



May 2011

Appropriate Assessment Screening of a Proposed Landfill Gas Utilisation Plant at Drehid Waste Management Facility

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Executive Summary

Bord na Móna intends to provide a landfill gas utilisation plant at Drehid Waste Management Facility, Co Kildare (the Site). The proposed plant would generate up to an estimated 4.99 MW of electricity, for input into the National Grid for a period of up to 25 years.

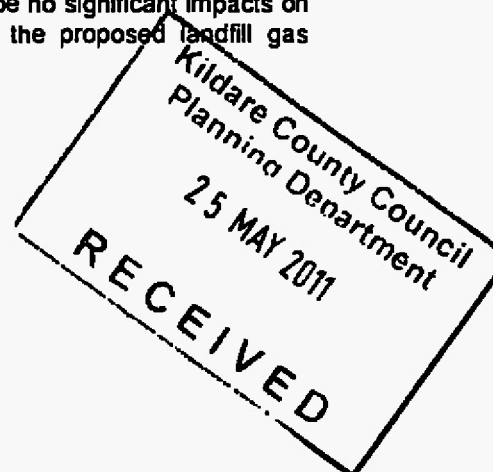
Two Natura 2000 sites have the potential to be impacted by the proposed development; these are Ballynafagh Bog SAC (Site Code: 000391) and Ballynafagh Lake SAC (Site Code: 001387). The main potential impact on these two Natura 2000 sites relates to bird flight activities in the vicinity of the Site. As required by Articles 6(3) and 6(4) of the Habitats Directive, an Appropriate Assessment Screening of the proposed development was carried out, in consultation with National Parks and Wildlife Service.

Concerns regarding potential impacts of the presence of a 12m stack, on the designated birds of the Natura 2000 site during flight, were highlighted by National Parks and Wildlife Service and Kildare County Council Heritage Officer.

Drehid is not noted as a key migratory route for wildfowl in the area, and no important feeding or roosting sites have been noted in the area. Significant impacts on birds present at Ballynafagh Lake SAC and Ballynafagh Bog SAC as a result of the presence of the stack were thus considered unlikely for the following reasons;

- The height of the stack will be 12 m, a height that is not considered a threat, in terms of collision risk for birds;
- The stack will not be positioned on a prominent topographic feature that may be used by birds as a navigation guide, and will be surrounded by existing buildings and structures of similar height;
- The stack will not have lighting (e.g. aircraft warning lights) and therefore will not pose a risk to birds in terms of attraction or trapping by lights; and
- The stack will have an anti-perching device to prevent birds from perching on the stack.

Following the Appropriate Assessment Screening, it is concluded that there will be no significant impacts on Ballynafagh Bog SAC and Ballynafagh Lake SAC arising from elements of the proposed landfill gas utilisation plant at Drehid.





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APPROPRIATE ASSESSMENT SCREENING

1.0 INTRODUCTION

Golder Associates Ireland (Golder) was retained by Bord na Mona Ltd. to carry out an Appropriate Assessment Screening of a proposed landfill gas utilisation plant at Dredge Waste Management Facility, Co. Kildare, 3 kilometres (km) north of Allenwood. The site location and site plans are given in Appendix A. The site is located within 10km of the following European Natura 2000 sites (Figure 1);

- Ballynafagh Bog SAC (Site Code: 000391);
- Ballynafagh Lake SAC (Site Code: 001387); and
- Long Derries SAC (Site Code: 000925).

The terms of reference of this report are set out below.

1.1 Terms of Reference

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the 'Habitats Directive' - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of the EU-wide network of Natura 2000 Sites.

Natura 2000 is in many ways the flagship of EU nature conservation policy, eventually to be made up of a 'coherent European ecological network' of sites of Community importance. The network is particularly important in that it brings together two different types of European sites. Together both the Habitats Directive and Birds Directive form the backbone for conservation in Europe by establishing Natura 2000 Sites. Natura 2000 Sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC). Once selected and within six years of their designation, each Natura 2000 Site was required to introduce conservation measures or where necessary implement a management plan to improve the conservation status of the site. Measures or management plans adopted would have to take account of the existing use of each area. They would also have to regulate or introduce exemptions for any recreational and economic activities that could have a negative effect on the habitat or species associated with the designated areas.

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 Sites. Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory

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measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

The requirements of Articles 6(3) and 6(4) of the Habitats Directive have been transposed into Irish legislation by means of the Habitats Regulations, 1997 (S.I. No. 94 of 1997).

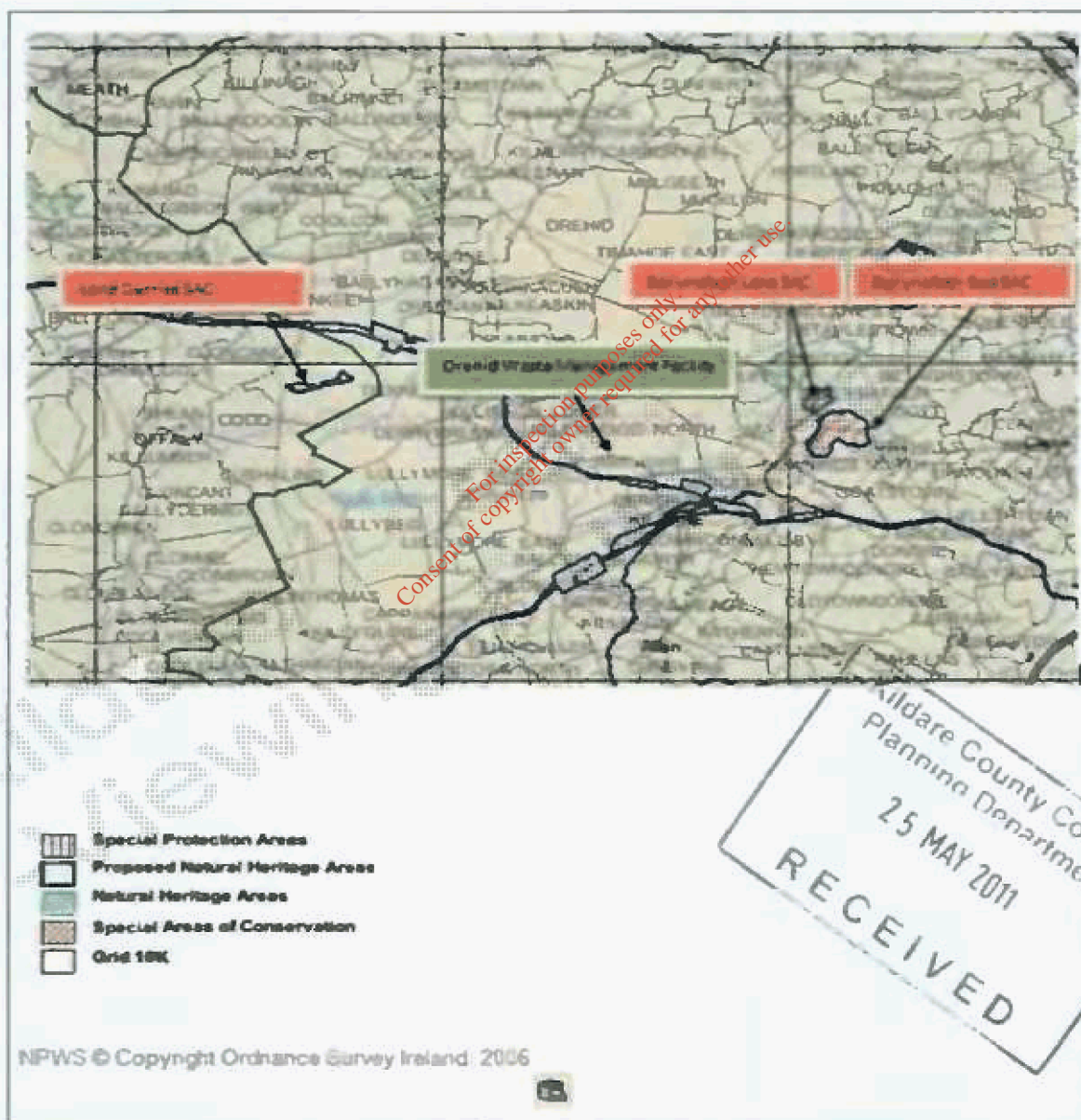


Figure 1: NPWS Designated Sites



2.0 APPROPRIATE ASSESSMENT SCREENING METHODS

2.1 Data Collection and Consultation

A desktop review was conducted of all available published and unpublished information together with consultation with a number of statutory bodies and interested parties (Table 1). Information received has been incorporated into the report where appropriate.

Table 1: Consultation

Organisation	Contact	Method & Date of Consultation
NPWS Local Ranger	Sylvia O'Hare	Referred Golder to Ciara Flynn
NPWS District Conservation Officer	Ciara Flynn	Phone Call May 5 and 6 2011. Annex I Whooper Swans no longer using Ballynafagh Lake SAC. Main concern in relation to the stack as a potential hazard to wildfowl of Ballynafagh Lake SAC.
Kildare County Council	Heritage Officer	Raised concerns regarding flight paths of wildfowl of Ballynafagh SAC, if using the area in the vicinity of Drehid.

2.2 Assessment Methodology

This assessment has been carried out with reference to the following documents:

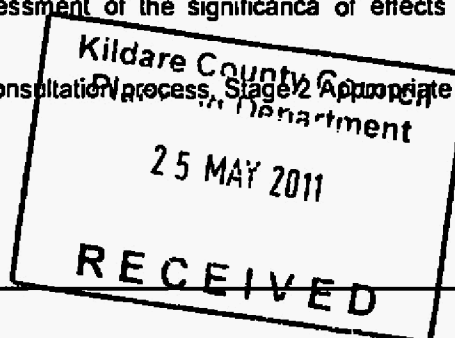
- Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Communities, 2002);
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats Directive' 92/43/EC (European Communities, 2000);
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (Dept. Environment Heritage and Local Government, December 2009);
- Guidelines for Ecological Impact Assessment (Institute of Ecology and Environmental Management, 2006); and
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (NRA, Revision 2, 1st June, 2009).

Appropriate Assessment is carried out in stages, as recommended by the above-referenced guidance documents. There are four stages in the Appropriate Assessment process and Screening is the initial stage.

2.2.1 Appropriate assessment screening

This initial stage of the process aims to identify the likely impacts of a project or plan on a Natura 2000 site, either alone or in combination with other projects or plans. The impacts are examined to establish whether these impacts are likely to be significant. Assessment of the significance of effects is carried out in consultation with the relevant nature agencies.

Depending on the outcome of the screening and consultation process, Stage 2 Appropriate Assessment may be required.





3.0 BRIEF DESCRIPTION OF THE PROPOSED DEVELOPMENT SITE

Drehid Waste Management Facility is a fully lined engineered facility for the acceptance of residual, non-hazardous household, commercial and industrial wastes.

Bord na Móna intends to provide a landfill gas utilisation plant at Drehid Waste Management Facility, Co Kildare. The plant would generate up to an estimated 4.99 MW of electricity, for input into the National Grid for a period of up to 25 years.

Development of the plant and installation of four (4 No) gas engines, which will be placed over a number of years as gas production increases in line with the increase in the volume of emplaced wastes. As gas production decreases over time the engines will be phased out. A maximum of four (4 No) engines are envisaged at this point in time. The landfill gas utilisation plant will have a stack which will be 12 metres in height.

4.0 BRIEF DESCRIPTION OF NATURA 2000 SITES

The two Natura 2000 sites that have the potential to be impacted by the proposed development are:

- Ballynafagh Bog SAC (Site Code: 000391); and
- Ballynafagh Lake SAC (Site Code: 001387).

The main impact possible on these two Natura 2000 site relates to bird flight activities in the vicinity of the site. The species and habitats of Long Derries SAC are not likely to be impacted by the proposed development and are screened out at this stage.

Descriptions of Ballynafagh Bog SAC and Ballynafagh Lake SACs are given in the following section.

4.1 Ballynafagh Bog SAC (Site Code: 000391)

4.1.1 Habitats of Ballynafagh Bog SAC

The EU Annex I habitats of Ballynafagh Bog SAC and the overall conservation status of each habitat is given in Table 2.

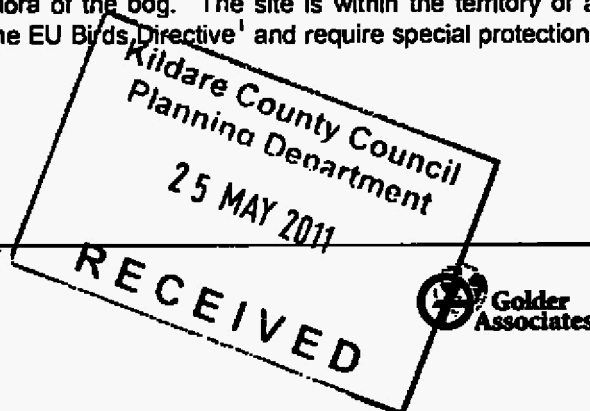
Table 2: EU Annex I Habitats of the Ballynafagh Bog SAC

Habitat	EU Annex I Habitat	Overall Conservation Status in Ireland
Active Raised Bog	7110 Priority Habitat	Bad
Degraded Raised Bog	7120	Poor
Rhynchosporion Depressions	7150	Good

4.1.2 Species of Ballynafagh Bog SAC

Species of note at Ballynafagh bog SAC include the flora of the bog. The site is within the territory of a breeding pair of Merlin, a species listed on Annex I of the EU Birds Directive¹ and require special protection.

¹ The Status of EU Protected Habitats and Species in Ireland





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Several pairs of Curlew, a Red Listed species² and Snipe, an Amber Listed species³, breed on the bog. Scrub bird species such as Stonechat, Redpoll and Long-tailed Tit occur on the cutaway parts of the bog.

4.1.3 NPWS site synopsis

This site is a raised bog situated about 1 km west of Prosperous in County Kildare. The area is directly underlain by muddy, fossiliferous limestones, interbedded with calcareous shales. The subsoils are predominantly clay-rich tills. All are of low permeability.

An estimated 46% of the site consists of intact raised bog habitat. In the wettest area towards the centre, a system of tear pools occurs, grown over with Bog Mosses (*Sphagnum capillifolium* and *S. magellanicum*). There is a small pool-and-hummock system, with pools colonised by another species of Bog Moss (*Sphagnum cuspidatum*). White Beak-sedge (*Rhynchospora alba*), Cottongrasses (*Eriophorum* spp.) and the insectivorous Great Sundew (*Drosera anglica*) are abundant in wet channels. Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*) are found on the hummocks.

A large portion of the site contains old cutaway bog colonised by Rushes (*Juncus* spp.) and Common Cottongrass (*Eriophorum angustifolium*), with Downy Birch (*Betula pubescens*) forming patches of scrub/woodland.

The site is within the territory of a breeding pair of Merlin, a species listed on Annex I of the EU Birds Directive. Several pairs of Curlew and Snipe breed on the bog. Scrub species such as Stonechat, Redpoll and Long-tailed Tit occur on the cutaway.

The bog has been damaged by afforestation, mechanised peat cutting and drainage. These three activities pose the main threats to the survival of raised bogs.

Raised bogs are a rare habitat in Europe, and in Ireland continue to be under threat. Ballynafagh Bog, although damaged, is of added interest as the most easterly site with a high proportion of intact raised bog habitat remaining in Ireland.

4.2 Ballynafagh Lake SAC (Site Code: 001387)

4.2.1 Habitats of Ballynafagh Lake SAC

Ballynafagh lake SAC was originally a reservoir with a connection to the Grand Canal via the Blackwater Feeder. It is a shallow alkaline lake edged by fen in places an Annex I habitat of the E.U. Habitats Directive. The lake is surrounded by acid grassland, heath and bog.

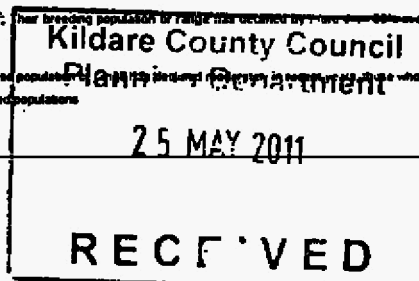
Table 3: Annex I Habitats of Ballynafagh Lake SAC

Habitat	EU Annex I Habitat	Overall Conservation Status in Ireland
Transition Mires	7140	Bad
Alkaline fen	7230	Bad

The other habitats of the SAC including the lake, acid grassland, heath and bog are not defined in the SAC Site Synopsis in terms EU Annex I habitats but are all important to the overall integrity of the site.

² Red Listed Species are those bird species that meet one or more of the following criteria: their breeding population in range has declined by 70% or more in the last 25 years; their breeding population has undergone a significant decline since 1900; or they are of global conservation concern.

³ Amber-list species are those with an unfavourable conservation status in Europe; those whose population in range has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.





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4.2.2 Species of Ballynafagh Lake SAC

The Blackwood Feeder connects Ballynafagh Lake to the Grand Canal and is of particular conservation significance for the populations of two rare snail species, *Vertigo moulinsiana* and *Pisidium pseudosphaerium*, that it supports. The former species is listed on Annex II of the E.U. Habitats Directive, while the latter has previously been recorded only from sites along the Royal Canal. *Vertigo moulinsiana* also occurs in wetland vegetation by Ballynafagh Lake itself. A high diversity of molluscan species is found on the site (42 species recorded in 1997). A wide diversity of insects is also found at Ballynafagh Lake, including the Marsh Fritillary butterfly, a species listed on Annex II of the EU Habitats Directive.

Table 4: EU Annex Species of Ballynafagh Lake SAC

Species	EU Annex Species	Overall Conservation Status in Ireland ²⁵
Marsh Fritillary	Annex II	Poor
Desmoulin's Whorl Snail <i>Vertigo moulinsiana</i>	Annex II	Bad

EU Annex I bird species of the Birds Directive, listed for the SAC, that winter at Ballynafagh Lake include Whooper Swan and Golden Plover. However, recent consultations indicate that Whooper Swan have not been recorded from the site in over 5 years (Ciera Flynn, pers comm.). This may be attributable to land use changes in the area. Breeding birds of the lake include Little Grebe, Mellerd, Moorhen, Coot, Snipe and Water Rail.

4.2.3 NPWS site synopsis

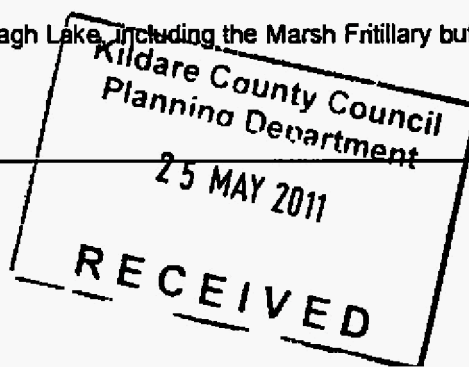
Ballynafagh Lake is located about 2 km north-west of Prosperous in Co. Kildare. It is a shallow alkaline lake with patches of emergent vegetation in the middle as well as around the shore. Submerged plants include Starwort (*Callitriche* spp.) and Bladderwort (*Utricularia minor*), with Duckweed (*Lemna minor*) and the liverwort *Riccocarpus natans* occurring on the surface.

Alkaline fen vegetation occurs at the lake edge, notably a plant community dominated by Blunt-flowered Rush (*Juncus subnodulosus*) and Black-bog Rush (*Schoenus nigricans*), with frequent Sedges (*Carex lepidocarpa*, *C. rostrata*). Other species in this area include Marsh Marigold (*Caltha palustris*), Red Rattle (*Pedicularis palustris*), Arrow Grass (*Triglochin palustre*), Water Mint (*Mentha aquatica*) and Bulrush (*Typha latifolia*). Extensive stands of Reed (*Phragmites australis*), Bulrush and Bottle Sedge (*Carex rostrata*) occur around the open water. A stand of Great Fen-sedge (*Cladium mariscus*) occurs in the western corner.

The lake is surrounded by acid grassland, heath and bog. Here the vegetation includes Bent Grass (*Agrostis tenuis*), Purple Moor-grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*), Bracken (*Pteridium aquilinum*), Gorse (*Ulex europaeus*) and Heather (*Calluna vulgaris*). Wet woodland of Birch (*Betula* spp.), Willow (*Salix* spp.) and Alder (*Alnus* spp.) occurs in the north-west corner of the lake.

The Blackwood Feeder connects Ballynafagh Lake to the Grand Canal and is of particular conservation significance for the populations of two rare snail species, *Vertigo moulinsiana* and *Pisidium pseudosphaerium*, that it supports. The former species is listed on Annex II of the E.U. Habitats Directive, while the latter has previously been recorded only from sites along the Royal Canal. *Vertigo moulinsiana* also occurs in wetland vegetation by Ballynafagh Lake itself. A high diversity of molluscan species is found on the site (42 species recorded in 1997).

A wide diversity of insects is also found at Ballynafagh Lake, including the Marsh Fritillary butterfly, a species listed on Annex II of the EU Habitats Directive.





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Breeding birds of the lake include Little Grebe, Mallard, Moorhen, Coot, Snipe and Water Rail. In May 1993 a pair of Curlew was observed holding territory. Sedge Warbler, Reed Bunting and Whitethroat breed within the site. Black-headed Gulls formerly bred at the lake but only single birds were observed in 1993. Wintering waterfowl include: Whooper Swan 20, Teal 114, Mallard 110, Golden Plover 40 and Curlew 117 (all counts average peaks, 1 season 1984/85 - 86/87). The main landuse of the lake is fishing. There is a No Shooting Area Order on the site.

Although originally a reservoir, Ballynafagh Lake has developed very natural vegetation with some interesting plant communities, including alkaline fen, a habitat that is listed on Annex I of the E.U. Habitats Directive. The site supports a high diversity of molluscan species, with some rare species recorded, including *Vertigo moulinsiana*, a species that is listed on Annex II of the E.U. Habitats Directive. The site is also of ornithological importance.

4.3 Assessment criteria

4.3.1 Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site

Elements of the development that are likely to give rise to impacts on the Natura 2000 sites relate to the presence of a chimney stack which may cause a hazard to important bird species of the SACs.

	Relevant elements of the plan	Possible impacts
During construction	The proposed development will include the following: Site clearance Construction of the proposed development	None
During Operation	Presence of 12m Stack	Possible disturbance and collision risk to Annex I birds of the Natura 2000 site during flight.

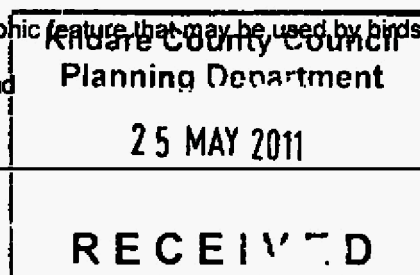
4.3.2 Impacts of tall manmade structures on birds

Manmade structures have been recognized as a hazard to birds for more than a century (Cooke, 1888; Kumljen, 1888). However, the accelerated rate of urban development in recent years has seen the proliferation of radio and television towers, office buildings, power lines, cooling towers, emission stacks, and residential housing, all of which represent an increasing threat to flying birds.

The most hazardous of man-made structures are cable-stayed telecommunication towers. Other structures that cause collisions are windows and building glazing, electric power lines, lighthouses, and exhaust stacks.

Characteristics of tall structures causing bird fatalities that are relevant to the proposed stack at Dredid are:

- Height of tower structure (most threatening over 250 m);
- Siting of tower on prominent topographic feature that may be used by birds as a navigation guide;
- Lighting of tower using floodlights; and





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- Staying of tower by guy-wires that are unlighted, therefore invisible at night. One of the main factors contributing to the collision risk of these structures is the presence of artificial lights at night.

Birds migrating at night are strongly attracted to, or at least trapped by, sources of artificial light, particularly during periods of inclement weather (e.g. Verheijen, 1958, 1985). Approaching the lights of lighthouses, floodlit obstacles, ceilometers (light beams generally used at airports to determine the altitude of cloud cover), communication towers, or lighted tall buildings, they become vulnerable to collisions with the structures themselves. If collision is avoided, birds are still at risk as once inside a beam of light, birds are reluctant to fly out of the lighted area into the dark (Graber, 1968), and often continue to flap around in the beam of light until they drop to the ground with exhaustion (Weir, 1976, and references therein). A secondary threat resulting from their aggregation at lighted structures is their increased vulnerability to predation (e.g. Stodderd and Norris, 1967).

Resident bird species living alongside manmade structures may actually learn to avoid such threats through experience (Klem, 1989). Migrating birds, however, face such risks wherever manmade structures occur along their migratory flight path, and are likely more vulnerable than resident birds to collisions and disorientation. However, all locations are not equally hazardous for migrating birds. Structures located at key points along migratory routes may represent a greater hazard than those in other locations.

If the stack is lit then it is recommended to use strobe or flashing white lights rather than floodlighting or red lights. Flashing light is preferable to a constant beam because the interruption of light appears to allow any birds caught in the beam to disperse (Baldwin, 1965; Avery et al., 1976). Studies at the Nanticoke Thermal Generating Station, and the Wesleyville and Thunder Bay Hydro sites (Ontario), have demonstrated that bird kills and injured at stacks and towers are virtually eliminated by switching from floodlighting to strobe lighting (Broughton, 1977; Chubbuck, 1983). Intermittent lighting appears to be the only lighting regime that reduces bird kills.

Drehid is not noted as a key migratory route, for wildfowl in the area, and no important feeding or roosting sites have been noted in the area. However, if we assume that wildfowl and other birds of Ballynafagh Lake and Bog SACs traverse the Drehid site, significant impacts on species are not likely for the following reasons;

- The height of the stack will be 12 m, a height that is not considered a threat, in terms of collision risk for birds;
- The stack will not be positioned on a prominent topographic feature that may be used by birds as a navigation guide. The stack will be surrounded by existing buildings and structures of similar height;
- The stack will not have lighting (e.g. aircraft warning lights) and therefore will not pose a risk to birds in terms of attraction or trapping by lights especially at night or/and during bad weather; and
- The stack will have an anti-perching device to prevent birds from perching on the stack.

4.3.3 Cumulative impacts

The most likely cumulative impacts are as a result of bird collision risk with other tall structures or lighted buildings in the area.

Drehid is located in a rural area surrounded by cutaway bog. There are a number of villages such as Allenwood and Prosperous in the vicinity of Drehid but no major urban centres with tall buildings or lighted tall structures. The buildings and structures in the area are largely two storey or three storey including houses, farm buildings (including silos) and churches. All are similar in height to that of the stack and are not noted as structures that pose a collision risk.

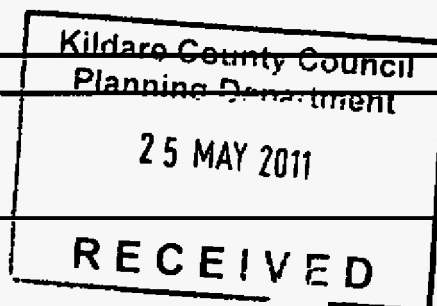
For the reasons outlined above and in Section 4.3.2, it is considered that, the proposed development, will not pose a risk for wildfowl of Ballynafagh Lake and Bog SACs. Therefore, no significant cumulative impacts are considered likely, on the Natura 2000 designations.



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4.3.4 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:

Size and scale	<p>Drehid Waste Management Facility is a fully lined engineered facility for the acceptance of residual, non-hazardous household, commercial and industrial wastes.</p> <p>Bord na Mona intends to provide a landfill gas utilisation plant at Drehid Waste Management Facility, Co Kildare. The plant would generate up to an estimated 4.99 MW of electricity, for input into the National Grid for a period of up to 25 years.</p> <p>Development of the plant and installation of four (4 No) gas engines, which will be placed over a number of years as gas production increases in line with the increase in the volume of emplaced wastes. As gas production decreases over time the engines will be phased out, it is estimated that this will occur over 25 years. A maximum of four (4 No) engines are envisaged at this point in time. The landfill gas utilisation plant will have a stack which will be 12 metres in height.</p>
Land-take	There is no land-take of the SACs.
Distance from Natura 2000 site or key features of the site	The proposed development site is located within 7km of Ballynefagh Bog SAC and Ballynefagh Leke SAC.
Resource requirements (water abstraction etc.)	The proposed development will be supplied by the mains water supply.
Emissions (disposal to land, water or air)	<p><u>Emissions to air</u></p> <p>Landfill gas contains the greenhouse gases methane (CH₄) and carbon dioxide (CO₂). In order to offset the CH₄ content and combust other trace components, landfill gas is fired and utilised. Given the location of the SACs, greater than 5km – typically the emissions will not impact further than 1 km (SEPA, 2003).</p> <p><u>Temporary Impacts:</u> No Impact on the SACs</p> <p><u>Permanent Impacts:</u> No impact on the SACs</p>
Excavation requirements	<p><u>Temporary Impacts:</u> No impact on the SACs</p>
Transportation requirements	<p><u>Temporary Impacts:</u> No Impact on the SACs</p> <p><u>Permanent Impacts:</u> No Impact on the SACs</p>
Duration of construction, operation, decommissioning etc.	<p>Duration of construction: ca. 18 to 24 months</p> <p>Duration of operation: Estimated 25 years</p>
Other	None





APPROPRIATE ASSESSMENT SCREENING

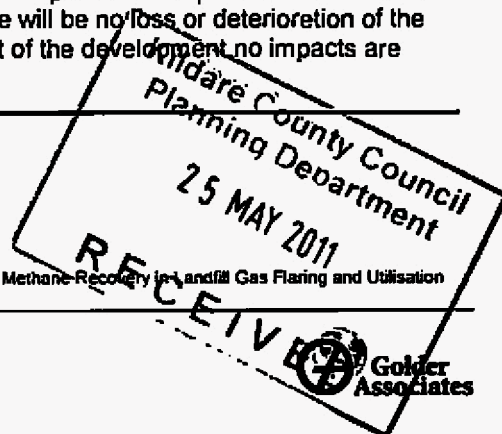
4.3.5 Describe any likely changes to the site arising as a result of:

Reduction of habitat area	There will be no loss of habitat from the Ballynefagh Bog and Ballynafagh Lake SACs.
Disturbance to key species	<u>Temporary</u> None <u>Permanent</u> None See Section 4.3.2
Habitat or species fragmentation	None See Section 4.3.2
Reduction in species density	None See Section 4.3.2
Reduction of Habitat area	There will be no loss of habitat from the SACs
Changes in key indicators of conservation value (water quality etc.)	<u>Temporary</u> None <u>Permanent</u> None. All wastewaters will be diverted to an approved wastewater facility. Air emissions were modelled (by Golder) to the nearest receptor locations – 1km to 2.5km away – no elevated emissions predicted at those locations (6 receptors around the site).
Climate change	None likely. Landfill gas contains the greenhouse gases methane (CH ₄) and carbon dioxide (CO ₂). In order to offset the CH ₄ content and combust other trace components, landfill gas is flared and utilised. ⁴ The proposed development is considered a more sustainable use of gas from a landfill site.

4.3.6 Describe any likely impacts on the Natura 2000 site as a whole in terms of:

Interference with the key relationships that define the structure of the site	The proposed development is not likely to interfere with any key relationships that define the ecological structure of the site and that enables it to sustain habitats, complex of habitats and/or levels of populations of species. In this case the key relationship examined is; Flight peths and connectivity between Ballynafagh Bog and Lake SACs and surrounding areas, the proposed development will not interfere with these.
Interference with key relationships that define the function of the site	The Natura 2000 site is selected for Annex I species Whooper Swan and Golden Plover and wildfowl such as Teal, as there will be no loss or deterioration of the habitat and its associated flora as a result of the development no impacts are likely on these bird species.

⁴ Climate Change Research Programme (CCRP) 2007-2013 Report Series No. 3 Estimates of Methane Recovery in Landfill Gas Flaring and Utilisation CCRP Report





APPROPRIATE ASSESSMENT SCREENING

4.3.7 Provide indicators of significance as a result of the identification of effects set out above in terms of:

Loss (Estimated percentage of lost area of habitat)	SACs: No loss
Fragmentation	None. No important feeding or roosting habitats have been identified in the vicinity of the proposed development for Annex I species of the SACs. No interference with flight paths, if any, are likely. See Section 4.3.2.
Disruption & disturbance	<u>Temporary</u> None See Section 4.3.2. <u>Permanent</u> None See Section 4.3.2.
Change to key elements of the site (e.g. water quality etc.)	Annual stack monitoring for the following parameters - NOx, SOx, NO2, SO2 and PM10 at the fire end proposed engine stack will be undertaken.

4.3.8 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 or magnitude of impacts is unknown

Following initial screening, it is judged that there will be no significant impacts on Ballynafagh Bog SAC and Ballynafagh Lake SAC arising from elements of the proposed landfill gas utilisation plant at Drehid.

5.0 CONCLUSION

There will be no significant impacts on the European Sites Ballynafagh Bog SAC and Ballynafagh Lake SAC arising from elements of the proposed landfill gas utilisation plant at Drehid.

6.0 DATA COLLECTED TO CARRY OUT THE ASSESSMENT

The assessment was carried out by:

Anne Murray BSc. MIEEM – Senior Ecologist, Golder Associates Ireland

Reviewed by:

Thomas Veinio-Mattila, Senior Consultant, Golder Associates Ireland

Sources of Data:

Existing information from;

- NPWS
- EPA
- Drehid Waste Management Facility EIS

Level of assessment completed:

Site Visit, Desktop study and Screening report, together with correspondence with Sylvie O'Hare (Local Ranger) and Ciara Flynn (District Conservation Officer) - NPWS.





APPROPRIATE ASSESSMENT SCREENING

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Report Signature Page

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Thomas Vainio-Mattila
Senior Consultant

Author: AM/TVM/am

23 May 2011

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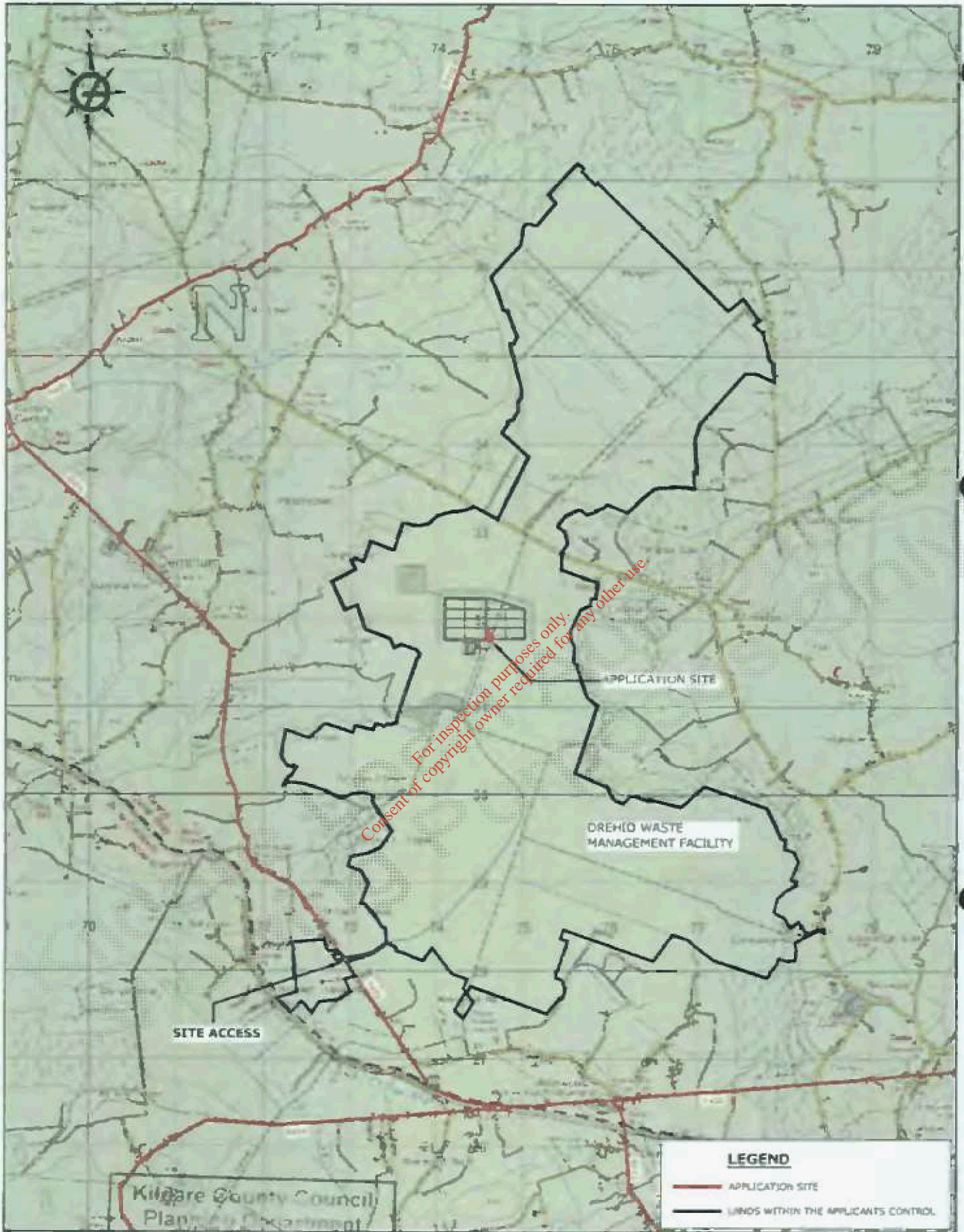
APPENDIX A

Site Drawings

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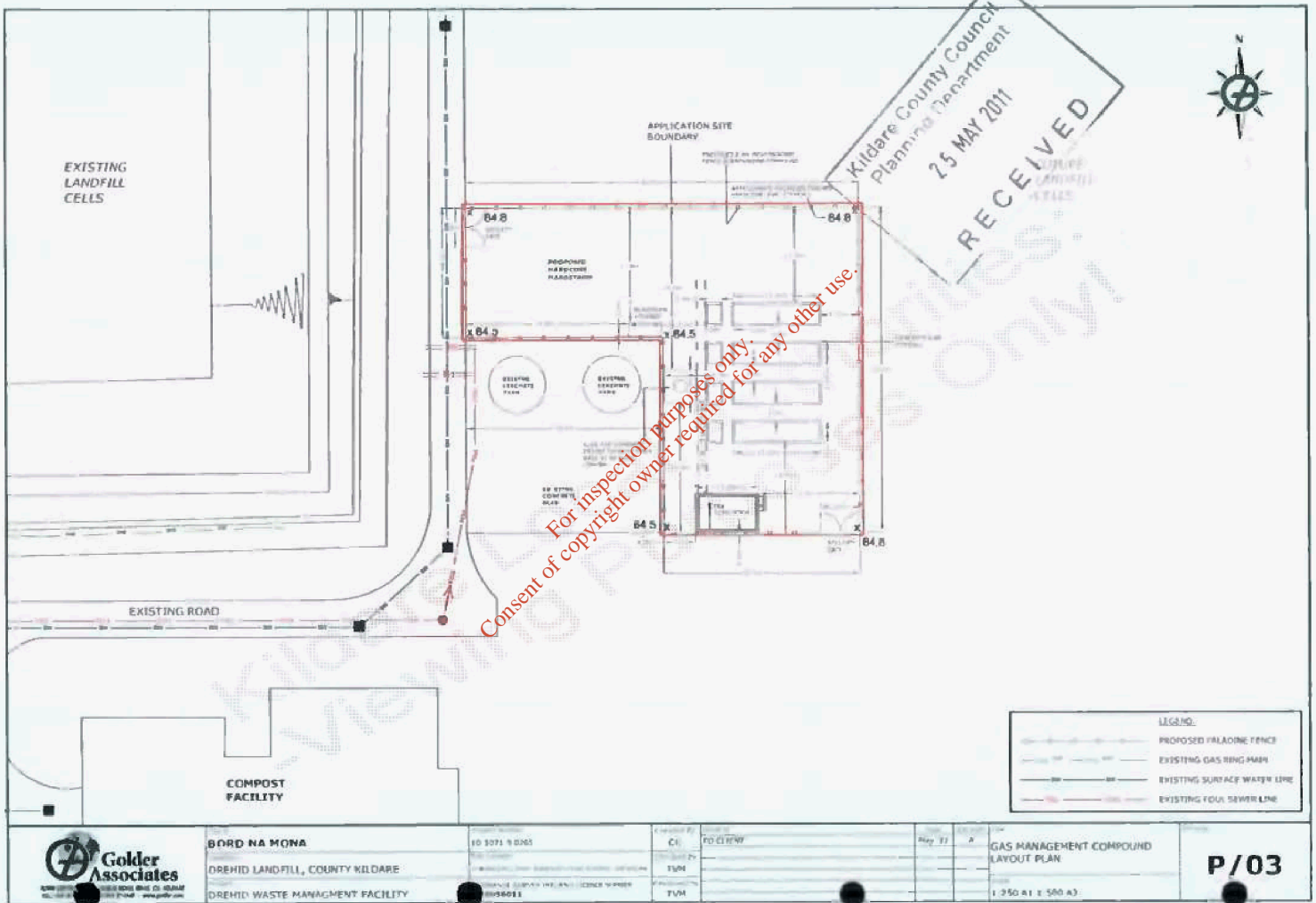


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Planning Department

25 MAY 2011



BORD NA MONA		SITE LOCATION PLAN		P/01
DREHID LANDFILL, COUNTY KILDARE		Date: 14-05-2011 10:46		
Project: DREHID WASTE MANAGEMENT FACILITY		Scale: 1:40,000 A3		Drawn by: CC
Author: VED		Date: 14-05-2011 10:46		Checked by: FVM
Project No: 14-05-2011 10:46		Drawing No: 14-05-2011 10:46		Approved by: FVM
Drawing Title: DREHID WASTE MANAGEMENT FACILITY		Drawing No: 14-05-2011 10:46		Project No: 14-05-2011 10:46
Drawing No: 14-05-2011 10:46		Drawing Title: DREHID WASTE MANAGEMENT FACILITY		Project No: 14-05-2011 10:46



LEGEND:	
	PROPOSED FALADINE FENCE
	EXISTING GAS RING MAIN
	EXISTING SURFACE WATER LINE
	EXISTING FOUL SEWER LINE



BORD NA MONA
 DREHID LANDFILL, COUNTY KILDARE
 DREHID WASTE MANAGEMENT FACILITY

ID: 1071 9 0305
 PROJECT: DREHID WASTE MANAGEMENT FACILITY
 DRAWING NO: 1096011

NO.	DESCRIPTION	DATE	BY	CHECKED BY
1	FOR REVIEW	May 11	A	
2	TVM			
3	TVM			

GAS MANAGEMENT COMPOUND LAYOUT PLAN
 1:250 A1 & 500 A3

P/03



APPENDIX B

NPWS Site Synopses

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APPROPRIATE ASSESSMENT SCREENING

SITE NAME: BALDOYLE BAY SPA

SITE CODE: 004016

Baldoye Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*). The sediments have a typical macrofauna, with Lugworm (*Aranicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod Laver Spire-shell (*Hydrobia ulvae*) occurs in the muddy areas, along with the crustacean *Corophium volutator*. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here.

Baldoye Bay is of high ornithological importance for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports an internationally important population of Pale-bellied Brent Geese (726), and has a further seven species with nationally important populations (all figures are average peaks for the five winters 1995/96 to 1999/2000): Great Crested Grebe (42), Shelduck (147), Pintail (22), Ringed Plover (221), Golden Plover (1810), Grey Plover (200) and Bar-tailed Godwit (353). The occurrence of Golden Plover and Bar-tailed Godwit is of particular note as these species are listed on Annex I of the E.U. Birds Directive. Other species which occur in significant numbers include Teal (124), Mallard (48), Common Scoter (61), Oystercatcher (531), Lapwing (480), Knot (115), Dunlin (879), Black-tailed Godwit (72), Curlew (96), Redshank (224), Greenshank (11) and Turnstone (43).

Regular breeding birds include Shelduck, Mallard and Ringed Plover. In autumn, passage migrants such as Curlew Sandpiper, Spotted Redshank and Green Sandpiper are regular in small numbers.

Baldoye Bay SPA is of high conservation importance, with an internationally important population of Brent Geese and nationally important populations of a further seven species, including two which are listed on Annex I of the E.U. Birds Directive. The inner estuarine section is a Statutory Nature Reserve and is also designated as a wetland of international importance under the Ramsar Convention. The site is a candidate Special Area of Conservation under the E.U. Habitats Directive. The main threat to the birds is from disturbance as it is located in a densely populated area.





APPROPRIATE ASSESSMENT SCREENING

SITE NAME: BALDOYLE BAY SAC

SITE CODE: 000199

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay. The site contains four habitats listed on Annex I of the EU Habitats Directive: *Salicornia* mud, Mediterranean salt meadows, Atlantic salt meadows and Tidal mudflats.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*).

The sediments have a typical macrofauna, with Lugworm (*Aranicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod *Hydrobia ulvae* occurs in the muddy areas, along with the crustacean *Corophium volutator*.

Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. Portmarnock Spit formerly had a well-developed sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and below the Claremont Hotel. These are mostly dominated by Marram (*Ammophila arenaria*), though Lyme-grass (*Leymus arenarius*) is also found.

The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (*Juncus* spp.) and salt tolerant species such as Common Scurvygrass (*Cochleria officinalis*) and Greater Sea-spurrey (*Spergularia media*) are typical of this area. Knotted Hedge-parsley (*Torilis nodosa*), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (*Ranunculus baudotti*), a species of brackish pools and ditches which has declined in most places due to habitat loss.

Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh: Borrer's Saltmarsh-grass (*Puccinallia fasciculata*) and Meadow Barley (*Hordeum secalinum*). Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the EU Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Geese (418) and nationally important numbers of two Annex I Birds Directive species - Golden Plover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the EU Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991.

Because the area surrounding Baldoyle Bay is densely populated, the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site.

Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species. The site is also an important bird area and part of it is a Special Protection Area under the EU Birds Directive, as well as being a Statutory Nature Reserve. It supports internationally important numbers of Brent Geese and nationally important numbers of six other species including two Annex I Birds Directive species.

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