

## Appendix A13.1

### Habitats Directive Assessment

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# APPROPRIATE ASSESSMENT

## STAGE 1 SCREENING

**MEHL Integrated Waste Facility,**

**Hollywood Great,**

**Naul,**

**Co. Dublin**

**November 2010**

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# 1 INTRODUCTION

Natura Environmental Consultants were commissioned by Arup to carry out a Stage 1, Appropriate Assessment (AA) Screening for a proposed Integrated Waste Management Facility at the existing MEHL Inert Landfill Facility at Hollywood, Co. Dublin, which was previously a former quarry site. (Figure 1 location map). The purpose of this report is to determine the effects, if any, of the proposed project on Rogerstown Estuary SPA and cSAC and other Natura 2000 sites, and to further assess if any of the predicted impacts have the potential to have significant negative impacts on the qualifying interests or on the conservation objectives of these designated areas for nature conservation.

## 1.1 Appropriate Assessment

The Appropriate Assessment (AA) is an assessment of the potential effects of the proposed Project, on its own or in combination with other projects, on one or more Natura 2000 sites which includes (Special Protection Areas (SPA) for birds, Special Areas of Conservation (SAC) for habitats and species, or Ramsar wetland sites). AA is a requirement of Article 6(3) and 6(4) of Council Habitats Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. The AA findings must be taken into account by the competent authority, An Bord Pleanála, in deciding whether permission will be granted for the MEHL Integrated Waste Facility. A final statement on whether or not the project, on its own or in combination with other projects, will affect the integrity of Natura 2000 sites is also required, prior to adoption of the project.

## 1.2 Appropriate Assessment Process

There are four stages of the Appropriate Assessment (AA) process as follows:

- Stage 1 (Screening)
- Stage 2 (Appropriate Assessment)
- Stage 3 (Alternatives)
- Stage 4 (IROPI and Compensatory Measures)

The aim of the screening process (Stage 1) is to determine whether or not an Appropriate Assessment (AA) is required. The aim of the AA (Stage 2) is to: identify potential impacts of the project on its own or in combination with other plans or projects; identify policy and objectives that will avoid and mitigate any negative impacts on Natura 2000 sites; and avoid the need to progress to Stages 3 and 4.

Project adoption may only proceed if the Project will not affect the integrity of a Natura 2000 site. Progression to Stage 3 would result in changes to the Project in its current form, and would require the implementation of compensatory measures for impacts on Natura 2000 sites.

This AA report for the MEHL Integrated Waste Facility covers Stage 1 (Screening) only.

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### 1.3 Legislative Requirements

Article 6(3) and 6(4) of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, states:

*“Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the sites conservation objectives.*

*In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”*

In the preparation of this assessment therefore regard has been given to the following guidance documents: The recently issued (2010) draft Department of the Environment, Heritage and Local Government draft guidance document; Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities. *Assessment of places 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. Appropriate Assessment of Plans, September 2006, Authors: Scott Wilson, Levett – Therivel Sustainability Consultants, Treweek Environment Consultants and Land Use Consultants, and workshop material on the Habitats Directive Assessment of Plans, by Riki Therivel, Lovett-Therivel Sustainability Consultants on behalf of the Heritage Council in February 2009.*

### 1.4 Objectives of Appropriate Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the AA process.

1. Firstly, a project should aim to **avoid** any negative impacts on Natura 2000 sites by identifying possible impacts at the early stage of the project, and designing the project in order to avoid such impacts.
2. Secondly, **mitigation measures** should be applied during the AA process (Stage 2) to the point where no adverse impacts on the site(s) remain.
3. Under a worst-case scenario, a project may have to undergo an assessment of alternative solutions. Under this stage of the assessment, **compensatory measures** are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the project is required for imperative reasons of overriding public interest (the ‘IROPI test’). European case law highlights that consideration must be given to alternatives outside the project boundary area in carrying out the IROPI test. It is a rigorous test which plans are generally considered unlikely to pass.

## 2 STAGE 1 – SCREENING

### 2.1 INTRODUCTION

Screening requires a review of all Natura 2000 sites that could potentially be subject to impacts. It involves identifying whether sites should be included in Stage 2 of the AA process. A list of Natura 2000 sites potentially affected by the Project, within 15km from the MEHL Project boundary is given in Table 1 and shown on Figure 1.

**Table 1. Natura 2000 sites (SPAs or cSACs) within 15km of the MEHL Site**

Conservation Site Name	Site Code	Conservation status	Qualifying interests <sup>1</sup>	Additional conservation interests <sup>2</sup>	Distance from MEHL Site
Rogerstown Estuary	000208	cSAC <sup>3</sup>	Estuaries (1130) Mudflats and sandflats (1140) Atlantic salt meadows ((1330) Salicornia colonizing mud and sand (1310) Spartina swards (1320) Mediterranean salt meadows (1410) Fixed coastal dunes (2130) Shifting dunes (2120)	Short-eared owl , Yellow hammer , Otter , Bats Meadow Barley	7.5km east
Rogerstown Estuary	004015	SPA <sup>4</sup>	Light-bellied Brent Goose, Shelduck, Oystercatcher, Ringed Plover, Knot	Greylag goose, Shoveler, Grey plover, Dunlin Black-tailed Godwit, Redshank	7.5km east
Skerries Islands	004122	SPA	Cormorant, Light-bellied Brent Goose, Purple Sandpiper, Turnstone, Herring Gull	Shag	9.5km east
Malahide Estuary	000205	cSAC	Fixed coastal dunes, Shifting dunes, Mudflats and sandflats, Salicornia, Atlantic salt meadows, Mediterranean salt meadows, Spartina swards		10km south-east
Broadmeadow/ Swords Estuary	004025	SPA	Light-bellied Brent Goose, Goldeneye Black-tailed Godwit	Great Crested Grebe, Shelduck, Pintail, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Bar-tailed Godwit Redshank, Wetland & Waterbirds	10km south-east

<sup>1</sup> Qualifying interests: List of habitats and species for which the cSAC or SPA site is designated.

<sup>2</sup> Additional conservation interests: as listed in the Natura 2000 form

<sup>3</sup> A candidate Special Area of Conservation (cSAC) is designated under the EU Habitats Directive (92/43/EEC) for the protection of certain habitats and species

<sup>4</sup> A special Protection Area (SPA) is designated under the EU Birds Directive (79/409/EEC) for the protection of birds as listed in the Directive

Each Natura 2000 site has been reviewed to establish whether or not the project is likely to have a significant effect on the integrity of the site as defined by its structure and function and its conservation objectives. *The Report on Status of Habitats and Species in Ireland: Technical reports and forms* (NPWS, 2008). The potential threats are summarised into the following categories for the screening process:

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

Each of the Natura 2000 sites within 15km of the MEHL site were considered in terms of potential impacts from the proposed development and these are listed below in Table 2.

**Table 2. Potential likely impacts on Natura 2000 sites from the proposed development**

Conservation Site Name	Potential direct impacts	Potential indirect impacts	Potential disturbance
Rogerstown Estuary	No	Yes	No
Skerries Islands	No	No	No
Malahide Estuary	No	No	No
Broadmeadow/Swords Estuary	No	No	No
River Nanny Estuary and shore	No	No	No

The cSAC's and SPA's listed above are estuary sites on the east coast of County Dublin. The proposed MEHL development has a hydrological link with Rogerstown Estuary as the watercourse along the northern boundary of the site eventually flows into this estuary.

Malahide Estuary is located at a distance of 10km from the MEHL site and is not within its hydrological catchment. Rogerstown Estuary cSAC and SPA is the only Natura 2000 site that has an indirect hydrological link (albeit more than 7.5km to the east) and therefore has the potential to be impacted by the proposed landfill. Therefore this AA Screening report will focus on potential impacts on Rogerstown Estuary only.

This screening process involved consultation with NPWS.



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### 3 APPROPRIATE ASSESSMENT SCREENING MATRIX

#### For Rogerstown Estuary SPA and cSAC NATURA 2000 SITE

(Following Article 6 (3) of the European Union Habitats Directive (92/43/EEC))

\*Assessment of the effects of the MEHL Integrated Waste Management Facility at Hollywood, Naul, Co. Dublin on the integrity of the Rogerstown Estuary Special Protection Area (Site Code 004015) and candidate Special Area of Conservation (Site Code 000208)

#### Description of the project or plan

Location	The proposed MEHL Integrated Waste Facility is located in north County Dublin, 3km south-east of Naul and just south of the Dublin and Meath county boundary.
Distance from designated site	7.5km west of Rogerstown Estuary SPA/cSAC.
Brief Description of the project or plan	Murphy Environmental Hollywood Ltd. (MEHL) owns and operates an inert licensed landfill site at Hollywood Great, Naul, North Co. Dublin. The site was a former quarry which operated in tandem with the inert landfill from 2003 to 2007. MEHL intends to develop the site as an Integrated Waste Management Facility for the acceptance of solid, non-biodegradable, hazardous waste, non hazardous waste and inert waste, including waste to energy residues and ash.
Is the project or plan directly connected with or necessary to the Natura 2000 site management for nature conservation?	No

\*Prepared in accordance with documents: European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC and European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.

Brief Description of the Natura 2000 site		
Name	Rogerstown Estuary SPA and Rogerstown Estuary cSAC.	
Site designation status	<b>Designation</b>	<b>Basis</b>
	Special Protection Area (SPA). (Site code 004015)	EU Birds Directive (79/409/EEC)
	Candidate Special Area of Conservation (cSAC) (Site Code 000208)	EU Habitats Directive (92/43/EEC)
	Proposed Natural Heritage Area (pNHA) (Site Code 000208).	Wildlife (Amendment) Act, 2000
	Statutory Nature Reserve (S.I. No. 71/1988)	Wildlife Acts, 1976 and 2000
	BirdWatch Ireland Reserve	Lands owned by voluntary body
	Ramsar site	Ramsar Convention
Natura 2000 Site description	Rogerstown Estuary is a relatively small narrow estuary situated on the north-eastern coast of Co. Dublin between Rush and Donabate. It is a good example of an estuarine system with a range of typical estuarine habitats represented. It is of high importance for wintering waterfowl. It has an internationally important population of Brent Goose and nationally important populations of 10 other bird species listed below. The habitats of the estuary provide roosting and feeding areas. Water quality is critical to maintaining favourable habitat for the birds. See Appendix II for the full NPWS Site Synopses.	
Qualifying species of the SPA	Light-bellied Brent Goose Shelduck Oystercatcher Ringed Plover Knot	
Qualifying habitats of the cSAC (Annex I codes)	Estuaries (1130)	
	Mudflats and sandflats not covered by seawater at low Tide (1140)	
	Salicornia and other annuals colonizing mud and sand (1310)	
	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) (1410)	
	Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130)	
	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) (2120)	
	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ) (1330)	
Spartina swards ( <i>Spartinion maritimae</i> ) (1320)		
Non-qualifying habitats or species of interest	Greylag goose Shoveler Grey plover Dunlin Black-tailed Godwit Redshank Short-eared owl (Annex I, Birds Directive) Yellow hammer (Red listed species of Conservation Concern) Otter (Annex II, Habitats Directive) Bats (Annex IV, Habitats Directive) Meadow Barley ( <i>Hordeum secalinum</i> ) (Flora Protection Order, 1999) Hairy Violet ( <i>Viola hirta</i> ) (Flora Protection Order, 1999) Green-winged Orchid ( <i>Orchis morio</i> ) Red Data Book Species	
Unit size	586 hectares	

Condition	The current condition is not exactly known. However, the quality is variable owing to pollution from a number of sources, especially a large landfill site at Ballealy which was built on the mudflats of the north shore. The landfill site is also a source of pollution to the estuary. There is a stormwater discharge pipe from the landfill to the estuary. The Portrane Waste Water Treatment Plant is being upgraded and will provide tertiary treatment to the waste water it receives. This will be a positive impact on the estuary when it is operational in 2011 (estimated date of completion).
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Assessment criteria	
Describe the individual elements of the plan (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites.	<p>Rogerstown Estuary cSAC/SPA is an area of high biodiversity and supports a range of protected habitats and bird species, which require certain environmental conditions to be maintained. Contamination of the water quality would limit the extent of suitable habitat available to support the habitats and species for which the site is designated. Deterioration of water quality would alter the natural food chain, resulting in likely alterations to the distribution of species. These changes could negatively affect the structure and function of the site, and impact on the long-term distribution of species for which the site is designated.</p> <p>Potential impacts from the proposed development on the Rogerstown Estuary Natura 2000 site relate mainly to hydrology and hydrogeology in terms of;</p> <p><b>Waste Water Discharge</b> Currently attenuated water from the MEHL site is discharged to the stream that runs along the northern site boundary. This watercourse is a tributary of the Corduff River and is within the Rogerstown Estuary catchment.</p> <p><b>Ground Water Discharge</b> The leakage of leachate from the hazardous waste landfill cells, could potentially lead to contamination of groundwater. The hazardous, non hazardous and inert wastes landfill cells in the proposed MEHL development will be lined in accordance with the requirements of the Landfill Directive and the EPA Guidance on Landfill Design to a standard that will ensure no risk of contamination of groundwater..</p> <p>Contamination of the ground water or surface water from the leachate could have significant negative impacts on the integrity of Rogerstown cSAC/SPA, as well as sites of local ecological value adjacent to the existing landfill site.</p> <p><b>Potential In Combination Effects,</b> The proposed Fingal Landfill Project is located approximately 2km away from the site. The proposed landfill has been granted planning permission and is licensed under the EPA licensing system. Mitigation has been designed to prevent any discharges to the nearby watercourses and to ensure that the facility will operate in accordance with its licensing and to prevent negative impacts on the adjacent Natura 2000 site. Therefore there will be no combination effects arising from the proposed landfill and the proposed integrated waste facility.</p>

	<p>Under the Fingal County Development Plan 2011-2016, most of the proposed developments (Commercial, residential and industrial) will take place in the metropolitan areas located in the eastern and coastal parts of the county such as Swords, Portrane, Donabate, Portmarnock, Sutton, Baldoyle, Blanchardstown. The MEHL development site is located in the hinterland area of Fingal County, in the north-western part of the county. The lands east of the proposed MEHL development as far as the M1, are zoned RU with the objective to protect and provide for the development of agricultural and rural amenity or HA to protect and improve high amenity areas. The village of Naul is RV with an objective to protect and enhance the character of the rural village. A Local Area Plan is currently being prepared for Naul. Due to the zoning of the surrounding lands, There are no other proposed developments in the vicinity of the site that could have in-combination effects on Rogerstown Estuary.</p>
<p>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</p> <ul style="list-style-type: none"> <li>▪ Size and scale;</li> <li>▪ Land-take;</li> <li>▪ Distance from Natura 2000 site or key features of the site;</li> <li>▪ Resource requirements;</li> <li>▪ Emissions;</li> <li>▪ Excavation requirements;</li> <li>▪ Transportation requirements;</li> <li>▪ Duration of construction, operation etc.;</li> <li>▪ Others.</li> </ul>	<p><b>Direct Impacts:</b> As the proposed landfill site is 7.5km from the nearest Natura 2000 site, there will be no direct impact in terms of land-take on Rogerstown estuary SPA/cSAC.</p> <p><b>Indirect impacts</b> Water quality of the inner Rogerstown Estuary is already compromised from a number of polluting discharges and is categorised as eutrophic (EPA 2005) (Ref:<a href="http://www.epa.ie/downloads/pubs/water/coastal/Estuarine%20water%20quality%20map.jpg">http://www.epa.ie/downloads/pubs/water/coastal/Estuarine%20water%20quality%20map.jpg</a>)</p> <p>The proposed MEHL Integrated Waste Facility has been designed to ensure that there is no possibility of contamination of the groundwater or surface waters in the vicinity of the facility. (Refer to the EIS: Chapter 4 for details of the proposed facility). Additional mitigation measures have been provided beneath the hazardous waste landfill cells in the form of a leak detection system which will be monitored and will provide an early warning system of any breaches in the integrity of the hazardous waste liner. All flue gas cleaning residues from the incineration process will be solidified in an enclosed building prior to landfilling in order to encapsulate leachable contaminants and to minimise the generation of leachate from hazardous waste. In addition, a Quantitative Risk Assessment has been completed which assessed the possibility of contamination of groundwater and associated timeline. In this regard it was calculated that with the lining systems proposed in place contamination of groundwater will not take place before 5000 years has passed. Therefore, provided the design is fully implemented and monitored during the operation of the facility, there is no likelihood of any significant adverse impacts on the cSAC.</p> <p><b>Construction impacts</b> The construction impacts are not likely to have a significant negative impact on Rogerstown Estuary. During construction, the landfill cells will be shaped on the floor of the former quarry and sealed with an extremely low permeability layer of clay material derived from the quarry itself and then lined with an extremely low permeability liner, constructed using the DAC lining system for the hazardous waste cells. Details are outlined in Chapter 14 of the EIS. This process is not likely to impact on</p>

	<p>Rogerstown Estuary cSAC.</p> <p><b>Operational Impacts</b></p> <p>The landfill will be designed to be a sealed system for the hazardous and non-hazardous waste it will receive. There will be a leak detection system for the landfill cells .(Refer to the EIS: Chapter 4). Groundwater monitoring will be undertaken to monitor groundwater quality as well as surface water monitoring. . The facility will be operated in compliance with the Waste License and operations will be audited by the EPA and an ISO Certification body independently of one another.</p>
<p>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</p> <ul style="list-style-type: none"> <li>▪ Interference with the key relationships that define the structure of the site;</li> <li>▪ Interference with key relationships that define the function of the site.</li> </ul>	<p>The ecological link with Rogerstown Estuary is a hydrological one. The watercourse adjoining the site is a tributary of the Ballough Stream which ultimately discharges to Rogerstown Estuary 7.5km downstream. Provided there is no discharge of contaminated materials to the adjoining watercourse or to groundwater, there will be no significant adverse impacts on Rogerstown Estuary cSAC/SPA. The proposed MEHL integrated waste facility has been designed to ensure that there is no possibility for contamination of the groundwater or surface waters in the vicinity of the facility. The distance (7.5km) of the MEHL site from the Natura 2000 site is also a significant barrier which minimises the risk of adverse impacts.</p>
<p>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.</p>	<p>Contamination of surface water during construction or operation arising from the discharge of contaminated materials or an increase in suspended solids or by accidental spillage, is considered to be unlikely as the design of the project includes substantial water quality and quantity control measures in line with best practice guidance. Surface water drainage from the site will be managed under a full and comprehensive SUDS programme (Sustainable urban Drainage Systems). Therefore, no significant adverse effects are predicted on the integrity of the cSAC/SPA or on the long-term distribution of its associated species.</p> <p>The risk of groundwater contamination due to a leakage of leachate from landfill cells or their liners is potentially significant due to the nature of the waste proposed to landfill onsite. However, the proposed integrated waste facility has been designed to ensure that there is no possibility of contamination of the ground or surface waters in the vicinity of the landfill site. All flue gas cleaning residues from the incineration process will be solidified prior to landfilling in order to encapsulate leachable contaminants and to minimise the generation of leachate from hazardous waste. Included also in the design, are leak detection and collection systems and contingencies for accidents.</p> <p>It has been concluded that the proposed MEHL Integrated Waste Management Facility, alone or in combination with other plans and projects in the vicinity of Naul, will have no likely significant adverse impacts on the qualifying interests of the Rogerstown Estuary Natura 2000 site, on the integrity of this site or on its conservation objectives. Therefore, a Stage 2, Habitats Directive Assessment is not required.</p>

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## 4 CONCLUSION

This AA covers Stage 1: Screening, of the Appropriate Assessment process. This stage examines the likely effects of a project, either alone or in combination with other projects, upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not have any significant negative impact on the integrity or on the conservation objectives of the affected designated areas for nature conservation.

The screening process highlighted two key issues where impacts on Rogerstown Estuary cSAC/SPA could potentially occur as a result of the proposed MEHL Integrated Waste Management Facility;

- Contamination of surface water during the construction and operation of the MEHL facility leading to a decrease in water quality in the adjacent watercourse, Ballough Stream and Rogerstown Estuary and as a result, impacts on bird species in the estuary, which are key component in defining the ecological value and integrity of the Natura 2000 site)
- Contamination of groundwater through leakage of polluting substances from the landfill cells into the groundwater. This could result in a contamination of local groundwater and surface water supplies, including the watercourse along the northern boundary of the MEHL site which is partly groundwater fed. As this is a tributary of the Ballough Stream which discharges to Rogerstown Estuary, this could have indirect impacts on Rogerstown Estuary cSAC/SPA

The design of the proposed MEHL Integrated Waste Facility as outlined in Chapter 4 of the EIS will ensure that there is no likely risk of adverse impacts on the surface water and groundwater quality.

The conclusion from the Appropriate Assessment Screening report, is that, provided the design and monitoring of the proposed MEHL Integrated Waste Facility is rigorously constructed and operated as designed, there will not be any likely significant adverse impacts on the water quality of Rogerstown estuary and therefore on the birds (qualifying interests) of the SPA), nor on the integrity of the Rogerstown Estuary SPA/cSAC or on the conservation objectives of this Natura 2000 site.

## 5 REFERENCES

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## APPENDIX 1

### SITE SYNOPSIS

**SITE NAME: ROGERSTOWN ESTUARY SPA**

**SITE CODE: 004015**

Rogerstown estuary is situated about 2 km north of Donabate in north County Dublin. It is a relatively small, funnel shaped estuary separated from the sea by a sand and shingle peninsula and extending eastwards beyond the low water mark to include an area of shallow marine water. The estuary receives the waters of the Ballyboghil and Ballough Rivers, both of which flow through intensive agricultural catchments. The estuary has a wide salinity range, from near full sea water to near full fresh water. The estuary is divided by a causeway and narrow bridge, built in the 1840s to carry the Dublin-Belfast railway line. The site contains good examples of a number of estuarine and coastal habitats listed on Annex I of the E.U. Habitats Directive. At low tide extensive intertidal sand and mud flats are exposed and these provide the

main food resource for the wintering waterfowl. The intertidal flats of the estuary are mainly of sands, with soft muds in the north-west sector and along the southern shore. Associated with these muds are stands of Common Cord-grass (*Spartina anglica*). Green algae (mainly *Enteromorpha* spp. and *Ulva lactuca*) are widespread and form dense mats in the more sheltered areas. The intertidal vascular plant Beaked Tasselweed (*Ruppia maritima*) grows profusely in places beneath the algal mats and is grazed by herbivorous waterfowl (notably Brent Geese and Wigeon). The Lugworm (*Arenicola marina*) is common in the outer estuary and large Mussel beds (*Mytilus edulis*) occur at the outlet to the sea. Salt marsh fringes parts of the estuary, especially its southern shores. Common plant species of the saltmarsh include Sea Rush (*Juncus maritimus*), Sea Purslane (*Halimione portulacoides*) and Common Saltmarsh-grass (*Puccinellia maritima*).

Rogerstown Estuary is an important winter waterfowl site and supports a population of Pale-bellied Brent Goose of international importance (1194 - all counts given are average peaks over the five winters 1996/97 – 2000/01). A further 14 species have populations of national importance as follows: Greylag Goose 87, Shelduck 78, Shoveler 72, Oystercatcher 1794, Ringed Plover 188, Grey Plover 343, Knot 2159, Sanderling 89, Dunlin 3128, Redshank 674, Lapwing 2166, Black-tailed Godwit 242, Greenshank 26 and Turnstone 188. The Greylag Geese are part of a larger population which spends most of the winter on Lambay Island. Other species which occur regularly in significant numbers include Wigeon 411, Teal 379, Mallard 267, Redbreasted Merganser 22, Golden Plover 159 and Curlew 245. The numbers of Golden Plover and Lapwing can at times be considerably higher than the averages given above. The presence of Golden Plover is of note as this species is listed on Annex I of the E.U. Birds Directive.

Large numbers of gulls, mostly Herring, Great Blackbacked and Black-headed, are attracted to the area, partly due to the presence of an adjacent local authority landfill site.

Some of the wader species also occur on passage, notably Black-tailed Godwit with numbers often exceeding 300 in April. The estuary is a regular staging post for scarce migrants, especially in autumn when Green Sandpiper, Ruff, Little Stint, Curlew Sandpiper and Spotted Redshank may be seen. Shelduck breed within the site.

Rogerstown Estuary is an important link in the chain of estuaries on the east coast. It supports an internationally important population of Brent Goose and a further 14 species in numbers of national importance. Bird populations have been well monitored since the 1980s and the site is counted at monthly intervals each winter (September to March) as part of the Irish Wetland Bird Survey (I-WeBS). The site is a statutory Nature Reserve and a candidate Special Area of Conservation under the E.U. Habitats Directive.

10.11.2003



## APPENDIX II

### SITE SYNOPSIS

**SITE NAME : ROGERSTOWN ESTUARY cSAC**

**SITE CODE : 000208**

Rogerstown estuary is situated about 2 km north of Donabate. It is a relatively small, narrow estuary separated from the sea by a sand and shingle bar. The estuary is divided by a causeway and narrow bridge, built in the 1840s to carry the Dublin-Belfast railway line. The site contains good examples of a number of habitats listed on Annex I of the EU Habitats Directive. The estuary drains almost completely at low tide. The intertidal flats of the outer estuary are mainly of sands, with soft muds in the north-west sector and along the southern shore. Associated with these muds are stands of Cordgrass (*Spartina anglica*). Green algae (mainly *Enteromorpha* spp. and *Ulva lactuca*) are widespread and form dense mats in the more sheltered areas. The intertidal angiosperm, Beaked Tasselweed (*Ruppia maritima*), grows profusely in places beneath the algal mats. The Lugworm (*Arenicola marina*) is common in the outer estuary and large Mussel beds (*Mytilus edulis*) occur at the outlet to the sea.

The area of intertidal flats in the inner estuary is reduced as a result of the local authority refuse tip on the north shore. The sediments are mostly muds, which are very soft in places. Cordgrass (*Spartina anglica*) is widespread in parts, and in summer, dense green algal mats grow on the muds. In the extreme inner part, the estuary narrows to a tidal river. Saltmarsh fringes parts of the estuary, especially the southern shores and parts of the outer sand spit. Common plant species of the saltmarsh include Sea Rush (*Juncus maritimus*), Sea Purslane (*Halimione portulacoides*) and Common Saltmarsh-grass (*Puccinellia maritima*). Salt meadows and wet brackish fields occur along the tidal river. Low sand hills occur on the outer spit, including some small areas of fixed dunes and *Ammophila* dunes. Fine sandy beaches and intertidal sandflats occur at the outer part of the estuary.

Two plant species, which are legally protected under the Flora (Protection) Order, 1999, occur within the site: Hairy Violet (*Viola hirta*) occurs on the sand spit and Meadow Barley (*Hordeum secalinum*) occurs in the saline fields of the inner estuary. This species has declined apparently due to reclamation and embankment of lands fringing estuaries. Another rare species, Green-veined Orchid (*Orchis morio*), occurs in the sandy areas of the outer estuary.

Rogerstown Estuary is an important waterfowl site, with Brent Geese having a population of international importance (1176). A further 16 species have populations of national importance: Greylag Goose (186), Shelduck (785), Teal (584), Pintail (30), Shoveler (69), Oystercatcher (1028), Ringed Plover (152), Golden Plover (1813), Grey Plover (245), Lapwing (4056), Knot (2076), Dunlin (2625), Sanderling (57), Black-tailed Godwit (272), Curlew (1549), Redshank (732) and Greenshank (22) (All counts are average peaks over four winters 1994/95 - 1997/98). The presence of a significant population of Golden Plover is of note and this species is listed on Annex I of the EU Birds Directive. The estuary is a regular staging post for autumn migrants, especially Green Sandpiper, Ruff, Little Stint, Curlew Sandpiper and Spotted Redshank. Little Tern has bred at the outer sand spit, but much of the nesting area has now been washed away as a result of erosion. The maximum number of pairs recorded was 17 in 1991. Ringed Plover breed in the same area.

The outer part of the estuary has been designated a statutory Nature Reserve and a Special Protection Area under the EU Birds Directive. The inner estuary has been damaged by the refuse tip which covers 40 hectares of mudflat.

This site is a good example of an estuarine system, with all typical habitats represented, including several listed on Annex I of the EU Habitats Directive. Rogerstown is an internationally important waterfowl site and has been a breeding site for Little Terns. The presence within the site of three rare plant species adds to its importance.

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## Appendix A13.2

### Peregrine Falcon Report

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MEHL, Hollywood Great, Nags Head, Naul, Co. Dublin  
Peregrine Falcon Report

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November 2010

*Report by*  
*R&D Avian Ecology*  
*Prepared for*  
*Murphy Environmental Hollywood Ltd*

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## 1.0 Introduction

The peregrine falcon (*Falco peregrinus*) population in Britain & Ireland has largely recovered from declines caused by organochlorine pollutants (Crick & Ratcliffe, 1995; Banks *et al.*, 2003, Madden *et al.*, 2010). Despite this, in some areas the population, including Northern Ireland & Scotland, is declining (Banks *et al.* 2003, Ruddock *et al.*, 2007). Persecution (Ratcliffe, 2003; Hardey *et al.*, 2003; Ruddock *et al.*, 2007) and to a lesser extent perhaps chemical contamination (Peter Lindberg, personal communication) are seen as the main threats to peregrine population stability. There is good knowledge on population dynamics and productivity from decadal surveys in the UK (Ratcliffe, 1993; Crick & Ratcliffe, 1995; Banks *et al.*, 2003) and Ireland (Norriss *et al.*, 1995; Moore *et al.*, 1997; Madden *et al.*, 2010) and more detailed regional studies usually derived annually by Raptor Study Groups (Hardey *et al.*, 2003; Ruddock *et al.*, 2007; IRSG, 2009; Ruddock, 2009).

The peregrine falcon (*Falco peregrinus*) is listed on Annex 1 of the EC Birds Directive (EC Directive 74/409/EEC on the Conservation of Wild Birds) and is protected regionally by the Wildlife Act 1976, the Wildlife (Amendment) Act 2000. The latter legislation currently protects the peregrine by special penalties throughout the year and notably from disturbance during the breeding season. Disturbance can take varying formats and occur over short or long temporal periods. The effects may be transient (e.g. short-term alteration in behaviour) or permanent (e.g. total displacement from the breeding cliff). Factors such as cliff height and distance to or periodicity of the disturbance stimulus will alter the effects on falcons (see review in Ruddock & Whitfield, 2007). Disturbance effects may be lower depending on the tolerance and/or experience/habituation of individuals or species and contextualised on the basis of species' conservation status and/or population size (see Ruddock & Whitfield, 2007; Whitfield *et al.*, 2008).

Construction and/or development work, presents two main risks to birds namely 1) direct loss of i) breeding and/or ii) foraging habitat and/or iii) roosting habitat, due to the footprint of construction 2) displacement of birds as a result of increased disturbance within and surrounding the development and/or reduced suitability of the location. Displacement can occur in three ways i) displacement from breeding location, and/or ii) displacement from foraging ranges and/or iii) roosting habitat. Additionally, disturbance/displacement is likely to occur in two phases; firstly during construction phase and secondly the post-construction and or operational phases.

The former will occur over a short temporal period (weeks – months) whilst the latter will occur over several years (i.e. the life-time of the development).

As part of the planning procedure, development proposals are subject to Ecological Impact Statement (EIS) to establish the distribution and abundance of extant ecological features and assess risk from proposed development. This report reviews available data and reports information on actual and potential peregrine nest locations collected from primary field surveys within and surrounding the proposed development. These data are then used to assess the likely risks for each of the phases, described above, and outlines potential mitigation measures and recommendations.

#### Site description & background to the proposed development

The Murphy Environmental Hollywood Ltd (MEHL) facility in Hollywood Great, Naul, Co. Dublin is currently a fully operational inert landfill regulated by the EPA under waste licence W0129-02 and Fingal County Council Planning Permission. The site operated as a quarry until 2007. MEHL has planning permission from Fingal County Council for restoration of the quarry (Planning References: F04A/0363 & F07A/0262).

The proposed MEHL facility will comprise of the following:

1. Construction of fully engineered landfill cells, designed to international best practice standards, suitable for the acceptance of:
  - Hazardous ash and soils and other compatible non biodegradable waste streams;
  - Non-hazardous, non biodegradable wastes; and
  - Inert wastes.
2. Relocation of administration building and ancillary infrastructure.
3. Provision of a new facility entrance.
4. Construction of a solidification plant, associated storage building and staff welfare facilities.
5. Installation of leachate, surface water and other associated landfill management infrastructure.



As part of the current EPA Waste Licence MEHL are required to consult with National Parks & Wildlife Service (NPWS) regarding peregrine falcons as part of the Closure, Restoration & Aftercare Management Plan (CRAMP). The Department of Environment, Heritage and Local Government (DoEHLG) has advised (see DoEHLG 2010a; b, see Appendix A1.3 of EIS) that *“part of any mitigation measures which might be prepared as part of the EIS. This Department would encourage the identification of areas of biodiversity value that could be maintained or created within the overall site. In particular, the Peregrine nest site should be retained and the open water areas could be retained/enhanced for biodiversity value”*.

R&D Avian Ecology were commissioned in June 2010 to conduct a survey of the development location and outline potential mitigation options for peregrines by ARUP/MEHL following primary contact of the client with NPWS and Natura.

#### Policy & Legislation

The following conservation legislation is relevant to the peregrine within the proposed development:

- The Wildlife Act (1976) and Amendment Act (2000)
- Council Directive 79/409/EEC on the Conservation of Wild Birds (Annex I)
- Birds of Conservation Concern Ireland (BOCCI, see Lynas et al., 2008)
- Birds in the European Union (Birdlife International, 2004)
- Irish Vertebrate Red List (Whilde, 1993) & IUCN Red List (2010)

The Wildlife Act (1976) and Amendment Act (2000) are the principal national legislation providing protection of wildlife and the control of some activities that may adversely affect wildlife and allows for the imposition of fines and prison sentences for contravention of the Wildlife Acts. The peregrine is afforded national protection under the Act which imposes an offence to injure, wilfully destroy, take, injure, mutilate, or remove the eggs or nest of the peregrine. Furthermore, it is an offence to wilfully disturb a peregrine on or near a nest containing eggs or unfledged young.

The European Community meets its obligations for bird species under the Bern Convention and Bonn Convention by means of The Birds Directive which provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The peregrine falcon is listed on Annex I of the Directive which

requires member states to protect, manage and regulate wild bird species including their nests, eggs and habitats and creates a requirement to maintain, create and creation of habitats used by these birds including the creation of protection zones (i.e. SPAs). The highest level of protection is assigned to species in Annex I.

The Bird of Conservation Concern in Ireland (Lynas et al., 2008) assessed the conservation status of European/Irish bird species for the period 2007 - 2013. The previous analyses (Newton et al., 2001) classified peregrines as Amber-listed at the Species of European Conservation Concern (SPEC) 3 level due to an unfavourable conservation status within Europe. However, during recent reviews of the status of peregrines within Europe (Birdlife International, 2004) peregrines were reclassified as favourable conservation within Europe (NON-SPEC) status and consequently were down-graded from amber-listed to green-listed in regional analyses (Lynas et al., 2008).

The peregrine is classified as internationally important (Wilde, 1993) and as Least Concern since 2004 (IUCN, 2010).

## **2.0 Methods**

This report investigates three main components of peregrine falcon ecology in the proposed development area:

### *Primary survey of quarry occupancy by peregrines and suitability for peregrines during 2010 at the proposed development location*

Two site visits were undertaken to establish whether the quarry was occupied by peregrines (see Hardey *et al.*, 2006; 2009) and to identify current and/or potential nest locations and suitable cliff faces. Peregrines are usually surveyed using a minimum of two visits but these should be carried out during March/early April (to assess whether birds are present on site and if breeding is initiated) and again in June (to assess whether the breeding attempt is successful). In this instance fieldwork was carried out to establish the suitability and extent of the cliffs and nest ledges available at the quarry location and identify whether peregrines were present and if breeding was occurring during June only.

The quarry rock faces were scanned from a distance with binoculars (Leica, Duovid 8+12x42) and telescope (Leica, APO Televid, 20-60x zoom) to identify the presence of falcons and establish breeding behaviours. Closer examination of ledges and the

quarry floor was undertaken, in order to check for prey remains (i.e. plucked feathers, bones, carcasses etc), faecal splashing at roosts/nest ledges and for any signs of breeding and/or breeding failure. In particular the presence of prey remains and faecal splashing was searched for on suitable nest ledges.

Potential and/or active/known historical nest locations were examined from below the cliff faces and from the cliff top directly opposite the nest locations. These locations were photographed using a Canon EOS-40D and marked on photographs of the quarry. The general location of the quarry was plotted using a handheld Global Positioning System (Garmin E-trex ®).

#### Primary surveys of nearest suitable nest locations and alternative nest areas within 5-10km of the proposed development location

In order to examine the importance of the proposed development location to peregrine falcons in the area a primary survey was carried out within 5-10km of the proposed development location. 1:50000 Discovery Series Ordnance Survey Ireland (OSI) maps were reviewed prior to the first survey visits to remotely identify other potential nest locations. Cliff faces and other quarries obvious on the 1:50000 maps were visited during primary fieldwork and quarry and/or landowners were approached to gain access permission to the locations and interviewed as to whether peregrines were recorded at these locations or if any other suitable cliff or quarry locations were known in the area before conducting primary surveys to ascertain the current status of whether they were occupied by peregrines and suitability of ledges.

#### Historical data of peregrines available from the development site and surrounding areas and designation searches

Contact was made with local raptor fieldworkers to establish the known history of the peregrines at this locality. The consultation process included the Irish Raptor Study Group (IRSG) which collates raptor records, the regional NPWS Ranger and a local raptor fieldworker to establish existing data for the peregrines within the development location and known peregrine locations within 5 – 10 km of the proposed development location. Since the peregrine is listed on Annex I of the Birds Directive and may be listed as site features within SPAs a search for designated areas for which peregrine are listed as a site feature was undertaken utilising the NPWS designation database (<http://www.npws.ie/en/MapsData/>) to ascertain the proximity of these to the proposed development area. Furthermore, a search of digital data for peregrines was carried out from the online resources at the National Biodiversity

Centre (<http://maps.biodiversityireland.ie>) searched using the key word “peregrine” to identify known records of peregrines within and surrounding the proposed development.

### 3.0 Results

#### Primary survey of quarry occupancy by peregrines and suitability for peregrines during 2010 at the proposed development location

The first site visit took place during the 18<sup>th</sup> June 2010 to establish whether the quarry was occupied by peregrines and to identify current and/or potential nest locations. Two sections of contiguous cliff were identified as the most suitable cliffs for nesting peregrines within the quarry (see Figure 1). A female falcon was recorded roosting on the southern perimeter of the quarry, whilst the male was observed roosting on the western quarry face. Both the birds were observed from a vantage point within the quarry and no breeding behaviours and activity were recorded. Once it was certain no breeding was occurring fieldworkers accessed the base of the quarry and both falcons exited the quarry and flew south. No alarm calling or agitated behaviour was noted from either falcon which would normally indicate successful breeding at this stage of the season when falcons would be expected to have chicks on the nest approaching fledging or already fledged young (see Hardey et al., 2009).

**Figure 1.** Aerial view of the quarry (photograph provided by ARUP). The red line indicates the most suitable areas of cliff available for peregrine nesting within the quarry. The viewing direction is south.



There were three areas in which ledges were noted which comprised of four ledges recorded as potentially suitable peregrine nest locations during this visit. One was on the western rock face, one in the south-western corner and two on the southern boundary (see Figures 2, 3, 4, 5, 6 & 7 & 8). The ledges on the southern boundary were grassy and contained a number of prey items (see Figure 6 & 7) and were in close proximity to each other. The ledge on the south-western boundary appeared to have been scraped (i.e. small hollow created in the substrate usually made by the adult female prior to egg-laying) and contained a single moulted adult breast feather.

In addition, two roost locations were evident from the white faecal splashes on the rock face at the western side of the quarry (see Figure 9). The remainder of the quarry was driven and walked to establish whether any other suitable nest cliff existed within the location. The base of the quarry below the western and southern rock faces was searched for prey remains and the quarry rock faces were scanned for evidence of breeding and prey remains. There were a large number of prey remains, including a fresh gull kill, and clearly the peregrines have been extremely active at this location during 2010 (see Figure 10). MEHL reported the presence of an old quarry north of Hollywood Great and provided contact details for a local raptor fieldworker.

**Figure 2.** Traditional Peregrine nest ledge location on the southern boundary (identified during first site visit and later confirmed by a local raptor fieldworker ).



**Figure 3.** Cliff face showing the location of the traditional ledge on the southern boundary. The ledge is located at the centre of the red box.



**Figure 4.** Nest ledge utilised during 2010 on the south-western boundary. The ledge was scraped and a moulted breast feather was observed.



**Figure 5.** Cliff face showing the location of the 2010 ledge on the south-eastern boundary. The ledge is located at the centre of the red box.



**Figure 6.** The first ledge identified on the southern boundary of the quarry. A number of fresh kills are evident on the front of the ledge.



**Figure 7.** The second ledge identified on the southern boundary of the quarry.



**Figure 8.** Cliff face showing the location of the two ledges identified on the southern boundary of the quarry. The ledge is located at the centre of the red box.





**Figure 9.** Peregrine roost location on the western quarry face.



**Figure 10.** Southern rock face showing evidence of prey remains and plucked feathers.



The second site visit took place during the 29<sup>th</sup> June 2010 primarily to meet with the NPWS Ranger representative and local raptor fieldworker. A single adult peregrine

was observed perched on the southern perimeter of the quarry, this bird took flight and flew south away from the quarry following 20 minutes of observation from the cliff top. No breeding behaviours or activity were recorded at this visit and no young peregrines were recorded. The adult was also confirmed to be in moult, which is usually a sign of failed or non-breeding when observed at this stage of the breeding season. The local fieldworker reported that the female was observed incubating, on the ledge identified during the first visit that appeared scraped and contained a moulted breast feather, earlier in the breeding season and confirmed the location of the traditional ledge on the western quarry face.

*Primary surveys of nearest suitable nest locations and alternative nest areas within 5-10km of the proposed development location*

There were no quarries or cliffs identified within 5km of the proposed development location. The desk search and discussion with MEHL during the first visit identified the nearest potential locations at Site A (8.7km from Hollywood Great) and an old quarry several kilometres north of the present location at Hollywood Great. The former location was confirmed as a suitable peregrine quarry but the latter location was confirmed to be heavily over-grown and too small to support peregrines during a site visit. Two other locations were identified at Site B (9.3km from Hollywood Great) and Site C (16.2km from Hollywood Great) during the survey, both of which were confirmed as known peregrine nest locations (personal communication, 2010).

Site A was confirmed to previously contain peregrines by the quarry manager, who also reported that the quarry would be closing during 2010. Peregrines were recorded by him earlier in the breeding season although he confirmed that the usual nest (a raven stick nest) had collapsed during 2010, but they had been recorded to nest in recent years (approximately two to three years ago i.e. since 2007 or 2008). No peregrines were seen during the survey here, but one roost location was evident from faecal splashing and two prey remains (jackdaws) were located. Site B was not accessible during the survey as the quarry is no longer operational and no-one was present on-site. A two hour and thirty minute scan from outside the perimeter fence at a vantage point over-looking the whole quarry recorded a single female peregrine perched at the top of the quarry. A dog-walker that entered the quarry elicited no behavioural response from the peregrine indicative of breeding and no breeding behaviours or a second bird were recorded. Ravens were noted in the quarry to have fledged at least three young and a used raven nest was located by telescope. Site C was confirmed to contain peregrines by the quarry staff, but no survey was possible

and was later confirmed to have contained an active nest site during 2010 and successfully fledged young (personal communication, 2010).

#### Historical data of peregrines available from the development site and surrounding areas and designation searches

The Irish Raptor Study Group was contacted to request data for the area surrounding the quarry and within the proposed development. The IRSG confirmed that Hollywood Great, Site B and Site C are known peregrine nest sites, but annual data is not yet available for these locations. Site A was not known as a peregrine location previously (personal communication, 2010). A local raptor fieldworker who has been monitoring the development location reports that Hollywood Great has been occupied by peregrines for at least 12 years (i.e. since 1998), but has been unsuccessful since 2008 when three young disappeared from the nest, the reasons for and/or cause of which are unknown. Prior to 2008, it has been indicated that two to three young were usually produced annually, but specific annual records were not available.

The National Biodiversity Centre (NBC) map indicates that there are no records for the 10km squares which were surveyed here and in which peregrines are recorded. The 10km squares which were surveyed here included O6, O7, O15 and O25. The NBC data indicates nearest peregrine records (at a density of one record per 10km) in O02, O10, O11, O12, O13, O16, O18, O21, O22 and O23, but not in any of the surveyed squares.

A search of all SPAs found the nearest locations where peregrine are listed as site features at three sites to the east of the proposed development namely; Lambay Island (Site code 004069), Howth Head Coast (Site code 004113) and Ireland's Eye (Site code 004117). Lambay Island SPA is approximately 16km from the MEHL site and the latter two SPAs are both greater than 30km from the proposed development location. The quarry is **not** part of an SPA for peregrines.

#### Other species recorded on the development site

A pair of ringed plover (*Charadrius hiaticula*) was observed within the quarry adjacent to the existing ponds on open, stony ground and one other raptor species, Common kestrel (*Falco tinnunculus*) was observed in close-proximity to the quarry and was observed foraging (hover-hunting) over the southern boundary of the quarry during both survey visits. No nest activity was recorded of the latter species but due to the preference for crevices in rock faces or tree nesting it cannot be certain whether this

species was nesting within the quarry or outside the existing boundary during the late season visit. There were casual sightings of two mammal species within the quarry, namely rabbit (*Oryctolagus cuniculus*) and Irish hare (*Lepus timidus hibernicus*).

#### 4.0 Discussion

The risk assessment presented here considers the footprint of the development and activities associated with development during the construction, operational and post-construction phases in relation to:

- *Direct loss of breeding habitat*
- *Direct loss of foraging habitat*
- *Direct loss of roosting habitat*
- *Displacement from breeding location*
- *Displacement from foraging range*
- *Displacement from roosting habitat*

- *Direct loss of breeding habitat*

Development will result in predictable loss of the suitable breeding cliffs during the lifetime of the development (estimated as 25 years) since it is proposed to re-profile the quarry back to original ground levels. The restoration of the quarry is also a condition of the existing planning and EPA licence. The construction of Inert Cell 1 (IN1) is in closest proximity to the suitable breeding cliffs on the southern and western side-walls. In addition, each inert cell wall requires to be lined (proposed in 2 - 3m lifts) thereby gradually reducing the height of the cliff over time. Cliff height can directly impact peregrine nest site selection (Ratcliffe, 1993; Moore et al., 1997). The latter study reported the lowest quarry recorded occupied by peregrines as 18m, with occupancy increasing from 16m to >45m from 47% to 87% with increasing cliff height. However, quarry rock faces of 10 – 15m are regularly utilised in Northern Ireland (Marc Ruddock, personal observation) although are usually located in derelict quarries or non-active areas of working quarries. Peregrine have been recorded nesting approximately 5m above operational haulage routes in active quarries although this occurrence is rare (Marc Ruddock, personal observation).

The gradual reduction in cliff height will therefore reduce the suitability and therefore result in total loss of breeding habitat at a minimum threshold of 10 – 15m remnant cliff height. Currently the cliff height on the western rock face is approximately 34.5 – 44.5m and the southern rock face is approximately 29.5 – 34.5m (personal

communication, 2010) and the traditional ledge on the western rock face is approximately 10m below the cliff top. The ledge apparently utilised by the peregrines during 2010 is approximately 10m from the quarry floor and therefore would be lost sooner during in-filling. The two ledges on the southern boundary are approximately half-way up the cliff face and lower than the traditional ledge. Therefore, the largest cliff will likely be no longer suitable for breeding at a maximum of approximately 10 – 15m of in-filling at cell IN1 (personal communication, 2010). It should be noted that these residual cliff heights are low in comparison to preferred nest habitat (Mearns, 1982; Ratcliffe, 1993; Moore *et al.*, 1997) and re-grading works or alteration to the existing rock faces may reduce suitability for nesting at this site and may result in cliff abandonment although the precise reaction of the birds is difficult to predict.

It is proposed to install safety netting which will be required in the steep slopes of the site to protect construction workers from falling rock. The loss of or inaccessibility to rock faces during any time of the year will reduce the ability of the peregrines to perch and/or utilise any area within the quarry if all rock faces are covered simultaneously, particularly during the breeding season. There are occasional records of peregrines nesting in close proximity (~10m) to stabilising netting on a natural cliff site in Northern Ireland (Marc Ruddock, personal observation), but at that location the remainder of the cliff is exposed at all times of year and peregrines will be unlikely to fly through or perch on netting at any time. Therefore, this will considerably reduce the availability of breeding habitat if ledges are covered.

- Direct loss of foraging habitat

Peregrines will occasionally forage within the nesting quarry, usually hunting directly from the nest cliff or roost locations, however most foraging occurs outwith the quarry and within several kilometres of the nest location. The proposed development will therefore result in negligible loss of foraging habitat.

- Direct loss of roosting habitat

Peregrines will utilise the quarry rock faces for roosting during all times of the year, and quarries are often occupied throughout the winter period, although winter occupancy at this location is currently unknown. Peregrines are able to perch anywhere on exposed rock and therefore provided rock faces remain exposed. Similar to breeding habitat the gradual loss of cliff during in-filling and/or installation of netting on the cliffs will reduce the availability of perching/roosting locations for

peregrines at this location, if rock faces are no longer available through in-filling and/or covered simultaneously by netting. The proposed development will therefore result in gradual loss of roosting habitat during infilling.

- Displacement from breeding location

Displacement by the development is considered to be low risk from construction activity outwith the breeding season activity until cliffs are unsuitable for breeding. During the breeding season it is likely that the increased traffic and human activity during construction would result in an increased likelihood of displacement from breeding areas, particularly since this area of the quarry is currently inactive. However, the nest site is currently suitable for use as shown by the 2010 breeding attempt whilst the quarry is operational as a land-fill and previously bred successfully while the site was an operational quarry although the preferred nesting areas are, currently, relatively undisturbed. Peregrines are able to tolerate considerable human activity and disturbance and regularly breed successfully in working quarries (Moore et al., 1997; Ruddock, 2006; Madden et al., 2010) and that small cliff-nesting raptors, such as the peregrine, are less likely to be displaced by human activity (Martinez-Abraín et al., 2010) than large and/or tree-nesting species.

Reduction in suitability of the nesting cliffs may also displace the peregrines at certain thresholds i.e. reduction of cliff height, loss of suitable nest ledges and/or roosting locations. The buffer to such displacement is the retention/creation of suitable nesting/roosting habitat and/or the availability of other nearby or adjacent suitable nest/roost locations. There are three other nest locations within 20km although only one can be confirmed to be independently occupied during 2010 (Site C). These other nest locations are outside the mean nearest neighbour distance in some studies e.g. 3.5km apart (Horne & Fielding, 2002) and conceivably may all be separate territories. The annual pattern of occupancy at all these locations is not known. Therefore whether pairs switch between territories or nest independently requires to be established, particularly if there is a relationship between Hollywood Great and the closest location at Site A. In addition, only one of these four territories was confirmed to successfully breed (Site C).

Where biodegradable wastes are land-filled, peregrines are likely to be rapidly displaced due to the high netting and other birds, e.g. gulls and crows which are attracted to edible wastes, and the mobbing which peregrines receive from these other bird species. Since **no** biodegradable wastes will be accepted at the proposed

facility the in-filling of inert materials and activities proposed at this location removes this risk.

- Displacement from foraging range

Construction works may alter foraging range in raptors (e.g. golden eagles - *Aquila chrysaetos*, Walker *et al.*, 2005; hen harrier *Circus cyaneus*, Whitfield & Madders, 2006). The proposed development is in close proximity to the known peregrine nests and whilst some foraging, i.e. hunting, may occur adjacent to the nest site (Ruddock, 2006) foraging ranges are usually within a few kilometres from the nest ( $\pm 1 - 2$ km Ratcliffe, 1993; Weir, 1978). The limits of reported foraging distances, in Scotland, are 6km (Weir, 1978) and up to 18km (Mearns, 1983) from the nest locations. The displacement of falcons from their foraging range by the proposed development is considered negligible, in comparison to potential foraging range. However, hunting falcons may avoid the immediate area (and perhaps a buffer zone) around the development and a wider area of the site may be used by juveniles immediately after fledging. The proposed development will therefore result in negligible loss of foraging habitat.

- Displacement from roosting habitat

Maintenance of suitable cliff for roosting is essential to the maintenance of the peregrines at this location, although buildings and pylons are often used for perching, so the effects of displacement can be off-set by the availability of other structures. Ideally peregrines require close perching to the nest locality and sufficient shelter to minimise exposure to weather. The proposed development will therefore result in gradual displacement from roosting habitat during in-filling operations.

#### Other bird species

Ringed plover occur in the quarry and require open, stony ground on which to breed and may be disturbed during development works and it should be established where this species breeds in the quarry loss of these habitats may result in displacement of this species and habitat alterations should be mitigated appropriately and/or works completed outside the breeding season to avoid disturbance to nesting plover. Whilst a kestrel was recorded in close proximity to the quarry it was not certain whether this species breeds in the quarry from the surveys carried out here.

## 5.0 Conclusions & Mitigation

Whilst the peregrines are currently habituated to the operations within the quarry, the proposed development represents a novel disturbance factor, for which it is difficult to fully predict the effects and whether they will remain using the existing nest ledges, whilst rock faces are available. The level of human activity and construction work in the area may also cause disturbance to the peregrine falcons and requires monitoring and temporally restricted.

In order to increase the distance from the proposed development location it is proposed that several alternative natural ledges and/or artificial ledges/boxes are installed close to the top of the existing cliffs e.g. 3 – 5m at two to three locations within the quarry to maximise the distance from the development. Preferable locations are identified at the southern and western boundary locations (see Figure 11 & 12) and should be micro-sited during installation in these general areas. These should be screened from the development where possible and installed prior to the commencement of construction activity. Since peregrines will readily nest on man-made structure (Banks et al., 2003; Madden et al., 2010; Nick Dixon, personal communication) the installation of nest boxes/ledges should be considered on buildings or man-made structures (including the new solidification plant after construction) within the vicinity (5 – 10km). The existing natural ledges will remain, unless covered during in-filling and may continue to be used by peregrines. However, the considerable decrease in cliff height may reduce its suitability and the peregrines may no longer use it. Therefore, these alternatives for nesting are proposed to maximise the availability of ledges throughout the duration of the development.

Measures will be put in place to restrict human access near any new ledges/boxes (e.g. fencing or other appropriate restrictions). Peregrines are particularly sensitive to disturbance above the nest location (see Ruddock & Whitfield, 2007) and cliffs should be appropriately fenced to minimise access.



**Figure 11.** Proposed area for the installation of artificial or creation of natural ledges (where feasible) on the western boundary.



**Figure 12.** Proposed locations for the installation of artificial or natural ledges (where feasible) on the southern boundary.



Further to this it is proposed that the development should be phased sympathetically to maximise the time that cliffs are suitable for peregrines and this should be reviewed and monitored throughout the life-time of the development. The preliminary construction (2011) of Inert Waste cell IN1 during the first few years of the development (Phase 1) and restricted in-filling period (2012 – 2015) are critical to the infrastructure of proposed development and with a sensitive approach and installation of alternative ledges should maximise the retention of peregrines at this location. However the level to which Inert Waste cell IN1 is filled should ensure maximum cliff height is retained and developers should be aware that cliffs will have considerably reduced suitability from approximately 15 – 20m in height. Therefore, in the long-term, it is recommended to create an additional nesting site away from the location of the quarry to ensure peregrines are retained in this general area, subject to appropriate consultation with other landowners and NPWS.

The current phasing proposed for development has been designed in consultation with R&D Avian Ecology in order to extend the availability of the suitable breeding habitat within the MEHL site and leaves the southern and extreme south-western corner dormant from 2015 until 2028. The installation of alternative ledges above Non Hazardous Waste Cell NH1 on the western boundary (Figure 11) also allows peregrine to move around the quarry to alternative locations away from the construction activity until 2017 before construction begins in this area. Peregrines are then able return to the western ledges (artificial and natural ledges will both be available) if any disturbance occurs during the initial construction and operation phases of Inert Waste cell IN1 (2011 – 2015). This proposal maximises the availability of suitable breeding habitat within the quarry throughout the duration of the development. This should be reviewed throughout and consideration given (subject to health and safety) to the further retention of an area of cliff suitable for breeding peregrines i) if an effect is noted during peregrine monitoring of the primary operational phase of Inert Waste cell IN1 **and/or** ii) in the later phases of development (prior to 2028) before the re-commencement of in-filling at Inert Waste cell IN1 and latterly on the basis of peregrine monitoring data during the preceding development phases. Careful consideration should be given to the high risk of reducing the suitability of the cliffs for breeding and perching/roosting by the installation of safety netting and it is recommended that these installations are restricted totally if possible or minimised spatially and temporally.

To further minimise disturbance and/or displacement temporal restrictions should apply to the construction phase of the development below the existing main nesting cliffs. This should exclude the main breeding period i.e. 1<sup>st</sup> March to the 31<sup>st</sup> July (see Table 1). A buffer zone will be implemented for the protection of nesting peregrines from disturbance of 30 – 50m if essential works are required during the breeding season. There may be scope to relax this if i) the breeding attempt has failed ii) breeding was not initiated or iii) the site is confirmed to not be occupied by falcons prior to the commencement of construction. This should be done by confirmation of occupancy and breeding status by a suitably experienced raptor ecologist.

**Table 1.** Summary of peregrine breeding season (Hardey et al., 2009).

<b>Breeding activity (No. of days)</b>	<b>Range</b>	<b>Peak period</b>
Site occupation	All year (for some pairs)	March to July
Courtship display	Early March to late April	-
Egg laying (2-12 days)	Mid March to early May	Early April to late April
Incubation (28-35 days)	Mid March to early June	Early April to late May
Hatching	Late April to early June	Early May to late May
Young in nest (35-42 days)	Late April to late July	Early May to late June
Fledging	Early June to late July	Late June to early July
Juvenile dispersal	July to January	August to September

Outside the breeding season falcon activity is lower and will also allow some habituation towards, and spatial awareness of, the development before the breeding season commence. Working towards the cliffs from a greater distance will also allow time for peregrines to habituate to construction activity. Peregrine falcons will regularly lay eggs in March and breeding activity, e.g. courtship and ledge selection, occasionally occurs in February (Marc Ruddock, personal observation; see also Hardey *et al.*, 2009) so disturbance to potential breeding (i.e. causing movement and/or displacement to another nest or cliff) may also occur at this time. Late nesting attempts or re-laid clutches may result in peregrine chicks fledging in August. If doubt exists over the status of the breeding attempt, a raptor ecologist should be consulted.

The buffer that is usually recommended for peregrines during wind farm developments (usually multiple turbines in upland habitats) is 750 m (M. Madders, personal communication). A comprehensive review by Ruddock & Whitfield (2007;

see also Whitfield *et al.*, 2008) found recommended buffers or distance observations ranging from 8m to 4500m in the peregrine falcon. This study also solicited fieldworker opinion on perceived disturbance and reports a mean distance of 199m to 354m although opinions ranged from 10m to 750m. The distance at which disturbance occurs will vary on a site-specific basis and also seasonally. Whitfield *et al.* (2008) recommends a buffer of 500 – 750 m during the breeding season. The upper limits found by Ruddock & Whitfield (2007) may be over-protective in pairs that are already habituated to human-activity such as those occupying the current site and 30 – 50m is probably appropriate during the breeding season. The peregrines at this quarry are likely to be highly tolerant of both human, vehicular and construction activity since they have been present for a long period of time. However, the effects of the proposed development cannot fully be predicted and monitoring of the proposed development location is considered essential and buffers increased if effects are noted or decreased if no effects are noted and works are required.

The breeding status of the neighbouring quarries and the relationship between Hollywood Great and the other locations, particularly at Site A, should be established in order to understand whether these are alternative locations (see Ratcliffe, 1993; Norriss *et al.*, 1995) for the peregrines at the proposed development, since the quarry owner at Site A only noted peregrines in recent years since Hollywood Great has failed. In addition, the poor breeding apparent in these four locations (i.e. one successful site (Site C), one failed pair (Hollywood Great), one single adult female (Site B) and one pair apparently failed early but no birds seen during our survey (Site A) indicates limitation within these quarries which could be poor food supply, poor quality or lack of nest ledges or undetected persecution (i.e. wildlife crime) at these locations.

The disappearance of young from the nest at Hollywood Great (personal communication, 2010) may be indicative of the latter, and as such future monitoring would be invaluable to further understand the dynamics and factors influencing the peregrine population in this area. The quantity of prey remains recorded on ledges during the first survey visit was also noted to be unusually high for a nest site that had failed, although it may be that the adults consume all their prey at the quarry instead of eating outwith the quarry. Usually prey is returned more frequently to the nest area when dependent young are present, but none were noted here and none of the apparently suitable ledges looked to have the characteristic white faecal staining

at the rear of the ledge usually associated with the presence of chicks when closely examined by telescope.

The installation of camera equipment at ledges and/or artificial boxes once they become occupied are considered a valuable monitoring, protection and educational tool for the period of the quarries existence which can be used to encourage conservation of the species and/or collect research information. The loss of the site as a breeding location for peregrines is predictable following total in-filling. In this instance, a distinct site must be created away from the location e.g. nearby quarry or man-made structure, such as a church or cathedral, within 5 – 10km of the present location. Research of peregrines and monitoring would also be encouraged in the area following total in-filling to ensure the retention of peregrines in the area and/or establishment of a new peregrine breeding location at the new locality.

Annual monitoring data on peregrine breeding presence and success is essential to the calculation of residual impacts following implementation of mitigation measures and relevant to construction periods within and outwith the breeding season e.g. if the site is confirmed to not be occupied construction activity can be implemented and equally if disturbance or displacement is observed activity should be ceased or minimised. Post-construction monitoring of this site would be highly essential to determine the effects, if any, on the peregrine falcons. In the context of this species, results could be important to future applications or proposals, particularly if there is no observed displacement during the initial development phases. Records collected here, and in the future, should be submitted to the Irish Raptor Study Group (IRSG) c/o IRSG Secretary, Damian Clarke (damian\_clarke@environ.ie) and the site monitored annually in liaison with the owners of the site. Quarry owners and the quarry industry, in general, have an important role in site creation, management, protection and monitoring of peregrines in Ireland. The maintenance of these links, between conservation and land managers, in protecting the species is vital and should be encouraged e.g. through training of staff to undertake monitoring.

## **6.0 Recommendations**

This report recommends:

- Installation/creation of alternative nest ledges and/or artificial boxes/platforms at two to three locations near the top of the existing cliff on the southern and western boundaries.

- Investigation into the feasibility of installation of a ledge and/or box/platform on a nearby quarry, building (e.g. church or cathedral) which is confirmed, through monitoring, to become a distinct breeding location prior to total in-filling of the quarry. In particular, this should be carried out in consultation with landowners and NPWS.
- Consideration of the installation of an additional ledge/box on the new solidification plant or other suitable adjacent buildings.
- Restriction of access above the nest cliffs using fencing and/or other appropriate barriers.
- Phasing of construction activity sympathetically and collection of monitoring data on peregrine occupancy and breeding success to review effects annually and during each phase of the development.
- Restriction on the installation of safety netting along rock faces totally and/or spatially and temporally.
- Enacting temporal restrictions to construction from 1<sup>st</sup> March to 31<sup>st</sup> July unless the breeding status of the peregrines is confirmed, to have failed or not be initiated or peregrines are not present during the breeding season, by an experienced ecologist.
- Establishing breeding status immediately prior to construction if breeding season work is essential.
- Beginning works outside the breeding season to allow peregrines time to habituate to the development progressively.
- Implementing a buffer zone for protection of nesting peregrines from disturbance of 30 – 50m if essential works are required during the breeding season. Increase buffer if birds are found to be disturbed at this distance i.e. flushing or alarm-calling or decrease buffer if no reaction is noted and works are required.
- Conducting a peregrine monitoring program during development to establish effects of the development, establish winter occupancy at this location and occupancy/relationship with neighbouring quarries, particularly Site A.
- Increasing site security through the installation of cameras, if funds are available, and increase the likelihood of detection of wildlife crime in the area and establish if this is occurring. This can also be used as an educational tool, if quarry visits are facilitated, and a raptor monitoring tool.

- Continuing liaison with local raptor fieldworkers and the Irish Raptor Study Group to maintain links and submit data to annual raptor monitoring databases.
- Maintain other significant bird habitats (where possible) e.g. ringed plover and possibly kestrel or mitigate appropriately.
- 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.

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## 8.0 Appendix - R&D Avian Ecology, 21 Moyra Drive, Saintfield, Co. Down, BT24 7AF

### Dr Marc Ruddock

Marc completed his undergraduate (1997 – 2002) and PhD (2002 – 2006) studies at Queen's University, Belfast. Professionally he has worked as an avian ecologist for, R&D Avian Ecology, Golden Eagle Trust Ltd, Natural Research Ltd and Quercus (Queen's University). R&D Avian Ecology is a company formed in 2009 of which Marc is co-director. During his career he has worked on a variety of governmental (including SNH, NIEA & NPWS) and NGO projects as a project manager, field ecologist, reviewer, data analyst and as an author of scientific reports and manuscripts. Consequently he is well versed and experienced with legislative, management and conservation requirements within avian research, management implementation and survey requirements for research and EIAs/EcIAs. He is responsible for generating research specific income of over £85,000 since 2008 (not including consultancy work) and he is well acquainted, collaborates with and stands in good repute with other bird research units and organisations regionally and nationally.

Marc's field experience encompasses upland, wetland, marine and lowland species data collection for research purposes, e.g. demographic studies and data for Environmental Impact Assessments (EIAs). He is experienced in managing large data sets and large teams of people for the completion of research projects, Environmental Impact Assessments and programmes of work for priority and/or protected species. His field experience comprises a variety of ecological survey methods; particularly upland/breeding bird surveys and survey design/implementation and he has been involved in population scale assessments and demography studies of raptors, wildfowl, seabirds, passerines and numerous terrestrial and marine mammal species using survey and mark-recapture techniques. As a consultant he has worked on 18 proposed and consented windfarm projects (ranging in size from 3 – 30 turbines), in Scotland, Northern Ireland and the Republic of Ireland and numerous planning applications for quarries, housing developments and Article 6 screening matrix assessments for works within SPAs.

Outside of his professional career he co-manages a volunteer research organisation, the Northern Ireland Raptor Study Group, which collects, collates and reports on the spatial locations and status of raptors within Northern Ireland. He is responsible for funding, research, reporting and data management and annually over 500+ records are systematically collected within a raptor monitoring program for use in conservation, designation and protection of Irish raptors. In particular he undertakes rope access work on cliffs, quarry and trees in order to carry out the nest monitoring of a variety of raptor species. He is on the steering group for the Red kite re-introductions and works closely with the Golden eagle and White-tailed eagle re-introduction programmes. Internationally he is a director of the Raptor Research Foundation.

### Mr Brendan Dunlop

Brendan is a highly experienced raptor and avian fieldworker specialising in a wide range of EIA and research surveys. Brendan is a co-director of R&D Avian Ecology. He is skilled in surveying farmland and upland birds including walked transects and vantage point methodology, including habitat mapping for key species. He is particularly experienced in Hen harrier and Merlin surveys of SPAs and for windfarm proposals. Conversant with monitoring guideline's for winter & spring migratory species. He is appreciative of logistical requirements of liaising with landowners during field surveys. He has worked on 15 windfarm projects across the UK and Ireland and has experience of surveying grid connectors and development works (e.g. Belfast City Airport, several marinas and numerous quarry and housing applications).

He is a member of management committee and treasurer, of the Northern Ireland Raptor Study Group and also works closely with the Ulster Wildlife Trust and RSPB monitoring Barn owls. He is experienced in handling and ringing of raptors and monitoring of raptor nests to determine breeding output. He represents NIRSG on PAWNI (Partnership for Action against Wildlife crime) steering group and is a BTO volunteer undertaking WEBS counts on Belfast Lough SPA.

## Appendix A13.3

### Site Evaluation Scheme

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## SITE EVALUATION SCHEME

### Ecological evaluation criteria

<p><b>From <i>Guidelines for Assessment of Ecological Impacts of National Road Schemes</i> (NRA, 2009) Ecological Valuation Scheme.</b></p>
<p><b>International Importance:</b></p> <ul style="list-style-type: none"> <li>• 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.</li> <li>• Proposed Special Protection Area (pSPA).</li> <li>• Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).</li> <li>• Features essential to maintaining the coherence of the Natura 2000 Network.</li> <li>• Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.</li> <li>• Resident or regularly occurring populations (assessed to be important at the national level) of the following:             <ul style="list-style-type: none"> <li>- Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or</li> <li>- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.</li> </ul> </li> <li>• Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).</li> <li>• World Heritage Site (Convention for the Protection of World Cultural &amp; Natural Heritage, 1972).</li> <li>• Biosphere Reserve (UNESCO Man &amp; The Biosphere Programme).</li> <li>• Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).</li> <li>• Site hosting significant populations under the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).</li> <li>• Biogenetic Reserve under the Council of Europe.</li> <li>• European Diploma Site under the Council of Europe.</li> <li>• Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).</li> </ul>
<p><b>National Importance:</b></p> <ul style="list-style-type: none"> <li>• Site designated or proposed as a Natural Heritage Area (NHA).</li> <li>• Statutory Nature Reserve.</li> <li>• Refuge for Fauna and Flora protected under the Wildlife Acts.</li> <li>• National Park.</li> <li>• Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.</li> <li>• Resident or regularly occurring populations (assessed to be important at the national level) of the following:             <ul style="list-style-type: none"> <li>- Species protected under the Wildlife Acts; and/or</li> <li>- Species listed on the relevant Red Data list.</li> </ul> </li> <li>• Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.</li> </ul>
<p><b>County Importance:</b></p> <ul style="list-style-type: none"> <li>• Area of Special Amenity.</li> <li>• Area subject to a Tree Preservation Order.</li> <li>• Area of High Amenity, or equivalent, designated under the County Development Plan.</li> <li>• Resident or regularly occurring populations (assessed to be important at the County level) of the following:             <ul style="list-style-type: none"> <li>- Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</li> <li>- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</li> </ul> </li> <li>• Species protected under the Wildlife Acts; and/or</li> <li>• Species listed on the relevant Red Data list.</li> </ul>

- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfill the criteria for valuation as of International or National importance.
- County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

**Local Importance (higher value):**

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
- Resident or regularly occurring populations (assessed to be important at the Local level) of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

**Local Importance (lower value):**

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

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