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HISTORIC LANDFILL AT GORT, CO. GALWAY

STAGE 1 APPROPRIATE ASSESSMENT SCREENING REPORT FOR THE REMEDIATION OF HISTORIC LANDFILL SITE, GORT, COUNTY GALWAY

Prepared for: Galway County Council

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Date: August 2021

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Historic Landfill at Gort, Co. Galway

User is responsible for Checking the Revision Status of This Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
1.0	Draft Issue	JPG/MG/JO	RM/JON	BG	19/04/2021
2.0	Final for Issue	EOC	JON	BG	31/08/2021

Client: Galway County Council

Keywords: Stage One Appropriate Assessment Screening Report, AA Screening, Article 6 of the Habitats Directive, European (Natura 2000) sites, Historic Landfill at Gort, Co. Galway, Remediation.

Abstract: This document comprises the Stage One: Appropriate Assessment Screening Report for the Historic Landfill at Gort, Co. Galway. 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 a European (Natura 2000) site.

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1. INTRODUCTION

Fehily Timoney and Company (FT) was commissioned by Gort County Council to prepare a report to inform the Screening for Appropriate Assessment for proposed remediation works to the Historic Landfill at Gort, Co. Galway (see Figure 1-1 for location).

The remediation works, from this point forward referred to as the proposed development, will comprise replacing the current shallow soil cap with a more substantial capping formation. The proposed development will prevent surface water from interring the waste body and producing leachate which could contaminate the local groundwater /surface water, along will facilitate passive management of landfill gas and limiting migration.

This report presents an assessment of whether the proposed remediation work is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and is based on best available scientific knowledge. This report is to inform the competent authority[1] in completing their statutory obligation to carry out a Screening for Appropriate Assessment.

1.1 Legislative Context

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) provides legal protection for habitats and species of European importance. The Directive requires that where a plan or project is likely to have a significant effect on a European Site, while not directly connected with or necessary to the nature conservation management of the site, it will be subject to 'Appropriate Assessment' to identify any implications for the European site in view of the site's Conservation Objectives. Specifically, Article 6(3) of the Habitats 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.

[1] In this case, the Environmental Protection Agency in carrying out their functions under SI 524/2008 (as amended), and in accordance with Regulation 42 of SI 477/2011 (as amended), and An Bord Pleanála in accordance with Article 177U of SI 30/2000 (as amended).

The provisions of Article 6 do not apply where the proposed plan or project is '*connected with or necessary to the management of the site'.* In this case, the proposed landfill remediation works are not directly connected with or necessary to the management of any European site(s) and as such as assessment as to whether the project would be likely to have significant effects on European Sites must be carried out. This assessment has been termed a 'Screening for Appropriate Assessment' in the transposing national legislation: Part XAB of the Planning and Development Act, 2000 - 2020 and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) as amended.

This national legislation requires that the Screening for Appropriate Assessment is carried out by the competent authority before consent for a plan or project is given. The competent authority in carrying out the screening assessment, is required to make an examination, analysis, evaluation, findings, conclusions and a final determination as to whether or not the proposed works either alone or in combination with other plans or projects would be likely to have significant effects on the relevant European site(s) in view of their conservation objectives.

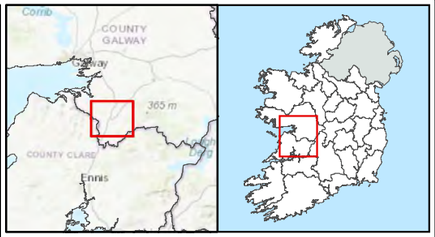
1.2 Statement of Competence

This report has been prepared by Jason Guile and Rita Mansfield. Jason has over 10 years' experience in ecological assessment and holds a BSc in Marine Biology/Oceanography from the University of Wales, Bangor and a HND in Coastal Conservation with Marine Biology from Blackpool and Fylde College. Jason has prepared Appropriate Assessment Screening reports and Natura Impact Statements for numerous large scale infrastructure projects in the commercial, energy and transport sectors.

Rita is Principal ecologist with Fehily Timoney and has 17 years' experience in the field of ecological assessment. She holds a BSc (Hons) in Applied Ecology from University College Cork and a HDip. (Hons) in Environmental Protection and Pollution Control from Sligo Institute of Technology. Rita has prepared Natura Impact Statements for numerous large scale public infrastructure projects and plans in the waste, transport, energy, and water sectors (including flood relief schemes).

All of the authors above are competent experts for the purposes of the preparation of this NIS and suitability qualified in ecology.

Path: R:\Map Production\2020\P2282\Workspace\AA Screening\P2282_GIS_Fig1-1_SiteLocation_Gort_A3.mxd



Site Boundary

Kilometers
0 0.5 1 2

TITLE:	Site Location		
PROJECT:	Gort Historic Landfill ERA		
FIGURE NO:	1.1		
CLIENT:	Galway County Council		
SCALE:	1:50000	**REVISION:**	0
DATE:	10/02/2021	**PAGE SIZE:**	A3

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2. METHODOLOGY

2.1 Guidance

In the preparation of this assessment regard has been had 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*, Office for Official Publications of the European Communities, Luxembourg (EC, 2002);
- *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 (2010);
- *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*. European Commission (2018). Brussels, 21.11.2018 C (2018) 7621 final;
- *Interpretation Manual of European Union Habitats*. Version EUR 28. European Commission 2013;

2.2 Assessment Protocol

The process in determining the likelihood of significant effects from the proposed project on European sites is as follows:

Characteristics of the Project and Identification of Impacts
The assessment commences with a description of the project (Section 3 of this report) and the associated likely environmental impacts. All elements of the project are presented including the project location and existing baseline environment. The type of impacts which are likely due to the project are identified having regard to the spatial and temporal scale of the project, resource requirements and likely emissions. The zone of influence (ZoI) of the project is therefore defined, and European Sites within the ZoI are identified.

The potential for cumulative impacts with other plans and projects is also assessed having regard to the identified impacts of the project.

European Site Characteristics
The European sites which fall within the ZoI of the project impacts are identified. The conservation objectives for these European Sites are identified and the environmental conditions needed to maintain or achieve favourable conservation status is determined along with the existing threats and pressures to the Sites (Section 4).

Likelihood of Significance of Effects

The likelihood of significant effects on the European Sites is determined having regard to the sensitivity of the site to the impacts associated with the project on its own and in combination with other plans and projects.

Having regard to Alen-Buckley and Anor V An Bord Pleanála and Anor (2017) IEHC 541, the assessment of 'likely' is made on the basis that "*… there need not be any hard and fast evidence that such a significant effect was likely, there merely had to be a possibility that this significant effect was likely*". Thus, a precautionary approach is adopted and, in cases of uncertainty, the likelihood of an effect is assumed.

Note the threshold for a significant effect is assessed on a *de minimis* level as per the opinion of the Advocate General Sharpston for CJEU case C-258/11:

"*48. The requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.*"

2.3 Information Consulted in the Preparation of this Report

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:

- Galway County Development Plan 2015-2021
- Gort Local Area Plan 2013-2023
- Galway County Council Planning Enquiry System (http://www.eplanning.ie/GalwayCC/searchtypes)
- National Biodiversity Action Plan 2017-2021 https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf;
- BirdWatch Ireland website
- Environmental Protection Agency (EPA) (on-line map-viewer)
- River Catchment & Sub-catchment WFD datasets Water Framework Directive website – www.catchments.ie;
- Tier 2 Risk Assessment Report for Gort Historic Landfill
- Tier 3 Risk Assessment Report for Gort Historic Landfill
- Department of Housing, Planning, and Local Government – online land use mapping www.myplan.ie/en/index.html;
- Department of Housing, Planning, and Local Government- EIA Portal https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal
- Environmental Protection Agency (EPA) – Water Quality www.epa.ie, http://gis.epa.ie/Envision;
- Geological Survey of Ireland – Geology, soils and Hydrogeology www.gsi.ie;
- National Parks and Wildlife Service – online European site network information, including site conservation objectives www.npws.ie;
- National Parks and Wildlife Service – Information on the status of EU protected habitats in Ireland (Article 17 Reports)
- National Biodiversity Data Centre – www.biodiversityireland.ie;
- River Basin Management Plan for Ireland 2018 – 2021 https://www.gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/?referrer=http://www.housing.gov.ie/water/water-quality/river-basin-management-plans/river-basin-management-plan-2018-2021
- Ordnance Survey of Ireland – Mapping and Aerial photography www.osi.ie; and
- Site surveys, undertaken 26th of September 2020

3. CHARACTERISTICS OF THE PROJECT & IDENTIFICATION OF IMPACTS

3.1 Project Overview

The completed Tier 2 and Tier 3 risk assessment recommended the following remediation works. An engineered landfill cap is proposed to replace/upgrade the existing shallow soil cap. The existing shallow soil cap has the potential to allow rainfall to reach the interred waste and potentially produce leachate that may subsequently contaminate receiving groundwaters.

The proposed engineered capping and monitoring will:

- Facilitate use of land for agricultural grazing purposes and maintain the amenity potential of the river.
- Reduce percolation inputs into the waste body, decreasing the volume of leachate being produced
- Facilitate passive management of landfill gas and limited landfill gas migration
- Monitor potential gas migration using shallow perimeter boreholes to be installed at the southern and south-eastern boundary of the historical landfill.

Proposed works for the historic landfill are outlined in Section 3 Remedial Action Plan of the Tier 3 Risk Assessment report. The remediation plan drawings are included in Appendix 1 of this report. The proposed works comprise of the following elements:

- 200mm Topsoil Layer
- 800mm Sub Soil
- Sub-Surface Drainage Geocomposite
- 1mm low-density polyethylene (LLDPE) Barrier Layer
- Sub-Surface Landfill Gas Collection Geocomposite.

The site is currently grazed, following the completion of proposed remediation works the site will continue to be grazed.

3.1.1 Construction Phase

The total extent of the cap is approximately 17,000m^2. The landfill cap shall be designed in accordance with the '*EPA Landfill design manual for non-inert, non-hazardous landfills*'. The engineered cap shall comprise (from the surface of the engineered cap down):

- 200 mm (3,400 m^3) topsoil, located on,
- 800 mm (13,600 m^3) subsoil located on,
- Subsurface drainage system located on,
- 1mm LLDPE located on,
- Gas collection geocomposite and collection pipework located on,
- Waste.

It is intended to clear the site of vegetation (an area of 17,000 m^2) in preparation of the installation of the engineered cap. Trees and hedges surrounding the site will not be cleared. Minimal regrading of the existing surface is required in preparation of installing the engineered cap as the site was profiled as part of pervious remediation works at the site. However, excavation of the existing capping material will be required to achieve the formation level of the proposed engineering cap. Any additional excavated soil from regrading works will be reused as part of the topsoil and subsoil layer of the proposed engineered cap. It is not proposed to expose the underlying waste as part of the capping works or general clearance works. Waste, if exposed, will be immediately covered with suitable capping materials. Capping works will not be undertaken during periods of intense or prolonged rainfall, all capping soils when laid will be continually rolled and compacted to minimise the potential for sedimentation.

Subsoil and Topsoil will be sourced typically from local quarries and/or as a by-product from local greenfield developments subject to Article 27 certification. Dedicated borrow sources for these materials are not proposed. Capping materials stockpiled onsite will be subject to standard stockpile management practices, i.e. suitable compaction, smooth rolling, and local earth bunding.

Site access will be via the existing site entrance and local access road.

Figure 3-1: Typical Equipment Landfill Capping: Subsoil movement and placement

The landfill gas (LFG) collection system will be placed on top of the regraded site surface and shall be comprised of an under-liner gas collection geocomposite and a network of gas collection pipework connected to a series of vertical standpipes venting to atmosphere at 2 m above the final ground level.

The vertical standpipes will provide a preferential pathway for LFG to escape to atmosphere which will reduce risks associated with migration of LFG to offsite receptors. The ventilation standpipes will include a carbon filtration packs to “scrub” any odour and low concentrations of methane from the landfill gas prior to venting. Wind driven rotating cowls will also be used to induce a negative pressure within the standpipe improving potential LFG flow. Existing leachate and LFG monitoring wells on site shall be retained within the cap to allow for future monitoring.

A landfill gas interception trench is proposed along the south-eastern site boundary, parallel to Station Road.

The interception trench will comprise a deep vertical cut off barrier installed to prevent gas migration laterally to the nearby commercial building. The barrier will be installed to a depth of approximately 2 m; subject to detailed design and further site investigation.

Figure 3-2: Landfill Capping: Placement of Subsoil atop Subsurface Drainage Layer (White) ,LLDPE Liner (Black) atop Landfill Gas Migration Layer (White -Far Left)

A linear low-density polyethylene (LLDPE) barrier system will be placed on top of the gas collection system. The LLDPE barrier will prevent the downward percolation of rainwater into the waste body as well as uncontrolled upward vertical migration of landfill gas. This LLDPE barrier will include vertical cut-offs to all boundaries of the interred waste body which limit lateral landfill gas migration.

TableA subsurface drainage layer will be placed on top of the LLDPE cap barrier and below the subsoil layer. This layer will collect and drain any surface water which has percolated through the soil cap and collected atop the impermeable barrier. This water will be managed by the surface drainage system, comprising of a herring bone drainage network across the site. The network shall comprise sub-surface drains within the capping area connected with French drains external to the capping area. The French style drains will collect surface run off from the cap, filtering it through a gravel surround prior to collection in a pipe at the base of the drain.

The piped drainage network will outfall at two outfall locations to the Gort river. Outfall locations will require the construction of headwalls adjacent to the riverbank, instream works are not proposed. Flood control valves will likely be required at each outfall location (subject to detailed design). Headworks will require the local placement of suitable riprap to the existing riverbanks about the outfall location.

Figure 3-4: Typical Riprap Protection at Culvert Outfall

As shown on Drawing nr. P2282-0500-0001 presented in Appendix 1. Inspection chambers will be located at all drain junctions for future maintenance and inspection.

The subsoil and topsoil layer will be placed atop the subsurface drainage layer. The sub soil layer will be adequately specified to ensure it is free draining to support future grazing of the site. Topsoil will form the surface of the engineered cap and will be graded to ensure no localised surface depressions and will be seeded with a robust heritage or native grassland mix.

The surface drainage will be located on the surface of the engineered cap and will comprise of the subsurface drainage extending vertically as land drains to accommodate future agricultural uses. The surface drainage will collect, and direct surface water runoff and subsurface drainage outfall flows onto the adjacent grassed surface where it will percolate through the soil.

Figure 3-5: Rotary Coring Rig

To facilitate continued environmental monitoring at the site it is proposed to install two additional gas monitoring wells beyond the waste body, south and south east of the site boundary. The installation of the proposed gas monitoring wells shall be completed as part of the remediation capping works. Gas well will be installed utilising a standard rotary boring rig. The monitoring borehole will be drilled to depth and backfill with a monitoring pipes and gravel surround. A standard casing and headworks will finish the installation.

All capping and remediation works will take place during the hours of daylight. The proposed works programme is estimated at 36 weeks.

3.1.2 Operational Phase / Post Construction

There will be no operational activities associated with this site other than conducting environmental monitoring. Environmental monitoring shall comprise of groundwater, leachate, surface water and gas monitoring. This includes no further ground excavations. Leachate sampling will be via the existing leachate monitoring borehole and will require the sampling of approximately 1250 ml of leachate per event.

Groundwater monitoring shall be carried out at the two existing perimeter wells (GW01 and GW02) and leachate monitoring shall be carried out at the existing well (LH01) within the capped area. Surface water monitoring shall be carried out at the existing surface water monitoring locations SW1 and SW2, upstream and downstream of the historical landfill. Monitoring will be undertaken annually in accordance with parameters listed in Table C.2 of the EPA's *Landfill Manuals - Landfill Monitoring, 2nd Edition (2003).*

Groundwater and surface water monitoring will be undertaken to monitor the performance of the engineered cap and will include the monitoring of suspended solid levels at perimeter outfalls and surface water monitoring locations.

Gas monitoring shall be carried out at the two existing groundwater monitoring wells and the one leachate monitoring well. Two additional gas monitoring wells shall be installed outside of the waste body, south and south east of the site boundary. Gas sampling will be carried out for Methane, Carbon Dioxide, Oxygen, Carbon Monoxide and temperature.

Environmental monitoring should be undertaken on an annual basis up until the recommendations of the Certificate of Authorisation are known and remediation works are complete.

For the purposes of this AA Screening the unmitigated effects of the proposed works are only being considered. This AA Screening report does not consider measures included to reduce and / or avoid potential significant effects to a European site.

3.2 Baseline Environment

The historic landfill is approximately 2 ha comprising an area located to the west of the L85075 road. The site is bound to the west and north by the River Gort with the L85075 road located along its eastern boundary. The site can be accessed via the Station Road to the south. There are no dwellings located within the site however residential units are present within 200m of the site boundary, in Gort town. A commercial area is located immediately south of the site on the eastern side of the L85075 and station road and the Gort to Athenry railway to the east. A walking trail is currently being developed along the banks of the Gort river.

Topography of the site and surrounding environment is characterised by land gently sloping towards the River Gort. Ground surface elevations at the site decrease from a peak at the east of the site to sloping downwards to the bank of the River Gort at the western boundary. The site also slopes to the east from the peak to the adjacent road.

The habitats within the landfill are categorised under Fossitt (2000) as 'semi-improved wet grassland' (GS4) with 'hedgerow' (WL1) / treeline (WS2) to the south and lowland depositing river (FW2) adjacent to the western boundary. No invasive species were observed. No observations and/or evidence of qualifying interests (QI) or species of conservation interest (SCI) of European sites were recorded during the survey. The site is currently managed through sheep grazing.

The nearest surface water feature to the site is the River Gort (Cannahowna EPA code: 29C01), located adjacent to the western boundary and flows in a northerly direction before converging with the Castletown River (Kilchreest_010) and then the Coole River (Kilchreest 29) which is part of the Coole-Garryland Complex SAC and Coole-Garryland SPA, before eventually discharging to the Atlantic, at Kinvarra Bay, which is part of the Galway Bay Complex SAC and Inner Galway Bay SPA, north-west of Gort Town.

Refer to Appendix 2 for habitat report.

The GSI mapviewer indicates:

- The quaternary sediments at the site comprise a combination of tills derived from limestones (western area) and bedrock outcrop or subcrop (eastern area). Alluvium deposits are also shown to be present along River Gort.
- The bedrock beneath the site comprises two different formations, Waulsortian Limestones (CDWAUL) and Ballysteen Formation (CDBALL). Further to the north, west and south of the site is the Tubber Formation.
- The presence of bedrock outcrop within the wider area. A significant number of bedrock outcrops and karstified bedrock outcrops are also shown along the banks of the River Gort.
- Bedrock groundwater beneath site is classified as a 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones'.

GSI mapping also shows a record of a well, located c.1km from the site and relating to a local authority managed public water supply. Although the record refers to a well, aerial imagery suggests that this record may relate to abstraction of water from the Gort River. There are no Groundwater Drinking Water Protection Areas within the site boundaries according to GSI, however the River Gort is part of the Coole ZOC Group Scheme Preliminary Source Protection Areas, the abstraction point is located upstream of Gort Bridge and the site.

The EPA map viewer indicates that the:

- Site is located within the Galway Bay South East catchment (Hydrometric Area 29), Sub catchment Cannahowna_SC_010 and river sub-basin Cannahowna _010.
- Surface water quality monitoring has historically been conducted by GCC at Gort Bridge, c. 320m upstream of the site, and this is also the closest EPA surface water monitoring station to the site. Monitoring is conducted c.760m downstream of the site at EPA monitoring station (ID: RS29C010200 - at Old Mill No of Gort).
- The most recent biological Q-Rating for surface water quality at Gort Bridge (2018) was Q4, 'Good' status while the most recent (2018) biological (Q-rating) downstream of the site was Q3, Poor. Another 'investigative' EPA monitoring station is located on the Gort River, downstream of Gort wastewater treatment plant (WWTP) effluent discharge point. Although no biological quality (Q-rating) is assigned to this monitoring station, chemical monitoring data indicates a deterioration in water quality, thereby suggesting that the measured decrease in Q-rating (as stated above) may be partially attributable to the WWTP discharge.

The proposed development lies within Ordnance Survey National Grid 10km Square M40. NBDC results of the European protected species that have previously been recorded within the grid square identify:

- 1 no. amphibian species
- 29 no. bird species
- 2 no. terrestrial mammal species
- 8 no. bat species (including Lesser Horseshoe bat)
- 1 no. jawless fish (*Agnatha*)

The existing landfill site comprises potential foraging/commuting habitat for birds, terrestrial mammals and bats.

3.3 Identification of Impacts

Sources of potential environmental impacts during the proposed development:

- Pollution events
    - Sediment runoff from the exposed areas of existing capping excavated to achieve the formation level of the proposed engineering cap, impacts are estimated to be temporary due to the short time frame of the proposed remediation works. Remediation works will have a positive effect on the existing capped landfill.
    - Sediment runoff from the capping materials stockpiled onsite, however this will be subject to standard stockpile management practices, i.e. suitable compaction, smooth rolling, and local earth bunding. Impacts are estimated to be temporary, due to the short time frame of the proposed remediation works.
    - Sediment runoff from newly laid areas of topsoil, impacts are estimated to be temporary while grass layer is established.
    - Sediment runoff via the piped drainage network which will outfall at two outfall locations to the Gort river, impacts are estimated to be temporary while the grass layer is established.
    - Leachate will continue to be produced as part of the existing capped landfill site, however the proposed works will not contribute to leachate emissions. Remediation works will have a positive effect on the existing capped landfill reducing percolation inputs into the waste body, therefore reducing the potential for leachate to be produced and leachate production will eventually tail off.
- Disturbance
    - Increase in machinery and personnel on site, impacts are estimated to be temporary due to the short time frame of the proposed remediation works.
    - Increase in noise due to earthworks, impacts are estimated to be temporary due to the short time frame of the proposed remediation works.

3.3.1 Zone of Influence

Projects have the potential to impact on European Sites beyond the footprint of the project itself. National Guidance (Refer to Section 2.1) states that screening for Appropriate Assessment should be carried out for any European Site within the likely 'Zone of Influence' (ZoI) of a plan or project.

CIEEM (2018) defines the ZoI as *"… the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities*." The likely biophysical changes associated with the landfill rehabilitation are set out in Table 3-1 having regard to the impacts identified above. The zones of influence associated with these project impacts have been derived from relevant published literature and guidance documents.

All European sites within the defined zones of influence were identified using Geographic Information System (ArcGIS).

Table 3-1: Zone of Influence

Activity	Biophysical Change	Zone of Influence	European Site / Conservation Interest within ZoI
Site Clearance	Temporary removal of existing semi-improved wet grassland, capping and reseeding	Disturbance of habitat will occur directly within the footprint of the works. No potential for direct habitat damage beyond the proposed development boundary. The Lesser Horseshoe Bat (LHS bats) Appropriate Assessment Guidelines require that any roosts within 2km are to be assessed relative to nature of surrounding habitat to support commuting / feeding / roosting. The habitat to be cleared is not commuting or foraging habitat for Lesser Horseshoe Bat. It is not proposed to clear sections of treeline or hedgerow for the proposed works. As such there will be no loss of potential commuting habitat. Notwithstanding this, the landfill is located on the boundary of Gort Town. There are commercial premises in close proximity which use artificial lighting. LHS bats generally avoid all street lighting (Stone et al). As such this area is not suitable to support feeding or commuting LHS bats.	**No European Sites within the ZoI for site clearance**
Noise, Vibration & Human Presence (disturbance / displacement)	Temporary increase in noise due to earth works Temporary increase in vibration due to boreholes	Typical documented ranges for disturbance are set out below: Mammals – NRA guidelines = 150m Otter Breeding Birds – 1km - Disturbance distances for sensitive breeding bird species. Wintering Birds - Based on core foraging ranges SNH (2016) Assessing connectivity with special protection areas.	Otter record within 150m of the proposed development. Otter are a SCI of East Burren Complex SAC (Site Code: 001926; 3.0 km West) No previous records (NBDC) of breeding birds within 1km. Wintering birds The proposed development site is within the core range (a defined range according to SNH (2016)) of • Whooper Swan (Cygnus) SCI for Coole-Garryland SPA (004107, 1.5km NW) • Cormorant (*Phalacrocorax carbo*) SCI for Lough Cutra SPA (004056, 3.2km SE) • Hen Harrier (*Circus cyaneus*) and Merlin (*Falco columbarius*) SCI for Slieve Aughty Mountains SPA (004168, 3.9km E) The proposed development site comprises low value ecological habitat. Due to the duration of works (36 weeks), no sightings of SCI's during surveys and no supporting data (NBDC, NPWS, I-Webs) that SCI's have been recorded using the site (within 2km). There is also no suitable breeding and/or wintering habitat on site for the SCI species as identified by Birdwatch Ireland and the surrounding environment having appropriate displacement habitat and ample prey displacement habitat , it is unlikely that the proposed development will have a

Activity	Biophysical Change	Zone of Influence	European Site / Conservation Interest within ZoI
			significant effect on the SCIs of Coole-Garryland SPA, Lough Cutra SPA or Slieve Aughty Mountains SPA.
Dust		The Institute of Air Quality Management 'Guidance on the Assessment of dust from demolition and construction' (Holman et al, 2020) prescribes potential dust emission risk classes to ecological receptors. The guidelines specify that, for highly sensitive ecological receptors, sensitivity to dust is 'High' up to 20m from the source and reduces to 'Medium' over 50m from the source. The generation of dust from the proposed rehabilitation works is considered to equate to the small scale construction and demolition works outlined in Holman et al. (2020) and, therefore, 50m is taken as a worst-case ZoI for dust impacts from the works.	**No European site within the ZoI of dust.** There is potential for dust deposition in the Gort river. However, due to the small scale (17,000m3 of soil) and the short duration (36 weeks) of the proposed development, along with the Gort river going to ground approximately 3.7km north being designated as part of any European designated site, impacts from dust are anticipated to be localised.
Lighting	Any new temporary or permanent lighting	All capping and remediation works will take place during the hours of daylight. As such there will be no artificial lighting used on site.	**No European site within the ZoI of lighting**
Runoff	Sedimentation & pollution	There is potential for runoff to enter the Gort river adjacent to the landfill. The river is hydrologically connected to the Coole-Garryland Complex SAC and Coole-Garryland SPA (5.6 km in-stream distance). It is noted that the proposed works are small scale (17,000m3 soil) and of short duration (36 weeks). The Gort river also goes to ground at Kiltartan (c. 3.7 km in-stream distance). There is limited potential for sediment to be carried to the SAC / SPA. Also given the volume of water that enters the SAC by ground, there is ample dispersion so as not to affect the qualifying features (which are not sensitive to sedimentation). Effects are therefore likely to be localised to the river. However, in assessing the potential zone of influence, the Communication of the Commission in applying the precautionary principle is adopted Coole-Garryland Complex SAC and Coole-Garryland SPA are considered further. **Hydrological connectivity** ***Surface water*** • Caherglassaun Turlough SAC (Site Code: 000238; 5.0 km Northwest)	**European Site within the Potential ZoI of surface water runoff:** • Coole-Garryland Complex SAC (Site Code: 000252; 1.1 km Northwest) • Coole-Garryland SPA (Site Code: 004107; 1.5 km Northwest)

Activity	Biophysical Change	Zone of Influence	European Site / Conservation Interest within ZoI
		• Galway Bay Complex SAC (Site Code: 000268; 10.9 km Northwest) • Inner Galway Bay SPA (Site Code: 004031; 10.9 km Northwest) Although the aforementioned European sites also have hydrological connectivity via the Gort River, as explained the river goes to ground before reaching the Coole-Garryland Complex SAC and the hydrological connectivity is through ground via complicated conduits which ultimately emerge as springs at Kinvarra. A significant pollution event would be necessary in order for any effects to be seen at these European sites. ***Groundwater*** Fourteen European sites are located within the same groundwater body as the historic landfill site. The existing shallow cap and unlined waste body have potential to allow rainfall ingress to potentially produce leachate that may subsequently contaminate receiving groundwaters. However the groundwater within the proposed development site flows in the direction of the River Gort contributing to surface water effects. Therefore, it is unlikely groundwater will have the potential to negatively affect the European sites.	
Operational Phase		There will be no operational activities associated with this project other than conducting environmental monitoring. Environmental monitoring shall comprise of groundwater, leachate, surface water and gas monitoring. This includes no further ground excavations.	The remediation works will prevent rainwater from infiltrating the interred waste body therefore reducing the potential for leachate to be produced. This will have a positive effect on local surface water and groundwater quality.

The European Sites within the Zone of Influence are identified as Coole-Garryland Complex SAC (Site Code: 000252) and Coole-Garryland SPA (Site Code: 004107). These are examined further in Section 4 relative to the sensitivity of their conservation interests / qualifying features to the likely biophysical changes of the project.

3.4 Potential Cumulative Impacts

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

- Galway County Council Planning Enquiry System
- Permitted projects in the vicinity of the development
- Proposed projects in the vicinity of the development
- Galway County Development Plan 2015-2021
- Gort Local Area Plan 2013-2023

A planning search limited to applications submitted within the townlands overlapping (Lavally) and immediately adjacent (Gort) to the historic landfill site during the previous 5 years was conducted on 2nd October 2020. Larger developments beyond the townlands, adjacent to the River Gort were also assessed cumulatively.

Planning Applications

The vast majority of the proposed and permitted developments comprise of residential and commercial related developments with a lesser amount of residential/retail change in use and development.

The planning search did not indicate any large developments within the aforementioned townlands that could have cumulative effects with the landfill remediation works. However an application (and subsequent amendments) to construct 132 no. houses is located c. 800m upstream.

Waste Water Treatment

Gort wastewater treatment plant is located c. 400m north with the effluent discharge location on the River Gort, c. 400m in-stream, of the historic landfill site.

Flood Relief

Galway County Council intend to progress a flood relief scheme to alleviate flooding which has impacted the Gort Lowlands area. The Scheme is currently at feasibility stage. This project will involve the construction of a flood embankment on the opposite side of the river to the landfill site.

Farming / Peat extraction / Forestry

Farmland is widespread in the surrounding environment and intensive grassland management is noted close to (but not within) the historic landfill site. In general, farming practices contribute to water pollution[2]. The diversity of flora within the habitats has been reduced dramatically in the surrounding environment by drainage, reseeding, fertilisation and intensive grazing by cattle.

The main potential impact would be an increase in nutrient levels of local watercourses.

The 2003 a peat landslide occurred in Derrybrien. It was focused around turbine 68 in the Derrybrien wind farm. The landslide dislodged 450,000 cubic metres of peat after days of dry weather. While initially coming to rest 2.5 km away, it moved further three weeks later when rains came, entering the "Derrywee River" or Abhainn Da Loilioch and eventually spilled 20 km away into "Lough Cutra". The lake was a source of Gort's drinking water and this caused disruptions to supply. An impact assessment on the wildlife within the lake determined that more than 50 per cent of fish in the lake had been killed due to this pollution, about 50,000 fish of all ages and species groups had perished. A smaller peat slide near turbine 17 had occurred prior to the main movement.

Forestry in the Slieve Aughties is a particular pressure in this catchment. There is a high level of sedimentation from the uplands catchment which makes its way into the system (EPA 2019).

Other Historic Landfills

There are no other historic landfills within the ZoI for the proposed development.

Plans

The plans considered for in-combination effects with regard to the proposed development are:

- Galway County Development Plan 2015-2021
- Gort Local Area Plan 2013-2023

Given the benefits of the proposed development on the local environment, the potential for in-combination effects are low.

[2] EPA. 2019. Water Quality in Ireland 2013 – 2018.
http://www.epa.ie/pubs/reports/water/waterqua/Water%20Quality%20in%20Ireland%202013-2018%20(web).pdf

4. CHARACTERISTICS OF EUROPEAN SITE(S)

4.1 Brief Description of the European Sites within ZoI of the Development

The Coole-Garryland Complex SAC and Coole-Garryland SPA are within the potential ZoI for the proposed development and connected via the Gort River.

4.2 Conservation Objectives

According to the Habitat's 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 Habitat's 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.

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 below on the 1st March 2021.

Generic conservation objectives only were available for:

- Coole-Garryland Complex SAC (000252); published 07/04/2020 [Version 7]
- Coole-Garryland SPA (004107); published 07/04/2020 [Version 7]

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

There is no management plan available for the sites within the potential ZoI.

Table 4-1: European Sites within the zone of influence

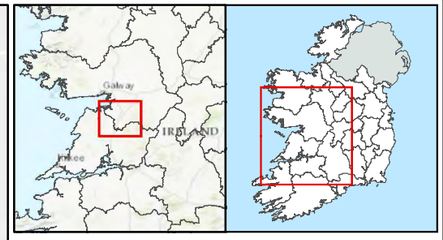
Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
Coole-Garryland Complex SAC (000252)	To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected (further details available in Appendix 3). Generic Conservation Objectives available: 07/04/2020 [Version 7]	• 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation • 3180 Turloughs* • 3270 Rivers with muddy banks with *Chenopodion rubri* p.p. and Bidention p.p. vegetation • 5130 *Juniperus communis* formations on heaths or calcareous grasslands • 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) (* important orchid sites)* • 8240 Limestone pavements* • 91J0 *Taxus baccata* woods of the British Isles*	<u>High Level (inside site)</u> A08 Fertilisation J02.01 Landfill, land reclamation and drying out, general <u>High Level (both inside and outside site)</u> J02.05 Modification of hydrographic functioning, general <u>Medium Level (inside site)</u> I01 Invasive non-native species A04.01.02 Intensive sheep grazing A04.01.01 Intensive cattle grazing <u>Medium Level (outside site)</u> D01.02 Roads, motorways <u>Medium Level (both inside and outside site)</u> E03.01 Disposal of household / recreational facility waste J02.01.03 Infilling of ditches, dykes, ponds, pools, marshes or pits <u>Low Level (inside site)</u> J01.01 Burning down	1.1 (5.6 in-stream distance)

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
			A10.01 Removal of hedges and copses or scrub C01.01 Sand and gravel extraction <u>Low Level (both inside and outside site)</u> C03.03 Wind energy production E03.03 Disposal of inert materials H02.06 Diffuse groundwater pollution due to agricultural and forestry activities H01.08 Diffuse pollution to surface waters due to household sewage and waste waters J02.04.01 Flooding	
Coole-Garryland SPA (004107)	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA (further details available in Appendix 3). Generic Conservation Objectives available: 07/04/2020 [Version 7]	• A038 Whooper Swan *Cygnus*	<u>High Level (inside site)</u> B Sylviculture, forestry <u>High Level (outside site)</u> A04 Grazing <u>Medium Level (inside site)</u> A04 Grazing A08 Fertilisation G01.02 Walking, horseriding and non-motorised vehicles <u>Medium Level (outside site)</u> A08 Fertilisation	1.5 (5.6 in-stream distance)

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
			Low Level (inside site) B03 Forest exploitation without replanting or natural regrowth E03.01 Disposal of household / recreational facility waste K03 Interspecific faunal relations F03.01 Hunting Low Level (outside site) F03.01 Hunting	

* indicates a priority Annex I habitat.

000322 SAC
000268 SAC
000606 SAC
000242 SAC
001285 SAC
002244 SAC
000304 SAC
AUGHINISH
000318 SAC
001913 SAC
002294 SAC
002295 SAC
002117 SAC
002293 SAC
000238 SAC
000286 SAC
000054 SAC
000252 SAC
002181 SAC
000299 SAC
002180 SAC
001321 SAC
001926 SAC
002126 SAC
002317 SAC
000019 SAC
000057 SAC
000032 SAC
001912 SAC
000016 SAC
002245 SAC



Site Boundary
15km Buffer Zone

Code, Name, Distance (km)

004031, Inner Galway Bay SPA, 10.9
004056, Lough Cutra SPA, 3.27
004107, Coole-Garryland SPA, 1.48
004168, Slieve Aughty Mountains SPA, 4.01

Special Area of Conservation (SAC)

Code, Name, Distance (km)

000019, Ballyogan Lough SAC, 11.35
000057, Moyree River System SAC, 11.46
000238, Caherglassaun Turlough SAC, 5.04
000242, Castletaylor Complex SAC, 11.93
000252, Coole-Garryland Complex SAC, 1.08
000268, Galway Bay Complex SAC, 10.89
000286, Kiltartan Cave (Coole) SAC, 3.26
000299, Lough Cutra SAC, 3.12
000318, Peterswell Turlough SAC, 6.7
000606, Lough Fingall Complex SAC, 11.53
001285, Kiltiernan Turlough SAC, 11.82
001321, Termon Lough SAC, 4.02
001912, Glendree Bog SAC, 13.71
001913, Sonnagh Bog SAC, 11.36
001926, East Burren Complex SAC, 3.04
002117, Lough Coy SAC, 4.66
002180, Gortacarnaun Wood SAC, 6.17
002181, Drummin Wood SAC, 5.97
002244, Ardrahan Grassland SAC, 9.75
002293, Carrowbaun Newhall and Ballylee Turloughs SAC, 3.91
002294, Cahermore Turlough SAC, 6.14
002295, Ballinduff Turlough SAC, 4.94
002317, Cregg House Stables Crusheen SAC, 9.08

TITLE:	Designated European Sites within 15km		
PROJECT:	Gort Historic Landfill ERA		
FIGURE NO:	6.1		
CLIENT:	Galway County Council		
SCALE:	1:120000	**REVISION:**	0
DATE:	10/02/2021	**PAGE SIZE:**	A3

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5. LIKLIHOOD OF SIGNIFICANT EFFECTS

5.1 Overview

The potential for effects on the 6 European sites within the ZoI (refer to section 4) arising from the proposed landfill rehabilitation (alone or in combination with other projects or plans) is considered having regard to the conservation objectives of the European site(s).

This assessment is made having regard to 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) and adopts the standard 'Screening Matrix' set out in said guidance document.

5.2 Screening Matrix

Assessment Criteria	Discussion of Potential for Significant Effects
Describe any likely direct, indirect or secondary impacts [effects] of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of: ▪ *Size and scale;* ▪ *Land-take;* ▪ *Distance from Natura 2000 site or key features of the site;* ▪ *Resource requirements;* ▪ *Emissions;* ▪ *Excavation requirements;* ▪ *Transportation requirements;* ▪ *Duration of construction, operation etc.;* ▪ *Other.*	**Size and scale** **Potential effects:** *None* An engineered landfill cap is proposed to replace/upgrade the existing shallow soil cap. The existing shallow soil cap has the potential to allow rainfall to reach the interred waste and potentially produce leachate that may subsequently contaminate receiving groundwaters. The remediation works will be limited to the full area of a 2 ha single parcel of land. Prior to remediation works the entire site will be cleared. It is estimated that the existing soil cap will be required to achieve the formation level of the proposed engineering cap. Any additional excavated soil from regrading works will be reused as part of the topsoil and subsoil layer of the proposed engineered cap. Remediation works will involve the use of 3,400m^3 topsoil and 13,600m^3 of subsoil spread over the 2 ha area and a barrier system which will require vertical cut-offs on all boundaries (where possible). The landfill gas collection system will be placed on top of the regraded site surface and shall be comprised of an under-liner gas collection geocomposite and a network of gas collection pipework connected to a series of vertical standpipes venting to atmosphere at 2 m above the final ground level. The subsurface drainage layer will be placed on top of the LLDPE cap barrier and below the subsoil layer. This layer will collect any surface runoff which percolates below the surface of the cap. This water will be directed to the surface drainage system, which will comprise of a herring bone drainage network across the site. The network shall comprise sub-surface drains within the capping area connected with French drains external to the capping area. Overall, this will have a positive effect on local surface water and ground water quality.

Assessment Criteria	Discussion of Potential for Significant Effects
	Land-take **Potential Effects:** *None.* The proposed development is not located within any European site, therefore no land-take will occur from any European site. Potential for significant effects has been excluded. **Distance from Natura 2000 (European) sites** **Potential Effects:** *None.* *Hydrological link – Surface water* As described in section 3.2, the nearest surface water feature to the site is the River Gort, located adjacent to the western boundary and flows in a northerly direction before converging with the Castletown River (Kilchreest_10) and then the Coole River (Kilchreest 29), which is part of the Coole-Garryland Complex SAC (5.6 km in-stream) and Coole-Garryland SPA (5.6 km in-stream). The Gort River goes to ground at Kiltartan (c. 3.7 km in-stream distance). **Resource requirements** **Potential Effects:** *None* There will be no resource requirements from any European site as a result of the proposed remediation works. Potential for significant effects has been excluded. **Emissions** **Potential Effects:** *None* As the proposed development is not located within the boundary of any European site, no direct effects by way of emissions (disposal to land, water or air) are predicted. *During Remediation Works* During remediation works emissions created by the works will be comprised of soil sediment and dust nuisance.

Assessment Criteria	Discussion of Potential for Significant Effects
	Soil sediment and dust nuisance will be produced during: • Clearance of vegetation prior to remediation works (17,000m^2) • The use of 13,600m^3 of subsoil used to reprofile the site as well 3,400m^3 topsoil which will provide a growing medium for grass. • The installation of the barrier system which will require vertical cut-offs on all boundaries. • During the installation of landfill gas management elements located on top of the regraded site surface (will not disturb the interred waste body). **Soil** As described above, the proposed development is adjacent to the River Gort. Which is connected to Coole-Garryland Complex SAC and Coole-Garryland SPA (5.6 km in-stream), however, as this river goes to ground, there is limited potential for sediment to be carried to the SAC / SPA. Also given the volume of water that enters the SAC by ground, there is ample dispersion so as not to affect the qualifying features (which are not sensitive to sedimentation). The point at which the River Gort goes underground is quite large and energetic. There is no potential for sediment runoff to block this and cause a change in hydrology. Therefore there is an unlikelihood that sediment would be carried and potential to negatively (indirectly) effect the SAC/ SPA. Potential for significant effects has been excluded. **Dust** The River Gort is within the radius for direct effects from dust (outlined by the Institute of Air Quality Management (IAQM) 2014 and 2020), however, given the scale of the development relative to the overall catchment serving the turloughs (and associated sediment load) some dust deposition in the Gort River would not have a significant effect on the water quality of the SAC/ SPA with connectivity. *Operation* **Leachate** Following remediation works leachate will continue to be produced and enter surface water / groundwater for a time. However, remediation works will prevent rainwater from infiltrating the interred waste body therefore reducing the potential for leachate to be produced. This will have a positive effect on surface water and groundwater quality.

Assessment Criteria	Discussion of Potential for Significant Effects
	Excavation requirements **Potential Effects:** *None* There will be no excavation requirements from any European site as a result of the proposed development. Excavation works will be limited to the installation of the barrier system (outside the body of interred waste), clearance of site vegetation and installation of above ground elements of the gas collection system. There will also be the placement of 3,400m^3 of topsoil and 13,600m^3 subsoil, which will be used to reprofile the historic landfill site; filling in any localised depressions. See above section on 'Emissions' for more information. **Transportation requirements** **Potential Effects:** *None.* The site can be accessed via the Station Road to the south and will not traverse any European Site. Potential for significant effects has been excluded. **Duration of Construction and Operation** **Potential Effects:** *None.* It is anticipated that remediation works will occur over 36 weeks. Following remediation works, environmental monitoring will be on an annual basis up until the recommendations of the Certificate of Authorisation are known and will be ongoing for several years. It has been identified that Lesser horseshoe bats are sensitive to disturbance, however, as described above (refer to sections 3.1 and 3.3.1), disturbance from the proposed development will be minimal as all works will conducted in the hours of daylight and temporary due to the short time frame of the proposed remediation works (36 weeks). Once remediation works are complete and the grass layer has become established, the site will continue to be grazed by livestock. Potential for significant effects has been excluded. **Cumulative Effects** **Potential Effects:** *Potential for in-combination and cumulative effects with other plans and projects.* A planning search limited to applications submitted within the townlands overlapping (Lavally) and immediately adjacent (Gort) to the historic landfill site. Larger developments beyond the townlands, adjacent to the River Gort were also assessed cumulatively.

Assessment Criteria	Discussion of Potential for Significant Effects
	Planning The vast majority of the proposed and permitted developments comprise of residential and commercial related developments with a lesser amount of residential/retail change of use, all at least 10m from a watercourse edge. *Wastewater treatment* Gort wastewater treatment plant (WWTP) undertook an upgrade in 2019 to meet demand for treated water and complying with the current drinking water regulations. This upgrade along with the proposed development will have a positive effect on the Gort River. *Flood Relief* Galway County Council intend to progress a flood relief scheme to alleviate flooding which has impacted the Gort Lowlands area. This project will involve the construction of a flood embankment on the opposite side of the river to the landfill site. As this is however only at the feasibility stage, it is not anticipated to start until 2023 at the earliest. The proposed development is anticipated to start in 2022 and expected to last approximately 36 weeks, therefore In-combination effects are not anticipated. *Farming / Peat extraction / Forestry* Farmland is widespread in the surrounding environment and intensive grassland management is noted close to (but not within) the historic landfill site. In general, farming, peat extraction and forestry contribute to water pollution (EPA 2019). As described above (see emissions) the potential impacts from the proposed development are expected to be limited in scale (17,000m3 of topsoil), duration (36 weeks) and distance to nearest European site (5.6km instream), therefore in-combination effects (if any) with these practices, will be limited. However the outcome of the proposed development will prevent rainwater from infiltrating the interred waste body therefore reduce the potential for leachate to be produced. This will have a positive effect on local surface water and groundwater quality. *Plans* The following development plans have been reviewed and taken into consideration as part of this assessment. • Gort Local Area Plan 2013-2023 o Policy NH 1 – Natural Heritage, Landscape and Environment o Objective NH 1 – European Sites o Objective NH 2 – Protected Habitats and Species o Objective NH 4 – Impact Assessments o Objective NH 5 – Biodiversity & Ecological Networks o Objective NH 6 - Water Resources o Objective NH 7 - Environmental Management Buffer

Assessment Criteria	Discussion of Potential for Significant Effects
	• Galway County Development Plan 2015-2021 o Policy NHB 1 – Natural Heritage and Biodiversity o Policy NHB 4 – Water Resources o Policy NHB 8 – National Parks and Wildlife Service (NPWS) Management Plans o Objective NHB 1 – Protected Habitats and Species o Objective NHB 2 – Biodiversity and Ecological Networks o Objective NHB 3 – Water Resources o Objective NHB 4 – Geological and Geo-Morphological Systems o Objective NHB 6 – Protection of Bats and Bats Habitats o Objective NHB 12 – Soil/Ground Water Protection. The review focused on policies and objectives that relate to European sites. Refer to Appendix 4 for full text for each policy and objective. The proposed development has taken all the aforementioned plans into account and does not contravene any of the above policies and objectives. The proposed development in-combination with the plans will have a positive effect on the local environment. Potential for significant effects has been excluded.
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 or indirect reduction in habitat area or habitat fragmentation within any European site as a result of the proposed development. There will be no predicted effect via disturbance of key species or reduction of key species as a result of the proposed development. There will be no predicted changes in key indicators of conservation value as a result of the proposed development. This is due to the limited scale and nature of works (remediation of existing landfill site in order to prevent rainwater infiltrating into the interred waste body and reducing the release of leachate entering surface/ ground water), the duration of the works (approximately 36 weeks) and distance (closest European site with hydrological connectivity is 5.6km in-stream away).
Describe any likely impacts [effects] on the Natura 2000 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 effects on the key relationships that define the structure or function of any European site considered in this Appropriate Assessment Screening.

Assessment Criteria	Discussion of Potential for Significant Effects
Provide indicators of significance as a result of the identification of effects set out above in terms of: ▪ *loss,* ▪ *fragmentation,* ▪ *disruption,* ▪ *disturbance,* ▪ *change to key elements of the site (e.g. water quality etc.).*	Potential for significant effects has been excluded in regard to the proposed development, therefore, an indicator of significance is not required.
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts [effects] are likely to be significant or where the scale of magnitude of impacts [effects] is not known.	No significant effects or effects of unknown scale or magnitude, either alone or in-combination with other projects or plans will occur.

6. CONCLUSION

No pathways for significant effect on any European sites were identified. Thus it can be concluded beyond reasonable scientific doubt, in view of best scientific knowledge and on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed project individually or in combination with other plans and projects, would not be likely to have significant effect on any European sites. The findings of this report for screening for Appropriate Assessment are summarised in the Findings of No Significant Effects Matrix in Appendix 4 and are presented to aid the Competent Authority in their screening assessment.

7. REFERENCES

Kavanagh, A. S., Cronin, M.A., Walton, M. and Rogan, E. 2010. Diet of the harbour seal (*Phoca vituline vitulina*) in the west and south-west of Ireland. Journal of the Marine Biological Association of the United Kingdom, 2010, 90(8), 1517–1527

Balmer, D. E., Gillings, S., Caffrey, B. J., Swann, R. L., Downie, I. S. and Fuller, R. J. 2013. Bird Atlas 2007–11: The Breeding and Wintering Birds of Britain and Ireland. BTO Books, Thetford, UK.

DoEHLG, 2010. 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. European Commission Brussels, 21.11.2018 C (2018) 7621 final.

European Commission, 2001. 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.

Environment Protection Agency, 2003. Landfill Manuals - Landfill Monitoring, 2nd Edition. Environmental Protection Agency, Ireland.

Fossitt, J., 2000. A Guide to Habitats in Ireland. The Heritage Council, Ireland.

Galway County Council, 2018. Gort Local Area Plan 2013-2023. Galway County Council, Ireland.

Galway County Council, 2015. Galway County Council Development Plan 2015-2021. Galway County Council, Ireland.

NPWS, 2018. Conservation objectives supporting document – lesser horseshoe bat (*Rhinolophus hipposideros*) Version 1. Conservation Objectives Supporting Document Series. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland.

NPWS, 2013. Conservation Objectives: Inner Galway Bay SPA 004031. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS, 2013. Conservation Objectives: Galway Bay Complex SAC 000268. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS, 2018. Conservation Objectives: Caherglassaun Turlough SAC 000238. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS, 2020. Conservation objectives for Slieve Aughty Mountains SPA [004168]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

NPWS, 2020. Conservation objectives for Lough Cutra SPA [004056]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

NPWS, 2018. Conservation Objectives: Kiltartan Cave (Coole) SAC 000286. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS, 2018. Conservation Objectives: Lough Cutra SAC 000299. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS, 2020. Conservation objectives for East Burren Complex SAC [001926]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht

NPWS, 2020. Conservation objectives for Coole-Garryland SPA [004107]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

NPWS, 2020. Conservation objectives for Coole-Garryland Complex SAC [000252]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

SHN, 2016. Assessing Connectivity with Special Protection Areas (SPAs). Version 3. Scottish Natural Heritage, UK.

Stone, E.L., Jones, G., Harris, S. (2009). Street lighting disturbs commuting bats. Curr. Biol. 19, 1123–1127.

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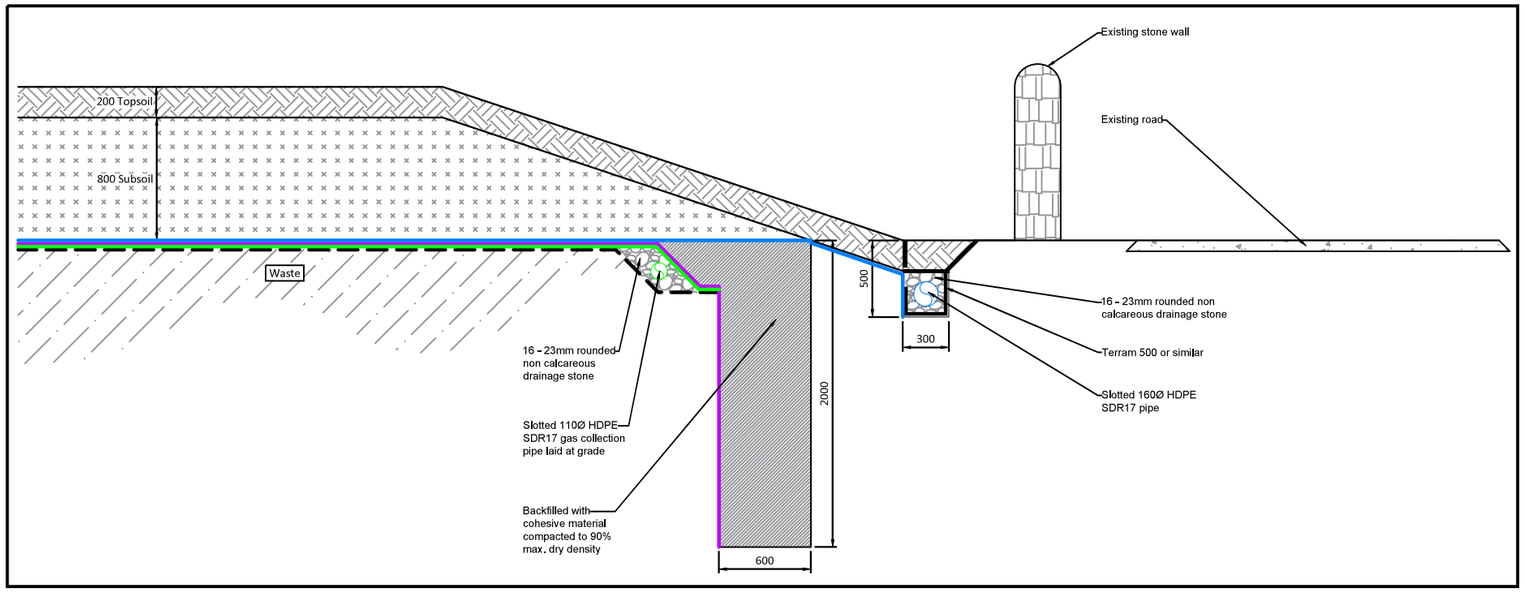
APPENDIX 1

Proposed Development Figures



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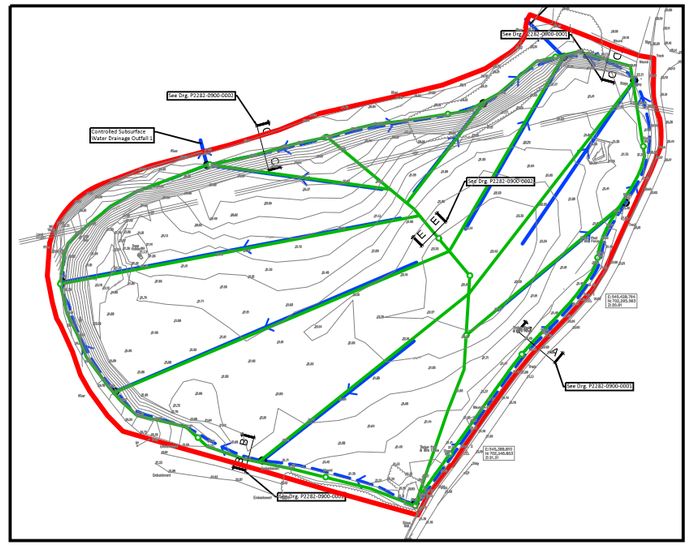

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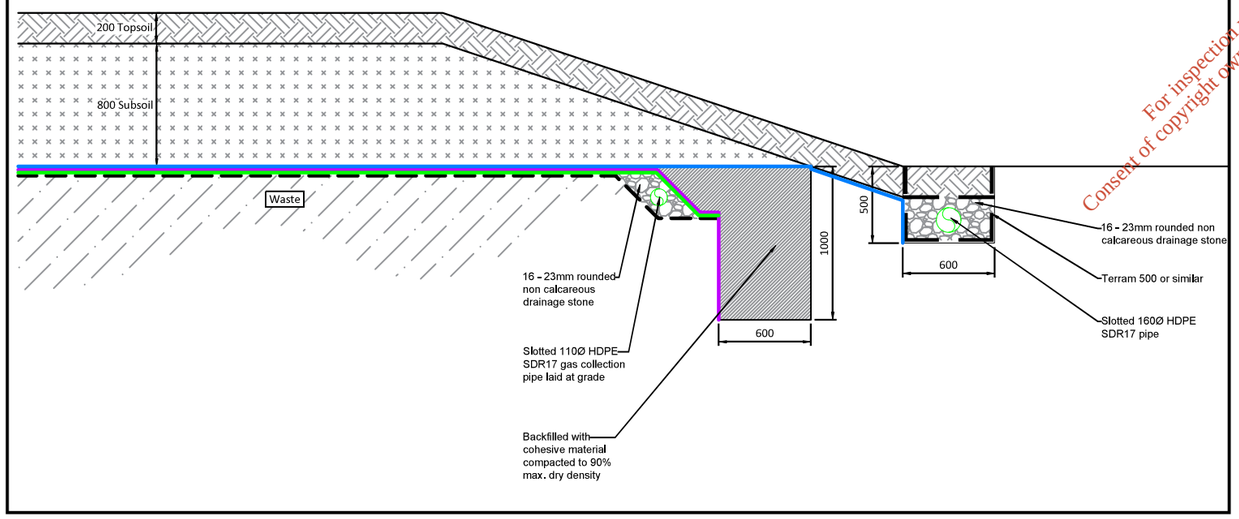

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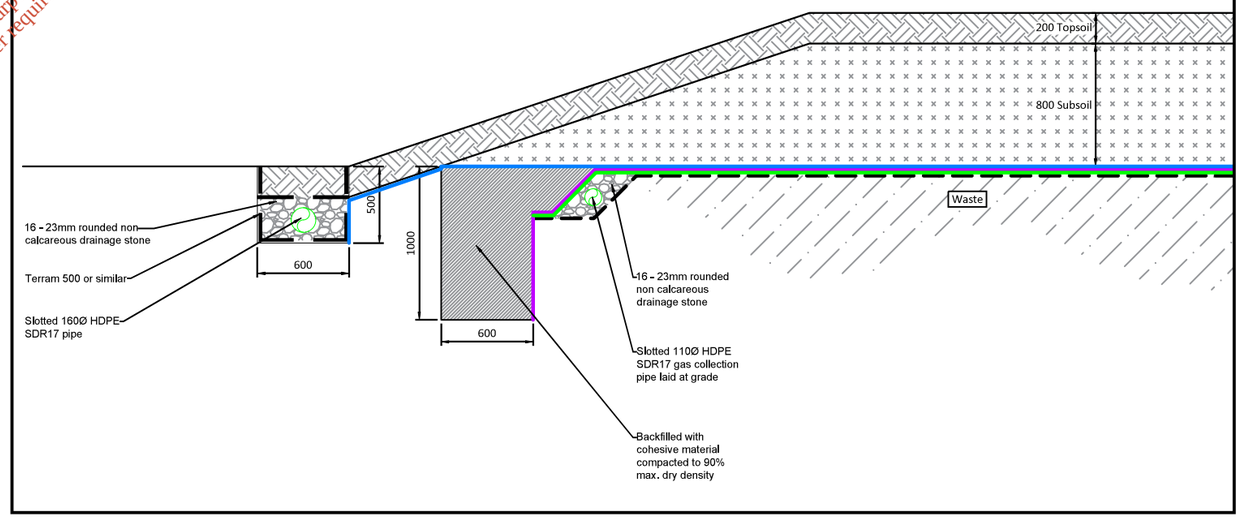

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT: ERA GALWAY HISTORIC LANDFILLS

CLIENT: GALWAY COUNTY COUNCIL

SHEET: SECTIONS A - A, B - B & D - D (GORT HISTORIC LANDFILL)

Date 20.01.21	Project number P2282	Scale (@ A3) 1:40	
Drawn by POR	Drawing Number P2282-0900-0001		Rev A
Checked by AB			

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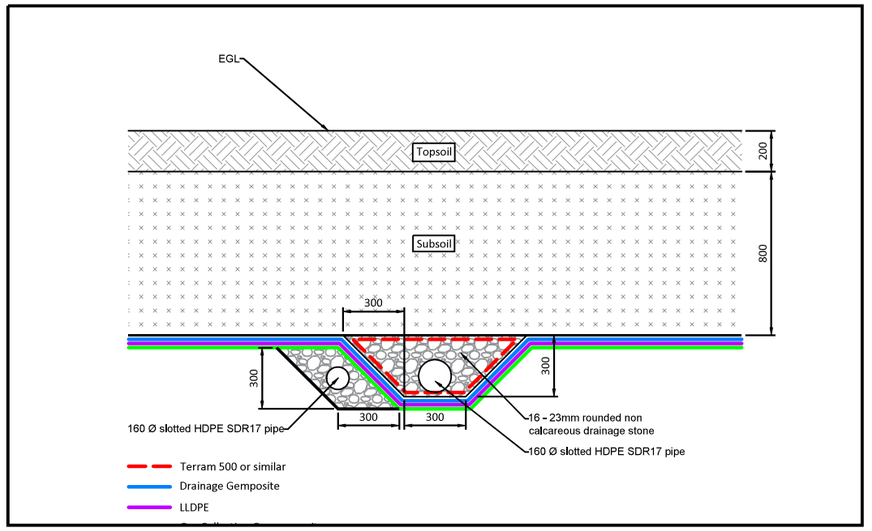
Monday 25 January 2021



SECTION E - E

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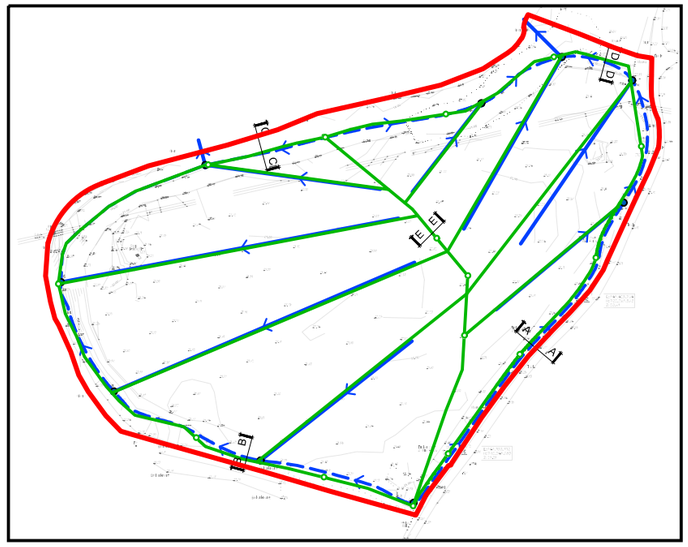

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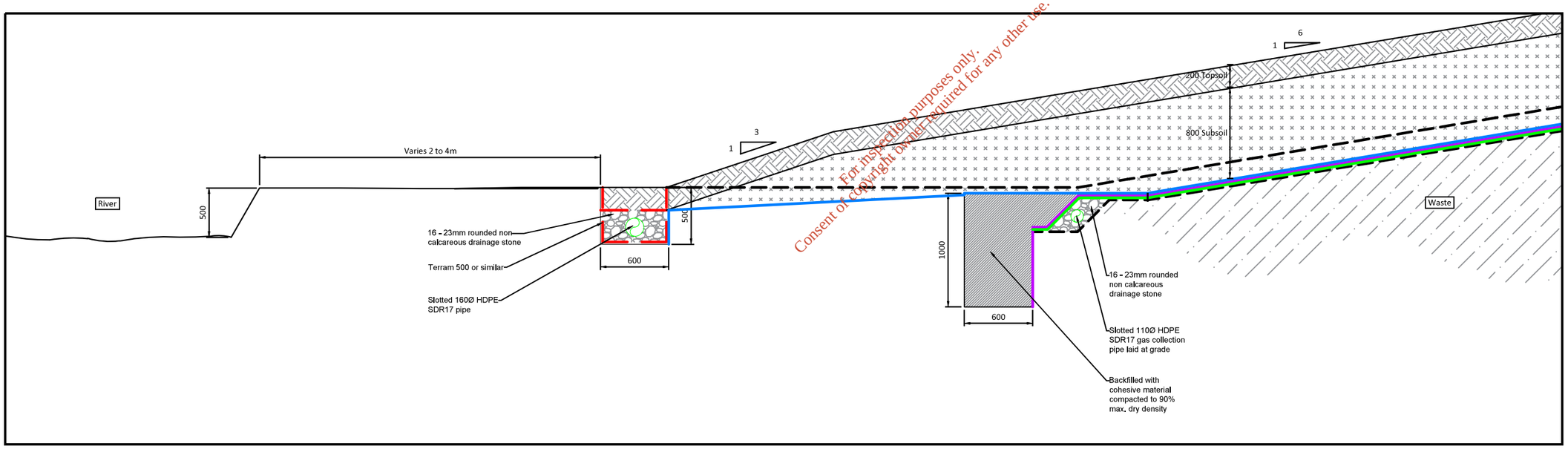

SECTION C - C

Scale 1:40

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT	ERA GALWAY HISTORIC LANDFILLS
CLIENT	GALWAY COUNTY COUNCIL
SHEET	SECTIONS C - C & E - E (GORT HISTORIC LANDFILL)
Date	20.01.21
Project number	P2282
Scale (@ A3)	1:40
Drawn by	POR
Drawing Number	P2282-0900-0002
Rev	A
Checked by	AB

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Monday 25 January 2021

Legend:

- Slotted 110Ø HDPE Gas Collection Pipe
- Passive Gas Vent

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

Scale 1:1000

PLAN

Scale 1:1000

If Applicable : Ordnance Survey Ireland Licence No. EN 0001220 © Ordnance Survey Ireland and Government of Ireland

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT: ERA GALWAY HISTORIC LANDFILLS

CLIENT: GALWAY COUNTY COUNCIL

SHEET: PROPOSED PASSIVE GAS COLLECTION SYSTEM (GORT HISTORIC LANDFILL)

Date: 20.01.21	Project number: P2282	Scale (@ A3): 1:1000	
Drawn by: POR	Drawing Number: P2282-0700-0001		Rev: A
Checked by: AB			

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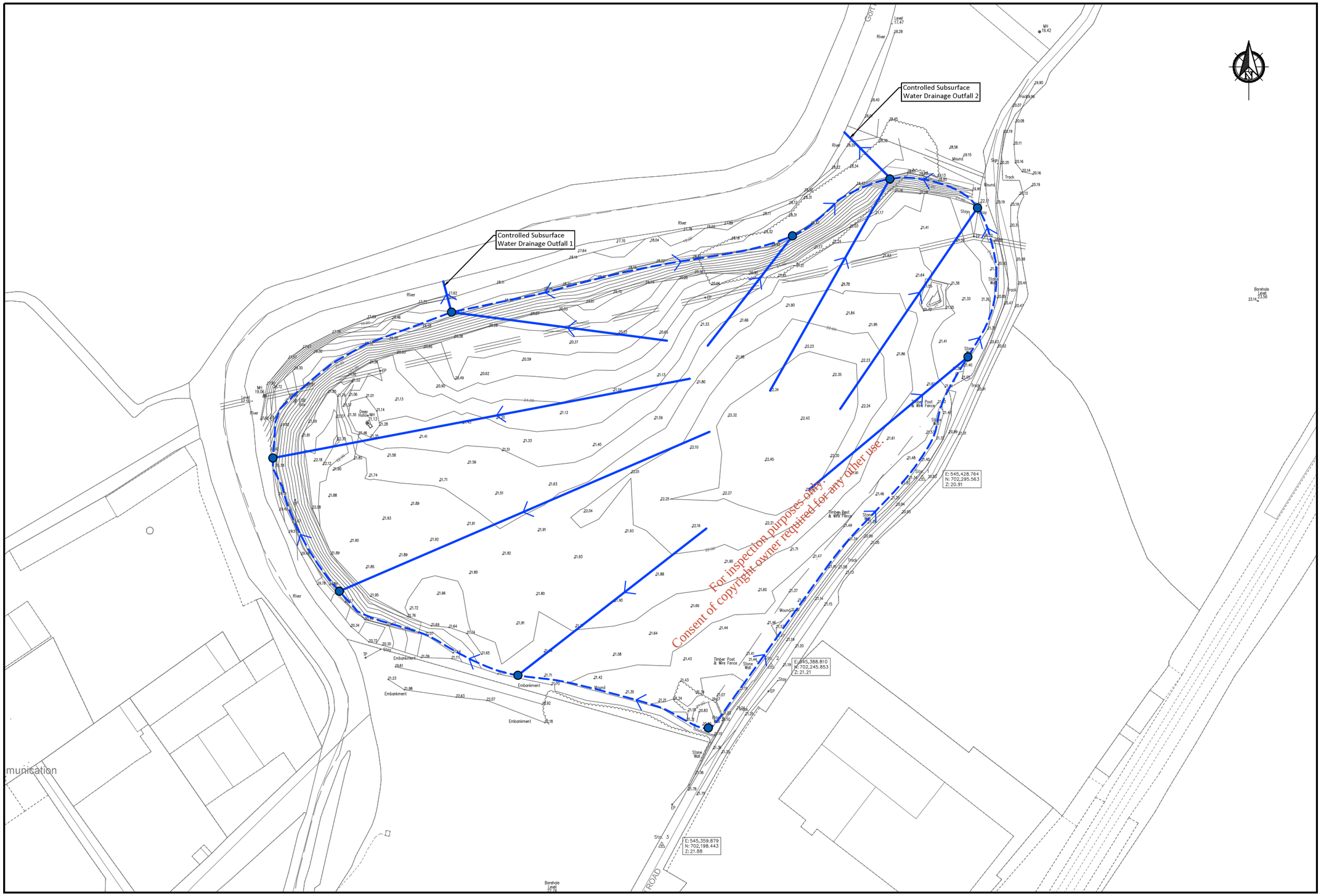
Monday 25 January 2021



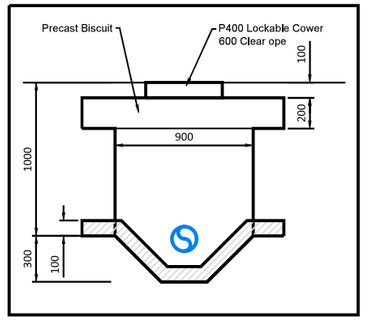
PLAN

Scale 1:1000

If Applicable : Ordnance Survey Ireland Licence No. EN 0001220 © Ordnance Survey Ireland and Government of Ireland

Legend:

- 160Ø Slotted HDPE SDR17 Subsurface Drain
- 160Ø Slotted HDPE SDR17 Subsurface Water Collection Pipe in French Drain
- Drainage Flow Direction
- PCC Chamber



TYPICAL PPC CHAMBER DETAIL

Scale 1:40

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Scale 1:1000

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT: **ERA GALWAY HISTORIC LANDFILLS**

CLIENT: **GALWAY COUNTY COUNCIL**

SHEET: **PROPOSED SUBSURFACE & SURFACE WATER DRAINAGE (GORT HISTORIC LANDFILL)**

Date 20.01.21	Project number P2282	Scale (@ A3) 1:1000	
Drawn by POR	Drawing Number P2282-0500-0001		Rev A
Checked by AB			

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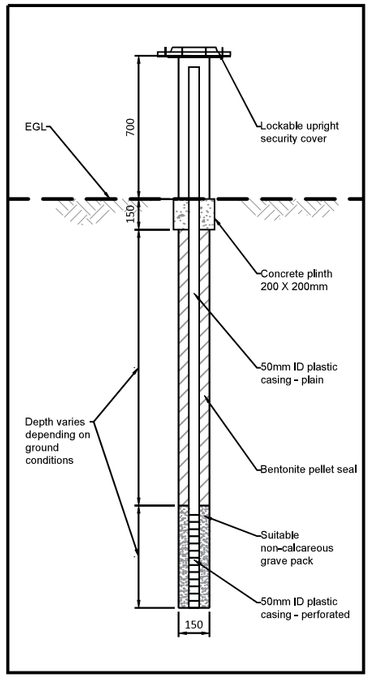
Monday 25 January 2021

PLAN
Scale 1:1500

Legend:

- LH... / GW... — Existing Monitoring Well
- LFG... — Proposed Monitoring Well
- SW... — Surface Water Monitoring Locations
- Site Boundary



MONITORING WELL - TYPICAL DETAIL
Scale 1:30

0m 8m 15m 23m 30m 38m 45m 53m 60m 68m 75m
Scale 1:1500

If Applicable : Ordnance Survey Ireland Licence No. EN 0001220 © Ordnance Survey Ireland and Government of Ireland
2282,2813-04,2813-05,2813-09,2813-10,2813-14,2813-15,2813-19,2813-20,2813-A,2813-B,2813-C,2813-D,2814,2814-01,2814-06,2814-11,2814-16,2814-A,2814-C,2881,2881-A,2881-B,2881-C,3354,3802-22,3802-A,3802-B,3802-C,3802-D

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT: ERA GALWAY HISTORIC LANDFILLS

CLIENT: GALWAY COUNTY COUNCIL

SHEET: EXISTING AND PROPOSED MONITORING LOCATIONS (GORT HISTORIC LANDFILL)

Date: 20.01.21
Project number: P2282
Scale (@ A3): 1:1500
Drawn by: POR
Drawing Number: P2282-0100-0004
Rev: A
Checked by: AB

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Wednesday 20 January 2021

Tie into existing walkway by others

Tie into existing walkway by others

E: 545,428.764
N: 702,295.563
Z: 20.91

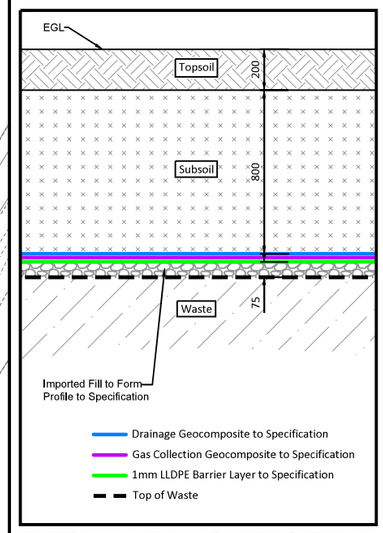
E: 545,388.810
N: 702,245.853
Z: 21.21

E: 545,359.879
N: 702,198.443
Z: 21.88

Legend:

- Proposed Landfill Capping Area 17,078m²
- Proposed Walkway

Note -
Proposed walkway to be accommodated in detailed design stage. Exact walkway route and foundation to be agreed at detailed design stage.



TYPICAL LANDFILL CAPPING DETAIL

Scale 1:30

PLAN

Scale 1:1000

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

Scale 1:1000

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT
ERA GALWAY HISTORIC LANDFILLS

CLIENT
GALWAY COUNTY COUNCIL

SHEET
PROPOSED LANDFILL CAPPING AREA
(GORT HISTORIC LANDFILL)

Date 20.01.21	Project number P2282	Scale (@ A3) 1:1000	
Drawn by POR	Drawing Number P2282-0100-0003		Rev A
Checked by AB			

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Monday 25 January 2021

Legend:

Site Boundary

PLAN

Scale 1:1000

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

Scale 1:1000

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT: ERA GALWAY HISTORIC LANDFILLS

CLIENT: GALWAY COUNTY COUNCIL

SHEET: EXISTING SITE SURVEY (GORT HISTORIC LANDFILL)

Date: 20.01.21	Project number: P2282	Scale (@ A3): 1:1000	
Drawn by: POR	Drawing Number: P2282-0100-0002		Rev: A
Checked by: AB			

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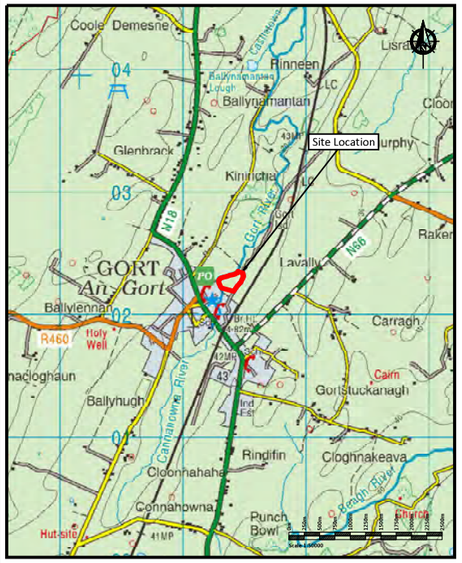
Wednesday 20 January 2021

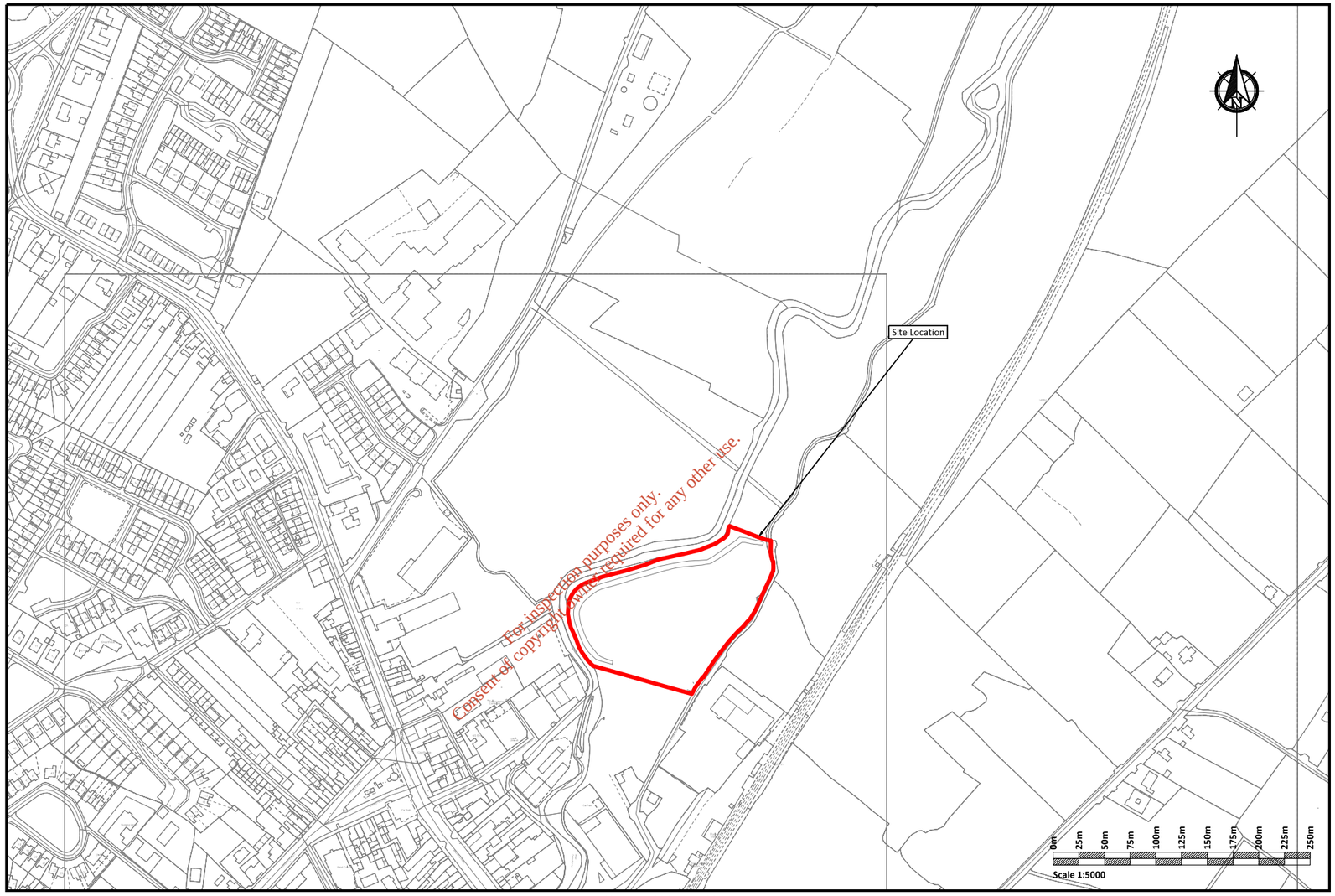


SITE LOCATION

Scale 1:50000

Legend:

Site Boundary



SITE LOCATION

Scale 1:5000

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT	ERA GALWAY HISTORIC LANDFILLS
CLIENT	GALWAY COUNTY COUNCIL
SHEET	SITE LOCATION MAP (GORT HISTORIC LANDFILL)
Date	20.01.21
Project number	P2282
Scale (@ A3)	1:5000
Drawn by	POR
Drawing Number	P2282-0100-0001
Rev	A
Checked by	AB

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Wednesday 20 January 2021

DRAWING SCHEDULE	
DRAWING NUMBER	DRAWING TITLE
P2282-0000-0100-0001	DRAWING SCHEDULE (GORT HISTORIC LANDFILL)
P2282-0100-0001	SITE LOCATION MAP (GORT HISTORIC LANDFILL)
P2282-0100-0002	EXISTING SITE SURVEY (GORT HISTORIC LANDFILL)
P2282-0100-0003	PROPOSED LANDFILL CAPPING AREA (GORT HISTORIC LANDFILL)
P2282-0100-0004	EXISTING AND PROPOSED MONITORING LOCATIONS (GORT HISTORIC LANDFILL)
P2282-0500-0001	PROPOSED SUBSURFACE & SURFACE WATER DRAINAGE (GORT HISTORIC LANDFILL)
P2282-0700-0001	PROPOSED PASSIVE GAS COLLECTION SYSTEM (GORT HISTORIC LANDFILL)
P2282-0900-0001	SECTIONS A - A, B - B & D - D (GORT HISTORIC LANDFILL)
P2282-0900-0002	SECTIONS C - C & E - E (GORT HISTORIC LANDFILL)

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Rev.	Description	App By	Date
A	FOR INFORMATION	JON	20.01.21

PROJECT
ERA GALWAY HISTORIC LANDFILLS

CLIENT
GALWAY COUNTY COUNCIL

SHEET
DRAWING SCHEDULE (GORT HISTORIC LANDFILL)

Date: 20.01.21
Drawn by: POR
Checked by: AB
Project number: P2282
Scale (@ A3): 1:1000
Drawing Number: **P2282-0000-0100-0001**
Rev: **A**

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Wednesday 20 January 2021

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APPENDIX 2

European Site Synopses

SITE SYNOPSIS

Site Name: Coole-Garryland Complex SAC

Site Code: 000252

The Coole-Garryland Complex is situated in a low-lying karstic limestone area west of Gort, in Co. Galway. It contains a series of seasonal lakes (turloughs), which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath. The more well-known turloughs present in the site include Lydacan, Crannagh North, Raheen, Crannagh South, Coole, Garryland, Newtown and Hawkhill.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3150] Natural Eutrophic Lakes
[3180] Turloughs*
[3270] Chenopodion rubri p.p. and Bidention p.p. Vegetation
[5130] Juniper Scrub
[6210] Orchid-rich Calcareous Grassland*
[8240] Limestone Pavement*
[91J0] Yew Woodlands*

The turloughs at Coole-Garryland are particularly good examples of this habitat type. Their vegetation includes such species as Shoreweed (*Littorella uniflora*), Common Spike-rush (*Eleocharis palustris*), Water-purslane (*Lythrum portula*) and Fen Violet (*Viola persicifolia*). A species of Water-starwort, *Callitriche palustris*, was recently recorded from the site, its first known station in Ireland – it has since been noted in several other turlough sites. The Coole River itself is of particular interest for the occurrence of a rare riverine habitat characterised by Trifid Bur-marigold (*Bidens tripartita*), Red Goosefoot (*Chenopodium rubrum*) and species of Knotgrass (*Polygonum* spp.). In the habitat 'natural eutrophic lake' at the site, species such as Pondweeds (*Potamogeton perfoliatus* and *P. berchtoldii*), Water-starworts and Rigid Hornwort (*Ceratophyllum demersum*) are to be found.

The turloughs are fringed by a range of habitats, including the nationally rare scrub communities containing Buckthorn (*Rhamnus catharticus*), Hawthorn (*Crataegus monogyna*) with occasional Alder (*Alnus glutinosa*) and Pedunculate Oak (*Quercus robur*) and with a herb layer dominated by meadowsweet (*Filipendula ulmaria*). This woodland falls into the alder-meadowsweet (*Alnus glutinosa-Filipendula ulmaria*) type, hawthorn-herb-Robert (*Crataegus monogyna- Geranium robertianum*) subtype.

A remarkable feature of Coole-Garryland is that several of the turloughs are surrounded by woodland. The main body of the woodland is dominated by Ash (*Fraxinus excelsior*) mixed with Pedunculate oak, occasional Elm (*Ulmus glabra*), Wild Cherry (*Prunus avium*) and Crab Apple (*Malus sylvestris*). Exotic species are widespread, especially Beech (*Fagus sylvatica*) and Sycamore (*Acer pseudoplatanus*) but also with some Hornbeam (*Carpinus betulus*), Horse-chestnut (*Aesculus hippocastanum*) and conifers, including Scots Pine (*Pinus sylvestris*). Many of these species are freely regenerating. The understorey is heterogeneous and is mainly made up of Hazel (*Corylus avellana*), Hawthorn, Spindle (*Euonymus europaeus*), Privet (*Ligustrum vulgare*) (possibly introduced), Guelder Rose (*Viburnum opulus*), Blackthorn (*Prunus spinosa*), Honeysuckle (*Lonicera periclymenum*) and abundant Ash saplings. The field layer is typical of native woodlands on limestone and includes: Wood Anemone (*Anemone nemorosa*), Dog Violet (*Viola riviniana*), False Brome (*Brachypodium sylvaticum*), Tutsan (*Hypericum androsaemum*), Maidenhair Spleenwort (*Asplenium trichomanes*) and Bitter Vetch (*Lathyrus montanus*). The woodlands are notable for the presence of rare species of Myxomycete fungi, including *Licea idris*, *Licea marginata* and *Macbrideola decapillata,* the first-named in one of only three known sites for the species. Much of this woodland falls into the ash-ivy (*Fraxinus excelsior-Hedera helix*) type, hazel-wood-sorrel (*Corylus avellana- Oxalis acetosella*) sub-type.

To the east of Coole Lough, the woodland is highly modified with stands of conifers and Beech. This area is most subject to visitor pressure as it is adjacent to the visitor centre and car park.

Between Doo Lough and Coole Lough is an area of low Hazel woodland around limestone pavement and scrub. Ash is abundant here and Hawthorn, Spindle, Holly *Ilex aquifolium*) and Yew (*Taxus baccata*) also occur. The field layer is similar to that of the main woodland with the addition of such pavement species as Broad-leaved Helleborine (*Epipactis helleborine*), Wall Lettuce (*Mycelis muralis*) and the Southern Polypody fern (*Polypodium austral*).

Between Doo Lough and Garryland Turlough are several small stands of Yew-dominated woodland on limestone knolls. Pedunculate oak, Ash and Beech occur within these stands. Both the shrub layer and the herb layer are very poorly developed or almost absent but the bryophyte layer, dominated by *Thamnobryum alopecurum* with *Neckera crispa* is well developed. There is a small amount of Yew regeneration at this site and Yew is widely scattered through the surrounding woodland.

In places, heath communities have developed over the limestone pavement, consisting of Ling Heather (*Calluna vulgaris*), Juniper (*Juniperus communis*), Blue Moor-grass (*Sesleria albicans*) and occasional Yew. In addition, the site contains good examples of smooth pavement and associated species-rich grasslands. Small areas of orchid-rich grassland also occur with the following species recorded; Pyramidal Orchid (*Anacamptis pyramidalis*), Spotted Orchids (*Dactylorhiza* spp.), Fragrant Orchid (*Gymnadenia conopsea*), Fly Orchid (*Ophrys insectifera*) and Greater Butterfly Orchid (*Platanthera chlorantha*).

The nationally rare Mudwort (*Limosella aquatica*) and Dropwort (*Filipendula vulgaris*) also occur at the site. These two plant species are listed in the Irish Red Data Book, and Mudwort is included in the Flora (Protection) Order, 2015.

The complex of habitats at Coole-Garryland provides habitat for a variety of mammal species, including Otter and Pine Marten. Otter is listed in Annex II of the E.U. Habitats Directive. The Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies.

The area is of importance for wintering waterfowl, especially Whooper Swan (mean peak of 324 in 1995/96 - 98/99), Bewick's Swan (79 in winter 96/97), Wigeon (mean peak of 1044 in 1995/96 - 98/99), Mallard (mean peak of 330 in 1995/96 - 98/99), Pochard (mean peak of 176 in winter 1995/96 - 98/99), along with smaller numbers of Teal, Tufted Duck, Lapwing, Curlew and Dunlin. In 1996 seven pairs of Lapwing bred at Newtown Turlough and two pairs of Common Sandpiper bred at Coole Lough.

A substantial portion of this site is in the ownership of the National Parks and Wildlife Service and is designated as a nature reserve. Long-term management aims to gradually remove the non-native species. It is a popular amenity area with well-developed pathways. Uncontrolled visitor access may pose a threat to sensitive animals although the nature of the terrain is such that areas away from the paths are seldom visited. Other threats to the site may result from the intensification of agriculture (e.g. fertiliser application or pollution of watercourses) and/or drainage outside the SAC.

The turlough system at Coole-Garryland is considered to be the most diverse in the country, for both its physiography and vegetation; it is unique in that it is so closely associated with woodland. The woodland is extremely diverse in terms of both habitat and species and was assessed as having the highest conservation rating in the country among the sites surveyed for the National Survey of Native Woodlands. The juxtaposition of these two distinct habitats has led to the development of interesting plant and animal communities that include a suite of rare insect, plant and fungal species. The site includes good quality examples of seven habitats that are listed on Annex I of the E.U. Habitats Directive. Overall, the range of good quality habitats present at Coole-Garryland which support a high diversity of species render the site of high conservation value.

SITE SYNOPSIS

SITE NAME: COOLE-GARRYLAND SPA

SITE CODE: 004107

The Coole-Garryland SPA is situated in a low-lying karstic limestone area west of Gort, Co. Galway. It comprises a series of turloughs, which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath. Coole Lough is the largest and most permanent of the turloughs, and retains some water throughout the year. Water levels vary greatly depending on rainfall and this has consequences on the numbers of birds present. During prolonged dry spells, higher numbers of some species are present as birds from other sites in the catchment are attracted to the permanent waters of Coole Lough.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Whooper Swan.

The site is of international importance for Whooper Swan (214), which utilise it for both feeding and roosting purposes. In the past the site was frequented by Bewick's Swan but birds have not been present in recent winters, reflecting a decline that has occurred throughout the country. A good diversity of other wintering birds occurs, including Wigeon (606), Teal (157), Mallard (214), Shoveler (14), Pochard (90), Tufted Duck (67), Lapwing (215) and Curlew (72) – all figures are five year mean peaks for the period 1995/96 to 1999/2000. Dunlin, a scarce species inland, is a visitor to the site at times. In 1996 two pairs of Common Sandpiper bred at Coole Lough.

Coole-Garryland SPA is of international importance for its population of Whooper Swan, a species that is listed on Annex I of the E.U. Birds Directive. Coole Lough, a Wildfowl Sanctuary, has particular significance for wintering waterfowl as during prolonged dry spells it is one of the few sites in the catchment which retains open water. Coole Lough and Garryland Wood is a Ramsar Convention site, and parts of the Coole-Garryland SPA are designated as Statutory Nature Reserves and are managed by the National Parks and Wildlife Service.

31.10.2014

FEHILY TIMONEY

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APPENDIX 3

Plans - Key Policies and Objectives

Plan	Key Policies and Objectives
Gort Local Area Plan 2013-2023	**Policy NH 1 – Natural Heritage, Landscape and Environment** It is the policy of Galway County Council, to support the conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European Sites, the protection of Natural Heritage Areas and proposed Natural Heritage Areas and the promotion of the development of a green/ecological network within the plan area, in order to support ecological functioning and connectivity, create opportunities in suitable locations for active and passive recreation and to structure and provide visual relief from the built environment. The protection of natural heritage and biodiversity, including European Sites, will be implemented in accordance with relevant EU environmental directives and applicable national legislation, policies, plans and guidelines, including the following: (and any updated/superseding documents): EU Directives, including the Habitats Directive (92/43/EEC), the Birds Directive (2009/147/EC codified version of Directive), the Environmental Impact Assessment Directive (85/337/EEC) & EIA Directive (2014/52/EU), the Water Framework Directive (2000/60/EC) and the Strategic Environmental Assessment Directive (2001/42/EC); the Environmental Liability Directive 2004/35/EC; National legislation, including the Wildlife Act 1976, the European Communities (Environmental Impact Assessment) Regulations 1989 (SI No. 349 of 1989) (as amended), the Wildlife (Amendment) Act 2000, the European Union (Water Policy) Regulations 2003 (as amended), the Planning and Development (Amendment) Act 2010 and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) and the Regulation of the European Parliament and of the Council on the Prevention and Management of the Introduction and Spread of Invasive Non-Native Species [2013/0307 (COD)] (adopted by European Council coming into effect January 2015) National policy guidelines, including the Landscape and Landscape Assessment Draft Guidelines 2000, the Environmental Impact Assessment Sub-Threshold Development Guidelines 2003, Strategic Environmental Assessment Guidelines 2004 and the Appropriate Assessment Guidelines 2010. Catchment and water resource management plans, including the Western River Basin District Management Plan 2009-2015 (and as updated). Biodiversity plans and guidelines, including Actions for Biodiversity 2011-2016: Ireland's National Biodiversity Plan, the Biodiversity Action Plan for County Galway 2008-2013 and the Biodiversity Guidelines produced by Galway County Council.
	Objective NH 1 – European Sites Protect European sites that form part of the European Sites network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EEC), EU Birds Directive (2009/147/EC), the Planning and Development (Amendment) Act 2010, the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011) (and any subsequent amendments or updated legislation) and having due regard to the guidance in the Appropriate Assessment Guidelines 2010 (and any updated/superseding guidance).

	A plan or project (e.g. proposed development) within the plan area will only be authorised after the competent authority (Galway County Council) has ascertained, based on scientific evidence and a Habitats Directive Assessment where necessary, that: The plan or project will not give rise to significant adverse direct, indirect or secondary impacts on the integrity of any European Sites (either individually or in combination with other plans or projects); or The plan or project will adversely affect the integrity of any European Sites (that does not host a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of European Sites; or The plan or project will adversely affect the integrity of any European Sites (that hosts a priority natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, restricted to reasons of 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. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of European Sites.
	Objective NH 2 – Protected Habitats and Species Support the protection of protected habitats and species listed in the annexes to the EU Habitats Directive 1992 (92/43/EEC) and the Birds Directive (2009/147/EC) and regularly occurring-migratory birds and their habitats, species protected under the Wildlife Acts and the Flora Protection Order. This includes the protection of the barn owl, otters, salmon, brook lamprey, bats and their roosts and the maintenance of woodland, hedgerows, tree lines, waterways and ecological networks and corridors which serve as feeding areas, flight paths and community routes for bats.
	Objective NH 4 – Impact Assessments Ensure full compliance with the requirements of the EU Habitats Directive (92/43/EEC), SEA Directive (2001/42/EC) and EIA Directives including 2011/92/EU & 2014/52/EU and associated legislation/regulations, including the associated European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011), European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004-2011, Planning and Development (Strategic Environmental Assessment) Regulations 2004-2011 and the European Communities (Environmental Impact Assessment) Regulations 1989-2011 & European Union (Environmental Impact Assessment) Planning and Regulations 2014 (or any updated/superseding legislation). Planning applications for proposed developments within the plan area that may give rise to likely significant effects on the environment may need to be accompanied by one or more of the following: an Environmental Impact Statement, an Ecological Impact Assessment Report, a Habitats Directive Assessment Screening Report or a Natura Impact Statement, as appropriate. Ensure that Natura Impact Statements and any other environmental or ecological impact assessments submitted in support of proposals for development are carried out according to best practice methodologies and contain all necessary baseline assessments.

	Objective NH 5 – Biodiversity & Ecological Networks Support the protection of biodiversity and ecological connectivity within the plan area including woodlands, trees, hedgerows, roadside verge vegetation, rivers, streams, natural springs, wetlands, stonewalls, fens, geological and geo-morphological systems, other landscape features and associated wildlife, where these form part of the ecological network. Seek to retain and incorporate these natural features into developments, in order to avoid ecological fragmentation and maintain ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive: a) Seek to retain and incorporate these natural features into developments, in order to avoid ecological fragmentation and maintain ecological corridors and stepping stones. b) Protect and enhance the water quality and ecology of the River Nanny, the River Clare and the Suileen River in the plan area and their function of as ecological corridors, by maintaining the existing banks and channel and ensuring that new developments are generally set back at least 10m as measured from the near river bank (this distance may be increased and decreased on a site by site basis, as appropriate). c) Maintain and enhance biodiversity through the appropriate planting of native trees, shrubs and hedgerows indigenous to the area and of Irish provenance in public and private areas and in new developments. d) Seek to prevent the introduction of imported ash trees/plants or other such species into the plan area in line with the Plant Health Directive and any updated legislation.
	Objective NH 6 Water Resources Protect all water resources in the plan area, including rivers, streams, springs, wetlands, surface waters and groundwater quality, in accordance with the requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EC), the European Union (Water Policy) Regulations 2003 (as amended), the Western River Basin Management Plan 2009-2015 (and subsequent National River Basin Management Plan) and other relevant EU Directives, including associated national legislation and policy guidance (including any superseding versions of same). Support the application and implementation of a catchment planning and management approach to development and conservation, including the implementation of Sustainable Drainage System techniques for new development in the plan area.
	Objective NH7 – Environmental Management Buffer (refer to Maps 2A/2B) Protect and seek to improve the water quality in the Cannahowna/Gort River. Limit development within the environmental management buffer so as to protect the qualifying interests of all European Sites which are linked indirectly to the Gort Local Area Plan area via the Cannahowna/Gort River and to mitigate against pollution risks, reduce flooding potential and maintain habitat. Seek to ensure that a minimum setback of 10 metres is maintained on either side of the Cannahowna/Gort River, save for exceptional circumstances where it can be reasonably demonstrated that this setback is not feasible. In the event of lighting being proposed along watercourse corridors an Ecological Impact Assessment (and where necessary an Appropriate Assessment) including bat and otter survey shall be conducted by specialists. The recommendations of the specialist studies shall be implemented to the greatest extent possible. No lighting will be installed without prior consultation with NPWS and shall be in line with advances in knowledge into the impact of lighting on bats and other species and also to reflect advances in technology in the lighting industry. Support the carrying out of a river corridor habitat survey of the Cannahowna/Gort River as resources permit.

Galway County Development Plan 2015-2021	**Policy NHB 1 – Natural Heritage and Biodiversity** It is the policy of Galway County Council to support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries and Conamara National Park (and other designated sites including any future designations) and the promotion of the development of a green/ecological network within the plan area, in order to support ecological functioning and connectivity, create opportunities in suitable locations for active and passive recreation and to structure and provide visual relief from the built environment.
	Policy NHB 4 – Water Resources Protect, conserve and enhance the water resources of the County, including, rivers, streams, lakes, wetlands, springs, turloughs, surface water and groundwater quality, as well as surface waters, aquatic and wetland habitats and freshwater and water dependant species and seek to protect and conserve the quality, character and features of inland waterways by controlling developments close to navigable and non-navigable waterways.
	Policy NHB 8 – National Parks and Wildlife Service (NPWS) Management Plans It shall be the policy of the Council to ensure that development takes into account any relevant Management Plans prepared by NPWS for SACs and SPAs.
	Objective NHB 1 – Protected Habitats and Species Support the protection of habitats and species listed in the Annexes to and/or covered by the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), and regularly occurring-migratory birds and their habitats and species protected under the Wildlife Acts 1976-2000 and the Flora Protection Order.
	Objective NHB 2 – Biodiversity and Ecological Networks Support the protection and enhancement of biodiversity and ecological connectivity within the plan area, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stonewalls, geological and geo-morphological systems, other landscape features and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive.
	Objective NHB 3 – Water Resources Protect the water resources in the plan area, including rivers, streams, lakes, wetlands, springs, turloughs, surface water and groundwater quality, as well as surface waters, aquatic and wetland habitats and freshwater and water dependant species in accordance with the requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EC), the European Union (Water Policy) Regulations 2003 (as amended), the Western River Basin District Management Plan 2009-2015, Shannon International River Basin Management Plan 2009-2015 and other relevant EU Directives, including associated national legislation and policy guidance (including any superseding versions of same) and also have regard to the Freshwater Pearl Mussel Sub-Basin Management Plans.
	Objective NHB 4 – Geological and Geo-Morphological Systems Protect and conserve geological and geo-morphological systems, sites and features from inappropriate development that would detract from their heritage value and interpretation and ensure that any plan or project affecting karst formations, eskers or other important geological and geo-morphological systems are adequately assessed with regard to their potential geophysical, hydrological or ecological impacts on the environment.

	Objective NHB 6 – Protection of Bats and Bats Habitats Seek to protect bats and their roosts, their feeding areas, flight paths and commuting routes. Ensure that development proposals in areas which are potentially important for bats, including areas of woodland, linear features such as hedgerows, stonewalls, watercourses and associated riparian vegetation which may provide migratory/foraging uses shall be subject to suitable assessment for potential impacts on bats. This will include an assessment of the cumulative loss of habitat or the impact on bat populations and activity in the area and may include a specific bat survey. Any assessment shall be carried out by a suitably qualified professional and where development is likely to result in significant adverse effects on bat populations or activity in the area, development will be prohibited or require mitigation and/or compensatory measures, as appropriate.
	Objective NHB 12 – Soil/Ground Water Protection Developments shall ensure that adequate soil protection measures are undertaken, where appropriate, including investigations into the nature and extent of any soil/groundwater contamination.
	Objective NHB 13 – NPWS and Integrated Management Plans Galway County Council shall seek to engage with and support the National Parks & Wildlife Service to ensure Integrated Management Plans are prepared for all Natura 2000 sites and ensure that such plans are fully integrated with all land use and water management plans in the County, with the intention that such plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations and with special regard to local communities.

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APPENDIX 4

Finding of No Significant Effects Report

Finding of No Significant Effects Report	
Name and location of the Natura 2000 sites	• Coole-Garryland Complex SAC (Site Code: 000252; 1.1 km Northwest) • East Burren Complex SAC (Site Code: 001926; 3.0 km West) • Lough Cutra SAC (Site Code: 000299; 3.1 km Southeast) • Kiltartan Cave (Coole) SAC (Site Code: 000286; 3.2 km North) • Caherglassaun Turlough SAC (Site Code: 000238; 5.0 km Northwest) • Coole-Garryland SPA (Site Code: 004107; 1.5 km Northwest) • Lough Cutra SPA (Site Code: 004056; 3.2 km Southeast) • Slieve Aughty Mountains SPA (Site Code: 004168; 3.9 km East)
Description of the project or plan	The proposed works are comprised of the following elements: • 200mm Topsoil Layer • 800mm Sub Soil • Sub-Surface Drainage Geocomposite • 1mm linear low-density polyethylene (LLDPE) Barrier Layer • Sub-Surface Landfill Gas Collection Geocomposite. The site is currently grazed by cattle/sheep, following the completion of proposed remediation works the site will continue to be grazed.
Is the Project or Plan directly connected with or necessary to the management of the site (provide details)?	No.
Are there other projects or plans that together with the project of plan	Projects

Finding of No Significant Effects Report	
being assessed could affect the site (provide details)?	• Gort wastewater treatment plant upgrade (concluded in 2019) – This upgrade along with the proposed development will have a positive effect on the Gort River. • Galway County Council flood relief scheme to alleviate flooding which has impacted the Gort Lowlands area. - only at the feasibility stage, it is not anticipated to start until 2023 at the earliest. Proposed development expected to start 2022, no cumulative effects • Farming / forestry / peat extraction – effects from the proposed development will be localized to the Gort River. Given that the River Gort goes to ground, there is limited potential for sediment to be carried to the European sites. Also given the volume of water that enters the Coole-Garryland Complex SAC / Coole-Garryland SPA by ground, there is ample dispersion so as not to affect the qualifying features (which are not sensitive to sedimentation). Plans • Gort Local Area Plan 2013-2023 • Galway County Development Plan 2015-2021
Assessment of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site	River Gort along the northern boundary is connected to the Coole-Garryland Complex SAC and Coole-Garryland SPA. Gort River is a karst river with complicated hydrological links to groundwater, with the entire Gort Lowlands area dominated by a series of interconnected turloughs. Construction phase: • Pollution events – Sedimentation entering the Gort River •
Explain why these effects are not considered significant	As the development is not located within any European site, there will be no direct effect as a result of the size and scale of the development. There will be no direct habitat loss (land take) from any European site as a result of the proposed design amendments. *Hydrological link – Surface water* Gort River connects the proposed development to Coole-Garryland Complex SAC and Coole-Garryland SPA however goes to ground before reaching the SAC/SPA – localised effects on the river expected however there is limited potential for sediment to be carried to the SAC / SPA. Also given the volume of water that enters the SAC by ground, there is ample dispersion so as not to affect the qualifying features (which are not sensitive to sedimentation).

Finding of No Significant Effects Report	
	Nine European sites upstream of the proposed development - no effects on sites *Hydrological link – Groundwater* the groundwater flows in the direction of the Gort River contributing to surface water effects. Fourteen European sites are located within the same ground waterbody - see surface water effects above.
Name of Agency or Body Consulted	**Summary of Response**
-	Consultation was not undertaken due to the positive nature of the works (in terms of leachate) and the lack of potential significant effects.

Data Collected to Carry out the Assessment			
Who carried out the assessment	*Sources of Data*	*Level of assessment completed*	*Where can the full results of the assessment be accessed and viewed*
This evaluation was completed by Fehily Timoney and Company	• Information on the designated nature conservation sites within ZoI was obtained from the NPWS website and metadata available online from the NPWS mapping system (http://webgis.npws.ie/npwsviewer/). • Online data available on what qualifies as a rare or threatened species as held by the National Parks and Wildlife Services (NPWS) from www.npws.ie • Online data available on what qualifies as a rare or threatened species and on European sites as held by the National Biodiversity Data Centre from https://maps.biodiversityireland.ie/ • Information on the status of EU protected habitats and species in Ireland (NPWS, 2013a and 2013b) from www.npws.ie • Ordinance Survey of Ireland mapping and aerial photography available from www.osi.ie • Information on land-use zoning and National planning applications from the online mapping of the Department of the Environment, Community and Local Government www.myplan.ie	Appropriate Assessment Screening (Stage One)	Environmental Protection Agency

- Department of Housing, Planning and Local Government. River Basin Management Plan for Ireland 2018-2021 from https://www.housing.gov.ie/water/water-quality/river-basin-management-plans/river-basin-management-plan-2018-2021
- Information on water quality from the European Protection Agency website https://gis.epa.ie/EPAMaps/
- Information on local watercourses EPA Catchments website https://www.catchments.ie/
- Information on the waterbody catchments in the development area was obtained from the Water Framework Directive Water Mapping Information System http://gis.epa.ie/Envision
- Inland Fisheries Ireland https://www.fisheriesireland.ie/
- Information on soils, geology and hydrogeology from Geoscience Survey Ireland (GSI) website www.gsi.ie
- Department of Culture, Heritage and Gaeltacht. 2017-2021. National Biodiversity Action Plan
- Galway County Development Plan 2015-2021 http://www.galway.ie/en/services/planning/planspolicy/gcdp2021/
- Gort Local Area Plan 2013-2023
- Galway County Council Planning Enquiry System http://www.eplanning.ie/GalwayCC/searchtypes
- National Biodiversity Action Plan 2017-2021 https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf;
- Site surveys, undertaken September 2020

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