gas cut-off trench in the following areas:
 - Between the waste body in Area 1 and houses No. 25 to No. 32 adjacent to Area 1;
 - If required by the Agency, following gas monitoring for a period of twelve months as required under Condition 3.9(c), between the waste body in Area 1 and house No. 52; and
 - If required by the Agency, following gas monitoring for a period of twelve months as required under Condition 3.9(c), between the made ground in Area 2 and houses No. 24 to No. 25.

The gas cut of trench shall include the following elements:

- The base of the gas cut-off trench shall be constructed at the maximum depth of the deposited waste; and
- The gas cut-off trench shall be filled with gravel and have a high-density polyethylene (HDPE) liner installed on the houses side of the gas cut-off trench, unless otherwise agreed by the Agency.

- (d) Install **the following** gas monitoring boreholes:
 - (i) One gas monitoring borehole (GS05) within Area 2 near house No. 24;
 - (ii) One gas monitoring borehole (GS06) near house No. 52; and
 - (iii) Additional gas monitoring boreholes between the gas cut-off trenches and the adjacent houses, if required by the Agency to assess the effectiveness of the trenches in preventing lateral gas migration.
- (e) Install at least five leachate monitoring boreholes, of which three shall be located within the deposited waste in Area 1 and two of which shall be located within the made ground in Area 2;
- (f) Reseed grass within the site;
- (g) The local authority shall, within twelve months of the date of grant of this Certificate of Authorisation, following gas monitoring, as required under Condition 3.9(c), seek agreement of the Agency regarding whether to carry out a gas pumping trial for the purpose of determining the quantity and quality of landfill gas;
- (h) Upon any agreement obtained in accordance with Condition 3.1(g), the local authority shall submit details of the proposed gas pumping trial for agreement by the Agency, and implement any recommendations arising therefrom; and
- (i) Ensure that recommendations in the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions have been considered and applied to any future buildings within the closed landfill.

3.2 Site Notice Board

- (a) The local authority shall, within one month of the date of grant of this Certificate of Authorisation and for the duration of the remediation works, provide a Site Notice Board on the closed landfill site so that it is legible to persons outside the main entrance to the closed landfill site. The minimum dimensions of the board shall be 1200 mm by 750 mm.
- (b) The board shall clearly show:
 - (i) The name of the Certificate of Authorisation holder;
 - (ii) The name of the closed landfill site;
 - (iii) The Certificate of Authorisation reference number;
 - (iv) The contact telephone in relation to the closed landfill site; and
 - (v) Where information relating to the closed landfill site can be obtained.
- 3.3 The local authority shall manage the closed landfill to ensure that discharges and emissions from the closed landfill do not cause environmental pollution or deterioration in the status of the receiving surface water body or groundwater body.
- 3.4 The local authority shall compile a validation report in accordance with the requirements of the Code of Practice. Unless otherwise agreed, the validation

- report shall be submitted to the Agency within 30 months of the date of grant of this Certificate of Authorisation.
- 3.5 The local authority shall, within six months of grant of this Certificate of Authorisation, submit an updated drawing showing the landfill gas collection management system.
- 3.6 The local authority shall, following gas monitoring for a period of twelve months from date of grant of this Certificate of Authorisation, as required under Condition 3.9(c), install an engineered landfill cap in Area 2, if required by the Agency. Proposals on the design of the cap shall be submitted to the Agency for approval prior to installation.
- 3.7 The local authority shall assess the results of all monitoring carried out to confirm whether the closed landfill continues to achieve the objectives set for it in the risk assessment or this Certificate of Authorisation.
- 3.8 The local authority shall submit to the Agency, by the 31st March of each year, an annual update covering the previous calendar year. This update, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in Condition 3.9 of this Certificate of Authorisation.
- 3.9 The local authority shall conduct and record:
 - (a) A visual inspection of the landfill, **on an annual basis**, to ensure that the condition of the site has not deteriorated;
 - (b) Monitoring for leachate (sample, analyse, characterise, and measure the level of leachate) **on a quarterly basis** in **the** leachate monitoring boreholes required under Condition 3.1(e). The monitoring shall, as a minimum, include the following parameters: Biochemical Oxygen Demand (BOD) (mg O₂/l), Total Ammonia (mg N/l), Ammonium (μg/l N), Molybdate Reactive Phosphorus (MRP) (mg P/l) and relevant Heavy Metals;
 - (c) Monitoring **on a quarterly basis** to detect the presence and concentration of landfill gas in:
 - (i) gas vent stack(s);
 - (ii) the existing monitoring boreholes BH1, BH4, BH7, BH12, BH14, BH15, BH16, BH17, GS01, GS02, GS03 and GS04;
 - (iii) the additional monitoring boreholes GS05 and GS06;
 - (iv) additional boreholes as may be required under Condition 3.1(d)(iii); and
 - (v) at the existing infrastructure (radon sumps & water mains meters) of the adjacent houses No. 24 to 34 and house No. 52, if required by the Agency.

The local authority shall have regard to the Agency's Air Guidance (AG) Notes and Landfill Manual – Landfill Monitoring, 2nd Edition, 2003, and any subsequent amendments, when carrying out gas monitoring;

(d) Monitoring (sample, analyse and characterise) on a quarterly basis of the Eastern Stream, both upstream (monitoring location SW1) and

downstream (monitoring location SW3) of the closed landfill. The monitoring shall, as a minimum, include the following parameters: Total Ammonia (mg N/l), Fluoride (μ g/l F), Iron (μ g/l Fe), Coliforms (cfu/100ml) and other relevant parameters listed in European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

- (e) Monitoring (sample, analyse and characterise) on a quarterly basis of groundwater from at least three groundwater monitoring boreholes, one of which shall be upgradient of the waste body and two of which shall be downgradient of the waste body; The monitoring shall, as a minimum, include the following parameters: Electrical Conductivity (μS/cm), Total dissolved solids (mg/l), Ammonium (μg/l N), Chloride (mg/l Cl), Sulphate (mg/l SO4), Potassium (mg/l K), Sodium (mg/l Na), Calcium (mg/l Ca), Magnesium (mg/l Mg), Aluminium (μg/l Al), Boron (mg/l B), Iron (μg/l Fe), Manganese (μg/l Mn), Mercury (μg/l Hg), Coliforms (cfu/100ml) and other relevant parameters listed in European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended, and Interim Guideline Values (IGV).
- (f) The assessment of monitoring results against trigger levels and/or standard reference values for relevant pollutants including environmental quality standards in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended, European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended, and EPA Interim Guideline Values (IGV).
- 3.10 The location, frequency, methods and scope of monitoring, **visual inspections**, sampling and analyses, as set out in this Certificate of Authorisation, may be amended with the agreement of the Agency following evaluation of test results.
- 3.11 Soil and stone
 - 3.11.1 Soil and stone imported for use in remedial, corrective or other engineering works at the closed landfill shall be greenfield soil and stone or soil and stone of equivalent nature and character in terms of chemical and physical contamination.
 - 3.11.2 Documented acceptance, storage/stockpiling and utilisation procedures shall be operational in advance of receipt of such materials. Records shall be maintained showing the site of origin of the soil and stone and its nature.
- 3.12 No emissions, including odours and noise, from works carried on at the site shall result in an impairment of, or an interference with amenities or the environment beyond the facility boundary or any other legitimate uses of the environment beyond the facility boundary.
- 3.13 The local authority shall ensure, at all times after the grant of this Certificate of Authorisation, that all infrastructure and all equipment required under this Certificate of Authorisation has been and is:
 - (i) installed;
 - (ii) commissioned;

- (iii) present on site, and
- (iv) maintained in full working order.
- 3.14 The local authority shall ensure that the closed landfill does not result in an impairment of, or an interference with, amenities or the environment at the facility or beyond the facility boundary (including those arising from emissions (including odours, noise, dust, litter and mud), vermin and birds).

3.15 Wells and boreholes

- 3.15.1 Groundwater monitoring wells shall be constructed having regard to the guidance given in the Agency's landfill manual "Landfill Monitoring".
- 3.15.2 All wellheads shall be adequately protected to prevent contamination or physical damage.
- 3.15.3 All wells and boreholes shall be adequately sealed to prevent surface contamination and, as may be appropriate, decommissioned according to the UK Environment Agency guidelines "Decommissioning Redundant Boreholes and Wells", unless otherwise agreed by the Agency.

3.16 There shall be no planting of trees over the capped areas of the site.

3.17 The local authority shall clearly label and provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the risk assessment or this Certificate of Authorisation. The requirement with regard to off-site points is subject to the prior agreement of the landowners concerned.

3.18 Incidents

In the event of an incident the local authority shall immediately:

- (a) If necessary, contact the emergency services;
- (b) Carry out an 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;
- (f) Identify the date, time and place of the incident; and
- (g) Notify the Agency (in accordance with Condition 2.2) and all other relevant authorities including, where relevant, the Water Services Authority and Inland Fisheries Ireland.

3.19 Communications Programme

3.19.1 The Certificate of Authorisation holder shall establish, maintain and implement a Communications Programme to ensure that members of the

- public can obtain information from the local authority concerning the closed landfill.
- 3.19.2 The Communications Programme shall inform members of the public what they can and should do to protect their property and health.
- 3.19.3 The local authority shall, as part of the Communications Programme, publish **landfill gas**, landfill leachate, **groundwater and surface water** monitoring data biannually in a manner accessible by the public.

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

Part III: Schedules

Schedule 1: Reasons for the Decision

In proposing to grant this Certificate of Authorisation, the Agency determines that the risk assessment submitted by the local authority as part of the application for a Certificate of Authorisation is adequate. To ensure appropriate protection for human health and the environment and to ensure conformity with the provisions of Council Directive 2008/98/EC and Council Directive 2006/118/EC, the conditions set out in Part II of this Certificate of Authorisation are specified as further necessary measures in addition to those identified by the risk assessment.

The Agency also considers that the activity will not adversely affect the integrity of any European Site, and has decided to impose conditions for the purposes of ensuring it does not do so. It has determined that the activity, if managed, operated and controlled in accordance with the Certificate of Authorisation, will not have any adverse effect on the integrity of any of those sites.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at Skerries Islands SPA (Site code: 004122), Rockabill to Dalkey Island SAC (Site code: 003000), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Coast and Estuary SAC (Site code: 001957), Boyne Estuary SPA (Site code: 004080), Lambay Island SAC (Site code: 000204), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SAC (Site code: 000208), Rogerstown Estuary SPA (Site code: 004015), Malahide Estuary SAC (Site code: 000205) and Malahide Estuary SPA (Site code: 004025).

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it cannot be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was required.

The reason for this determination is as follows:

- 'Tier 2 & Tier 3 Environmental Risk Assessment' states that a significant component of the waste body is below the water table and that groundwater beneath the closed landfill discharges in an easterly direction towards:
 - (i) a drain which runs along the eastern site boundary and discharges into Irish Sea 650m downstream of the closed landfill. This drain is also referred to by the applicant as eastern boundary culverted stream/drain; and
 - (ii) the Barnageeragh Stream (waterbody code: IE_EA_08M030500), which ultimately discharges into Irish Sea, 3.3km downstream of the closed landfill.

 The above European Sites are located either in coastal waters of Irish Sea or transitional waterbodies.

Hence, there is a hydrological connection between the closed landfill and the above European Sites.

The Agency has completed the Appropriate Assessment of potential impacts on these sites and has made certain, based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, pursuant to Article 6(3) of the Habitats Directive, that the activity, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in particular Skerries Islands SPA (Site code: 004122), Rockabill to Dalkey Island SAC (Site code: 003000), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Coast and Estuary SAC (Site code: 001957), Boyne Estuary SPA (Site code: 004080), Lambay Island SAC (Site code: 000204), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SAC (Site code: 000208), Rogerstown Estuary SPA (Site code: 004015), Malahide Estuary SAC (Site code: 000205) and Malahide Estuary SPA (Site code: 004025), having regard to their conservation objectives and will not affect the preservation of these sites at favourable conservation status if carried out in accordance with this Certificate of Authorisation and the conditions attached hereto for the following reasons:

- specifically, the remedial works will be undertaken to minimise the potential for water pollution in Skerries Islands SPA (Site code: 004122), Rockabill to Dalkey Island SAC (Site code: 003000), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Coast and Estuary SAC (Site code: 001957), Boyne Estuary SPA (Site code: 004080), Lambay Island SAC (Site code: 000204), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SAC (Site code: 000208), Rogerstown Estuary SPA (Site code: 004015), Malahide Estuary SAC (Site code: 000205) and Malahide Estuary SPA (Site code: 004025) and will ensure that there will be no significant impact on these European Sites;
- the project alone, which consists of the remediation of the closed landfill, or incombination with other projects, will not adversely affect the integrity, and conservation status of any of the qualifying interests of Skerries Islands SPA (Site code: 004122), Rockabill to Dalkey Island SAC (Site code: 003000), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Coast and Estuary SAC (Site code: 001957), Boyne Estuary SPA (Site code: 004080), Lambay Island SAC (Site code: 000204), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SAC (Site code: 000208), Rogerstown Estuary SPA (Site code: 004015), Malahide Estuary SAC (Site code: 000205) and Malahide Estuary SPA (Site code: 004025); and
- also, there are no significant emissions to air from the landfill which could affect the bird species that the Skerries Islands SPA (Site code: 004122), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Estuary SPA (Site code: 004080), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SPA (Site code: 004015) and Malahide Estuary SPA (Site code: 004025) are designated for.

The Agency is satisfied that no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of those European Sites: Skerries Islands SPA (Site code: 004122), Rockabill to Dalkey Island SAC (Site code: 003000), Rockabill SPA (Site code: 004014), River Nanny Estuary and Shore SPA (Site code: 004158), Boyne Coast and Estuary SAC (Site code: 001957), Boyne Estuary SPA (Site code: 004080), Lambay Island SAC (Site code: 000204), Lambay Island SPA (Site code: 004069), Rogerstown Estuary SAC (Site code: 000208), Rogerstown Estuary SPA (Site code: 004015), Malahide Estuary SAC (Site code: 000205) and Malahide Estuary SPA (Site code: 004025).

Part IV: SIGNATURE

Draft Certificate of Authorisation Sign off	
Signed on behalf of the said Agency	

On the xx day of xxxxx, 20XX xxxxxxxxxx, **Authorised Person**