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30 YEARS

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

SCOTCH CORNER HISTORICAL LANDFILL

STAGE 1 APPROPRIATE ASSESSMENT SCREENING REPORT FOR HISTORIC LANDFILL SITE, SCOTCH CORNER, COUNTY MONAGHAN

Prepared for: Monaghan County Council

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Abstract: This document comprises the Stage One Screening Report for the remediation of a Historic Landfill at Scotch Corner, Co. Monaghan. Appropriate Assessment is required under Article 6 (3) of the Habitats Directive for any project or plan that may give rise to significant effects on European Sites.

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1. INTRODUCTION

1.1 Introduction

Fehily Timoney & Company (FT) was appointed by Monaghan County Council (MCC) to undertake a Stage 1 Appropriate Assessment Screening Report as required by Article 6 of Council Directive 92/43/EEC (Habitats Directive) as recommended following Tier 3 Risk Assessment, with regards to proposed remediation works to a Historic Landfill at Scotch Corner, Co Monaghan (see Figure 1.1 for location).

In compliance with the provisions of Article 6 of the Habitats Directive, in circumstances where a proposed plan or project is likely to have a significant effect on a European (Natura 2000) site, either individually or in combination with other plans or projects, an Appropriate Assessment (AA) must be undertaken by the competent authority, of the implications for the site in view of the site's conservation objectives.

European sites comprise both Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for habitats and species. The Habitats Directive formed a basis for the designation of SACs. Similarly, SPAs are legislated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds). In general terms, European sites are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community.

Article 6 of the Habitats Directive envisages a two-stage process: screening for appropriate assessment is the first stage of the AA process (Stage One), in which the possibility of there being a significant effect on a European site is considered. Plans or projects that have no appreciable effect on a European site are thereby excluded, or screened out, at this stage of the process. Where screening concludes that there is the potential for significant effects, then it is necessary to carry out an AA (Stage Two) for the purposes of Article 6(3), and a Natura Impact Statement (NIS) is produced. The NIS, which forms the basis of the AA, considers the impact of a project or plan on the integrity of a European site and on its conservation objectives, and where necessary, draws up mitigation measures to avoid/minimise negative impacts.

The competent authority, in this case, the Environmental Protection Agency (EPA), in carrying out an AA, is required to make an examination, analysis, evaluation, findings, conclusions and a final determination as to whether or not the proposed development would adversely affect the integrity of the relevant European site in view of its conservation objectives. To evaluate the potential impact(s) of the proposed development on the European sites, all sites located within a 15km radius of the development or those which are ecologically linked were considered. Please note that while a 15km radius is recommended for plans, there is no hard and fast rule for buffer size (DoEHLG, 2009). A 15km radius was used in line with standard industry practice; however, the potential zone of influence was considered to extend to European sites located outside the 15km buffer where downstream hydrological links exist.

The historic landfill site is not located within any European site. No European sites are located within 15km of the historic landfill, either in the Republic of Ireland or Northern Ireland.

Six European sites located outside the 15km buffer of the historic landfill (including sites in both the Republic of Ireland and Northern Ireland) are hydrologically linked via the river network. These are:

- Slieve Beagh SPA (site code 004167) – Both the SPA and historic landfill site feed into tributaries of the Cor River.
- Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302) - Both the SPA and historic landfill site feed into tributaries of the Cor River.

- Slieve Beagh SAC* (site code: UK0016622) - Both the SAC and historic landfill site feed into tributaries of the Cor River.
- Lough Neagh and Lough Beg SPA (site code: UK9020091) – The SPA is ca. 42km downstream (direct-line distance) of the historic landfill site (Blackwater River).
- Dundalk Bay SAC (Site code: 000455) – the SAC is ca. 39km downstream (direct-line distance) of the historic landfill site (River Fane).
- Dundalk Bay SPA (site code: 004026) – the SPA is ca. 38km downstream (direct-line distance) of the historic landfill site (River Fane).

1.2 Legislative Requirements & Guidance

The requirements for an AA are set out in the Habitats Directive 92/43/EEC. Articles 6(3) and 6(4) of this Directive states:

> *6(3) Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives.*
>
> *In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*
>
> *6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.*

The statutory agency responsible for European sites is the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht (DAHG). In December 2009 'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government' was published (DoEHLG, 2009) with a minor amendment in 2010. This guidance document was prepared jointly by the NPWS and Planning Divisions of DoEHLG (now DCHG), with input from local authorities. Previously, in 2001, the European Commission issued a guidance document. This guidance document has been updated in the recently published European Commission (2018) "*Managing Natura 2000 sites the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*" This Appropriate Assessment Screening Report has been prepared in accordance with the relevant Irish and European Commission Guidance.

1.2.1 Regulatory Context

In 1997, the Habitats Directive was transposed into Irish National Law by the European Communities (Natural Habitats) Regulations, SI 94/1997 (as amended by S.I. 233/1998 & S.I. 378/2005). The European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477/2011) revoked the 1997 Regulations (and amendments) as well as the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010. The purpose of the 2011 Regulations was to address transposition failures identified in the Court of Justice of the European Union (CJEU) judgements. Following additional amendments in 2013 (S.I. 499/2013) and 2015 (S.I. 355/2015) the regulations are now cited as the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

The Regulations have been prepared to address several judgments of the CJEU against Ireland, notably cases C-418/04 (*Commission v Ireland*) and C-183/05 (*Commission v Ireland*), in respect of failure to transpose elements of the Birds Directive and the Habitats Directive into Irish law.

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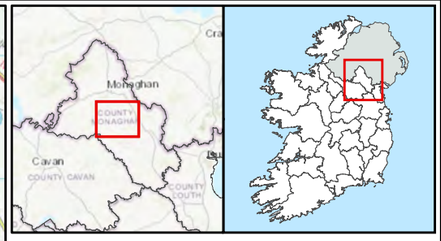

Site Boundary

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TITLE: Site Location			
PROJECT: Scotch Corner Historic Landfill			
FIGURE NO:	1.1		
CLIENT:	Monaghan County Council		
SCALE:	1:50000	**REVISION:**	0
DATE:	04/11/2019	**PAGE SIZE:**	A3

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2. METHODOLOGY

2.1 Stage of Appropriate Assessment

There are four stages in an AA, as outlined in the European Commission Guidance document (2001). The following is a brief summary of these steps.

- Stage One - Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a European Site and considers whether it can be objectively concluded that these effects will not be significant.
- Stage Two - Appropriate Assessment: In this stage, the impact of the project on the integrity of the European site is considered with respect to the conservation objectives of the site and to its structure and function. Mitigation measures should be applied to the point where no adverse impacts on the site(s) remain.
- Stage Three - Assessment of Alternative Solutions: Should the Appropriate Assessment determine that adverse impacts are likely upon a European site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts.
- Stage Four - Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the European site will be necessary. European case law highlights that consideration must be given to alternatives outside the project area in carrying out the IROPI test. It is a rigorous test which projects are generally considered unlikely to pass.

In the preparation of this assessment therefore regard has been given to the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations 2011, and with reference to the relevant guidance, in particular:

- Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission 2001.
- *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin 2009.
- European Commission (2018). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC.* Brussels, 21.11.2018 C (2018) 7621 final.

2.1.1 Impact Assessment

The first step in the screening process is to develop a list of European sites potentially affected by the proposed development. Each European site is reviewed to establish whether or not the proposed development is likely to have a significant effect on the integrity of the site, as defined by its structure and function, and its conservation objectives.

The qualifying interests of each European site are identified, and the potential threats are summarised into the following categories for the screening process, and described within the screening matrix as follows:

- Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development or agricultural purposes. Direct impacts can be as a result of a change in land use or management, such as the removal of agricultural practices that prevent scrub encroachment.
- Indirect and secondary impacts do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect impacts of the plan (or project) – in combination with other plans and projects - have been established. These can arise when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site, and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality can occur as both an indirect or direct consequence of development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact, which results in increased movement of vectors (humans, fauna, surface water), and consequently the transfer of alien species from one area to another.
- Disturbance to fauna can arise directly through the loss of habitat (e.g. bat roosts) or indirectly through noise, vibration and increased activity associated with construction and operation.

2.2 Desktop Study

In order to complete the Screening for Appropriate Assessment certain information on the existing environment is required. A desk study was carried out to collate available information on the site's natural environment. This comprised a review of the following publications, data and datasets:

- National Parks and Wildlife Service (NPWS) website and metadata (www.npws.ie)
- Environmental Protection Agency (EPA) website; map viewer (https://gis.epa.ie/EPAMaps/)
- European Environment Agency (EEA) Natura 2000 Network Viewer (https://natura2000.eea.europa.eu/)
- Department of Agriculture, Environment and Rural Affairs [DoAE&RA] website (www.daera-ni.gov.uk)
- Joint Nature Conservation Committee website (http://archive.jncc.gov.uk/)
- OSI Aerial photography and 1:50,000 mapping
- National Biodiversity Data Centre (NBDC) (on-line map-viewer)
- BirdWatch Ireland website
- Geological Survey Ireland (GSI) area maps
- River Catchment & Sub-catchment WFD datasets

2.3 Field Study

Characteristics and general information recorded during engineering surveys for Tier 1, 2 and 3 reports (Appendix 2) of the historic landfill undertaken by Fehily Timoney and Company (FT) have been used to describe the site of the proposed works and its surroundings.

3. PROPOSED WORKS

Proposed works for the historic landfill are in accordance with the remedial action plan contained in the Tier 3 Report (Appendix 2) and more information on the prosed Works can also be found in Section 3.1-3.10. The proposed works are comprised the following elements:

- Landfill Capping
- Leachate Interception Trench – Northern Boundary
- Lined Surface Water Drains
- Removal of Existing Infrastructure
- Active Gas Abstraction to Existing LFG Flare
- Active Gas Abstraction to Bio Oxidation
- Passive Ventilation
- Landfill Gas Interception Trench

As part of the remediation of the historic landfill, environmental monitoring will continue at all existing monitoring locations (for groundwater quality, surface water and landfill gas migration), undertaken on a quarterly basis until the recommendations of the Certificate of Authorisation are known and remediation works are complete (see Section 3.9 for more information).

Proposed environmental monitoring to assess the efficacy of the remediation works will include annual monitoring of leachate (leachate quality) and landfill gas, as well as monthly monitoring of groundwater, surface water monitoring and landfill gas (see Section 3.10 for more information).

The proposed remediation design drawings are located in the Tier 3 Report, Appendix 2 of this document:

- P1679-0100-0001
- P1679-0100-0002
- P1679-0500-0001
- P1679-0500-0002
- P1679-0501-0001
- P1679-0501-0002

Tier 1 and 2 reports indicate a hydrological link between the historic landfill and the River Fane (EPA code: 06F01[1]); via the adjacent licenced landfill, located ca. 268m northeast of the site. The Six Mile Lake Stream (EPA code: 03S03[2]) is located ca. 140m to the south of the proposed development and the topography indicates that the site is likely to drain into the stream.

For more information regarding the proposed works see below and Tier 3 Risk Assessment Report, Appendix 2.

[1] Water, River Network, EPA code, EPA Mapviewer (accessed March 2020): https://gis.epa.ie/EPAMaps/

[2] Water, River Network, EPA code, EPA Mapviewer (accessed March 2020): https://gis.epa.ie/EPAMaps/

3.1 Landfill Capping

A fully engineered landfill cap is proposed for the site. The landfill cap will be designed in accordance with the EPA Landfill design manual for non-inert, non-hazardous landfills. The capping will typically consist of the following

- 200mm Topsoil Layer
- 800mm Sub Soil
- Sub-Surface Drainage Geocomposite
- 1mm LLDPE Barrier Layer
- Sub-Surface Landfill GAS Collection Geocomposite

The proposed landfill cap will significantly reduce the generation of leachate via percolation of rainwater and subsequently the potential migration of leachate to surface water. The capping design should be consistent with the future uses of the site e.g. low intensity agricultural grazing purposes or the development of natural habitat area – wildflower/traditional meadow.

The sub soil layer will be specified to ensure it is free draining to support grazing with the top soil layer adequately specified to support growth.

3.2 Leachate Interception Trench – Northern Boundary

The landfill cap will also include a leachate interception trench along the full extent of the northern boundary of the site, parallel the adjacent road.

The leachate interception trench will be constructed to limit the pathway linkage between the historic landfill and the licensed waste facility to the north. Localised hydraulic control/drainage of leachate will minimise leachate flows to the surface water receptor. The leachate interception trench will be drained to a controlled collection sump located to the north western corner of the site.

The leachate sump will be set to a control level (0.5m) below (or greater) that of the drain invert limiting hydraulic connectivity between the site and the surface water system. Localised hydraulic control/drainage of leachate will minimise leachate flows to the surface water receptor.

3.3 Lined Surface Water Drains

It is proposed to extend the site capping around the site to include constructing a lined surface water channel. The lined channel will be provided physical separation of the waste body and the direct surface water pathway in the immediate vicinity of the site.

The surrounding surface water drains will be lined using 1mm LLDPE. Adequate protection and lining of the surface water drains.

3.4 Removal of Existing Infrastructure

It is proposed to remove all existing recirculation and direct discharge infrastructure from the site as part of the proposed works.

There is an existing surface water drainage network surrounding the historical landfill site. This perimeter drainage directs all surface water runoff towards a sump located along the northern boundary. Surface water is pumped from the G5 sump (see Figure 2.7, Tier 2 Report, Appendix 2) back to a central location in the western portion of the site to percolate down through stockpiled fill material.

The infiltrated surface water is then collected at sump 'G5 recirculated' at the foot of an embankment and directed north towards G6 and ultimately the River Fane tributary stream within the licenced facility.

3.5 Active Gas Abstraction to Existing LFG Flare

Active landfill gas abstraction to a flare would involve the installation of a network of landfill ages well across the site. The wells would be drilled into the waste body to 80-90% of the total waste depth and be connected via a network of gas collection pipework to the landfill gas flare.

The landfill gas flare would treat all abstracted landfill gas by oxidation (burning), it is assumed based on the age of the landfill that a low calorific landfill gas flare may utilised.

3.6 Active Gas Abstraction to Bio Oxidation

Active landfill gas abstraction to a bio-oxidation may be utilised if landfill gas with methane concentrations in the range of 0-15% are expected at the site following completion of pumping trials. This would also involve the installation of a network of landfill ages well across the site.

The wells would be drilled into the waste body to 80-90% of the total waste depth and be connected via a network of gas collection pipework to the bio oxidation unit.

The proposed bio-oxidation unit would treat abstracted landfill gas by bio-oxidation. Bio oxidation is the conversion of methane to carbon dioxide by bacteria typically grown or cultured within an organic (wood chip, mussels shells) or proprietary inorganic media.

3.7 Passive Ventilation

If pumping trial indicate insufficient landfill gas volumes are present to warrant active abstraction, passive ventilation may be utilised. Typically, landfill gas well will be installed within the waste body and directly connected to a series of vertical stand pipes venting to atmosphere at 2-3m above the final ground level. Alternatively stand pipes may be connected contiguously with the installed landfill gas migration layer in the absence of drilled wells.

The vent pipes provide a preferential pathway for LFG to escape to atmosphere mitigation risks associated with migration to offsite receptors.

Installed ventilation stand pipes may include a carbon filtration packs to “scrub” odour and methane from the landfill gas prior to venting. Rotating cowls may also be used to induce a negative pressure within the stand pipe improving the LFG flow.

3.8 Landfill Gas Interception Trench (SPR10)

The proposed leachate interception trench will also act as a landfill gas interception/venting trench along the northern site boundary of the site between the site and the existing development.

It should be noted that the most sensitive (i.e. nearest) receptors to the site is part of the wider Scotch Corner Landfill site and it is therefore assumed that all building including suitable detection and control measures in their design.

3.9 Environmental Monitoring: Existing Locations

It is recommended that groundwater and surface water monitoring continue at all existing monitoring locations at the site specifically. There are four groundwater and two surface water monitoring locations. see Tier 2 Report, Appendix 2 for more information.

Continued environmental monitoring should be undertaken on a quarterly basis up until the recommendations of the Certificate of Authorisation are known and remediation works are complete.

Monitoring data should be available prior to detailed remediation design to confirm the findings of this report and for use post remediation as baseline data for comparative analysis.

3.10 Environmental Monitoring: Proposed New Locations

The Tier 3 Report sets out a proposed schedule and locations of environmental monitoring to assess the efficacy of the remediation works. The schedule of environmental monitoring includes:

- Leachate
- Groundwater
- Surface water
- Landfill Gas

It is proposed that leachate should be conducted annually at four proposed locations. It is proposed that all proposed and existing dual landfill gas/groundwater monitoring points should be monitored monthly. For more information regarding monitoring parameters see Appendix 3 and for the positioning of new monitoring locations and accompanying schedule details see Tier 3 Report, Appendix 2.

4. STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

4.1 Description of the Existing Historic Landfill Site

The site is located approximately 4km south-west of Clontibret off the R184 regional road in Co. Monaghan. The 4.5-hectare historic landfill is located to the south of the licenced Scotch Corner facility (W0020-02) on the opposite side of the local access road. The historic landfill accepted municipal waste throughout the late 1970s and 1980s and is reported to have ceased operation in 1991.

The historic landfill is located in a primarily rural setting in an area of rolling topography dominated by drumlins. Areas between the drumlins are often boggy at elevations between 95-115m OD, while more free-draining ground is found on the drumlins themselves, which rise to between 140m OD and 150m OD. There is a hill located to the north of the site with a peak elevation of 157m OD. The land use in the area is primarily agricultural pastures. The site is bounded to the north by agricultural land, to the west by bog land, to the east by forestry and to the south by agricultural land and bogs.

According to the GSI the site and surrounding area is underlain by the Silurian Lough Avaghon formation (LA) which is generally made up of '*grey, fine to coarse grained, massive greywacke sandstones, micro-conglomerates and amalgamated beds'*. The historic landfill site is underlain by relatively thin subsoil overlying a poorly productive bedrock aquifer. The subsoils are typically of glacial till comprising sandy gravelly clay. According to the GSI, the glacial overburden is mapped as '*Till derived from Low Palaeozoic Sandstone and shales'* (TLPSS). The north-eastern portion of the site and surrounding area is underlain by cutaway blanket peat.

The site lies within the Clarderry Groundwater Body (GWB No. IENBG026), which is a small groundwater body defined around the area of the historic landfill and surrounding lands and is classified as having a *Good Status* under the Water Framework Directive (WFD).

The Lough Avaghon formation is classified as a Poor Aquifer that is generally unproductive, except in local zones. The aquifer vulnerability is mainly extreme in the inter-drumlin areas. The vulnerability at the drumlins themselves is lower due to the thicker subsoils comprising the drumlins.

There are no karst landforms within the site boundary. The nearest karst landform is a spring named St. Catherine's Well, approximately 1.1km north of the site boundary. The spring lithology is muddy limestone. There are no public groundwater supplies and no groundwater dependent ecosystems in the area. Private groundwater supplies within 250m of the site have been monitored and only one of these now remains active.

The eastern corner of the site is located within hydrometric catchment 6: Newry, Fane, Glyde and Dee. The nearest watercourse within this catchment is the River Fane (EPA code: O6F01), located ca. 268m northeast of the site and travels in a southeastern direction. Letterbane Lough lies along the course of the River Fane to the north east of the site.

The majority of the site is located within hydrometric catchment 3: Lough Neagh & Lower Bann. The Six Mile Lake stream (EPA code: 03S03) is located ca. 110m south of the site. From the southern edge of the site, the topography slopes down in the direction of the Six Mile Lake stream (EPA code: 03S03) and two Lakes. The Six Mile Lake stream (EPA code: 03S03) drains to the northwest and is a tributary of the Cor River.

4.1.1 Existing Surface Water Drainage Network and Leachate Management Infrastructure

Around the entire perimeter of the site runs a surface water collection network which directs all surface water runoff towards a sump along the middle of the northern boundary as illustrated in Tier 2 Report, Appendix 2. This sump pumps the surface water back to a central location in the western portion of the site to percolate down through stockpiled fill material. The infiltrated surface water is then collected at a sump at the west end of the site and directed north towards the licenced facility and ultimately the River Fane tributary stream.

4.1.2 Tier 3 Study Findings

The Tier 3 assessment concludes that to mitigate the impact of the historic landfill of the receiving environment a landfill cap should be placed across the site. It is recommended that the proposed landfill cap will be constructed in accordance with the EPA recommendations/requirements for landfill site design. This will mitigate the contribution of rainfall infiltration towards leachate generation on the site.

The landfill cap will include a vertical cut off and leachate interception trench along the northern land drain boundary. The leachate interception trench will be constructed to break/mitigate the pathway linkage between the landfill waste and licenced facility to the north. This trench will mitigate leachate migration to surface water downstream as well and further transport of contaminants via groundwater.

The landfill capping will also include active and/or passive landfill gas controls. A final decision on landfill gas control measures will be made upon completion of a landfill gas pumping trial. The pumping trial will be used to determine the quantity and quality of landfill gas actively produced at the site. The most appropriate landfill gas control measures should be determined with reference to EPA Guidance: Management of Low Levels of Landfill Gas and EPA Landfill Manuals, Landfill Site Design.

It is proposed to extend the site capping around the site to include constructing a lined surface water channel. The lined channel will be provided physical separation of the waste body and the direct surface water pathway in the immediate vicinity of the site.

Groundwater monitoring is currently conducted at wells both upgradient and downgradient of the waste body as part of the adjacent licensed site's IE licence, continued monitoring and additional monitoring is proposed as part of the remediation plan.

4.2 Relevant European Sites and Assessment

The historic landfill site is not located within or in close proximity to any European site (there are no European sites within 15km of the historic landfill site) (refer to Figure 4.1).

In terms of any distant connectivity, there are six European sites with hydrological links:

- Direct remote hydrological link with the site via Fane River:
    - Dundalk Bay SAC (Site code: 000455) – Direct link; the SAC is ca. 39km downstream (direct-line distance)
    - Dundalk Bay SPA (site code: 004026) – Direct link; the SPA is ca. 38km downstream (direct-line distance)

- Direct remote hydrological link with the site via the Cor River/Blackwater River with site via overland flow of discharge (worst-case scenario):
    - Lough Neagh and Lough Beg SPA (site code: UK9020091) – Direct remote link; the SPA is ca. 42km downstream (direct-line distance) of the proposed development (Blackwater River [Northern Ireland].
- Indirect remote hydrological link with the Cor River with site via overland flow of discharge (worst-case scenario):
    - Slieve Beagh SPA (site code 004167) – Indirect link; both the SPA and proposed development site feed into tributaries of the Cor River.
    - Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302) - Indirect link; both the SPA and proposed development site feed into tributaries of the Cor River.
    - Slieve Beagh SAC (site code: UK0016622) - Indirect link; both the SAC and proposed development site feed into tributaries of the Cor River.

Both Slieve Beagh SPA (site code 004167) and the historic landfill site feed into the Cor River. There is a ca. 13km distance from the historic landfill site to where the Six Mile Lake Stream (EPA code: 03S03) meets the Cor River. There is a ca. ca. 15km distance from the SPA via the Blackwater [Monaghan] Stream (EPA code: 03B01) to the Cor River. This is a total of ca. 28km between the historic landfill site and the SPA.

Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302) and Slieve Beagh SAC (site code: UK0016622) both feed into the Cor River (EPA code: 03C50) via the Mountain (Water) Stream (EPA code: 03M01). The Mountain (Water) Stream (EPA code: 03M01) travels ca. 18km and 19km from the SPA and SAC respectively to the Cor River (EPA code: 03C50). The Six Mile Lake Stream (EPA code: 03S03) which links the site, travels ca. 19km and 19km, respectively to meet the points where the Mountain (Water) Stream (EPA code: 03M01) meet the Cor River. This is a total of ca. 37km between the Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302) and the proposed development and ca. 38km between Slieve Beagh SAC (site code: UK0016622) and the proposed development.

Lough Neagh and Lough Beg SPA (site code: UK9020091) is remotely linked to the proposed development via the Six Mile Lake Stream(EPA code: 03S03); which travels into the River Cor (EPA code: 03C50), which is a tributary of the Blackwater River in Northern Ireland. The total distance is 43km to the designated Loughs.

The full NPWS site synopses and DoAE&RA site citation documents for the relevant designated sites are included in Appendix 4. Table 4-1 below sets out the qualifying interests and threats/pressures for each site.

4.2.1 Screening Rationale

It is possible to screen these sites out at an early stage base on the following:

Dundalk Bay SAC (site code: 000455) can be screened out due to distance. The historic landfill is ca. 39km upstream and the instream distance is even greater at ca. 51.2km. Any discharge during construction works will be diluted before they reach the coastal/estuarine habitats of the SAC.

Dundalk Bay SPA (site code: 004026) can be screened out due to distance, historic landfill location and the nature of works. The historic landfill is ca. 38km upstream and the instream distance is even greater at ca. 50.6km.

Any discharge during construction works will be diluted before they reach the coastal/estuarine habitats of the SPA. Construction works will not cause significant disturbance of foraging transient birds from the SPA, as foraging habitat is common in the area and noise levels during construction works will not rise significantly.

Slieve Beagh SPA (site code 004167) can be screened out due to the lack of a direct hydrological link and distance. The SPA is located on high sloping ground, which feeds into the River Cor (via a tributary) but does not receive waters from the River Cor (EPA code: 03C50). The SPA is located at a distance of ca. 21.7km from the historic landfill, which is outside the maximum range a Hen Harrier would travel during the breeding season (SNH, 2016) so no disturbance will occur.

Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302) can be screened out due to the lack of a direct hydrological link and distance. The SPA is located on high sloping ground which feeds into the River Cor (via a tributary) but does not receive waters from the River Cor (EPA code: 03C50). The SPA is located at a distance of ca. 21.7km from the historic landfill which is outside the maximum range a Hen Harrier would travel during the breeding season (SNH, 2016) so no disturbance will occur.

Slieve Beagh SAC (site code: UK0016622) can be screened out due to a lack of any direct hydrological link. The SAC is located on high sloping ground which feeds into the River Cor (via a tributary) and does not receive waters from the River Cor (EPA code: 03C50).

Lough Neagh and Lough Beg SPA (site code: UK9020091) can be screened out due to distance, nature of the historic landfill site's location and nature of the development. The SPA is located ca. 42km downstream of the proposed development, so any discharge will be very diluted before it reaches the SPA. Construction works will not cause significant disturbance to foraging transient birds from the SPA, as foraging habitat is common in the area and noise levels during construction works will not rise significantly. Powerlines do not form part of the remediation works to the historic landfill and therefore do not increase the chances of swan (Whooper and Bewick's Swan) collisions.

Table 4-1: European Sites*

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
Dundalk Bay SAC (Site code: 000455)	39	To maintain (**M**)/restore (**R**) the favourable conservation condition of the Annex I habitat(s) for which the SAC has been selected.	Estuaries [1130] **M** Mudflats and sandflats not covered by seawater at low tide [1140] **M** Perennial vegetation of stony banks [1220] **M** Salicornia and other annuals colonising mud and sand [1310] **R** Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] **M** Mediterranean salt meadows (*Juncetalia maritimi*) [1410] **M**	High Threat: • E03.03 Disposal of inert materials (i) • I01 Invasive non-native species (b) • E03.01 Disposal of household / recreational facility waste (i) • H01 Pollution to surface waters (limnic, terrestrial, marine & brackish) (b) Medium Threat: • J03.02 Anthropogenic reduction of habitat connectivity (b) • H05.01 Garbage and solid waste (b) • H02.06 Diffuse groundwater pollution due to agricultural and forestry activities (b) • K04.01 Competition (i)	Yes Reason: Distance: the site is ca. 39km upstream and instream distance will be even greater at ca. 51.2km. Any discharge during construction works will be diluted before reaching the coastal/estuarine habitats of the SAC.

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				• J02.12.01 Sea defence or coast protection works, tidal barrages (b) • J02.04 Flooding modifications (b) • J02.01.03 Infilling of ditches, dykes, ponds, pools, marshes or pits (b) • K01.01 Erosion (b) • H01.01 Pollution to surface waters by industrial plants (o) • J01.02 Suppression of natural fires (b) • G01 Outdoor sports and leisure activities, recreational activities (b) • K02 Biocenotic evolution, succession (i) • G05.02 Shallow surface abrasion/ mechanical damage to seabed surface (b) • J02.04.01 Flooding (b) • F05 Illegal taking/ removal of marine fauna (b)	

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				• J03.01.01 Reduction of prey availability (including carcasses) (b) Low Threat: • H05 Soil pollution and solid waste (excluding discharges) (b) • G02 Sport and leisure structures (b) • H04.02 Nitrogen-input (b) • G01.01.02 Non-motorized nautical sports (b)	
Dundalk Bay SPA (site code: 004026)	38	To maintain (**M**) the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA	Great Crested Grebe (*Podiceps cristatus*) [A005] **M** Greylag Goose (*Anser anser*) [A043] **M** Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] **M** Shelduck (*Tadorna tadorna*) [A048] **M** Teal (*Anas crecca*) [A052] **M**	High Threat: • D01.02 Roads, motorways (o) • I01 Invasive non-native species (i) • E01 Urbanised areas, human habitation (o) Medium Threat: • G01.02 Walking, horseriding and non-motorised vehicles (i)	Yes Reason: Distance: the site is ca. 38km upstream and instream distance will be even greater at ca. 50.6km. Any discharge during construction works will be diluted by the time it enters the SPA.

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
			Mallard (*Anas platyrhynchos*) [A053] **M** Pintail (*Anas acuta*) [A054] **M** Common Scoter (*Melanitta nigra*) [A065] **M** Red-breasted Merganser (*Mergus serrator*) [A069] **M** Oystercatcher (*Haematopus ostralegus*) [A130] **M** Ringed Plover (*Charadrius hiaticula*) [A137] **M** Golden Plover (*Pluvialis apricaria*) [A140] **M** Grey Plover (*Pluvialis squatarola*) [A141] **M** Lapwing (*Vanellus vanellus*) [A142] **M** Knot (*Calidris canutus*) [A143] **M**	• F02 Fishing and harvesting aquatic resources (o) • D03.02 Shipping lanes (i) • J02.12 Dykes, embankments, artificial beaches, general (i) • E03 Discharges (i) • F02.03 Leisure fishing (i) • E01.03 Dispersed habitation (o) • A08 Fertilisation (o) • G01.01 Nautical sports (o) • J02.11 Siltation rate changes, dumping, depositing of dredged deposits (i) Low Threat: • A04.01 Intensive grazing (i) Positive impact High • D01.02 Roads, motorways (o)	Nature and location of Site: If transient birds for which the SPA is designated stop to forage, abundant displacement habitats are available in the general area. Noise levels will not rise significantly during remediation works and will be temporary, so birds will not be disturbed.

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
			Dunlin (*Calidris alpina*) [A149] **M** Black-tailed Godwit (*Limosa limosa*) [A156] **M** Bar-tailed Godwit (*Limosa lapponica*) [A157] **M** Curlew (*Numenius arquata*) [A160] **M** Redshank (*Tringa totanus*) [A162] **M** Black-headed Gull (*Chroicocephalus ridibundus*) [A179] **M** Common Gull (*Larus canus*) [A182] **M** Herring Gull (*Larus argentatus*) [A184] **M** Wetland and Waterbirds [A999] **M**	Medium • G01.01 Nautical sports (i) • D03.02 Shipping lanes (i) • F02.03 Leisure fishing (i) • E02.03 Other industrial / commercial area (o) Low • D01.02 Roads, motorways (o)	
Slieve Beagh SPA (site code 004167)	21.7	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA	Hen Harrier (*Circus cyaneus*) [A082]	High Threat: Not Applicable (N/A) Medium Threat: • C01.03 Peat extraction(i)	Yes Reason: No direct hydrological link: the SPA is located on high

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				Low Threat: • D01.02 Roads, motorways (i) • D01.01 Paths, tracks, cycling tracks (i)	sloping ground and releases water into the River Cor (EPA code: 03C50) but does not receive waters from the river (EPA code: 03C50). Distance (ca. 21.7km): the site is outside the maximum range a Hen Harrier would travel during the breeding season (SNH, 2016).
Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302)	26.3	To maintain **(M)** the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA	Hen Harrier (*Circus cyaneus*) [A082] **M**	High Threat: • M01 Changes in abiotic conditions (o) • A04 Grazing (i) • J01 Fire and fire suppression (i) • J03 Other ecosystem modifications (b) • B02 Forest and Plantation management & use (i) Medium Threat: • F03 Hunting and collection of wild animals (terrestrial)(b)	Yes Reason: No direct hydrological link: the SPA is located on high sloping ground and releases water into the River Cor (EPA code: 03C50) but does not receive waters from the river. Distance (ca. 21.7km); the site is outside the maximum range a Hen Harrier would travel during the breeding season (SNH, 2019).

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				• G01 Outdoor sports and leisure activities, recreational activities(i) • C01 Mining and quarrying (i) • C03 Renewable abiotic energy use (b) Low Threat: • M02 Changes in biotic conditions (b)	
Slieve Beagh SAC (site code: UK0016622)	26.3	To maintain/restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected	Natural dystrophic lakes and ponds [3160] Blanket bogs (* if active bog) [7130] European dry heaths [4030]	Hight Threat: • H04 Air pollution, air-borne pollutants (i) • J01 Fire and fire suppression (i) • A04 Grazing (i) • J02 Human induced changes in hydraulic conditions (i) Medium Threat: • I01 Invasive non-native species (i)	Yes Reason: No direct hydrological link: the SPA is located on high sloping ground and releases water into the River Cor (EPA code: 03C50) but does not receive waters from the river.

Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				• C01 Mining and quarrying (i) Low Threat: N/A	
Lough Neagh and Lough Beg SPA (site code: UK9020091)	42	To maintain /restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA	Common Pochard (*Aythya farina*) [A059] Tufted Duck (*Aythya fuligula*) [A061] Common Goldeneye (*Bucephala clangula*) [A067] Bewick's Swan (*Cygnus columbianus bewickii*) [A037] Common Tern (*Sterna hirundo*) [A193] Waterbird Assemblage [WATR]	High Threat: • J03 Other ecosystem modifications (i) • M02 Changes in biotic conditions (b) • A04 Grazing (i) • M01 Changes in abiotic conditions (o) Medium Threat: • G01 Outdoor sports and leisure activities, recreational activities (i) • H01 Pollution to surface waters (limnic, terrestrial, marine & brackish) (b) • A02 Modification of cultivation practices (i)	Yes Reason: Distance: the SPA is located ca. 42km downstream of the proposed development. Any discharge will be diluted before it reaches the SPA. Nature and location of Site: If transient birds for which the SPA is designated stop to forage, abundant displacement habitats are available in the general area. Noise levels will not rise significantly during remediation works and any birds will be temporary, so birds will not be disturbed.

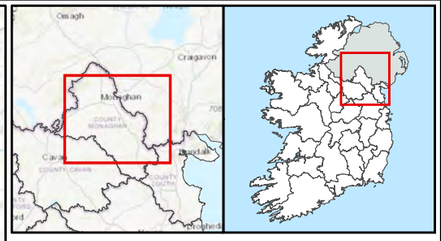
Designated Site (Site Code)	Direct Distance from Proposed Development (km)	Conservation Objectives	Qualifying Interests	Threats	Screened out?
				• D02 Utility and service lines (b) Low Threat: • C01 Mining and quarrying (i) • I01 Invasive non-native species (i) • D04 Airports, flightpaths (o)	Nature of remediation works: powerlines do not form part of the remediation of the historic landfill and there will therefore be no increased chance of swan collisions.

* indicates a priority Annex I habitat. (i) indicates inside site, (o) indicates outside site and (b) indicates both inside and outside site.

* No European sites were found within 15km of the historic landfill. This table present European Sites outside of the 15km buffer which appear to have a hydrological link to the historic landfill site

004167 SPA

001786
SAC



Site Boundary

15km Distance from Site Boundary

Special Protection Area (SPA)

Special Area of Conservation (SAC)

Kilometers
0 1 2 4

TITLE:	European Sites within 15km of the Proposed Development		
PROJECT:	Scotch Corner Historic Landfill		
FIGURE NO:	4.1		
CLIENT:	Monaghan County Council		
SCALE:	1:160000	**REVISION:**	0
DATE:	04/11/2019	**PAGE SIZE:**	A3

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4.3 Conservation Objectives

According to the Habitats Directive, the *conservation status of a natural habitat* will be taken as 'favourable' within its biogeographic range when:

- Its natural range and areas it covers within that range are stable or increasing; and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable as defined below.

According to the Habitats Directive, the conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' within its biogeographic range when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

4.3.1 Republic of Ireland

The specific conservation objectives for each site are available on www.npws.ie. These have been accessed for the sites listed in Table 4-1 on the 6th of March 2020.

Conservation objectives were available for the following sites:

- Dundalk Bay SAC 000455 and Dundalk Bay SPA 004026. (Version 1.0, 19 July 2019)

Generic conservation objectives (dated 21/02/2018) were only available for the below sites:

- Slieve Beagh SPA (site code 004167)

Conservation objectives and conservation objectives supporting documents for these sites are available from the NPWS through the protected sites search portal at https://www.npws.ie/protected-sites.

Supporting documents for Dundalk Bay SAC 000455 and Dundalk Bay SPA 004026 are as follows:

- NPWS, 2011. Dundalk Bay SPA(Site Code: 4026) Conservation Objectives Supporting Document, Version 1. National Parks and Wildlife Service
- NPWS, 2011. Dundalk Bay SAC (Site Code: 4026) Conservation Objectives Supporting Document – marine habitats, Version 1. National Parks and Wildlife Service
- NPWS, 2011. Dundalk Bay SAC (Site Code: 4026) Conservation Objectives Supporting Document – coastal habitats, Version 1. National Parks and Wildlife Service

4.3.2 Northern Ireland

The specific conservation objectives for each site are available on www.daera-ni.gov.uk. These have been accessed for the sites listed in Table 4-1 above on the 11th of November 2019.

Conservation objectives were available for all relevant sites:

- Slieve Beagh – Mullaghfad – Lisnaskea SPA UK9020302. (Version 3, 01/04/2015)
- Slieve Beagh SAC UK0016622. (Version 2.1, 11/10/2017)
- Lough Neagh and Lough Beg SPA UK9020091. (Version 4, 01/04/2015).

Supporting documents of the above SAC and SPAs can be found at www.daera-ni.gov.uk.

4.4 Potential Impact Pathways

The potential pathways by which European (Natura 2000) sites could be affected are laid out in Table 4-2 below:

Table 4-2: Potential connectivity/Impact pathways

Designated Site (Site Code)	Potential Impact Pathways
Dundalk Bay SAC (000455)	• The SAC is connected to the historic landfill site via the River Fane. • Reduction in water quality within SAC caused by remediation works (transport of pollutants or contaminants downstream) impacting habitats for which the SAC is designated.
Dundalk Bay SPA (004026)	• The SPA is connected to the historic landfill via the River Fane. • Reduction in water quality within SPA caused by remediation works (transport of pollutants or contaminants downstream) impacting habitats and prey availability for the species which the SPA is designated. • Works may also disturb transient bird species (special conservation interests of the SPA) if they stop to forage.
Slieve Beagh SPA (004167)	• The SPA is indirectly connected to the historic landfill site via the River Cor (EPA code: 03C50); both the historic landfill and SPA feed into tributaries of the River Cor. • Reduction in water quality within the SPA caused by remediation works (transport of pollutants or contaminants downstream) impacting habitats used by Hen Harrier for which the SPA is designated. • Works may disturb Hen Harrier if used for foraging.
Slieve Beagh – Mullaghfad – Lisnaskea SPA (UK9020302)	• The SPA is indirectly connected to the historic landfill site via the River Cor (EPA code: 03C50); both the historic landfill and SPA feed into tributaries of the River Cor.

Designated Site (Site Code)	Potential Impact Pathways
	• Reduction in water quality within SPA caused by remediation works (transport of pollutants or contaminants downstream) impacting habitats used by Hen Harrier for which the SPA is designated. • Works may also disturb Hen Harrier if used for foraging.
Slieve Beagh SAC (UK0016622)	• The SAC is indirectly connected to the historic landfill site via the River Cor (EPA code: 03C50); both the historic landfill site and SAC feed into tributaries of the River Cor. • Reduction in water quality within the SAC caused by remediation works (transport of pollutants or contaminants downstream) could negatively impact the habitats for which the SAC is designated.
Lough Neagh and Lough Beg SPA (UK9020091)	• The SPA is connected to the historic landfill site via the River Cor (EPA code: 03C50)and the Blackwater River (Northern Ireland). • Reduction in water quality within the SPA could be caused by remediation works (transport of pollutants or contaminants downstream), which could impact the lake habitat and prey availability for the species which the SPA is designated. • Works may also disturb transient birds (special conservation interests of the SPA) if they stop to forage. • The proposed development may increase the risk of collision for designated swan species (Whooper and Bewick's Swan).

4.5 Potential Cumulative Impacts

In considering whether the proposed historic landfill remediation, by itself or in combination with other plans and projects, has the potential to affect the conservation objectives of the designated sites within 15km of the proposed development, the following were considered:

- Permitted projects in the vicinity of the development
- Proposed projects in the vicinity of the development
- Monaghan County Development Plan 2019-2025
- County Monaghan Heritage Plan 2012-2017

A planning search limited to applications submitted within the townlands overlapping and surrounding the historic landfill site during the previous five years was conducted on 6th March 2020. The relevant townlands are: Letterbane, Derryarrilly, Derryhallagh (Monaghan By) and Claderry.

Adjacent Licensed Facility

The licensed facility adjacent to the historic landfill site previously applied for permission (Reference No: 118002) for a pilot scheme to form an integrated construction wetland. The licensed facility is hydrologically linked to the historic landfill site (see Section 4.1.1 for more information). Tier reports (see Appendix 2) indicate that leachate/runoff may be is escaping into the River Fane (EPA code: 06F01) via the licensed facility.

The licensed facility was granted permission (Reference No: 12103) for a combined heat and power unit and associated systems, a medium voltage substation building and a 3m high security fencing and gates.

The licensed facility was granted permission (Reference No: 18297) for the additional use of an existing recycling facility for the reception, segregation and storage of mixed municipal waste and skip waste for onward transfer, the retention of existing prefabricated dispatch/site office building and the retention of existing building for the storage of waste electrical goods together with ancillary site works.

At present the licensed facility, which is hydrologically linked to the historic landfill site is likely to be having a cumulative impact on the water quality of the River Fane (EPA code: 06F01). Any silt or pollutants released into the existing shared water system are unlikely to be in any way significant impact to the River Fane. Due to distance from European sites, any effects from leachate entering the River Cor (EPA code: 03C50) will not be significant and will be diluted before entering a European site (Dundalk Bay SAC and SPA: 39km and 38km respectively).

Remediation works to the historic landfill site will prevent the escape of runoff/leachate which will result in the historic landfill no longer having a potential cumulative impact in combination with the adjacent licenced facility on the water quality of the River Fane.

General Development in the Area

Permission (Refence No. 19472) has been applied for to construct 2 no. turkey rearing houses and a detached storage shed, together with an ancillary structures including vertical meal bin and underground washing tank, along with associated ancillary works using existing shared private access. This proposed development is to be located within the same townland as the historic landfill; ca. 500m to the west from the historic landfill site and ca. 88m from the Six Mile Lake Stream (EPA code: 03S03).

There may be discharge into Six Mile Lake Stream (EPA code: 03S03) during remediation works, but no leachate from the historic landfill site is thought to currently enter the stream. If the historic landfill site was remediated during the construction of the turkey rearing development, there may be the cumulative release of sediment. However, due to the nature and scale of both developments and the distance from any European site, any discharge will be limited and insignificant. If the proposed turkey rearing development were operational during remediation works of the historic landfill, no in combination impacts are expected.

EPA Licensed Facilities

There are multiple IPPC (Integrated Pollution Prevention Control) facilities (including the licensed facility adjacent to the historic landfill site; along the River Cor (EPA code: 03C50) and River Fane (EPA code: 06F01). The aim of these licenses is to ensure that facilities prevent or reduce emissions to air, water and land, reduce waste and use energy/resources efficiently. There are also a smaller number of Industrial Emissions Licencing Facilities (given to specified industrial and agricultural activities) located along the River Cor (EPA code: 03C50).

As already stated, the historic landfill is likely to be having a cumulative effect alongside the adjacent licensed facility. Any silt or pollutants released into the existing shared water system are unlikely to be any way significant on the River Fane (EPA code: 06F01). Due to distance from European sites, any leachate entering the River Fane will not be significant.

Once remediation of the historic landfill has been carried out, there will no longer be any potential cumulative impacts between the historic landfill and adjacent licensed facility on the River Fane (EPA code: 06F01).

4.6 Screening Matrix

The Screening Matrix is set out in Table 4-3 below. Throughout this, the line items in *italics* refer to suggested instructions for information to be contained in a screening assessment, and in an appropriate assessment from the guidance document '*Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*', (European Commission, 2001). The standard 'Screening Matrix' and 'Finding of No Significant Effects Report Matrix' in Annex 1 of this guidance document are also followed.

As set out in NPWS guidance (DoEHLG, 2009), the task of establishing whether a plan or project is likely to have an effect on a European site(s) is based on an evaluation using available information and data (e.g. water quality data), supplemented as necessary by local site information and ecological surveys. This results in a determination by the competent authority as to whether there may be a significant effect on the designated site. A precautionary approach is required.

Some examples given in the NPWS guidance (DoEHLG, 2009) of effects that are likely to be significant are:

1. Any impact on an Annex I habitat,
2. A reduction in the area of a habitat of conservation interest in a European site or a reduction in the area of a European site,
3. Direct or indirect damage to the physical quality of the environment (e.g. water quality and supply, soil compaction) in the European site,
4. Serious or ongoing disturbance to species or habitats for which the European site is selected (e.g. increased noise, illumination and human activity),
5. Direct or indirect damage to the size, characteristics or reproductive ability of populations in the European site,
6. Interference with mitigation measures put in place for other plans or projects.

Table 4-3: Screening Matrix

Assessment criteria	Discussion of potential impacts
Brief description of project or plan	Proposed works for the historic landfill are in keeping with the remedial action plan laid out in the Tier 3 Report (Appendix 2) The proposed works are comprised the following elements: • Landfill Capping • Leachate Interception Trench – Northern Boundary • Lined Surface Water Drains • Removal of Existing Infrastructure • Active Gas Abstraction to Existing LFG Flare • Active Gas Abstraction to Bio Oxidation • Passive Ventilation • Landfill Gas Interception Trench The Tier 3 Report sets out a proposed schedule and locations of environmental monitoring to assess the efficacy of the remediation works. The schedule of environmental monitoring includes: • Leachate • Groundwater • Surface water • Landfill Gas It is proposed that leachate should be conducted annually at four proposed locations. It is proposed that all proposed and existing dual landfill gas/groundwater monitoring points should be monitored monthly. For more information regarding monitoring parameters see Appendix 3 and for the positioning of new monitoring locations and accompanying schedule details see Tier 3 Report, Appendix 2. The proposed landfill remediation works will significantly reduce the generation of leachate via percolation of rainwater and subsequently the potential migration of leachate to surface water. The capping design will be consistent with the future uses of the site e.g. low intensity agricultural grazing purposes or the development of natural habitat area – wildflower/traditional meadow. The sub soil layer will be therefore be adequately specified to ensure it is free draining to support grazing with the top soil layer adequately specified to support growth.

Assessment criteria	Discussion of potential impacts
Brief description of the Natura 2000 (European) Site	There are no European sites within 15km (potential zone of influence) and six European sites beyond 15km that have a hydrological link with the historic landfill site: • Slieve Beagh SPA (site code: 004167) – Both the SPA and proposed development site feed into tributaries of the Cor River. • Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code: UK9020302) - Both the SPA and proposed development site feed into tributaries of the Cor River. • Slieve Beagh SAC (site code: UK0016622) - Both the SAC and proposed development site feed into tributaries of the Cor River. • Lough Neagh and Lough Beg SPA (site code: UK9020091) – The SPA is ca. 42km downstream (direct-line distance) of the proposed development (Blackwater River). • Dundalk Bay SAC (site code: 000455) – the SAC is ca. 39km downstream (direct-line distance) of the proposed development (River Fane). • Dundalk Bay SPA (site code: 004026) – the SPA is ca. 38km downstream (direct-line distance) of the proposed development (River Fane).
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000(European) sites.	<u>Potential accidental pollutant or contaminant inputs resulting in downstream effects to the qualifying interests (habitats) and reduction in prey availability of special conservation interest of Slieve Beagh SPA, Slieve Beagh – Mullaghfad – Lisnaskea SPA, Slieve Beagh SAC, Lough Neagh and Lough Beg SPA, Dundalk Bay SAC, Dundalk Bay SPA.</u> Slieve Beagh SAC, Lough Neagh and Lough Beg SPA, Dundalk Bay SAC and Dundalk Bay SPA feed into the River Cor (EPA code: 03C50) but do not receive waters from the River Cor and no impacts regarding water quality will occur. Also due to distance and dilution (see below, for more information) no impact with regards to water quality will occur to Lough Neagh and Lough Beg SPA, Dundalk Bay SAC, Dundalk Bay SPA. <u>Disturbance of special qualifying interest Hen Harrier of Slieve Beagh SPA and Slieve Beagh – Mullaghfad – Lisnaskea SPA.</u> The historic landfill site is far outside the range (≤10km) that the species would forage during the breeding season (SNH, 2016) and no impacts will occur. <u>Disturbance of special qualifying interests (general) of Lough Neagh and Lough Beg SPA and Dundalk Bay SPA.</u> Construction works will not cause significant disturbance of foraging transient birds from the SPA, as foraging habitat is common in the area and noise levels during construction works will not rise significantly. <u>Increase in collision risk for special conservation interests Whooper Swan and Bewick's Swan of Lough Neagh and Lough Beg SPA.</u>

Assessment criteria	Discussion of potential impacts
	Powerlines do not form part of remediation works and therefore no collision impacts will occur to swans.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 (European) site by virtue of: ▪ *Size and scale;* ▪ *Land-take;* ▪ *Distance from Natura 2000 (European) site or key features of the site;* ▪ *Resource requirements;* ▪ *Emissions;* ▪ *Excavation requirements;* ▪ *Transportation requirements;* ▪ *Duration of construction, operation etc.;* ▪ *Other.*	**Size and scale, land-take and distance from European sites** **Potential Impacts:** *None* As the historic landfill is not located within any European site, direct impacts with regards to size, scale, land-take or distance to any European site can be ruled out. Remediation works at the historic landfill are limited and the nearest European site is located ca. 21.7km away. Due to distance, any potential discharge produced during construction will be diluted by the time it reaches a European site. No indirect impact with regards to size, scale, land-take or distance to any European site will occur. **Resource requirements and Excavation requirements** **Potential Impacts:** *None* There will be no resource or excavation requirements on any European site and therefore there will be direct or indirect impacts on any European Site. **Emissions** **Potential Impacts:** *None* The historic landfill is not located within any European site and so no direct impact with regards to emissions and any European site will occur. The River Fane (EPA code: 06F01) is connected to the historic landfill site, to the north of the site via a hydrological link to the adjacent licensed facility. The Six Mile Lake stream (EPA code: 03S03) is located ca. 110m south of the historic landfill site and may receive overland flow from the historic landfill site during remediation works. Small-scale accidental inputs of pollutants and/or contaminants as well as silt from remediation works have the potential to enter both the River Fane (EPA code: 06F01) and the Six Mile Lake stream (EPA code: 03S03). However, due to a direct-line distance (minimum with a direct hydrological link is Dundalk Bay SPA) of ca. 38km and an instream distance of ca. 50.6km, any discharge will be diluted by the time it enters any European site and no indirect impact due to emissions will occur on Lough Neagh and Lough Beg SPA, Dundalk Bay SAC, Dundalk Bay SPA. It should be noted that whilst there is an indirect hydrological link between Slieve Beagh SPA, Slieve Beagh – Mullaghfad – Lisnaskea SPA, Slieve Beagh SAC and the historic landfill site via the Cor River (EPA code: 03C50), these European sites do not receive waters from the Cor River precluding the possibility of any indirect emissions impacts.

Assessment criteria	Discussion of potential impacts
	While the potential for sediment or contaminant inputs during remediation works exists, it should be also noted that the landfill cap will ultimately improve water quality by reducing leachate generation. **Transportation requirements** **Potential Impacts:** *None.* The historic land fill is not located within any European site so there will be no direct impact. There will be no significant transportation requirements and therefore no indirect impacts due to transportation will occur on any European site. **Duration of Construction and Operation** **Potential Impacts:** *None.* It is anticipated that remediation works will occur over approximately six months. The historic landfill site is surrounded by pasture and agricultural land, which contains semi-natural vegetation. Any transitory special conservation interests stopping to rest/forage in the area will be supported by the surrounding habitat. The increase in noise levels will not be significant. There will be no direct or indirect impact on the special conservation interests of Lough Neagh and Lough Beg SPA, and Dundalk Bay SPA. It should be noted that Hen Harrier is the special conservation interest of Slieve Beagh SPA and Slieve Beagh – Mullaghfad – Lisnaskea SPA the historic landfill site is outside the range this species (≤10km) would travel during the breeding season (SNH, 2016); closest SPA is 21.7km. Once remediation works have been carried out, routine monitoring will be undertaken for a time and the land will be returned to farm land. This will have a neutral impact on the special conservation interest to any special conservation interests of Lough Neagh and Lough Beg SPA, and Dundalk Bay SPA. **Cumulative impacts** **Potential Impacts:** *None.* At present it is likely that the historic landfill site which is hydrologically connected to an adjacent licensed facility(which feeds into River Fane), is leaching runoff into the River Fane (EPA code: 06F01). As the historic landfill site is located ca. 38km from the nearest receiving European site, the impacts from any silt or pollutants (spills or leaks) will be not be significant owing to the large dilution factor. Once remediation works are carried out, any runoff/leachate produced in the historic landfill site will stay in the site, preventing what is at present, a potential cumulative impact on water quality of the River Fane (EPA code: 06F01).

Assessment criteria	Discussion of potential impacts
	There may be discharge into Six Mile Lake Stream (EPA code: 03S03) during remediation works but no leaching of existing surface water is thought to currently enter the stream. If the historic landfill site was remediated during the construction of the turkey rearing development, there may be the cumulative release of sediment. However, due to the nature and scale of both developments and the distance to any European site, any discharge will be limited and insignificant. If the proposed turkey rearing development were operational during remediation works of the historic landfill, no in-combination impacts are expected. See Section 4.5 for more information.
Describe any likely changes to the site arising as a result of: ▪ *Reduction of habitat area;* ▪ *Disturbance of key species;* ▪ *Habitat or species fragmentation;* ▪ *Reduction in species density;* ▪ *Changes in key indicators of conservation value;* ▪ *Climate change.*	There will be no direct reduction in habitat area or habitat fragmentation within any European site as a result of the proposed works. There will be no indirect reduction in habitat area or habitat fragmentation within any European site as result of discharge of the proposed remediation works due to distance. There is no predicted impact via disturbance of key species or reduction of key species density as a result of the proposed works; any impacts on avian special conservation interests will be temporary and displacement foraging habitat is widespread in the area (Lough Neagh and Lough Beg SPA, and Dundalk Bay SPA). There are no predicted changes in key indicators of conservation value due to the proposed works. Remediation works will not introduce any powerlines, so there will be no impacts to the swan species (special conservation interests) of Lough Neagh and Lough Beg SPA. The carbon emissions generated during remediation works will be in line with those resulting from similar engineering projects; the capping and potential collection of landfill gas will have a positive effect on climate change by reducing methane and carbon dioxide emissions.
Describe any likely impacts on the Natura 2000 (European) site as a whole in terms of: ▪ *Interference with the key relationships that define the structure of the site;* ▪ *Interference with key relationships that define the function of the site.*	There are no potential impacts on the key relationships that define the structure or function of any European site considered in this Appropriate Assessment Screening due to the proposed remediation works.
Provide indicators of significance as a result of the identification of effects set out above in terms of: ▪ *loss,* ▪ *fragmentation,*	Due to distance, nature of the historic landfill site and remediation works, no effects are predicted; therefore, an indicator of significance is not required.

Assessment criteria	Discussion of potential impacts
▪ *disruption,* ▪ *disturbance,* ▪ *change to key elements of the site (e.g. water quality etc.).*	
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.	No adverse impacts or impacts of unknown scale or magnitude, either alone or in-combination with other projects or plans are predicted.

4.7 Stage One Screening Conclusion

No adverse effects on any European Sites are predicted. Therefore, the following six European sites have been 'screened out' within the Stage 1: Appropriate Assessment Screening Report:

- Slieve Beagh SPA (site code 004167)
- Slieve Beagh – Mullaghfad – Lisnaskea SPA (site code UK9020302)
- Slieve Beagh SAC (site code: UK0016622)
- Lough Neagh and Lough Beg SPA (site code: UK9020091
- Dundalk Bay SAC (Site code: 000455)
- Dundalk Bay SPA (site code: 004026)

See Appendix 1 for Findings of No Significant Effects Report.

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