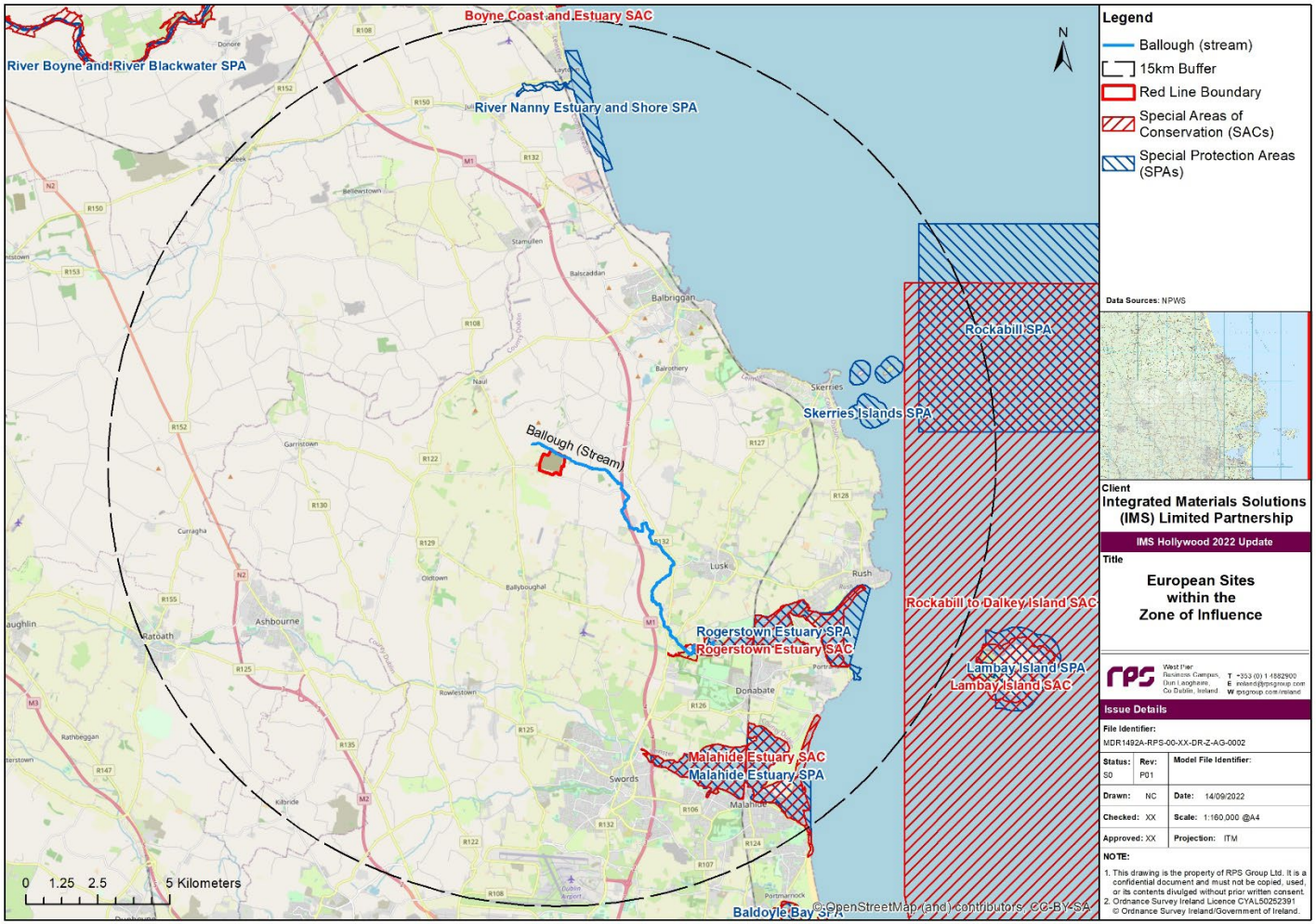
Appendix A: Figures

A.1: European Sites



A.2: Habitat Map

Appendix B: Copies of Consultation Responses

An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

RPS | Consulting UK & Ireland
West Pier Business Campus
Dun Laoghaire
Co. Dublin
A96 N6T7

01 September 2022

Re: EIA and AA Consultation for development of a Circular Economy Campus and an Integrated Waste Management Facility at Hollywood Great, Nag's Head, Naul, Co. Dublin

Your Ref: MDR1492ALt0001
Our Ref: 22/347

Dear Sir/Madam,

Geological Survey Ireland is the national earth science agency and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and advice and gather various data for that purpose. Please see our website for data availability. We recommend using these various data sets, when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'.

With reference to your email received on the 12 August 2022, concerning the EIA and AA Consultation for development of a Circular Economy Campus and an Integrated Waste Management Facility at Hollywood Great, Nag's Head, Naul, Co. Dublin, Geological Survey Ireland would encourage use of and reference to our datasets. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter and following sections provide more detail on some of these datasets.

Geoheritage

Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS, Department of Housing, Local Government and Heritage), to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Geoheritage Programme of Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGSs), as adopted under the National Heritage Plan, include additional sites that may also be of national importance, but which were not selected as the very best examples for NHA designation. All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS. CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer.

The County Geological Heritage Audit for Fingal was completed out in 2007. The full report details can be found here.
Our records show that there is a CGS within the proposed material waste recovery facility.

> **Nags Head Quarry**, Fingal (GR 315681, 258044), under IGH theme: IGH 8 Lower Carboniferous. This large working quarry 5km south of Naul exposes Lower Carboniferous rocks of the Loughshinny Formation - a mixture of thin to medium bedded limestone and shale. The structural deformation seen here, for example as chevron folds, reflects the geology also visible 12km away on the coast at Loughshinny. Link to Site Report: DF016.

In December 2019, Geological Survey Ireland carried out fieldwork within Nag's Head Quarry to record and document the geology prior to infilling and we are grateful to Integrated Materials Solutions (IMS) for allowing us to do this.

With the current plan, there are no further envisaged impacts on the integrity of current CGSs by the proposed development. However, if the proposed development plan is altered, please contact Clare Glanville (Clare.Glanville@gsi.ie) for further information and possible mitigation measures if applicable.

Should any further significant bedrock cuttings be created and/or exposed, Geological Survey Ireland would request that the operator might assist our geological heritage goals with the following (and ideally this would be written into the restoration / closure plan) and be included as a condition of planning as deemed appropriate by the planning authority:

1. Allowing access to quarry faces by appropriate scientists (upon request and with due regards to Health and Safety requirements) during quarrying to check for interesting new stratigraphies / relationships as they might become exposed and to establish if the quarry site is worthy of recognition post extraction and through aftercare/restoration planning.

2. If deemed appropriate in (1) above, leaving a representative section of the quarry face at the end of the quarry life or inclusion of information panels to promote the geology to the public or develop tourism or educational resources if appropriate depending on the future use of the site. Natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface.

Groundwater

Geological Survey Ireland's Groundwater and Geothermal Unit, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems.

Proposed developments need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We recommend using the groundwater maps on our Map viewer which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. For areas underlain by limestone, please refer to the karst specific data layers (karst features, tracer test database; turlough water levels (gwlevel.ie). Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data.

The Groundwater Data Viewer indicates an aquifer classed as a 'Locally Important Aquifer - Bedrock which is Generally Moderately Productive' underlies the proposed development.

The Groundwater Vulnerability map indicates the range of groundwater vulnerabilities within the area covered is variable. We would therefore recommend use of the Groundwater Viewer to identify areas of High to Extreme Vulnerability and 'Rock at or near surface' in your assessments, as any groundwater-surface water interactions that might occur would be greatest in these areas.

GWClimate is a groundwater monitoring and modelling project that aims to investigate the impact of climate change on groundwater in Ireland. This is a follow on from a previous project (GWFlood) and the data may be useful in relation to Flood Risk Assessment (FRA) and management plans. Maps and data are available on the Map viewer.

Geological Survey Ireland has completed Groundwater Protection Schemes (GWPSs) in partnership with Local Authorities, and there is now national coverage of GWPS mapping. A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. **The Groundwater Protection Response overview and link to the main reports is here: https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/projects/protecting-drinking-water/what-is-drinking-water-protection/county-groundwater-protection-schemes/Pages/default.aspx**

Geological Mapping

Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data which can be found here, in your future assessments.
Our 3D models can help stakeholders visualize, understand and characterise geology, for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation.

Please note we have recently launched QGIS compatible bedrock (100K) and Quaternary geology map data, with instructional manuals and videos. This makes our data more accessible to general public and external stakeholders. QGIS compatible data can be found in our downloadable bedrock 100k .zip file on the Data & Maps section of our website.

Further information on the bedrock and Quaternary 3D models of Dublin is available here and here.

Geochemistry of soils, surface waters and sediments

Geological Survey Ireland provides baseline geochemistry data for Ireland as part of the Tellus programme. Baseline geochemistry data can be used to assess the chemical status of soil and water at a regional scale and to support the assessment of existing or potential impacts of human activity on environmental chemical quality. Tellus is a national-scale mapping programme which provides multi-element data for shallow soil, stream sediment and stream water in Ireland. At present, mapping consists of the border, western and midland regions. Data is available at https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx. This page also hosts urban geochemistry mapping (Dublin SURGE project), Geochemical Mapping of Agricultural and Grazing Land Soil of Europe (GEMAS) and lithogeochemistry (rock geochemistry) from southeast Ireland datasets. Geological Survey Ireland and partners are undertaking applied geochemistry projects to provide data for agriculture (Terra Soil), waste soil characterisation (Geochemically Appropriate Levels for Soil Recovery Facilities) and mineral exploration (Mineral Prospectivity Mapping).

Guidelines

The following guidelines may also be of assistance:

- Institute of Geologists of Ireland, 2013. Guidelines for the Preparation of the Soils, Geology and Hydrogeology Chapters of Geology in Environmental Impact Statements.
- EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)
- Department of Environment, Heritage and Local Government, 2004. Quarries and Ancillary Activities, Guidelines for Planning Authorities.
- Environmental Protection Agency, 2006. Environmental Management in the Extractive Industry: Non-Scheduled Minerals.
- Geological Survey of Ireland - Irish Concrete Federation, 2008. Geological Heritage Guidelines for the Extractive Industry.

Other Comments

Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to the Geological Mapping Unit, at mailto:GeologicalMappingInfo@gsi.ie, 01-678 2795.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at GSIPlanning@gsi.ie.

Yours sincerely,

Clare Glanville
Senior Geologist
Geological Survey Ireland

Enc: Table - Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes.

An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes

following European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018
(S.I. No. 296 of 2018)

Geological Survey Ireland Programme	Dataset	Relevant EIA Topic	Coverage	Description / Notes / Limitations	Link to Geological Survey Ireland map viewer
Geohazards	Landslide: National landslide database and landslide susceptibility map	Land & Soil/Climate/Landscape	National	Associated guidance documentation relating to the National Landslide Susceptibility Map is also available.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c
Geohazards	Groundwater Flooding (Historic)	Water	Regional	Provide information of historic flooding, both surface water and groundwater. [A lack of flooding presented in any specific location of the map only indicates that a flood has not been detected. It does not indicate that a flood cannot occur in that location at present or in the future]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Groundwater Flooding (Predictive)	Water	Regional	Provides information on the probability of future karst groundwater flooding (where available). [The maps do not, and are not intended to, constitute advice. Professional or specialist advice should be sought before taking, or refraining from, any action on the basis of the flood maps]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Radon Map	Land & Soils/Air	National		http://www.epa.ie/radiation/radonmap/
Geoheritage	County Geological Sites as adopted by National Heritage Plan and listed in County Development Pla	Land & Soils/Landscape	Regional	All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS.	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
Geological Mapping	Bedrock geology:	Land & Soils	National	1:100,000 scale and associated memoirs.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Bedrock geology:	Land & Soils	Regional	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Sediments	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Geomorphology	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Physiographic units:	Land & Soils	National	Broad-scale physical landscape units mapped at 1:100,000 scale in order to be represented as a cartographic digital map at 1:250,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843aca1bc075c62b
Geological Mapping	GeoUrban: Spatial geological data for the greater Dublin and Cork areas	Land & Soils	Regional	includes 3D models	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&scale=0
Geological Mapping	Geotechnical database	Land & Soils	National	Digitised geotechnical and Site Investigation Reports and boreholes which can be accessed through online downloads	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c
Goldmine	Historical data sets including geological memoirs and 6" to 1 mile geological mapping records	land & Soils/Water	National	available online	https://secure.dccae.gov.ie/goldmine/index.html
Groundwater & Geothermal	Groundwater resources (aquifers)	Water	National	Data limited to 1:100,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater recharge.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale; long term annual average recharge	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater vulnerability.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Group scheme and public supply source protection areas.	Water	National	Not all PWS / GWS have SPZ / ZOC. Check with IW / coco / NFGWS for private supplies.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater Protection Schemes	Water	National	Data is limited to scale of 1:40,000. Data does not include all of the source protections areas	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Catchment and WFD management units.	Water	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	karst specific data layers	water	National	For areas underlain by limestone, includes karst features, tracer test database; turlough water levels (gwlevel.ie).	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Wells and Springs	Water	National	Not comprehensive, there may be unrecorded wells and springs	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater body Descriptions	Water	National	Not exhaustive; only those in designated SACs; could be other GWDTEs; for more information contact NPWS / EPA / site investigations	https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx
Groundwater & Geothermal	Geothermal Suitability maps	land & Soils/Water	National	Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90a991d60c0b9e
Marine & Coastal Unit	INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's	Water	National		https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/
Marine & Coastal Unit	CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headla	Water	Regional		http://www.cherishproject.eu/en/
Marine & Coastal Unit	Coastal Vulnerability Index (CVI).	water /Land & Soils	Regional	Currently the project is being carried out on the east coast and will be rolled out nationally	https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx
Minerals	Aggregate potential	Land & Soils/Material Assets	National	Consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Active quarries	Land & Soils	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Historic mines	Land & Soils/Cultural Heritage	National	Inventory and Risk Classification 2009. Environmental Protection Agency, Economic Minerals Division and Geological Survey Ireland (DECC).	https://gis.epa.ie/EPAMaps/default?easting=?&northing=?&lid=EPA:LEMA_Facilties_Extractive_Facilities https://www.epa.ie/enforcement/mines/
Tellus	Geochemical data: multi-element data for shallow soil, stream sediment and stream water	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	Airborne geophysical data including radiometrics, electromagnetics and magnetics	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	urban geochemistry mapping (Dublin SURGE project),	Land & Soils	Regional		https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754

Notes:

1. The maps and data listed above are available on the Geological Survey Ireland map viewer https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx

2. Please read all disclaimers carefully when using Geological Survey Ireland data

3. Geological Survey Ireland and Irish Concrete Federation published guidelines for the treatment of geological heritage in the extractive industry in 2008.

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

RPS
West Pier Business Campus
Dun Laoghaire
County Dublin

16 January 2020

Re: Proposed development of an Integrated Waste Management facility at Hollywood Landfill – EIA consultation

Your Ref: MDR1492Lt0005
Our Ref: 20/09

Paul, a chara,

With reference to your email received on 08 January 2020, concerning the development of an Integrated Waste Management facility at Hollywood Landfill, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments:

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our website for data availability and we recommend using these various data sets, when undergoing the EIAR, planning and scoping processes. Geological Survey Ireland should be referenced to as such and should any data or geological maps be used, they should be attributed correctly to Geological Survey Ireland.

Geoheritage

Geological Survey Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Irish Geoheritage Programme (IGH) of GSI, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan are now included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer. The audit for Co. Fingal was published in 2007 and full report details can be found here. **Our records show that the proposed landfill site itself is a CGS:**

> **Nags Head**, Co. Fingal (GR 315500 257910), under IGH theme 8: Lower Carboniferous
>
> This large working quarry 5km south of Naul exposes Lower Carboniferous rocks of the Loughshinny Formation - a mixture of thin to medium bedded limestone and shale. The structural deformation seen here, for example as chevron folds, reflects the geology also visible 12km away on the coast at Loughshinny. The Nags Head structures are bigger and are much better preserved than those on the coast as they have been sheltered from the erosion of the sea. In the northern part of the quarry, one of the very few exposures of Upper Carboniferous sandstones in North County Dublin, was reported to be exposed. The audit revealed that this Upper Carboniferous section has been backfilled, but it is possible that the sandstones may be uncovered in the future in another part of the quarry. (Site Report from County Audit attached).

As part of the end-of-life plan of the quarry, Geological Survey Ireland should be contacted to enable a discussion to identify and to recommend ways to promote the geology to the public or develop tourism or

educational resources if appropriate. Geological Survey Ireland would like to offer help with interpretative signs where interesting geological features have been exposed, if appropriate.

Groundwater

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Through our Groundwater Programme, Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality, quantity and distribution. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. We recommend using the GSI's National Aquifer and Recharge maps on our Map viewer to this end.

Geohazards

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides are the most prevalent of these hazards. Geological Survey Ireland has information available on past landslides for viewing as a layer on our Map Viewer. Geological Survey Ireland also engages in national projects such as Landslide Susceptibility Mapping and GWFlood Groundwater Flooding, and in international projects, such as the Tsunami Warning System, coordinated by the Intergovernmental Oceanographic Commission of UNESCO. We recommend that geohazards be taken into consideration, especially when developing areas where these risks are prevalent, and we encourage the use of our data when doing so.

Geothermal Energy

Geothermal energy harnesses the heat beneath the surface of the Earth for heating applications and electricity generation, and has proven to be secure, environmentally sustainable and cost effective over long time periods. Geothermal applications can range in depth from a few metres below the surface to several kilometres. Ireland has widespread shallow geothermal resources for small and medium-scale heating applications, which can be explored online through Geological Survey Ireland's Geothermal Suitability maps for both domestic and commercial use. We recommend use of our Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Ireland also has recognised potential for deep geothermal resources. Geological Survey Ireland currently supports and funds research into this national energy resource.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me, or my colleague Clare Glanville (Clare.Glanville@dccae.ie).

Le meas,

Amrine Dubois Gafar

Amrine Dubois Gafar
Geoheritage Programme

FINGAL - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Nags Head Quarry**		
Other names used for site			
IGH THEME:	IGH 8 (Lower Carboniferous)		
TOWNLAND(S)	Nags Head		
NEAREST TOWN	Naul		
SIX INCH MAP NUMBER	4		
NATIONAL GRID REFERENCE	315500 257910 = O 155 579		
1:50,000 O.S. SHEET NUMBER	43	**1/2 inch Sheet No.**	13

Outline Site Description
Large working quarry.

Geological System/Age and Primary Rock Type
Lower Carboniferous (Viséan) limestone, shale and sandstone.

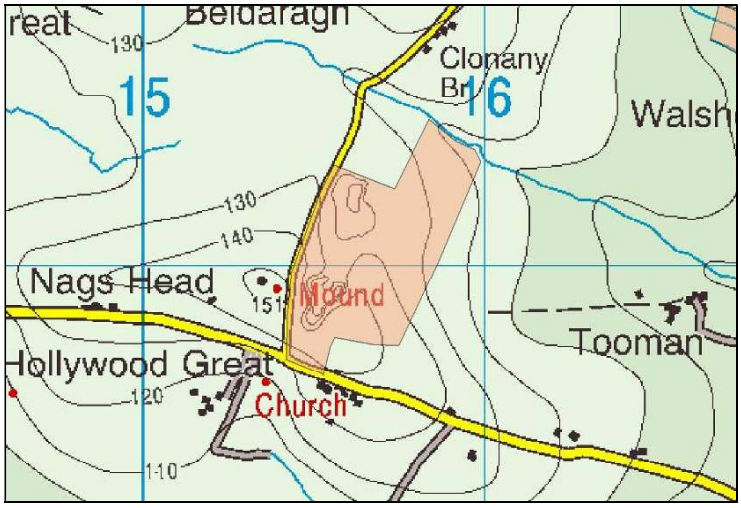
Main Geological or Geomorphological Interest
This large working quarry 5km south of Naul exposes Lower Carboniferous rocks of the Loughshinny Formation - a mixture of thin to medium bedded limestone and shale. The structural deformation seen here, for example as chevron folds, reflects the geology also visible 12km away on the coast at Loughshinny. The Nags Head structures are bigger and are much better preserved than those on the coast as they have been sheltered from the erosion of the sea. In the northern part of the quarry, one of the very few exposures of Upper Carboniferous sandstones in North County Dublin, was reported to be exposed. The audit revealed that this Upper Carboniferous section has been backfilled, but it is possible that the sandstones may be uncovered in the future in another part of the quarry.

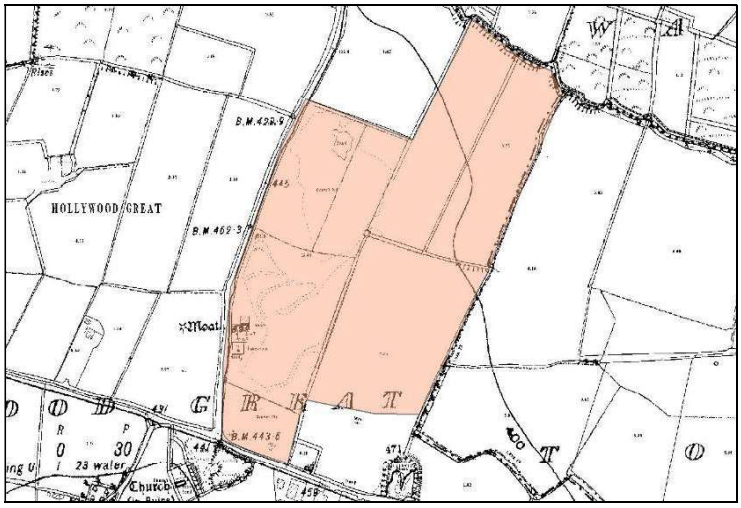
Site Importance
This site shows impressive large scale structural features within the bedrock, that can only otherwise be observed along the coastal section at Loughshinny. This quarry would make an excellent teaching locality, while the walls are still exposed and it is recommended for County Geological Site status.

Management/promotion issues
As a large scale working quarry, operated by Murphy Environmental, this is a potentially hazardous environment and is not suitable for general promotion without first contacting the owners. The quarry management may allow supervised educational groups inside the quarry, on request.

Above: Large scale chevron folds within the shale and limestone of the Loughshinny Formation at Nags Head Quarry.

Nags Head Quarry





Transport Infrastructure Ireland (TII) acknowledges receipt of the above EIAR and NIS consultation documentation by email in respect of the above proposed project.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid application referred.

The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidance as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012). Regard should also be had to other relevant guidance available at www.TII.ie.

With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIAR, which may affect the national road network. The developer should have regard, *inter alia*, to the following:

1. As set down in the Spatial Planning and National Roads Guidelines (2012), it is in the public interest that in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should should identify the methods/techniques proposed for any works traversing/in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.
2. Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes.
3. Clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.
4. Where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's Traffic and Transport Assessment Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA.
5. TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety Impact Assessment (RSIA).
6. Assessments and design and construction and maintenance standards and guidance are available at TII Publications that replaced the NRA Design Manual for Roads and Bridges (DMRB) and the NRA Manual of Contract Documents for Road Works (MCDRW).
7. The developer, in conducting Environmental Impact Assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for varied environmental factors and occurrences. In particular:
    a. TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
    b. The EIAR should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant

competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

8. The Environmental Assessment should have regard to previous Environmental Assessment Statements/Reports and conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area.

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice.

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Mr. Paul Chadwick
RPS | Consulting UK & Ireland
West Pier Business Campus
Dun Laoghaire
Co. Dublin
A96 N6T7

Dáta | Date	Ár dTag | Our Ref.	Bhur dTag | Your Ref.
6 February 2020	**TII20-108501**	**MDR1492Lt0005**

Re: Pre-Planning EIA consultation for an Integrated Waste Management Facility at Hollywood Landfill, Hollywood Great, Naul, Co. Dublin on behalf of Integrated Materials Solutions Ltd.

Dear Mr. Chadwick,

Transport Infrastructure Ireland (TII) acknowledges receipt of the above EIAR and NIS consultation documentation (cover letter, site location and layout plans) by email 6 January 2020 in respect of the above proposed project.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid application referred.

The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidance as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012). Regard should also be had to other relevant guidance available at www.TII.ie.

The proposed development will seek to diversify the waste accepted at the site from construction and demolition waste to hazardous, non-hazardous and inert wastes at a rate of 500,000 tonnes per annum for 25 years. The site is approximately 2km west of the M1.

With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIAR, which may affect the national road network. The developer should have regard, *inter alia*, to the following;

1. As set out in the Spatial Planning and National Roads Guidelines (2012), it is in the public interest that, in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should should identify the methods/techniques proposed for any works traversing/in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.
2. Consultations should be had with the relevant local authority/National Roads Design Office with regard to locations of existing and future national road schemes.

3. Clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.

4. Where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's TTA Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA.

5. TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety Impact Assessment (RSIA).

6. Assessments and design and construction and maintenance standards and guidance are available at TII Publications that replaced the NRA Design Manual for Roads and Bridges (DMRB) and the NRA Manual of Contract Documents for Road Works (MCDRW).

7. The developer, in conducting Environmental Impact Assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for varied environmental factors and occurrences. In particular;
    a. TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
    b. The EIAR should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

8. The Environmental Assessment should have regard to previous Environmental Assessment Statements/Reports and conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area.

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice.

Yours sincerely,

Natasha Crudden
Regulatory & Administration Unit

An tOifig Náisiúnta um Sláinte Chomhshaoil
Feidhmeannacht na Seirbhíse Sláinte,
Urlár 2, Teach na Darach, Ascaill na Teile
Páirc na Mílaoise, An Nás, Co. Chill Dara.

National Office for Environmental Health Services
2nd Floor, Oak House, Lime Tree Avenue
Millennium Park, Naas, Co. Kildare
Eircode: W91KDC2

HSE EIA Scoping

Environmental Health Service Submission Report

Any clarification on the content of this submission should be directed to:

Eve Smith, EHO at eve.smith@hse.ie

Date: 31st August 2022

Our reference: EHIS 2603

Report to: RPS Group

Type of Consultation: EIA Scoping

Proposed development: Development of a Circular Economy Campus and an Integrated Waste Management Facility at Hollywood, Co. Dublin The proposal will expand the established waste and recovery operations at the Hollywood site.

Applicant: Integrated Materials Solutions Limited Partnership (IMS),

Proposed Development

The proposal consists of permission for a 25-year lifetime of operation at a rate of 500,000 tonnes per annum as per the existing operation. The proposal will expand the established waste and recovery operations at the Hollywood site.

The proposed development includes a number of proposed changes as follows:

- Broader waste acceptance types including hazardous (as stable non-reactive waste), non-biodegradable non-hazardous and inert wastes generated by a range of sectors (construction, commercial, industrial and waste processing);
- Expanded waste treatment activities including:

– Development and re-profiling of the landfill void to accommodate specially engineered landfill cells for non-hazardous wastes (including stable non-reactive hazardous waste) in addition to the existing engineered inert cells;

– Enhancement of the existing aggregate recovery processing on site which includes upgrading the aggregate recovery operations to produce low carbon, recovered sands and aggregates from various granular wastes by removing residues and other trace contaminants and separating the resulting aggregates into various size fractions;

– Manufacture of secondary materials including enhanced soils and low-energy bound materials (e.g. concrete);

– Additional waste recovery activities including soil/concrete batching and blending;

- Repurposing of an existing structure on site as a testing laboratory unit for the research, development and testing of recovered materials;
- A leachate management system including a leachate collection system and a storage tank prior to tankering off site for treatment at a suitably licensed wastewater treatment plant (WWTP) with passive provision for a future on-site leachate treatment facility;
- Surface water management infrastructure for the landfill to capture, attenuate and treat storm water;
- A mobile enclosure for the maturation of Incinerator Bottom Ash (IBA);
- An internal un-paved road network serving the deposition areas from the reception area; and
- Full restoration of the site to natural ground levels.

General Introduction

The following documents should be taken into consideration when preparing the Environmental Impact Assessment Report:

- Guidelines on the information to be contained in EIS (2002), 187kb
- Advice Notes on Current Practice in the preparation of EIS (2003), 435kb
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authorities_and_an_bord_pleanála_on_carrying_out_eia_-_august_2018.pdf

EU publication: Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017

http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

Adoption of the Directive (2014/52/EU) in April 2014 initiated a review of the above guidelines. The draft new guidelines can be seen at:

http://www.epa.ie/pubs/consultation/reviewofdrafteisguidelinesadvicenotes

Generally the Environmental Impact Assessment should examine all likely significant impacts and provide the following information for each:

a) Description of the receiving environment

b) The nature and scale of the impact

c) An assessment of the significance of the impact

d) Proposed mitigation measures

e) Residual impacts

Directive 2014/52/EU has an enhanced requirement to assess likely significant impacts on Population and Human Health. It is the experience of the Environmental Health Service (EHS) that impacts on human health are often inadequately assessed in EIAs in Ireland. It is recommended that the wider determinants of health and wellbeing are considered in a proportionate manner when considering the EIA. Guidance on wider determinants of health can be found at www.publichealth.ie

In addition to any likely significant negative impacts from the proposed development, any positive likely significant impacts should also be assessed.

The HSE will consider the final EIAR accompanying the planning application and will make comments to the planning authority on the methodology used for assessing the likely significant impacts and the evaluation criteria used in assessing the significance of the impact.

This report only comments on Environmental Health Impacts of the proposed development. It is based on an assessment of the correspondence submitted to this office dated 17 June 2022

The Environmental Health Service (EHS) recommends that the following matters are included and assessed in the EIAR

- Public Consultation
- Location of the proposed facility
- Assessment of Consideration of Alternatives
- Noise & Vibration
- Odour and Air Quality

• Potential impacts on Surface and Groundwater Quality

• Cumulative impacts

Public Consultation

Although a waste recycling facility has operated at this site for a number of years, it is strongly recommended that early and meaningful public consultation with the local community is carried out to ensure all potentially significant impacts have been adequately addressed.

All parties affected by the proposed development must be fully informed of what the proposal entails especially with regard to potential impacts on surrounding areas. Members of the public should be given sufficient opportunities to express their views on the proposed development.

Sensitive receptors and other stakeholders should be identified to ensure all necessary and appropriate mitigation measures are put in place to avoid any complaints about the proposed development in the future.

The Environmental Impact Assessment Report (EIAR) should clearly demonstrate the link between public consultations and how those consultations have influenced the decision-making process in the EIA.

The EIAR should state the period of planning permission sought and the length of time construction is estimated to take

Location of the proposed facility

The EIAR should include a map and a description of the proposed waste recycling facility, which should identify the nearest sensitive receptors and the location of the nearest watercourse.

Assessment of Consideration of Alternatives

The EIAR should consider an assessment of alternatives.

Noise & Vibration

The potential impacts for noise and vibration from the proposed development on all noise sensitive locations must be clearly identified in the EIAR. The EIAR must also consider the appropriateness and effectiveness of all proposed mitigation measures to minimise noise and vibration.

A baseline noise monitoring survey should be undertaken to establish the existing background noise levels.

In addition, an assessment of the predicted noise impacts during the construction phase and the operational phase of the proposed development must be undertaken which details the change in the noise environment resulting from the proposed development.

Odour and Air Quality

Due to the nature of the proposed construction works generation of airborne dust has the potential to have significant impacts on sensitive receptors. A Construction Environmental Management Plan

(CEMP) should be included in the EIAR which details dust control and mitigation measures. Measures should include:

- Sweeping of hard road surfaces
- Provision of a water bowser on site, regular spraying of haul roads
- Wheel washing facilities at site exit
- Provide covers to all delivery trucks to minimise dust generation
- Inspect and clean public roads in the vicinity if necessary
- Dust monitoring at the site boundary
- Truck inspection and maintenance plan

Potential impacts on surface and ground water quality

The proposed development has the potential to have a significant impact on the quality of both surface and ground water. All drinking water sources that might be impacted must be identified. Public Water Scheme sources and supplies that might be impacted should be identified. Measures to ensure that all sources and supplies are protected should be described.

Any potential significant impacts to drinking water sources should be assessed and proposed mitigation measures described in the EIAR.

Cumulative Impacts

All existing or proposed industrial and commercial developments in the vicinity should be clearly identified in the EIAR.

The impact on sensitive receptors of the proposed development combined with any other industrial and commercial developments in the vicinity should be considered. The EIAR should include a detailed assessment of any likely significant cumulative impacts of the proposed waste recycling development

Existing Facility

The EIAR should include the results of any mitigation measures employed in respect of the existing waste management facility, including the results of any monitoring undertaken and corrective actions.

Eve Smith

Eve Smith
Environmental Health Officer

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Environmental Health
Unit 4 & 5, Nexus Building,
Block 6A, Blanchardstown Corporate Park,
Dublin 15

Tel +353 (0)1 8976140
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Proposed development of an Integrated Waste Management facility at Hollywood Landfill – EIA Consultation

Environmental Health Submission

11th February 2020

Ref: MDR1492Lt0005
HSE Ref: ID 1091

FAO Mr Paul Chadwick

The following HSE stakeholders were made aware of this scoping request on the 17th January 2020

- Emergency Planning – Brendan Lawlor
- Estates – Helen Maher
- Assistant National Director for Health Protection – Kevin Kelleher / Laura Murphy
- CHO – Mellany McLoone

Proposed Development
The proposed development consists of a 25-year permission to develop engineered landfill cells on the site to landfill a mixture of stable non-reactive hazardous (i.e. asbestos construction waste), non-hazardous and inert wastes at a rate of 500,000 tonnes per annum. To facilitate the landfill operation a number of ancillary infrastructural works are required including the following:
• Specially engineered landfill cells for inert and non-hazardous wastes (including stable non-reactive hazardous waste);
• The construction of a new facility entrance on the LP-1080 local road which bounds the south of the site. This will replace the existing facility entrance at the western boundary of the site which will revert to, and be maintained as, a secondary and emergency access. This new entrance will provide provision of safe access and reduce the road traffic risk associated with haulage to and from the site;

• A new eight metre wide internal access road from the entrance to the main site reception area which comprises weighbridges, car parking, etc.;
• A new administration building is to be located in the south-eastern portion of the site adjacent to the new access road. This building comprises of a single-storey flat roof structure with a gross floor area of circa 149m2;
• Two weighbridges are to be located on either side of the administration building;
• Car parking for 10 vehicles will be provided adjacent to the administration building;
• An internal un-paved road network serving the landfill area from the reception area;
• A new portal frame steel building for bottom ash maturation/waste processing with a building height of 12m and a gross floor area of 3,600m2. Associated hard standing and yard space will also be provided as ancillary structure to this building to allow for the temporary storage of materials;
• A packaged treatment plant to treat sanitary effluent from the administration building;
• A leachate management system including a leachate collection system and a storage tank to temporarily store leachate prior to tankering off site for treatment at a suitably licensed WWTP under agreement with Irish Water;
• A storm water management system for the landfill, bottom ash maturation/waste processing building and the new access road; and
• All ancillary site works.

General

The following documents should be considered when preparing the Environmental Impact Assessment Report:

- Guidelines on the information to be contained in EIS (2002), 187kb
- Advice Notes on Current Practice in the preparation of EIS (2003), 435kb
- Guidelines for Planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment

https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authorities_and_an_bord_pleanala_on_carrying_out_eia_-_august_2018.pdf

EU publication: Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017
http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

Adoption of the Directive (2014/52/EU) in April 2014 initiated a review of the above guidelines. The draft new guidelines can be seen at:
http://www.epa.ie/pubs/consultation/reviewofdrafteisguidelinesadvicenotes/

Generally the Environmental Impact Assessment should examine all likely significant impacts and provide the following information for each:

a) Description of the receiving environment;
b) The nature and scale of the impact;
c) An assessment of the significance of the impact;
d) Proposed mitigation measures;

e) Residual impacts.

The HSE will consider the final EIAR accompanying the planning application and will in particular make comments to the Planning Authority on the methodology used for assessing the likely significant impacts and the evaluation criteria used in assessing the significance of the impact.

Public Consultation

The EHS emphasises the need for early and meaningful public consultation in the proposed development process.

Accurate information should be obtained regarding the location of sensitive receptors referred to above.

The EAIR should detail proposals for keeping stakeholders informed and any measures to be employed during the construction and operational phase for dealing with enquiries and/or complaints from members of the public.

Protection of Surface and Ground Water

In previous development of the site the Environmental Health Service has been made aware of concerns regarding the protection of the underlying aquifer from pollution and in particular the fact that it is a connected water source for market gardening and food production in the surrounding area. The EIAR should include the baseline water quality of the aquifer and a proposed monitoring programme to verify that there are no direct emissions to the water courses from the development.

Reference should be made in the EIA to the Geological Survey of Ireland's (GSI) Groundwater Protection Scheme and to the location of any private drinking water sources within the vicinity of the development. The Environmental Health Service considers a 1 km distance from the site to be a reasonable catchment for the identification of private water extraction.

All mitigation measures to prevent direct emissions to surface and ground water during construction and operation should be clearly identified.

Details of any fuels and chemicals which may be used and stored on site during construction works and the method proposed for the bunding of fuel and chemical storage tanks should be provided in the EIAR. Provision should be made for the inspection and monitoring of bunding structures.

In order to minimise the use of water, surface water should be used for activities such as wheel washing and dust suppression.

Emissions to air, including noise, vibration and dust

The EIA should establish baseline air quality at the nearest sensitive receptors by means of background air quality monitoring.

The Construction Environmental Management Plan should include dust minimisation and suppressions measures to be employed to minimise the impact of dust emissions from the construction activities. Methods can include, but are not limited to:

- Wheel washing of construction vehicles
- Covering every load on vehicles delivering loose construction material to the site

- If sand, gravel or similar materials are stockpiled on site, they should be covered to prevent wind- blown dust
- The regular spraying and washing of roads used to haul construction materials
- Undertaking of regular vehicle maintenance to minimise potential significant impacts from noise from construction vehicles

Noise and Vibration

The EIA should include an assessment of the existing noise environment and predicted noise and vibration levels from construction and operation of the proposal.

The noise assessment should include an evaluation of the likely significant impacts at sensitive receptors against a recognised standard for health protection. The Environmental Health Service considers the predicted change in the noise environment to be the most relevant aspect of the assessment and not an evaluation against an absolute noise exposure level.

Staff Welfare Facilities

Any water used for drinking or preparation of food must meet the requirements of the S.I. No. 278/2007 - European Communities (Drinking Water) (No. 2) Regulations 2007. If a drinking water source is from a non-public supply it must be verified as meeting the above requirement through a sampling programme.

There should be no direct emissions of foul waste water to ground water during the construction or operational phase of the proposed development. The proposed treatment of foul waste water should be included in the EIAR along with the specific Population Equivalent calculations.

Any queries regarding this submission should, in the first instance, be made to the Principal Environmental Health Officer at the above address.

Yours Sincerely,

Geraldine O'Callaghan
Principal Environmental Health Officer

An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Your Ref: MDR1492Lt0004
Our Ref: G Pre00158/2019
(Please quote in all related correspondence)

19 July, 2019

Mr. Paul Chadwick
RPS Consulting UK & Ireland
West Pier Business Campus
Dún Laoghaire
Co. Dublin
A96 N6T7
Via email: paul.chadwick@rpsgroup.com

Re: Notification to the Minister for Culture, Heritage and the Gaeltacht under Article 28 (Part 4) or Article 82 (Part 8) of the Planning and Development Regulations, 2001, as amended.

Re: Preparation of an Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) to support application for planning consent and EPA licensing for the proposed development of an Integrated Waste Management facility at the existing engineered landfill at Hollywood Landfill, Hollywood Great, Nag's Head, Naul, Co. Dublin

A Chara,

On behalf of the Department of Culture, Heritage and the Gaeltacht, I refer to correspondence received in connection with the above.

Outlined below are heritage-related observations/recommendations of the Department under the stated heading.

Nature Conservation

The Department refers to the pre-application request for the Department to submit comments, or information, relevant to this development, which the Department would like to see addressed as part of the project delivery process and in the project environmental assessment.

Due to the recent transposition of the requirements of Directive 2014/52/EU into Irish planning law with effect from 1st September 2018, the following documents and guidelines should be consulted during preparation of any Environmental Impact Assessment Report (EIAR) or EIAR screening document:

- Circular Letter: PL 05/2018 Transposition into Planning Law of Directive 2014/52/EU.
- Department of Housing, Planning and Local Government (2018), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.

Other important guidance documents that should be consulted include the following:

- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency, 2017.
- European Commission guidance document on the implementation of the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU): Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impacts Assessment Report, European Commission, 2017.

You should also consult the requirements of this Department in relation to pre-planning at https://www.npws.ie/development%20consultations in particular, the section entitled pre-application consultation/engagement which has recently been updated.

Assessment of Project Effects

Article 3 of Directive 2014/52/EU defines the Environmental Impact Assessment (EIA) process to include the process of identifying, describing and assessing in an appropriate manner, the direct and indirect significant effects of a project on biodiversity, with particular attention to species and habitats protected under the Habitats and Birds Directives. Assessment must also be made of significant effects of the project on the interaction between the environmental factors listed in Article 3 of the Directive. Assessment of effect shall also include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters relevant to the project.

The development site is a known peregrine site. The EIA should assess impacts and include mitigation to avoid impacting on the breeding site of the falcons.

Assessment of the direct and indirect significant effects of the project on biodiversity should be made, where applicable, with regard to:

- Natura 2000 sites, i.e. Special Areas of Conservation (SAC) designated under the EC Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas (SPA) designated under the EC Birds Directive (Directive 2009/147 EC)
- Habitats and species protected under Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur), Bird species protected under the Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur)
- Other designated sites, or sites proposed for designation, such as Natural Heritage Areas and proposed Natural Heritage Areas, Nature Reserves and Refuges for Fauna or Flora, designated under the Wildlife Acts 1976 to 2012
- Species protected under the Wildlife Acts including protected flora
- Important bird areas such as those identified by Birdwatch Ireland
- Features of the landscape, which are of major importance for wild flora and fauna, such as those with a “stepping stone” and ecological corridors function, as referenced in Article 10 of the Habitats Directive
- Other habitats of ecological value in a national to local context (such as those identified as locally important biodiversity areas within Local Biodiversity Action Plans and County Development Plans)
- Red data book species

- Biodiversity in general.

Reference should be made to the National Biodiversity Action Plan 2017-2021 and any relevant County Biodiversity Plan, as well as the All Ireland Pollinator Plan 2015-2020.

It should be noted that the National Biodiversity Action Plan sets out Government policy on nature conservation and includes as Objective 1 to "mainstream biodiversity into decision making", including for all public authorities to move towards no net loss of biodiversity. It also requires Local Authorities to develop policies and objectives for the protection and restoration of biodiversity.

In order to assess impacts, it may be necessary to obtain hydrological and/or geological data. In particular any impact on water table levels or groundwater flows may impact on wetland sites some distance away. As EU Member States have to report every 6 years on the National resource of habitats and species listed under the Habitats Directive it is important that any impact on such habitats and species both inside and outside of Natura 2000 sites is recorded.

Ecological Survey

With regard to scoping for an EIAR for a proposed development, in order to assess impacts on biodiversity, ecological surveys should be carried out of the site of the proposed project including the route of any access roads, pipelines or cables etc. to survey the habitats and species present. Any improvement or reinforcement works required for access and transport anywhere along any proposed haul route(s) should be included in the EIAR and subjected to ecological impact assessment with the inclusion of mitigation measures, as appropriate. Where ex-situ impacts are possible survey work may be required outside of the development sites.

Surveys should be carried out by suitably qualified persons at an appropriate time of the year depending on the species being surveyed for. The EIAR should include the results of the surveys, and detail the survey methodology and timing of such surveys. It is expected by this Department, that in any survey methodology used, best practice will be adhered to and if necessary non-Irish methodology adapted for the Irish situation. The EIAR should cover the whole project, including construction, operation and, if applicable, restoration or decommissioning phases. Alternatives examined should also be included in the EIAR. Inland Fisheries Ireland (IFI) should be consulted with regard to fish species if applicable.

Baseline Data

With regard to the scope of baseline data, details of designated sites can be found at www.npws.ie. For flora and fauna the data of the National Parks and Wildlife Service (NPWS) should be consulted at www.npws.ie Where further detail is required on any information on the website, a data request form should be submitted. This can be found at https://www.npws.ie/maps-and-data/open-data-policy Further information may be found at http://dahg.maps.arcgis.com/home/index.html Other sources of information relating to habitats and species include that of the National Biodiversity Data Centre (www.biodiversityireland.ie), Inland Fisheries Ireland (www.fisheriesireland.ie), BirdWatch Ireland (www.birdwatchireland.ie) and Bat Conservation Ireland

(www.batconservationireland.org). Data may also exist at a County level within the Planning Authority.

Cumulative Effects

Effects of the project must be considered cumulatively. Cumulative effects may arise from:

- The interaction between the various impacts within a single project.
- The interaction between all of the different existing and/or approved plans and projects in the same area as the proposed project.

Mitigation and Construction Environment Management Plans (CEMPs)

The EIAR should refer to features and/or measures to address significant effects on biodiversity. Any losses of biodiverse habitat associated with this proposed development (including access roads and cabling) such as woodland, scrub, hedgerows and other habitats should be mitigated for.

For complex projects such as this, where environmental management may entail multiple aspects, a project specific Construction Environmental Management Plan (CEMP) may be developed. This will form a framework for all environmental management processes, mitigation measures and monitoring and will include other environmental requirements such as invasive species management measures, if applicable. A designated environmental officer and project ecologist should be appointed, as appropriate for the project. Complete project details, including outline CEMPs need to be provided in the EIAR in order to allow an adequate assessment to be undertaken. Applicants need to be able to demonstrate that CEMPs and other such plans are adequate and effective mitigation, supported by scientific information and analysis, and that they are feasible within the physical constraints of the site.

No significant details of the project or its construction may be deferred to the post-consent stage as this may suggest that the impacts are not fully known at consent stage. The positions, locations and sizes of construction infrastructure and mitigation, such as settlement ponds, disposal sites and construction compounds, may significantly affect European sites, other designated sites, habitats, and species in their own right and could have an effect for example on drainage, water quality, habitat loss, and disturbance. If these are undetermined at time of the assessment, all potential effects of the development on the site are not being considered. If applicants are not in a position to decide the exact location and details of these at time of application, then they need to consider the range of options that may be used in their assessment so that all issues are covered.

Monitoring

This Department recognises the importance of pre- and post-construction monitoring. The applicant should not use any proposed post-construction monitoring as mitigation to supplement inadequate information in the assessment.

The EIAR process should identify any pre- and post-construction monitoring which should be carried out. Monitoring results should be made available to the Planning Authority and copied to this Department. A plan of action needs to be agreed at planning stage with the

Planning Authority should future results show a significant mortality of birds and/or bat species or impacts to habitats.

Alien Invasive Species

The EIAR should also address the issue of invasive alien plant and animal species, such as Himalayan balsam (Impatiens glandulifera), Rhododendron ponticum, Japanese knotweed (Fallopia japonica). Detail of methods required to ensure they are not accidentally introduced or spread during construction must be included in the EIAR. Information on alien invasive species in Ireland can be found at http://www.biodiversityireland.ie/projects/invasive-species/ and at http://invasivespeciesireland.com/.

Green Infrastructure

From a biodiversity point of view, it is important to take note of the EU Green Infrastructure Strategy. Further information on this can be found at http://ec.europa.eu/environment/nature/ecosystems/docs/green_infrastructure_broc.pdf. Care should be taken to ensure that green infrastructure involves greening existing infrastructure rather than adding built infrastructure to existing biodiversity corridors.

Hedgerows, and Protected Species

Hedgerows form important wildlife corridors and provide areas for birds to nest in. In addition badger setts may be present. If suitable trees are present bats may roost there and they use hedgerows as flight routes. Hedgerows also provide a habitat for woodland flora. Where a hedgerow forms a townland or other historical boundary it is usually an old hedgerow. Such hedgerows will contain more biodiversity than a younger hedgerow. Hedgerows should be maintained where possible. The EIAR should provide an estimate of the length of hedgerow that will be lost, if any. Where trees or hedgerows have to be removed there should be suitable planting of native species in mitigation. Where possible hedgerows and trees should not be removed during the nesting season (i.e. March 1st to August 31st). Birds' nests can only be intentionally destroyed under licence issued under the Wildlife Acts of 1976 to 2012.

Appropriate Assessment (AA) Guidance

Guidance on AA is available in the Departmental guidance document on Appropriate Assessment, which is available on the NPWS website at www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf and in the EU Commission guidance entitled "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", which can be downloaded from http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf. However CJEU and Irish case law has clarified some issues and should also be consulted.

Description of the Project

In describing the project, it will be necessary to identify all those elements of the project or plan, alone or in combination with other projects or plans that have the potential to have significant effects on Natura 2000 sites. Therefore, full project details must be given, including any planned access routes and scour protection.

As outlined above, when determining likely significant effects, Article 6(3) of the Habitats Directive requires that in-combination effects with other plans or projects are considered.

Conservation Objectives

Once the effects of the project or plan have been identified and predicted, it is necessary to assess whether there will be adverse effects on the integrity of the site as defined by the conservation objectives and status of the site. Details of designated sites status and conservation objectives can be found on www.npws.ie. Site-specific, as opposed to generic, conservation objectives are now available for many sites. Each conservation objective for a qualifying interest (QI) is defined by a list of attributes and targets and is often supported by further documentation. Where these are not available for a site, an examination of the attributes that are used to define site-specific conservation objectives for the same QIs in other sites can be usefully used to ensure the full ecological implications of a proposal for a site's conservation objective and its integrity are analysed and assessed.

Impact Assessment

Appropriate Assessment carried out under Article 6(3) of the Habitats Directive cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned. Therefore, any conclusions of the proposed development having no impact on the qualifying interests and the integrity of the SAC must be supported by scientific data or survey work.

Should this survey work take place well before construction commences, the Department recommends that an ecological survey of the site should take place immediately prior to construction to ensure no significant change in the baseline ecological survey has occurred. If there has been any significant change mitigation may require amendment and where a licence has expired, there will be a need for new licence applications for protected species.

Mitigation Measures

Mitigation measures need to be assessed against the adverse effects the project or plan is likely to cause (alone or in combination with other projects or plans). To assess mitigation measures, the following tasks must be completed:

- List each of the measures to be introduced (e.g. noise bunds, tree planting);
- Explain how the measures will avoid the adverse impacts on the site;
- Explain how the measures will reduce the adverse impacts on the site.

Then, for each of the listed mitigation measures:

- Provide evidence of how they will be secured and implemented and by whom;
- Provide evidence of the degree of confidence in their likely success;
- Provide a timescale, relative to the project or plan, when they will be implemented;

Where residual impacts remain, further mitigation measures may be required such as lining of the bypass channel and installation of silt curtains.

Monitoring

Evidence should be provided of how the mitigation measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified.

Monitoring should take place immediately downstream of the construction site.

The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in her role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at **manager.dau@chg.gov.ie** (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Culture, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Sinéad O' Brien

Sinéad O' Brien
Development Applications Unit

cewep ireland
Confederation of European Waste-to-Energy Plants

12th February 2020

RPS

West Pier Business Campus

Dun Laoghaire

Co. Dublin.

By email: paul.chadwick@rpsgroup.com

Re: Proposed development of an Integrated Waste Management facility at Hollywood Landfill – Environmental Impact Assessment (EIA) Consultation

Dear Mr. Chadwick.

I wish to acknowledge receipt of the correspondence received on the 6th February.

In this regard, CEWEP Ireland (Confederation of European Waste-to-Energy Plants) is pleased to be afforded the opportunity to comment on the proposed development of an Integrated Waste Management facility at Hollywood Landfill in Naul, County Dublin.

We are supportive of the proposed development and recognise that the proposal is in alignment with the requirements of national and regional waste policy including those underlined in the National Hazardous Waste Management Plan 2014-2020 and the Eastern-Midlands Region Waste Management Plan (EMRWMP) 2015-2021.

With regard to any potential environmental consequences which may result from the construction and/or operation of the proposed development, CEWEP Ireland is of the view that An Bord Pleanála and the Environmental Protection Agency (EPA) as appropriate are best placed to determine such matters, taking into account any likely effects or impacts of the proposed development through the application of best available techniques and appropriate measures.

We hope the foregoing comments are helpful and should any further detail on the above mentioned matters be required, we would be happy to provide the same.

Yours Sincerely,

Jackie Keaney

President, CEWEP Ireland

Appendix C: Assessment of European Sites Within 15 km

Table C.1 QI/SCI and Connectivity assessment of European Sites within 15km of the Proposed Development

Site Name and Code	Qualifying Interests and Special Conservation Interests (*=Priority Habitat)	Distance from Proposed development	Connectivity
Special Area of Conservations (SACs)			
Rogerstown Estuary SAC (000208) (S.I., 2018) (NPWS, 2013b)	**Conservation Objectives Series Version 1.0 (14/08/13)** **Annex I Habitats** • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]*	*c*. 9km	**Yes.** The European site is located downstream of the study area, with direct hydrological connectivity via the Ballough Stream.
Malahide Estuary SAC (000205) (S.I., 2019) (NPWS, 2013a)	**Conservation Objectives Series Version 1.0 (27/05/13)** **Annex I Habitats** • Mudflats and sandflats not covered by seawater at low tide [1140] • *Salicornia* and other annuals colonising mud and sand [1310] • *Spartina* swards (Spartinion maritimae) [1320]** • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]*	*c*. 10.5km	**None.** The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.

Rockabill to Dalkey Island SAC (003000) (S.I., 2019) (NPWS, 2013c)	**Conservation Objectives Series Version 1.0 (07/05/13)** **Annex I Habitats** • Reefs [1170] **Annex II Species** • Harbour porpoise (*Phocoena phocoena*) [1351]	*c*. 12km	**None.** The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.
Special Protection Areas (SPA)			
Rogerstown Estuary SPA (004015) (S.I., 2010) (NPWS, 2013d)	**Conservation Objectives Series Version 1.0 (20/05/13)** **Special Conservation Interests** • Greylag Goose (*Anser anser*) [A043] • Brent Goose (*Branta bernicla hrota*) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Shoveler (*Anas clypeata*) [A056] • Oystercatcher (*Haematopus ostralegus*) [A130] • Ringed Plover (*Charadrius hiaticula*) [A137] • Grey Plover (*Pluvialis squatarola*) [A141] • Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina alpine*) [A149] • Black-tailed (*Godwit Limosa limosa*) [A156] • Redshank (*Tringa tetanus*) [A162] • Wetlands [A999]	*c*. 9km	**Yes.** The European site is located downstream of the study area, with direct hydrological connectivity through the Ballough Stream.
Malahide Estuary SPA (004025) (S.I., 2011) (NPWS, 2013e)	**Conservation Objectives Series Version 1.0 (16/08/13)** **Special Conservation Interests** • Great Crested Grebe (*Podiceps cristatus*) [A005] • Brent Goose (*Branta bernicla* hrota) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Pintail (*Anas acuta*) [A054] • Goldeneye (*Bucephala clangula*) [A067] • Red-breasted (*Merganser Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria)* [A140] • Grey Plover (*Pluvialis squatarola*) [A141]	*c*. 10.5km	**None.** The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.

	• Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina alpine*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Redshank (*Tringa tetanus*) [A162] • Wetlands [A999]		
River Nanny Estuary and Shore SPA (004158) (S.I., 2012) (NPWS, 2012)	**Conservation Objectives Series Version 1.0 (21/09/12)** **Special Conservation Interests** • Oystercatcher (*Haematopus ostralegus*) [A130] • Ringed Plover (*Charadrius hiaticula*) [A137] • Golden Plover (*Pluvialis apricaria*) [A140] • Knot (*Calidris canutus*) [A143] • Sanderling (*Calidris alba*) [A144 • Herring Gull (*Larus argentatus*) [A184] • Wetlands [A999]	*c*. 10.5km	**None.** The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.
Skerries Islands SPA (004122) (S.I., 2010) (NPWS, 2022b)	**Conservation Objectives Generic version version 9.0 (26/01/2022)** **Special Conservation Interests** • Cormorant (*Phalacrocorax carbo*) [A017] • Shag (*Phalacrocorax aristotelis*) [A018] • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Purple Sandpiper (*Calidris maritima*) [A148] • Turnstone (*Arenaria interpes*) [A169] • Herring Gull (*Larus argentatus*) [A184]	*c*. 10.5km	**None.** The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.
Rockabill SPA (004014) (S.I., 2012) (NPWS, 2013f)	**Conservation Objectives Series Version 1.0 (08/05/13)** **Special Conservation Interests** • Purple Sandpiper (*Calidris maritima*) [A148] • Roseate Tern (*Sterna dougallii*) [A192] • Common Tern (*Sterna hirundo*) [A193] • Arctic Tern (*Sterna paradisaea*) [A194]	*c*. 13km	**None.** The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.

**As per current updated NPWS Conservation objectives for Malahide Estuary SAC, 'It will (…) not be necessary to assess the likely effects of plans or projects against this Annex I habitat at this site' as both known species of *Spartina spp.* are considered to be alien.

Appendix D: Habitat Descriptions

The following habitats are described using Fossit (2000), and have been reproduced from the EIAR accompanying this application (RPS, 2022). Habitats were identified and mapped according to Fossitt (2000) classification into:

- Depositing/lowland rivers (FW2).
- Other artificial lakes and ponds (FL8);
- Buildings and artificial surfaces (BL3);
- Exposed sand, gravel or till (ED1);
- Spoil and bare ground (ED2);
- Recolonising bare ground (ED3);
- Refuse and other waste (ED5);
- Improved agricultural grassland (GA1);
- Dry meadows and grassy verges (GS2);
- Hedgerow (WL1);
- Riparian woodland/Mixed broadleaved/Conifer woodland (WN5/WD2); and
- Scrub (WS1).

(None of the habitats corresponds to EU Annex I habitats).

These are mapped for the site in **Appendix A.2** and described further in the following sections. The greatest change onsite between the 2019 surveys and the August 2022 surveys was the transition to scrub (WS1) as vegetating dominated the previously exposed calcareous rock (ER2) habitat with the onsite infilling.

Butterfly-bush *Buddleja davidii* presence noted throughout the site, predominantly with the habitats ED3 and WS1.

Depositing/lowland rivers (FW2)

The Ballough Stream drains the northern boundary of the study area. The study area is located near the source of this waterbody for it is of a low stream order at this location. This is reflected not only on the channel width but also on the water it carries – the channel is either dry or holding almost stagnant pools, for the most part. The riverbed grain size is highly heterogeneous, showing more zones of accumulation than erosion.

The riparian gallery consists of a well-developed mixture of conifer and broadleaved trees and shrubs that is characterised elsewhere - Riparian woodland/Mixed broadleaved/Conifer woodland (WN5/WD2). This habitat is valued as Local Importance (Higher value).

Other artificial lakes and ponds (FL8)

At the time of the ecological survey a number of water bodies were present within the study area. There are two inter-connected small settlement ponds in the northern zone of the study area. These are used as primary treatment for the former quarry's process wastewater before being discharged to the Ballough Stream, further north. Furthermore, there are three other ponds within the study area. These are ponds resulting from rainwater accumulation.

Both waterbody types are seemingly oligotrophic, holding scarce vegetation in its margins – pondweed *Potamogeton* spp., bulrush *Typha latifolia* and soft rush *Juncus effusus*. This habitat is valued as Local Importance (Higher value).

Buildings and artificial surfaces (BL3)

This anthropogenic habitat is associated with the quarry supporting buildings and paved roads. The quarry entrance gate, office, garage and access roads that surround the study area are considered in this habitat category. Vegetation cover is scarce or non-existent. Within this habitat there are areas of exposed sand, gravel or till (ED1). This habitat is valued as Local Importance (Lower value).

Spoil and bare ground (ED2)

This habitat corresponds to unpaved areas within the quarry that are permanently/recently disturbed due to heavy vehicles and/or machinery movement. These areas form a network of bare ground paths that allow access to most of the study area. Depending on the degree of disturbance (i.e. vehicle movement), some of these paths can show premature signs of vegetation colonisation.

There are two areas of approximately 4000 m^2 in total formed by heaps of unconsolidated sediment, likely a by-product from the former quarrying activity. The material is of small dimension (gravel grain size) and these areas are devoid of vegetation for the most part. Within this habitat there are areas of exposed sand, gravel or till (ED1). This habitat is valued as Local Importance (Lower value).

Recolonising bare ground (ED3)

It is the habitat occupying the greatest area within the study area. Vegetation cover is higher than 50% and it is evident these areas are disturbed and are being colonised mostly by pioneer species. Species recorded include: butterfly bush, coltsfoot *Tussilago farfara,* common bird's-foot-trefoil *Lotus corniculatus,* common field-speedwell *Veronica persica*, common ramping fumitory *Fumaria muralis*, creeping buttercup *Ranunculus repens*, creeping cinquefoil *Potentilla reptans,* dandelion *Taraxacum sp.*, fat-hen *Chenopodium album*, gorse *Ulex europaeus*, great horsetail *Equisetum telmateia*, ragwort *Jacobaea vulgaris*, red clover *Trifolium pratense,* ribbed melilot *Melilotus officinalis*, ribwort plantain *Plantago lanceolata*, scarlet pimpernel *Anagallis arvensis,* scented mayweed *Matricaria chamomilla*, shepherd's-purse *Capsella bursa-pastoris*, spear thistle *Cirsium vulgare*, tufted vetch *Vicia cracca*. white clover *Trifolium repens* and rosebay willowherb *Epilobium angustifolium.*

Across this habitat, especially close to areas of scrub (WS1), the presence of shrubs like elder *Sambucus nigra*, grey willow *Salix cinerea*, juniper *Juniper communis* is noted. ED3 also had some small areas of exposed rock face. Within this habitat there are areas of exposed sand, gravel or till (ED1). This habitat is valued as Local Importance (Lower value).

Refuse and other waste (ED5)

There are currently two active areas for waste infilling. These areas consist of waste covered with topsoil after being infilled. Its dimensions are dynamic as it is an ongoing process. Although the area occupied by this habitat does not show signs to be different in terms of soil and subsoil composition than Recolonising bare ground (ED3), the absence of vegetation provides it with different nature and features. Within this habitat there are areas of exposed sand, gravel or till (ED1). This habitat is valued as Local Importance (Lower value).

Improved agricultural grassland (GA1)

This habitat is present around the boundaries of the study area. These are highly managed by grazing or mowing and characterised for being species poor. The fields are mostly occupied by ryegrasses *Lolium* spp. with occurrences of docks *Rumex* spp., clovers *Trifolium* spp. and plantains *Plantago* spp. It should be noted the different nature of the field located in the north-west corner of the study area from the other fields with the GA1 habitat. That field is a former landfill cell that was the infilled and covered with topsoil. It is managed nowadays and is commonly planted and grazed. This habitat is valued as Local Importance (Lower value).

Dry meadows and grassy verges (GS2)

This habitat is present on former areas marked as recolonising bare ground during the 2019 surveys. The lack of management on this habitat has led to a transition from ED3 to GS2 as the recolonisation possess progresses. Species recorded in this habitat include Yorkshire fog *Holcus lanatus,* cocksfoot *Dactylis glomerata,* timothy *Phleum pratense,* ribwort plantain *Plantago lanceolata,* false oat-grass *Arrhenatherum elatius,* wild carrot *Daucus carota,* teasel *Dipsacus fullonum,* butterfly bush, red clover *Trifolium pratense,* white clover *Trifolium repens,* black medic *Medicago lupulina,* gorse *Ulex europaeus* and hedge mustard *Sisymbrium officinale.* Given this habitat is newly transitioned from an area of ED3, it is valued as Local Importance (Lower value) due to the relatively low species diversity.

Hedgerow (WL1)

The hedgerows present in the study area are highly managed and species poor. These form boundaries with roads and other fields but are not structured enough to provide ecological corridors to be used by key species (e.g. bats). These are also associated to drainage ditches but, since the ditches are dry, these are distinguishable as different habitats. Elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, grey willow *Salix cinerea*, ivy *Hedera helix*, bramble *Rubus fruticosu*, dog-rose *Rosa canina agg.* are abundant, whereas

western hemlock *Tsuga heterophyla*, juniper *Juniper* spp., ferns *Dryopteridaceae* spp. and ash *Fraxinus excelsior* are locally present.

This habitat is valued as Local Importance (Higher value) given the Fingal Development Plan's (2017) policies on trees and ecological corridors, specifically:

- *Objective NH27: Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their protection and management*
- *Objective DMS78 Ensure during the course of development, trees and hedgerows that are conditioned for retention are fully protected in accordance with 'BS5837 (2012) Trees in relation to the Design, Demolition and Construction – Recommendations' or as may be updated.*
- *Objective DMS170 Protect and enhance the ecological corridors along the following rivers in the County by ensuring that no development takes place, outside urban centres, within a minimum distance of 30m from each riverbank: Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Ballyboghil, Corduff, Matt and Delvin (see Green Infrastructure Maps).*

Riparian woodland/Mixed broadleaved/Conifer woodland (WN5/WS2)

The Ballough Stream is surrounded by a well-developed riparian gallery, with very dense shrub/bush cover in most of the reach. It consists of a mixture of conifer - e.g. Scots pine *Pinus sylvestris*, western hemlock *Tsuga heterophylla*, juniper *Juniper communis*, Norway spruce *Picea abies* – and broad-leave species of trees – e.g. alder *Alnus glutinosa*, birch *Betula pensula*, ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*. The shrub vegetation is dominated by ivy *Hedera heli*), bramble *Rubus fruticosus*, great horsetail *Equisetum telmateia*, elder *Sambucus nigra*, willows *Salix* agg., common vetch *Vicia sativa*, meadow vetchling *Lathyrus pratensis*, ferns *Athyrium* spp. and creeping buttercup *Ranunculus repens*.

This habitat is valued as Local Importance (Higher value) given the Fingal Development Plan's (2017) policies on trees and ecological corridors, specifically:

- *Objective NH27: Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their protection and management*
- *Objective PM64: Protect, preserve and ensure the effective management of trees and groups of trees*
- *Objective DMS77 Protect, preserve and ensure the effective management of trees and groups of trees*
- *Objective DMS78 Ensure during the course of development, trees and hedgerows that are conditioned for retention are fully protected in accordance with 'BS5837 (2012) Trees in relation to the Design, Demolition and Construction – Recommendations' or as may be updated.*
- *Objective DMS170 Protect and enhance the ecological corridors along the following rivers in the County by ensuring that no development takes place, outside urban centres, within a minimum distance of 30m from each riverbank: Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Ballyboghil, Corduff, Matt and Delvin (see Green Infrastructure Maps).*

Scrub (WS1)

There are some zones within the study area that evolved from Recolonising bare ground (ED3) by developing bush and herbal cover. This development may have happened due to lack of disturbance of these areas after the quarrying ceased. These areas show localised high bush density but, for the most part, are poor in both abundance and diversity. These zones are occupied by elders *Sambucus nigra*, willows *Salix* agg., butterfly bush, ferns *Athyrium* spp., dog-rose *Rosa-canina*, scented mayweed *Matricaria chamomilla*, thistle *Cirsium vulgare* and nettles *Urtica dioica*.

Areas that were classified as exposed calcareous rock (ER2) during the 2019 surveys and described as devoid of vegetation, have since transitioned to areas of scrub as the land has been infilled and recolonised. Some areas of bare cliff remain but vegetation is dominant over most of this habitat. A ledge beside where the artificial nest box was seen to have staining, indicating it was being used by birds, however only corvids were recorded in this area in 2022.

Given the species which have taken up within this habitat are newly established opportunistic species, this habitat is valued as Local Importance (Lower value).

Appendix E: Existing Management Plan for the Safe Disposal of Japanese Knotweed

www.invasbiosecurity.ie

Management Plan for the Safe Disposal of Japanese Knotweed Contaminated soil at the Hollywood Landfill Facility (W0129-02) Integrated Materials Solutions Limited Partnership

1.1 Introduction

At the request of Cian O'Hora of Integrated Material Solutions Limited Partnership. (IMS), INVAS Biosecurity (INVAS) was commissioned to prepare a Management Plan to ensure the effective management of the proposed operation to safely dispose of Japanese knotweed contaminated soil site at the landfill at The Naul, Co. Dublin. IMS are licenced to accept construction and demolition wastes including soil and stone which meet their acceptance criteria, can be classified as 17 05 04 and which contain Japanese knotweed.

The excavation/disturbance of Japanese knotweed contaminated soils requires a licence from the National Parks and Wildlife Service (NPWS). The disposal at the Hollywood facility will involve the preparation on site of a dedicated area for the safe disposal of this licenced material and associated decontamination/biosecurity measures.

1.2 Company Background

INVAS Biosecurity is an Irish company that specialises in the control of Invasive Species on land and in water. The increasing rate of introduction of non-native invasive weeds, insects, fish and animals to the island of Ireland has necessitated the expansion of our company, to both understand and tackle the problems posed by these species.

The specialised weed control services offered by INVAS Biosecurity have evolved over 20 years and we offer this experience to a wide range of State and semi-State organisations,

cross border bodies, Local Authorities, Angling Clubs, Amenity Managers, Consultants and the general public. To keep abreast of the pace of introduction and spread of new invasive species INVAS Biosecurity has found it necessary to diversify its operations to include control and containment of invasive species.

Where requested, our environmental scientists can offer support to clients in the development and implementation of long-term control and management programmes to tackle these invasive species.

The company has developed simple and effective prevention measures that focus primarily *on* cleaning and disinfection. INVAS Biosecurity offers a range of new and innovative cleaning/disinfection methods and products that will aid in the process. The company also offers on-site cleaning/disinfection services to key stakeholders or others. Where invasive species have become established INVAS Biosecurity staff will accurately determine the extent of the problem and offer effective containment, control *and/or* eradication advice *and* service.

INVAS Biosecurity also offers advice and support in respect of natural habitat restoration following successful control programs. This provides a natural defence against reinfestation of the treated species.

Directors
Prof.Joe Caffrey

Joe Caffrey has a PhD from UCD in aquatic plant biology, ecology, and management. He has worked with Inland Fisheries Ireland (IFI) and its predecessors for 39 years. He took early retirement and has worked with INVAS Biosecurity since 2015.

Prof. Caffrey is currently a Senior Research Associate with IFI and holds the position of Senior Lecturer(Hon.) with the school of Biological Sciences, Queens University, Belfast. During his time with IFI he worked as a Senior Scientist and was Project Leader for many major national and international research programs. Prof Caffrey's primary research focus in the last 18 years has centred on the ecology, control and management of invasive species. These included plants, invertebrates and fish. He has also developed a range of practical easy to use and highly effective biosecurity protocols, and highly effective biosecurity tools

for cleaning/disinfecting equipment that may transport invasive species or harmful pathogens.

Prof Caffrey has also developed an array of new and innovative aquatic weed control measures some of which are receiving worldwide attention.

Tom Donovan

INVAS Biosecurity was founded by Tom Donovan in response to the threat that foreign invasive plant species pose to the Irish countryside, its biodiversity, and the Irish economy. Tom has 30 year's experience in landscape and vegetation/weed control. He brought Complete Weed Control to Ireland in 1995 and went on to co-found CHM Ltd., the largest infrastructure maintenance management company in Ireland, employing over 150 people. While working with CHM he managed many multi-million pound contracts and has worked with most Public Authorities throughout the country. He has also worked with Inland Fisheries Ireland on Lough Corrib's major invasive weed (Lagarosiphon major) cutting programme and with the NRA's Ragwort control campaign.

The varied contracts completed by INVAS have included excavation works for Mayo Co. Council which included the construction of a rootbarrier cell and the safe biosecure disposal of Japanese knotweed contaminated soil.

The company has been involved on roadworks schemes at N17 Ballindine Co. Mayo where it constructed a large bunded area to dispose of Japanese knotweed contaminated soil.

INVAS has transported deposited large amounts of contaminated spoil from construction sites to the Drehid landfill in Kildare and to the RILTA facility in Geenougue.

The company has specialised in producing simple, practical and effective prevention measures that focus primarily *on* cleaning and disinfection protocols that have been adopted as mandatory best practice in Inland Fisheries Ireland, and are being operated in Irish Water, Teagasc, and Waterways Ireland.

2.1 Hollywood Site Description

The site is located at Hollywood Great, Nag's Head, The Naul, Co. Dublin; approximately 32 km north of Dublin City Centre. Until 2007 Murphy Concrete Manufacturing Ltd. worked the site as a quarry from which limestone and shale was extracted.

Currently, the site supports an operation for the disposal of C&D waste including soils which meet the acceptance criteria specified in their licence. (Licence WO129-02)

2.2 Proposed Development Area

IMS propose to dispose of soils containing Japanese knotweed rhizome material within designated disposal area(s) which are to be located within an existing engineered landfill cell. The designated area will ensure the safe disposal of this material in accordance with best practice and will comprise of the following;

- Designated disposal area for 500 m^3 to 2500 m^3 of soil to be located within an existing landfill cell within the facility
- Biosecurity measures including the use of a root barrier membrane of top of and below the material which will be installed following the manufacturers recommendation and under the supervision of INVAS staff.
- Covering the material with a minimum of 2 m of clay
- Disinfection and wash down area

3.1 Legal

Japanese knotweed is subject to restrictions under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011), being listed in the Third Schedule (Part 1) of this Habitats Regulation. Soil taken from a place that is infested with Japanese knotweed is also restricted under Part 3 of this Third Schedule. The law relating to Japanese knotweed is primarily contained in Regulation 49, which states that it is an offence to *'allow or cause to disperse'* plants listed in the Third Schedule, of which Japanese knotweed is one. As such, any Japanese knotweed plant material or contaminated soil that is to be removed from an infested site can only be done so under a licence issued by the National Parks and Wildlife Service (NPWS), within the Department of Arts, Heritage Regional, Rural and Gaeltacht Affairs.

4.1 Management Plan

The material sources will be sampled and analysed and the results must be within the Level 1 limits specified in the IMS landfill waste licence. Disposal and treatment of this waste will be treated in a method that has been agreed between IMS, NPWS, EPA, and INVAS prior to the commencement of operations. The contaminated material will be placed in a secure location(s) within a root barrier membrane enclosure. When the designated area has been filled with the contaminated waste material it will be covered and sealed with root barrier membrane and covered with soil.

4.2 Designated Area Construction

1. Determine area of landfill to be set aside for Japanese knotweed intake

2. The base will be covered by a layer of sand 100 mm and the walls by shutter ply to protect the integrity of the root barrier membrane

3. The root barrier membrane will be laid in position over the sand base

4. The root barrier membrane will then be covered by a layer of sand 100 mm to protect from machinery damage and filling on top of the membrane

5. The area is now ready to be filled with J.knotweed contaminated soil. No other material, contaminants or wastes will be included

6. Dedicated machinery and vehicles will only be used and will be disinfected before exiting the site

7. Once the area has been filled to 2 m below the top edge it will be sealed with root barrier membrane. A layer of sand 100 mm will be placed on top and then the area will be capped with a minimum of 2 m of clay.

4.3 Membrane & Supervision

The Root Barrier membrane is a reinforced, impermeable, polyethylene barrier membrane and should have a life expectancy of at least 50 years. There are a variety of membranes available. Hy-Tex and Dendro-Scott are the most commonly used.

INVAS personnel will directly supervise the establishment of all operations relating to the designated area construction, the safe disposal of the Japanese contaminated material and all biosecurity protocols. INVAS will carry out full time supervision to ensure that all procedures are properly implemented and that the best biosecurity practices is being operated.

Strict observance of the Management and Biosecurity Plans provided by INVAS will ensure the safe transport and disposal of all Japanese knotweed and its contaminated soil. This method allows for the J.knotweed material to be buried so that it is fully encapsulated in a root barrier membrane on completion. The top of the encapsulated cell is required to be 2m below finished ground levels so that it can be covered by 2m of backfill.

- This process will entail the encapsulating of the contaminated soil in a root barrier membrane that it will be sealed on top and covered with 2m of backfill

- The location of these area will be recorded using surveying equipment and mapped on a drawing
- These areas will be used exclusively for the disposal of Japanese contaminated soil and no other materials or wastes will be deposited in them

5.1 Documentation

Detailed records of all operations will be maintained by IMS .

- NPWS Licence
- WAC (Waste Acceptance Criteria)
- Chain of custody
- Disposal record
- Disinfection record

6.1 Summary

Currently Ireland has no designated landfill facility for Japanese knotweed contaminated soil. At present it is stockpiled for shipment and disposal in the Netherlands. This is an expensive operation that renders many development sites unviable for development.

This situation encourages non-reporting of Japanese infected sites and illegal dumping is a common practice which exasperates the problem throughout the country.

Market research indicates that the primary source of waste material will be from the Leinster area, and large-scale excavations will present opportunities for singular negotiations with Development companies.

It must be noted that in the intermediate future licences will be made available for other sites to be developed throughout the country.

The IMS facility at Hollywood will provide a suitable long term and sustainable waste management solution for Japanese knotweed disposal and fill a significant gap in critical waste management in Ireland. It will eliminate the need to export our waste overseas by ship, thereby reducing greenhouse gas emissions and revenue lost to Ireland.

It is INVAS Biosecurity's opinion, that working together with IMS guarantees the safe, management and disposal of Japanese knotweed contaminated soil in Ireland.

Appendix 1

Biosecurity for Source Sites and IMS Hollywood Landfill Facility

1.1 Introduction

Biosecurity covers all activities aimed at managing or preventing the introduction and spread of invasive species. Good biosecurity practice presents ways of operating that minimise the risk of contamination and spread of these harmful invasive species.

The Biosecurity Plan below presents actions that will ensure the safe transport of Japanese knotweed plant material and associated soil from infected sites throughout Ireland to the Integrated Materials Solutions Limited Partnership landfill site at Hollywood Co. Dublin and its safe disposal at this landfill facility. This Plan is a partner document to the Management Plan that INVAS Biosecurity has produced for this site.

INVAS Biosecurity (henceforth INVAS) personnel will supervise and establish protocols for all site operations relating to the transportation of this material by road and its disposal at IMS landfill site. Strict biosecurity will operate around this operation, in accordance with the Biosecurity Plan below.

2.1 Biosecurity for Transportation

- All Japanese knotweed hauliers must produce an NPWS transport licence before the waste can be accepted on site
- All trucks that are used to transport the Japanese knotweed-contaminated material must be fully biosecure i.e. fitted with heavy plastic sheeting to ensure that there can be no leakage of soil or plant material from the base, sides or top of the truck during transport. Each load will be covered with tarpaulin before leaving the area
- It will be incumbent on IMS to inform all transport hauliers that only trucks that comply with full Biosecurity standards will be accepted on to the landfill site

3.1 Biosecurity at Landfill Site

- IMS staff will receive training on the issues pertaining to Invasive Plant Species and their responsibilities in managing them and the disinfection process.
- Induction talks for all site visitors will incorporate the Biosecurity procedures on site

- Drivers will be made aware of their Biosecurity responsibilities at the entrance of the landfill by the issue of an instruction card
- A dedicated route to and from the disposal site will be laid out and clearly signposted
- The Japanese knotweed-contaminated material will be disposed of within the landfill, at a dedicated area that has been identified and prepareby the IMS for this purpose
- The designated disposal area will be fenced off with appropriate signage
- All trucks will be thoroughly cleaned at a dedicated disinfection site before leaving the landfill, this to include the inside of the container on this occasion
- At the landfill site, all Excavators and transport trucks working within the disposal site will be thoroughly power-hosed to remove all adherent soil before leaving the excavation areas or the landfill. Focus during these operations must be the wheels and tyres (or tracks, if used), the undercarriage and any part of the machinery that is likely to have come into contact with contaminated soil
- Access and regress from the disposal area should be controlled through entrance and exit points where disinfection facilities are positioned
- All personnel that enter any of the disposal areas will clean/disinfect their boots and any equipment used in these areas (e.g. shovels, spades) before leaving

Appendix F: Peregrine Falcon Management Plan

Peregrine Falcon Management Plan for Hollywood Landfill

Document Control Sheet

Client:	Integrated Materials Solutions Ltd. Partnership
Project Title:	Integrated Waste Management Facility at Hollywood Landfill
Document Title:	Peregrine Falcon Management Plan for Hollywood Landfill
Document No:	MDR1492Rp00015

Text Pages:	14	Appendices:	0	Current Revision:	**F01**

Rev.	Status	Date	Author(s)		Reviewed By		Approved By	
F01	Final	June 2019	MN		AMcC		PC	

TABLE OF CONTENTS

LIST OF FIGURES

1 INTRODUCTION

RPS has prepared this Peregrine Falcon Management Plan to inform ongoing development of the landfill at Hollywood Great, Nag's Head, Naul, County Dublin.

Peregrine falcon is listed in Annex I of the Birds Directive (79/409/EEC, as amended 2009/147/EC) and is also protected by the Wildlife Act (1976, as amended 2000). While Annex I birds are considered to be particularly threatened, and Ireland must designate Special Protection Areas (SPAs) for their survival, all birds are also afforded protected status through the Wildlife Act.

Landfilling works have the potential to disturb Peregrine falcon in the area and the potential impacts on the peregrine may include:

- Direct loss of habitat; and
- Displacement of birds due to disturbance and/or reduction of habitat suitability.

In order to maintain the habitat for the falcon on the Hollywood site, this was prepared in 2019 and is currently being implemented on site and will continue to operate through the proposed ongoing development.

2 BASELINE

The following baseline description of peregrine falcon within the study area is based on monitoring data and updated with observations from the 2019 bird breeding season.

Peregrine falcons were observed overflying the study area and roosting locations have been identified from faecal and scrapping markings on the cliffs located at the south-western study area's boundary. These observations were supplemented by historical records of peregrine falcon activity in the study area, as described in a Peregrine falcon Survey Report undertaken for the Environmental Impact Statement in 2010 (R&D, 2010), and the Baseline Ecology assessment carried out in January 2019.

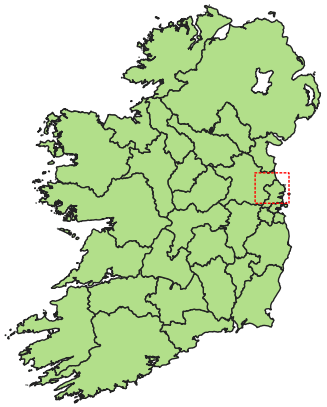
Within the proposed development site, the peregrine falcon habitat identified in 2009 and 2010 and in the recent surveys (2019 and 2020) refers to secluded area in the south-western corner of the study area (**Figure 2**). This area is a square shape excavation of approximately 15,000m^2, with three artificial quarry face cliffs (exposed since early 2000s) with an average height of approximately 35m (**Figure 1**). At present, the only ground level access is made through the north side which provides the habitat with a high degree of protection. Roosting locations have been identified from faecal and scrapping markings on the cliffs located at the south-western study area's boundary **(Figure 1**).

The 2010 peregrine falcon survey (R&D, 2010) reported evidence of a peregrine falcon nest locations within the study area, and surroundings, through dedicated field surveys. A pair of falcons (male and female) were identified, roosting on the ledge identified in the present survey. Although they did not show nesting behaviour then, signs of intense activity were observed (e.g. prey remains and faecal splashes). Concurrent with this evidence, the survey report included a local fieldworker testimony of an observation of a peregrine falcon female incubating in the ledge in 2009.

The 2010 peregrine falcon report also surveyed the overall area around the Hollywood landfill and identified several nesting, and potentially nesting, sites within the estimated foraging distance for peregrine falcons; i.e. c. 18km (Scottish Natural Heritage, 2016).

Figure 1. Two Ledges identified as Peregrine roosting sites

Legend



- Proposed development boundary
- New infrastructure
- Waste cells
- Peregrine falcon habitat

Peregrine falcon nests:

- Confirmed (2019)
- Potential

Client: IMS Integrated Materials Solutions

Project: **Development at Hollywood Landfill**

Title:

Figure 1. Peregrine falcon habitat

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Date:	.....		

Notes

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2. Ordnance Survey Ireland Licence No. EN 0005019

3 POTENTIAL IMPACT TO THE FALCON

Published literature indicates median disturbance distances (i.e. distance bellow which an individual bird will demonstrate alert or retreat behaviour) for the Peregrine falcon between 125m to 225m (Whitfield *et al*., 2008). Therefore, direct loss of habitat and/or displacement of birds due to disturbance or reduction of habitat suitability is not perceived as a likely consequence of the construction works on the new infrastructure proposed.

However, the proposed landfilling on the areas around Cells 6, 7 and 8 are directly adjacent to the habitat and have potential for direct adverse impact. The *Peregrine Survey Report* undertaken in 2010 estimated the potential impacts on the Peregrine falcon from that development which is an analogous infilling operation to this proposed development. The impacts associated with the proposed landfilling during the operation phase are predicted as:

- **Direct loss of breeding habitat** – The operation of the site will result in the infill of the former quarry area and, consequently, the direct loss of the cliffs as suitable breeding habitat;
- **Direct loss of foraging habitat** – It is not common for Peregrines to forage within the nesting quarry and, therefore, it is concluded the proposed development will have negligible effects on the amount of available foraging habitat;
- **Direct loss of roosting habitat** – Similar to the potential impacts on breeding habitat, infilling the quarry area will necessarily implicate covering the cliffs and, consequently, the direct loss of the cliffs as suitable roosting habitat;
- **Displacement from breeding location** – As a consequence from the above mentioned *direct loss of breeding habitat*, the peregrine will likely abandon the study area in search of suitable breeding habitat;
- **Displacement from foraging range** – Since the Peregrine falcon shows long foraging ranges – 6km up to 18 km (Weir, 1978; Mearns, 1982) – it is considered the proposed development infilling activities will result in a negligible loss of foraging habitat; and
- **Displacement from roosting habitat** - As a consequence from the above mentioned *direct loss of breeding habitat*, the peregrine will also lose the mention cliffs as roosting habitat and will likely abandon the study area.

It is likely that the peregrines may already habituated in this locality to on-going works on the site (quarrying and more recently infilling). It is recognised that median disturbance recorded distances in Ruddock & Whitfield, (2007) are 125 – 312m with a mean of 199 – 354m, therefore it is likely that sites and individual birds will vary in their response to disturbance and there may be some habituation, particularly in urban or quarry sites.

4 MANAGEMENT PLAN

4.1 OVERVIEW

Since the catastrophic population declines in the 1950s and 1960s, peregrine falcons demonstrated great adaptability by being able to not only nest in the traditional coastal areas, but also occupy active quarries and, more recently, observations have been made of an increasing number of peregrine falcons nesting in artificial and man-made structures (Wilson *et al*., 2018). Peregrine falcon nests located on man-made structures such as power stations, bridges, quarry machinery, churches and electricity pylons are becoming more common (Ratcliffe, 1993). These observations support the use of artificial structures as nesting sites for mitigation of potential impacts to existing peregrine falcon habitats. Peregrine falcons may have 'nesting ranges' containing a number of different and widely separated areas with groups of closely spaced alternative nests (Hardey *et al*, 2013).

In Britain and Ireland, most nests are on cliffs or crags. Peregrine falcons tend to use the largest suitable cliffs available, although the quality of ledges for breeding is important and large cliffs will be ignored if they do not provide adequate ledges. Inland breeding cliffs are often above or overlooking a river or a loch, with most breeding ledges are on the upper third of the cliffs. They occasionally breed in trees, using the old nests of other species, such as raven. Artificial ledges can be created to facilitate peregrine nesting in sites where natural ledges are unsafe or vulnerable to predation (Hardey *et al*., 2013).

To maintain the study area as a nesting habitat for peregrines, alternative nesting locations to the existing nests will have to be developed and maintained. Two sequential short term and long term approaches will be adopted with a third contingency measure also proposed if required:

1. Short Term - Installation and maintenance of a nest box initially on the cliff face and then within the south western boundary;
2. Long-Term - Installation and maintenance of artificial ledges/boxes at suitable locations in the Hollywood area for nesting habitat for peregrines.
3. Fund and facilitate the development and maintenance of an alternative nesting site in an off-site area within the peregrine's foraging range in the event that approaches 1 and 2 are unsuccessful.

Each of these measures is outlined in greater detail in the following sections.

4.2 INSTALLATION OF A NEST BOX ON THE CLIFF FACE

In 2019, the scraped depression used by peregrines to nest was identified as located in a zone at the south western corner of the site within one of the vertical cliffs in this area. The project ornithologists recommended the installation and development of an alternate suitable nesting site at higher elevations on this north east facing cliff face. This alternate nesting site has been installed in February 2020 in advance of the breeding season and a photo showing the box is presented in **Figure 3**.

The following sequence will be followed with regard to the installation of the short term nest boxes:

Step 1: Install nesting box in year 1 (2020) on the cliff face (complete);

Step 2: Start infilling of Cell 6 in year 1 (currently underway under existing permissions);

Step 3: Monitor nest boxes (surveys planned for 2020 breeding season);

Step 4: Continue filling Cell 6 to within 10 m (below) of known peregrine falcon nesting location.

a. If no uptake of nest box and breeding peregrine still present in cliff, continued infilling will take place outside of the breeding bird season only. The breeding season timeframe will be agreed with a suitably qualified ecologist. This will result in the eventual loss of the suitable nesting location through infilling of location. An alternate, nest box location has been identified adjacent to the cliff face – long term location.
b. If uptake of nest boxes is successful, continue infilling to 10 m of nesting site.

Step 5: If nesting box is lost, site management will provide a long term nesting box at a suitable alternate location.

Within one year of the installation, a review report will be issued to the Local Authority Biodiversity Officer and local NPWS Conservation Ranger with details of the above to allow for a consensus on future monitoring/management.

Figure 4. Current Artificial Next Box for the Peregrine Falcon

4.3 INSTALLATION OF A NEST BOX ABOVE THE CLIFF

This measure involves the installation of a nesting box above the cliff in Cell 6 in year 2 (2021). This will consist of an elevated pole-mounted nesting box, containing a sheltered nesting ledge, and will be located within the site boundary and in the area identified in **Figure 2**. The nesting box will be located at least 10m above the top of the capped landfill and will be installed prior to the 2021 Peregrine falcon breeding season. A team of suitably qualified ecologists have identified this longer term location and elevation for the installation of a nesting box.

As above, within one year of the installation, a review report will be issued to the Local Authority Biodiversity Officer and local NPWS Conservation Ranger with details of the above to allow for a consensus on future monitoring/management.

4.4 IDENTIFICATION OF AN ALTERNATIVE NESTING LOCATION

During the 2020/2021 surveys, a suitably qualified ecologist will identify alternative off-site locations for the installation of ledges/platforms/nesting boxes, in the event that the alternative location offered within the proposed development site are not utilised by nesting peregrine falcons.

Investigation into landowner agreement will be carried out in year one to ensure that viable options exist if measures are not successful. Alternative locations will include existing communication towers and quarries within a suitable distance of the proposed development site, but also outside the nesting ranges of known peregrine falcon sites.

Within one year of the proposed development operation, a review report will be issued to the Local Authority Biodiversity Officer and local NPWS Conservation Ranger with details of the above to allow for a consensus on future monitoring/management.

4.5 CAMERA INSTALLATION

The installation of monitoring cameras was originally suggested in 2010, as a way to monitor the nest box sites remotely rather than via field visits. The proposed monitoring regime is deemed to be robust enough to forgo the additional requirement of the camera installation. It is proposed that that the installation of a camera will be reconsidered in year 2 and 3, based on the monitoring results and feasibility.

4.6 OCCUPANCY MONITORING

A suitably qualified ecologist will complete the following to monitor peregrine falcon occupancy:

- An annual breeding survey for peregrine falcon within the site to be carried out by a suitably qualified ecologist. The survey shall include at least 3 surveys between the months of March and July.
- An annual winter occupancy survey for peregrine falcon to be carried out by a suitably qualified ecologist. The survey shall include at least 3 surveys between the months of November and February.

- A yearly submission of an '*occupancy monitoring report*', to be submitted to the local NPWS Conservation Ranger and the Local Authority Biodiversity Officer.

The longer term monitoring and reporting regime is presented in **Section 6**.

5 PHASING OF CONSTRUCTION ACTIVITY AND OPERATIONS

The following sections include a description of activities and a number of measures to minimise the potential impacts identified in the EIAR. These measures shall be included in a Construction Management Plan (CMP) for the Construction Phase and transcribed to an updated Landfill EMS for the Operation Phase. These plans shall be prepared by the appointed contractor, in the case of the Construction Phase, and by IMS, for the Operation Phase, to ensure full implementation.

A number of ecological mitigation measures proposed below will also include the supervision with a suitably qualified ecologist and, in the case of mitigation measures in relation to the peregrine falcon, an experienced raptor ornithologist.

5.1 CONSTRUCTION PHASE

For the purpose of this report, construction refers to the proposed development works including:

- The construction of a new facility entrance on the Nevitt Road, which bounds the south of the site. This will replace the existing facility entrance at the western boundary of the site which will revert to a secondary and emergency access. This new entrance will provide provision of safe access and reduce the road traffic risk associated with haulage to and from the site;
- A new internal access road from the existing site entrance to the main site reception area which comprises a reception building, weighbridges, car parking, etc.;
- A new administration building is to be located in the south-eastern portion of the site adjacent to the new access road. This building comprises of a single-storey flat roof structure and has a gross floor area of circa 149m^2;
- A new steel framed portal ash maturation building of circa 12m in height;
- Two new weighbridges are to be located on either side of the administration building;
- Car parking for 10 vehicles will be provided adjacent to the administration building; and
- A revised internal unpaved road network serving the deposition areas from the reception area.

The following mitigation measures shall be employed during the construction phase:

- In order to mitigate disturbance impacts to nesting peregrine falcon, no construction activities will take place within 200 m of the confirmed peregrine falcon nest (see **Figure 2**).
- In order to mitigate disturbance impacts to nesting peregrine falcon, no construction material will be stored within 200 m of the confirmed peregrine falcon nest (see **Figure 2**).
- During construction, a suitably qualified ecologist will complete a disturbance assessment of the peregrine falcon before and during construction.
- Enacting temporal restrictions to construction from 1st March to 31st July unless the breeding status of the peregrines is confirmed (by suitably qualified ecologist) to have failed, or not be initiated, or peregrines are not present during the breeding season, by an experienced ecologist.

- Advise staff and contractors of location of significant species and habitats prior to commencements of works through provision of maps and an induction talk on wildlife law and disturbance to birds.

In the event that the construction works will be planned for the period between incubation and/or chick rearing season (i.e. March to August), prior to undertaking any construction works, the contractor must engage an experienced raptor ecologist to undertake a dedicated pre-construction Peregrine falcon habitat survey and assess the falcons breeding activity and explicitly identify the extant nesting location and determine any associated breeding activity and/or breeding status.

During these periods and while the nesting/breeding activity is confirmed, the north-eastern face of the cliffs will be cordoned off and no waste infilling will be permitted without prior consultation of the ornithologist. The IE Licence management systems shall be updated to include a section with detailed guidance for best practice measures for the protection of Peregrine falcon.

5.2 OPERATIONAL PHASE

For the purpose of this report, the proposed operation refers to the following:

- The proposal consists of permission for a 25-year lifetime of operation to develop engineered landfill cells on the site to landfill a mixture of hazardous (as stable non-reactive hazardous waste), non-hazardous and inert wastes at a rate of 500,000 tonnes per annum.
- Accept suitable Article 27 by-product material that meets the above waste acceptance criteria.

The proposed infilling of Cell 6 (in addition to Cells 7 and 8) will be undertaken in the period 2020 to 2030 under the indicative project phasing. The complete restoration of the site to natural ground levels would eventually result in a loss of confirmed breeding habitat. The gradual infill of the area adjacent to the cliffs identified with peregrine falcon's activity as part of the re-profiling of the former quarry area to original ground levels will gradually reduce cliff height.

The following mitigation measures shall be employed during the operational phase:

- Manage the infilling activities in Cell 6 during confirmed peregrine falcon breeding season, through the control of the number of loads and restriction of non-essential activities in the cell (e.g. parking of vehicles, high-frequency reversing beacons).
- Restriction of access above the nest cliffs using fencing and/or other appropriate barriers and signage. Signage shall not identify the presence of any protected species, including peregrine falcon.
- Increasing site security through the installation of cameras, or signage to indicate the presence of security camera, to deter wildlife crime in the area and establish if this is occurring.

6 LONG TERM MONITORING REGIME

The assigned raptor ornithologist shall implement a detailed and long term plan involving monitoring, implementation of the approaches 1 and 2 and works phasing and assessment of the infilling activities in relation to peregrine's behaviour. All works shall be carried out under licence where required. The plan shall be developed in conjunction with National Parks and Wildlife Service (NPWS), the Irish Raptor Study Group (IRSG) and shall involve:

Year 1:

- While cell preparation works may be undertaken, no waste infilling works in the south-western corner of the study area during breeding period (March until August);
- Outside the breeding period and prior to any infilling in the area adjacent to the cliffs in the south-western corner of the study area, the works involved in the implementation of approach 1 and 2 shall be undertaken. Such works shall be supervised by the raptor ornithologist who will assess any specific aspects in relation to the execution of these mitigation measures. Special attention is to be paid on the creation of the two depressions/ledges at a suitable location near the cliff top;
- The raptor ornithologist shall undertake a minimum of three specific peregrine surveys: at the beginning, middle and end of the nesting season (i.e. March to July) following best practice guidance, Hardey *et al.*, 2013 and assess peregrine's activity, breeding behaviour and breeding success or otherwise. Special attention shall be paid to reporting the use of the created ledges, any relevant findings captured by any installed camera equipment and future measures shall be proposed;
- A review of alternate sites will be undertaken by the raptor ornithologist and an assessment shall be made regarding the suitability of any site to harbour peregrines; and
- A review report will be issued to the FCC biodiversity officer, NPWS and IRSG with details of the above to allow for a consensus on future monitoring/management.

Year 2-24:

- The raptor ornithologist shall undertake a minimum of three specific peregrine surveys during the nesting season (i.e. March until August) and assess peregrine's activity, breeding behaviour and breeding success or otherwise. Special attention shall be paid reporting the use of the created ledges, any relevant findings captured by any installed camera equipment and future measures shall be proposed;
- A review of alternate sites will be undertaken by the raptor ornithologist and an assessment shall be made regarding the suitability of any site to harbour peregrines.
- A review report will be issued to the FCC biodiversity officer, NPWS and IRSG with details of the above to allow for a consensus on future monitoring/management.

Year 25:

- The suitably qualified ecologist shall undertake a minimum of three specific peregrine falcon surveys: at the beginning, middle and end of the nesting season (e.g. March to July) following best practice guidance (Hardey *et al*., 2013) to assess peregrine falcon activity, breeding behaviour and breeding success, or otherwise. The status of the created nesting ledges/boxes will also be monitored, as above.

- An overall monitoring report shall be submitted to the local NPWS Conservation Ranger and the Local Authority Biodiversity Officer.
- Following discussion with the NPWS Conservation Ranger and the Local Authority Biodiversity Officer, a continued monitoring strategy of the alternate nesting sites will be agreed.

All the monitoring results shall be communicated to the FCC biodiversity officer, NPWS and IRSG, as well as future actions to be adopted by IMS that can potentially impact the peregrine's re-establishment in the study area or at any alternate location shall be performed in cooperation with NPWS and IRSG. The establishment and maintenance of a link between NPWS, IRSG and IMS is crucial to achieve success in minimising the impacts to peregrines.

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