Drumlins Park Wind Farm

NATURA IMPACT STATEMENT

Version: 22nd October 2019

Tait Business Centre, Dominic Street,
Limerick City, Ireland.
t. +353 61 419477, f. +353 61 414315
e. info@ecofact.ie
w. www.ecofact.ie

TABLE OF CONTENTS

1. INTRODUCTION

This document comprises a Natura Impact Statement (NIS) and assesses the likely impacts of the proposed Drumlins Park Wind Farm (the 'proposed development') on the Upper Lough Erne Special Protection Area (SPA) and Special Areas of Conservation (SAC), the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA and the cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA. These sites have been identified, following a 'Screening for Appropriate Assessment', as having the potential to be affected by the proposed development.

The purpose of this NIS to inform an Appropriate Assessment by the relevant competent authorities pursuant to the EU Habitats Directive (92/43/EEC) and the relevant transposing national legislation.

The proposed development is located south-west of Newbliss village in Co. Monaghan. The location of the proposed development is illustrated in Figures 1 and 2. The proposed development will involve the construction of a wind farm, associated road upgrades for the transport of turbine components, a grid connection route and all associated ancillary development. While three grid connection route options have been put forward for assessment, only one will be constructed. Each of the three grid connection route options are assessed in this report.

The National Parks and Wildlife site synopses for these sites are provided in Appendix 1. The 'Screening for Appropriate Assessment' Report is provided in Appendix 2.

1.1 Legislative context

The current assessment takes account of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive'* which was transposed into Irish law by the '*European Community (Natural Habitats) Regulations 1997*' (S.I. No. 94/1997). The most recent transposition of this legislation in Ireland is the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The Birds Directive (2009/147/EC) which is now included in the former Regulations seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups within Special Areas of Conservation (SACs), which are designated or proposed as candidate Special Areas of Conservation (cSACs). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

Article 6, paragraphs 3 and 4 of the EC 'Habitats' Directive (1992) state that:

6(3) '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.'

6(4) 'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is

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

In addition, the European Court of Justice in Case C-127/02 (the "Waddenzee Ruling") has made a relevant ruling in relation to Appropriate Assessment and this is reflected in the current assessment:

'Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects" and that the plan or project may only be authorised "where no reasonable scientific doubt remains as to the absence of such effects.'

1.2 Wind Farms and Natura 2000

The European Commission (2001a) guidance document 'Wind energy developments and Natura 2000' provides guidance on how best to ensure that wind energy developments are compatible with the provisions of the Habitats and Birds Directives. It focusses in particular on the procedures to follow under Article 6 of the Habitats Directive when dealing with wind farm related plans and projects which could affect a Natura 2000 site and provides clarifications on certain key aspects of this approval process. This NIS has been prepared with regard to these guidelines.

According to European Commission (2001a) the type of impacts that may occur at wind farm sites are as follows: -

- Collision risk: Birds and bats may collide with various parts of the wind turbine, or with associated structures such as electricity cables and meteorological masts. The level of collision risk depends very much on-site location and, on the species, present, as well as on weather and visibility factors. Evidence to date indicates that wind farms that are located away from areas harbouring concentrations of wild animals or areas that are important for wildlife have relatively low rates of mortality.
- Disturbance and displacement: Disturbance can lead to displacement and exclusion, and hence loss of habitat use.
- Barrier effect. Wind farms, especially large establishments with tens of individual wind turbines, may force birds or mammals to change direction, both during migrations and, more locally, during regular foraging activities. Whether or not this is a problem depends on a range of factors such as the size of the wind farm, the spacing of turbines, the extent of displacement of species and their ability to compensate for increased energy expenditure as well as the degree of disruption caused to linkages between feeding, roosting and breeding sites.
- Habitat loss or degradation. The scale of direct habitat loss resulting from constructing a wind farm and associated infrastructure depends on the size, location and design of the project.

The potential for impacts to arise as a result of the proposed development have been assessed in full in this NIS. No part of the proposed development is within or near a Natura 2000 site, with the nearest designated site being located 5km from the proposed development at its nearest point. Based on ornithological surveys undertaken by Ecofact between January 2017 and July 2019, the proposed

development is not assessed as being located within an important flight path for birds. Due to the nature of the site, which predominately comprises improved agricultural grassland, it is not assessed as an important location for breeding or foraging birds.

BirdLife International (2005) also note that site selection for wind farm developments should avoid the following:

- Special Protection Areas (SPAs) and Important Bird Areas (IBAs),
- Statutorily designated or qualifying international (Natura 2000 sites) or national sites for nature conservation;
- Other locations of significance for bird species identified by BirdLife International as being of Unfavourable Conservation Status in Europe;
- Sites along major migration routes and especially migration bottlenecks where large numbers of birds are highly concentrated and habitats where wind farms are known to pose high collision risks to birds such as wetlands and mountain ridges.

The proposed development fits all of these criteria; It is not located within or in proximity to an SPA, it is not located within an area of significance for bird species, it is not located along major migration routes or migration bottlenecks with large numbers of birds and it is not located within an area known to pose a high collision risk. It is considered that the proposed wind farm site is generally an appropriate site to develop a wind farm.

2. PROJECT CHARACTERISTICS

The proposal includes the construction of eight wind turbines and all ancillary infrastructure including access tracks, turbine foundations and hardstands, underground cabling and a permanent met mast. Three grid connection route options are also put forward, although only one will be constructed. These grid connection route options are Option G1, Option G2 and Option G3, and a description of each is given below.

- Option G1: Construction of a 38kV substation on the proposed development site and installation of a 38kV part overhead electricity line (OHL) and part underground electricity line (UGL) to the existing Clones 38kV substation on the national grid, which lies approximately 5km to the northwest;
- Option G2: Construction of a 38kV substation on the proposed development site and installation of a 38kV OHL to the existing Shankill 110kV substation on the national grid, which is located approximately 16km to the southwest;
- Option G3: Construction of a 110kV substation approximately 500m to the south of the nearest turbine and connection to the existing Lisdrum to Shankill 110kV overhead line by way of approximately 500m of UGL and the erection of 2 no. strain towers.

Some minor road upgrades are also proposed to ensure that wind turbine components can be transported to the site, i.e. turbine blades etc. The proposed upgrade works comprise both permanent and temporary works. Temporary works will be undertaken at 13 no. locations between Dublin Port and the main site entrance and will generally comprise the temporary placing of hardcore at junctions/bends to increase the running width of the carriageway and temporary removal of street furniture to ensure the blade transporters can fit. Permanent works will be required at 5 no. locations, including a left-hand bend on the R188, a right-hand bend on the R188, a vertical crest on a right-hand bend on the R188 a right-hand bend on the R183, a left-hand bend on the R189. These permanent works will involve the removal of roadside verges/banks and replacement with aggregates, the lowering of a crest on the R188, and the removal of a tree and lowering of a bridge wall.

3. METHODOLOGY

3.1 Appropriate Assessment Methodology

The preparation of an NIS (to inform an Appropriate Assessment) is required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are of European Importance and have been designated in accordance with the requirements of the EC Habitats Directive (1992) and EC Birds Directive (2009/147/EC); transposed into Irish legislation as the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011).

The Habitats Directive, in combination with the Birds Directive (2009), establishes a network of internationally important sites designated for their ecological status; indentified as Special Areas of Conservation (SACs) designated under the Habitats Directive for the protection of flora, fauna and habitats and as Special Protection Areas (SPAs) designated under the Birds Directive to protect rare, vulnerable and migratory birds. These sites together form a Europe-wide 'Natura 2000' network of designated sites, referred to in this report as Natura 2000 sites.

This assessment follows the requirements of Article 6(3) of the Habitats Directive 92/43/EEC and the guidance published by the National Parks and Wildlife Service (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*'. According to these guidelines, assessing the impacts of a project or plan on a Natura 2000 site is a four staged approach, as described below:

- ***Stage One: Screening / Test of Significance*** - The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
- ***Stage Two: Appropriate Assessment*** - The consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
- ***Stage Three: Assessment of Alternative Solutions*** - The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- ***Stage Four: Assessment Where Adverse Impacts Remain*** - An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The safeguards set out in Articles 6(3) and 6(4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

A Natura Impact Statement (NIS) considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. This report comprises a scientific examination of the plan / project and the relevant Natura 2000 sites; to identify and characterise any possible implications for the site in view of the site's conservation objectives, structure and function, taking account of in combination effects.

Direct and indirect impacts in isolation or in combination with other plans and projects on the identified Natura 2000 sites in view of the sites' conservation objectives have been examined. Case law of the European Court of Justice (ECJ) has established that Appropriate Assessment must be based on best scientific knowledge in the field. These are the qualifying interests i.e. Annex I habitats, Annex I bird species (EU Birds Directive, incorporated into the EU Habitats Directive) and Annex II species hosted by a site and for which that site has been selected. The conservation objectives for Natura sites (SACs and SPAs) are determined under Article 4 of the Habitats Directive and are intended to ensure that the relevant qualifying interests i.e. Annex I habitats, Annex I bird species and Annex II species present within the designated sites are maintained in a favourable condition.

This assessment provides a description of the project and the receiving environment. The conservation objectives of Natura 2000 sites potentially affected by the proposal are listed and likely impacts outlined with respect to the integrity of the Natura 2000 site. Mitigation measures, where necessary, have been proposed for the protection of the conservation interests and the avoidance of impacts to Natura 2000 sites occurring within the study area.

3.3 Desk Study

A desktop study was undertaken to identify the extent and scope of the likely affected designated Natura 2000 sites within the study area in relation to the proposed development site, including the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Complex SAC, the Lough Oughter Complex SPA and the Slieve Beagh SPA. The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area.

Following the completion of the Screening for Appropriate Assessment, a further review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA and NPWS were also reviewed. Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. A full bibliography of information sources reviewed is given in the reference section.

3.4 Field Surveys

In addition to the extensive desk study undertaken to inform this report, a suite of ecological surveys have been undertaken at the site over a number of years to fully understand the ecological composition of the site, the range of habitats and species present at the site and the activities and habits of birds, bats, mammals, macroinvertebrates and aquatic species. The scope of these surveys is set out below.

3.4.1 Bird surveys

Over a total of 48 days, bird survey work was undertaken at the proposed wind farm site between January 2017 and July 2019. The surveys included detailed wintering and breeding bird surveys. The survey work included formal vantage point surveys at three vantage points and also general surveys with results-driven observations. While the survey focused on areas with appropriate views of the proposed wind farm site at the vantage points, areas which contained habitats of potential importance to birds of conservation importance were also surveyed.

The surveys were undertaken in accordance with the Scottish Natural Heritage Guidance *'Recommended bird survey methods to inform impact assessment of onshore wind farms'* (SNH, 2017). As well as completing full day vantage point surveys, due to the known presence of Whooper

Swans at lakes in the local study area and *ad hoc* sighting of these birds in the vicinity of the proposed development site, local lakes were checked during general surveys. It is noted in the SNH guidance that target species, such as birds listed on Annex I of the EC Birds Directive or Schedule 1 of the Wildlife Act of Red-listed Birds of Conservation Concern, should be given appropriate consideration. This includes Whooper Swans which are listed on Annex I of the EC Birds Directive, and Golden Plover. Areas within the proposed development site and in the wider study area that were considered to be potentially attractive to Golden Plover were also surveyed. Some areas were noted from aerial mapping to have the potential for Snipe and these areas were also checked during the surveys. General surveys while travelling between vantage points or local lakes were also undertaken and any species observed during these general surveys were recorded.

The surveys completed were as follows: -

- The 2017 winter bird surveys were conducted from January 2017 to March 2017 and involved 4 full days survey work (Ecofact 2019b);
- The 2017 breeding bird surveys were conducted from April to June 2017 and involved 4 full days survey work (Ecofact 2019c);
- The 2017-18 winter bird surveys were completed over 10 full days extending from November 2017 to March 2018 (Ecofact 2019d);
- The 2018 breeding bird surveys were completed over 10 full days extending from March 2018 to July 2018 (Ecofact 2019e);
- The 2018-2019 winter bird surveys were conducted from October 2018 to March 2019 and involved 10 full days survey work (Ecofact 2019f);
- The 2019 breeding bird surveys were undertaken from April 2019 to July 2019 and involved 10 full days survey work (Ecofact 2019g).

3.4.2 Other ecological surveys

In addition to the detailed bird surveys, a full ecological survey of the site was undertaken, and this included a baseline habitat survey of the site, non-volant mammal survey, bat survey, aquatic ecology survey and assessments for amphibians, reptiles and macroinvertebrates. In addition, ecological surveys along the three grid connection route options were undertaken. Full details of the other ecological surveys completed are outlined in the 'Drumlins Park Wind Farm Biodiversity Report' Ecofact (2019g).

3.5 Consultation

The following statutory bodies provided information via publically available sources for this report:

- National Parks and Wildlife Service (NPWS);
- Environmental Protection Agency (EPA);
- Inland Fisheries Ireland (IFI);
- National Biodiversity Data Centre (NBDC).

Formal consultation with the NPWS has also been completed.

4. SITE BASELINE DESCRIPTION

4.1 Flora

The habitats on the proposed wind farm site are of Local Importance only and are habitats that are widespread and common across Ireland. The majority of the site consists of Improved Agricultural Grassland which is species poor. Also present on the site are hedgerows, treelines, drainage ditches, wet grassland, mixed broadleaved woodland and scrub. The south-western, middle and south-eastern sections of the proposed wind farm site consist of wet grassland. All of the turbines are to be located on areas of Improved Agricultural Grassland. The access roads will cross through areas of Improved Agricultural grassland and wet grassland, in addition to cutting through existing hedgerows and treelines. No Annex 1 or protected habitats associated with any of the Natura 2000 sites within 15km of the proposed development are affected.

Grid connection Option G1 is 5km in length and will mainly cross agricultural grassland, hedgerows, treelines and small watercourses. Grid connection route Option G1 travels north-west of the proposed development site, towards Clones town. Grid connection Option G2 will cross a large variety of habitats, as it is approximately 16km in length. Grid connection route option G2 will mainly cross improved agricultural grassland, hedgerows, treelines, watercourses such as the River Bunnoe and the River Annalee, scrub, wet grassland and woodland. Option G2 travels from the proposed development site heading south-west towards the Poles townland in Co. Cavan. Grid Connection Grid Connection Option G3 is almost self-contained within the proposed development site. This option consists of a new substation to be constructed to the south-east of the proposed wind farm site. This option has the smallest footprint of all three options. Option G2 will likely affect agricultural grassland and hedgerow habitats.

The footprint of the proposed wind farm site contains 3 minor watercourses. The first of which is the Dunnaluck Stream (EPA Code: 36D49). This first order watercourse flows through most of the proposed wind farm site, adjacent to turbines T1, T2, T5 and T3. The Closdaw Stream (EPA Code: 36C88) is located adjacent to T7, and this is a first order stream. Finally, the Newbliss Stream (EPA Code: 336N02) is present along the access road to T7 from the north-east. The EPA does not carry out biological water quality monitoring on any of these watercourses. Both the Dunnaluck Stream and the Closdaw stream flow into the River Bunnoe (EPA Code: 36B05) south-east of the proposed wind farm site.
The EPA has a biological water quality monitoring station (EPA Station Code: 36B05 0300) upstream of the Closdaw stream confluence and the proposed wind farm site. This station was last monitored in 2001 and was given a rating of Q2-3 which corresponds to WFD status ‘poor’. Downstream of the Dunnaluck Stream confluence and the proposed wind farm site, there is another EPA monitoring station (EPA Station Code: 36B05 0400). This station was last monitored in 2017 and was assigned a rating of Q3 which corresponds to WFD status ‘poor’. The EPAs most recent assessment of the River Bunnoe is as follows: ‘Agricultural pressures appear to be the primary pressure on the River Bunnoe. This tributary of the Annalee is in poor or moderate condition over its length – all five sites examined were less than satisfactory in August 2017’.

4.2 Fauna

4.2.1 Birds

Ecofact have conducted extensive breeding and wintering bird surveys for the proposed wind farm development site (and grid connection areas). The aim of these surveys was to determine the winter bird distribution along the proposed development. The winter bird surveys also looked at local lakes in

the wider study area of the proposed development and completed counts. Whooper Swans were only recorded at 3 of the 16 lakes surveyed. The highest number of Whooper Swans recorded was 60, at Annagose Lough during February 2019. Annagose Lough is c. 6km from grid connection route Option G1 and 5.9km from the closest proposed wind turbine. Whooper Swans were recorded flying over the proposed wind farm site once in a small flock of 11 individuals during the wintering season of 2018/19 (Ecofact, 2019f). No Whooper Swans were recorded flying over the proposed grid connection routes. Throughout the previous bird surveys, it was confirmed that the proposed development area is not located within regular flight paths for Whooper Swans, nor is it used in large numbers. It is also not located along any areas for resting or staging. The highest number of Whooper Swans recorded during the 2017/18 wintering period for the proposed development was 22 swans recorded at Long Lough. (Ecofact 2019d). During the 2016/17 wintering period the highest number of Whooper Swans recorded was 5 individuals, at Carlougharoe Lough (Ecofact 2019c).

Hall, C. *et al.,* (2016) gives the numbers of Whooper Swans recorded in Monaghan in the International Census in January 2015 as 496 birds. This is a 22.8% increase from the numbers recorded in the January 2010 census. The Irish Wetland Bird Survey in 2014/15 recorded 11,852 individuals which were widely distributed. From 1995/1996 to 2014/2015 there was a 2.17% increase. When just considering the period between 2004/05 to 2014/15 there was a 6.46% increase (Lewis *et al,* 2016). According to the National Trend Information for Whooper Swans via iWeBS online, the mean annual change overall is +1.01% in numbers. However, the 5-year trend (2011/12 – 2015/16) is noted as a decrease of 6.27%.

There are several records of Whooper Swan occurring in Monaghan (NBDC Maps). There are roving records of Whooper Swan for the 10km grid square H52 which encompasses the proposed development site. These records are from the Bird Atlas 2007-2011 dataset and were noted to occur in winter, with breeding evidence present. These are likely to be records including the lakes that were visited during the current general surveys, as timed tetrad visits to the majority of these lakes confirming presence of Whooper Swans were also carried out for the Bird Atlas 2007-2011 dataset.

The threshold for nationally important numbers of Whooper Swans, 1% of the total population, is given as 100 birds (Crowe, O. *et al*., 2008). In Crowe (2005) the Dromore Lakes in Co. Monaghan are listed as being not important. It is considered that even in the local lakes away from the proposed wind farm development site, the wider study area is not of particular importance to Whooper Swans due to low numbers. Additionally, the Irish Whooper Swan Study Group conducted an All-Ireland productivity survey of Whooper Swans. In 2017 Co. Monaghan counts were given as 39 swans out of a total of 4,494 swans recorded in the republic of Ireland, 0.87% of the republic of Ireland population (Graham McElwaine *pers. Comm.,* 2017).

Great Crested Grebes were recorded on many of the lakes in the wider study area during the Drumlins Park Winter Bird surveys in 2018/19 (Ecofact, 2019). It is considered that Great Crested Grebes are present on most of the lakes in this area of the country, consistent with other areas in Ireland. No Great Crested Grebes were recorded flying near the proposed grid connection route or wind farm. Wigeon were not recorded during these surveys.

4.2.2 Other fauna

No Annex II species associated with any of the Natura 2000 sites within 15km of the proposed development have been recorded on the proposed wind farm site. Otters are associated with the Lough Oughter and Associated Loughs SAC and do occur in watercourses along grid connection Option G2. This is considered in the current NIS.

4.3 Watercourses

The proposed grid connection Option G1 crosses four watercourses along is c. 5km length. The first is the Legar Hill Stream (EPA Code: 36L06), a first order watercourse. Next is the 2nd order Legar Hill Stream (EPA Code: 36L91). This grid connection route option then crosses the 5th order River Finn [Monaghan] (EPA Code: 36F01) and the 1st order Scairbhigh Stream (EPA Code: 36S41). The only one of these watercourses that the EPA carries out biological monitoring on is the River Finn [Monaghan]. The nearest station upstream of the proposed grid connection Option G1 crossing was rated as Q4 in 2017, corresponding the WFD status 'good' (EPA Code: 36F01 0400). The next station downstream of this crossing was rated as Q3-4 in 2017, corresponding to WFD status 'moderate' (EPA Code: 36F01 0500). The EPA's most recent assessment of the River Finn [Monaghan] is as follows: *'Six of the seven sites sampled on the Finn (Monaghan) in 2017 failed to achieve good water quality with two of the upper sites (0010 and 0100) deteriorating from their previous good quality. Quality improved at Scarvy Bridge (0400), however, no change occurred in the lower sites'.*

The proposed grid connection route Option G2 crosses a large number of watercourses along is c. 16km route. The first of which is the 2nd order Corragharry Stream (EPA Code: 36C85). The EPA do not carry out biological monitoring on this watercourse. Next is the 3rd order River Bunnoe (EPA Code: 36B05), which is actually crossed by this route option in a number of different locations. The EPA do carry out biological monitoring on this watercourse, as noted above. The upstream site is rated as Q2-3 and the downstream site, closest to the crossing location, is rated as Q3. Further downstream, near another crossing, the EPA rate a site as Q3-4 (EPA Code: 36B05 0500), corresponding to WFD status 'Moderate' in 2017. After this the route crosses the River Bunnoe a further 3 times. Following this the route crosses the 5th order River Annalee (EPA Code: 36A02). There is an EPA station upstream of this crossing point which was rated as Q4 in 2017 (EPA Code: 36A02 0900), which corresponds to WFD status 'Good'. Next the route crosses the 2nd order Drumnanarragh Stream (EPA Code: 36D76), which is not monitored by the EPA. After this the route crosses the 2nd order Annagelliff Stream (EPA Code: 36A48), which is not monitored by the EPA. Finally, the route then crosses the 1st order Drumryan Stream (EPA Code: 36D92) before reaching the substation. The EPA do not carry out biological monitoring on the Drumryan stream.

The proposed grid connection route option G3 does not cross any watercourses.

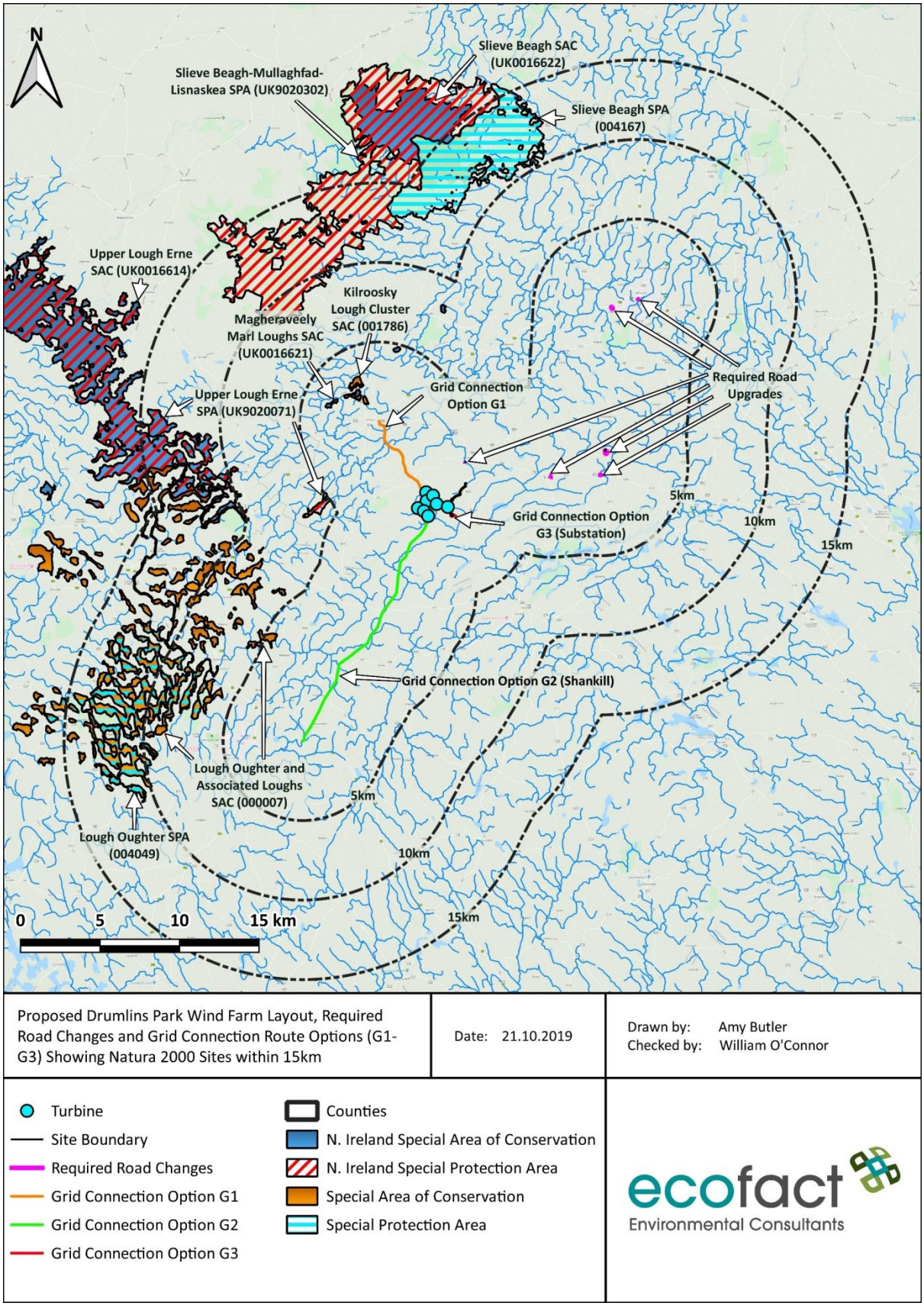


Figure 1 Proposed Drumlins Park Wind Farm Layout, Required Road Upgrades and Grid Connection Route Options (G1-G3). All Natura 2000 Sites within 15km are identified

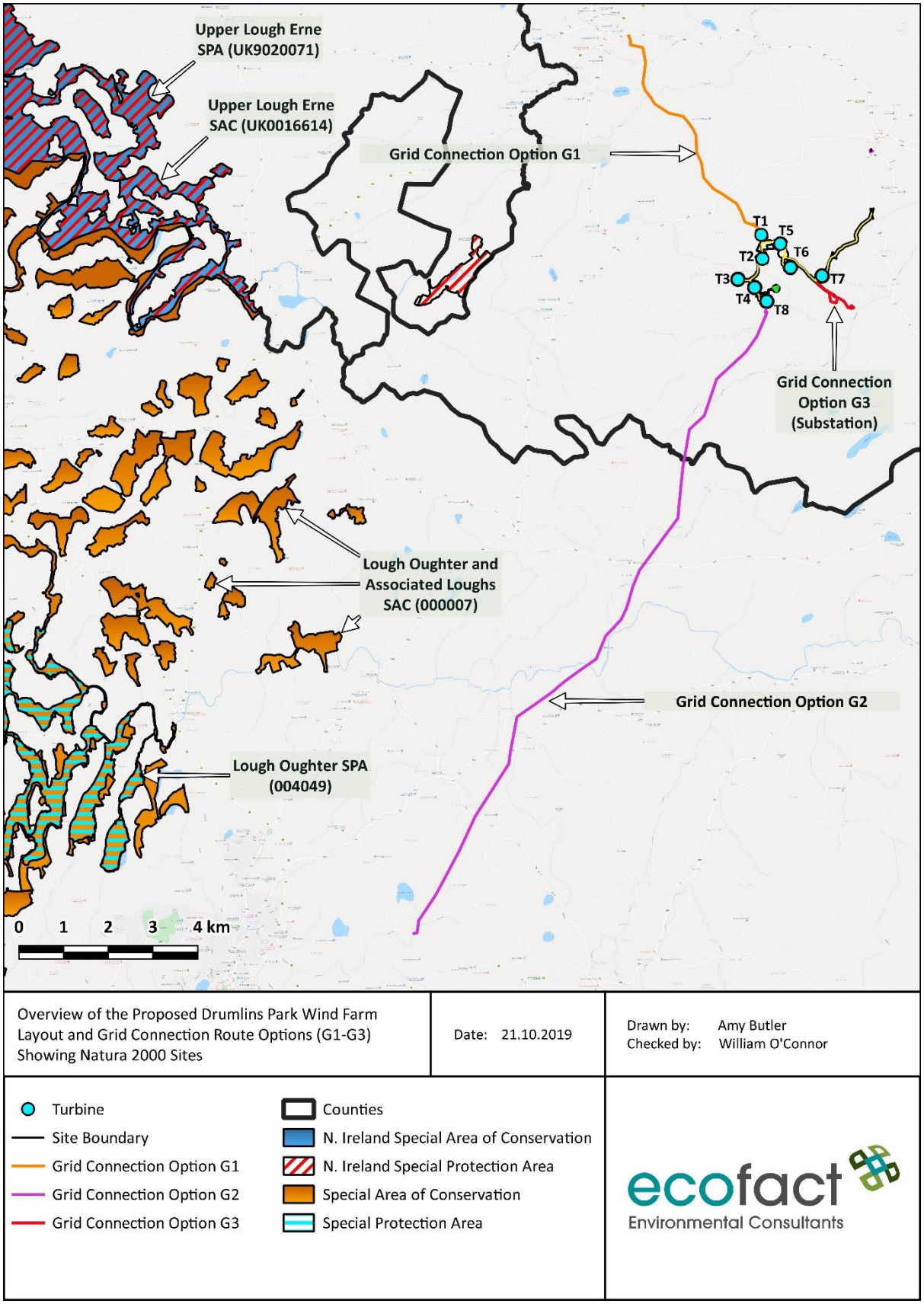
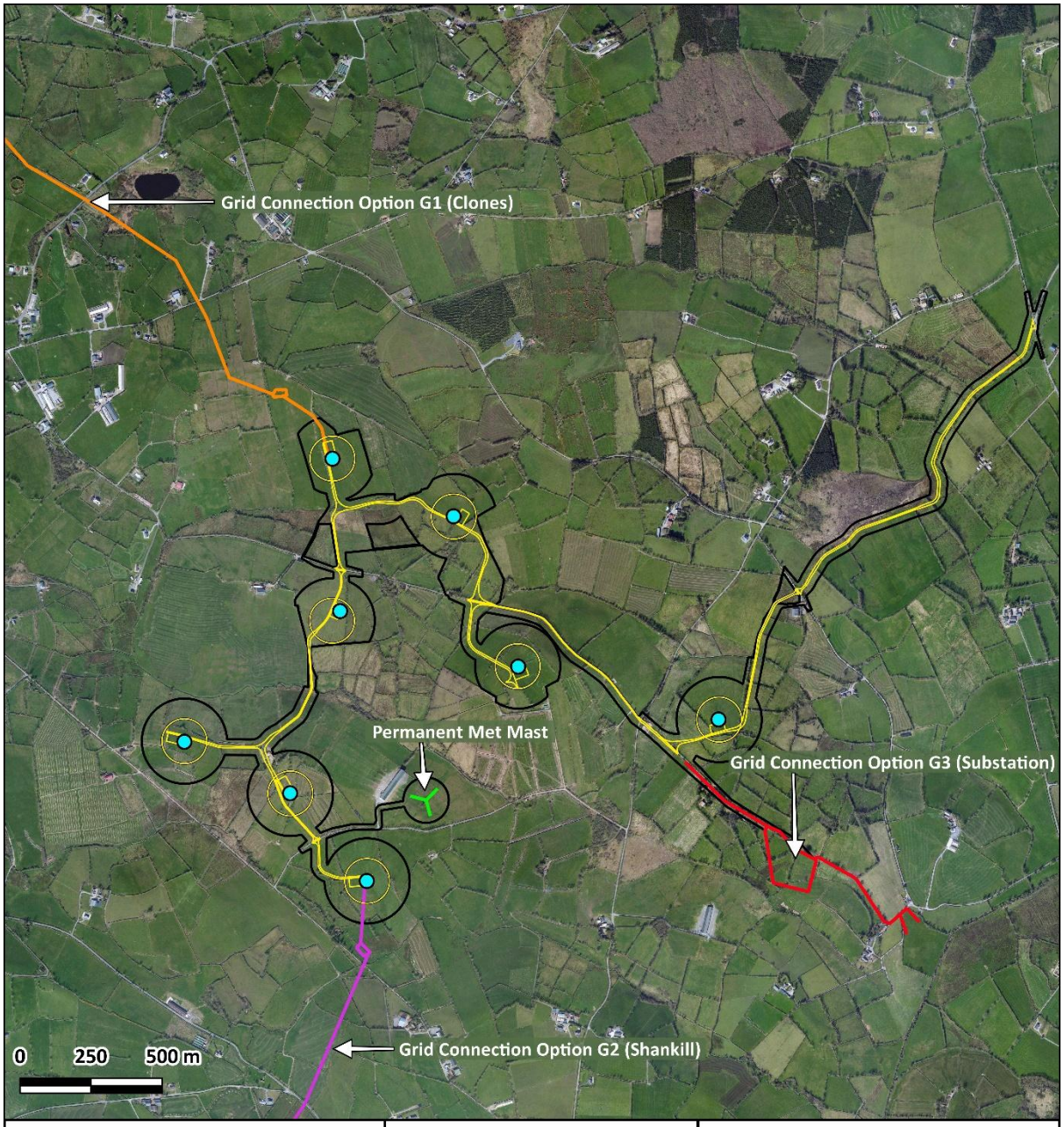


Figure 2 Overview of the Proposed Drumlins Park Wind Farm Layout and Grid Connection Route Options (G1-G3) Showing Natura 2000 Sites.



Turbine Tower
Permanent Met Mast
Site Boundary
Access Tracks
Grid Connection Option G1
Grid Connection Option G2
Grid Connection Option G3

Date: 21.10.2019

Drawn by: Amy Butler
Checked by: William O'Connor

Location of the Proposed Drumlins Park Wind Farm Indicating Grid Connection Route Options

ecofact
Environmental Consultants

Figure 3 Location of the Proposed Drumlins Park Wind Farm Indicating Grid Connection Route Options.

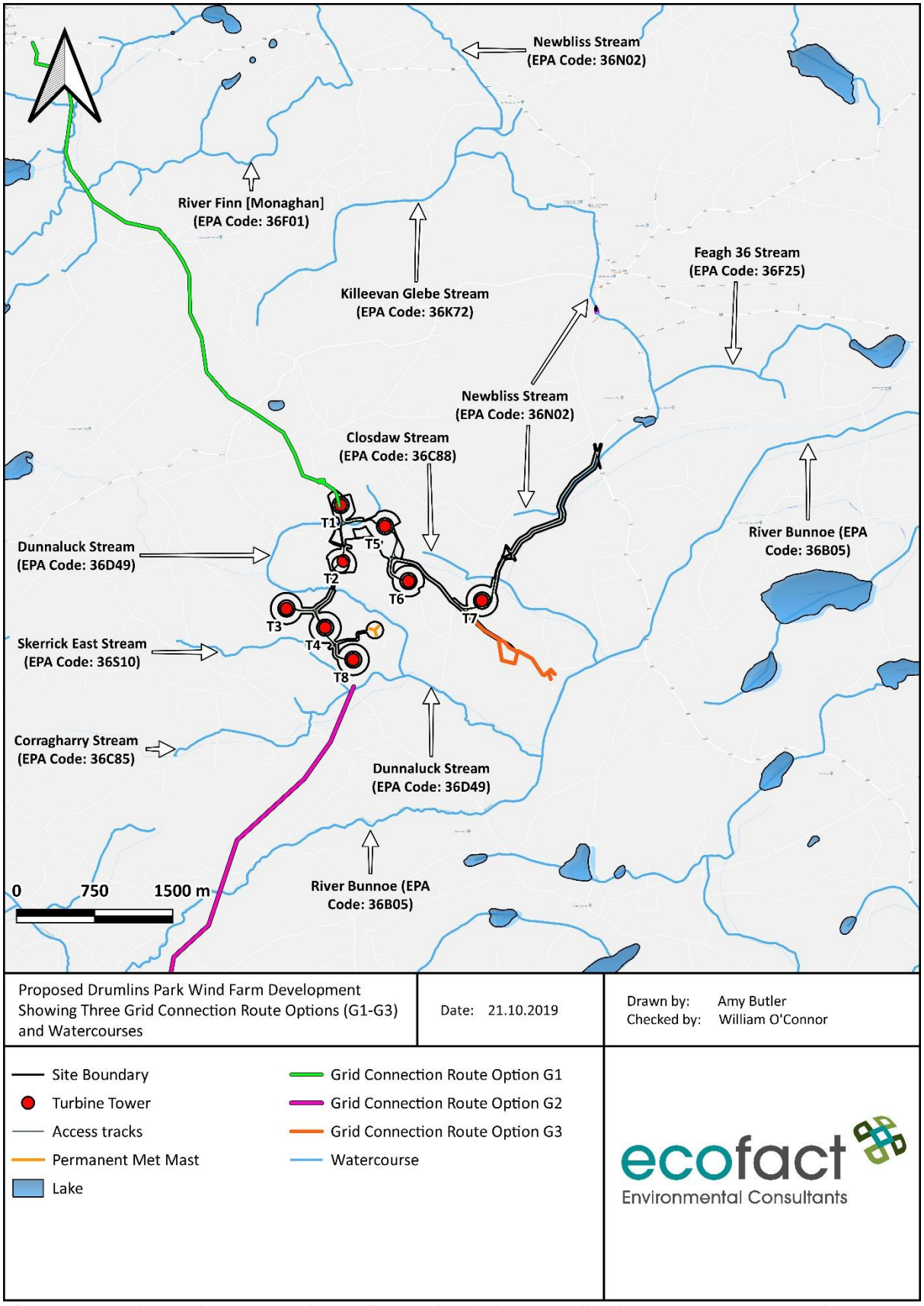


Figure 4 Location of the Proposed Drumlins Park Wind Farm Indicating watercourses and drainage.

5. DESCRIPTION OF NATURA 2000 SITES CONSIDERED

5.1 Introduction

The location of the proposed wind farm development in the context of the Natura 2000 network is indicated in Figure 1-2. Special Areas of Conservation (SAC's) are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). Special Protection Areas (SPA's) for birds are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009).

Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) considered in this report are listed in Table 1.

Table 1 Summary details of the designated Natura 2000 sites within 15km of proposed Drumlins Park Wind Farm and associated works, Co. Monaghan considered in the current screening.

Natura 2000 Site	Conservation Interests	Included in the current Natura Impact Statement (Yes/No)	Distance (km)
Upper Lough Erne SPA (UK9020071)	Whooper Swan *Cygnus cygnus* [A038]	Yes – screened in and assessed in this Natura Impact Statement.	*From Wind Farm:* 5.4km West; *From Road Upgrades* 8.8km South-west; *From closest grid option:* (Option G1) 5km South-west.
Kilroosky Lough Cluster SAC (001786)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – screened out (see Appendix 2).	*From Wind Farm:* 6.4km North-west; *From Permanent Road Upgrades:* 7.1km North-west; *From closest grid option:* (Option G1) 1.2km North.
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – screened out (see Appendix 2).	
	Alkaline fens [7230]	No – screened out (see Appendix 2).	
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – screened out (see Appendix 2).	
Magheraveely Marl Loughs SAC (UK0016621)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – screened out (see Appendix 2).	*From Wind Farm:* 7.1km North-west; *From Road Upgrades:* 7.9km North-west; *From closest grid option:* (Option G1) 2km North-west.
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – screened out (see Appendix 2).	
	Alkaline fens [7230]	No – screened out (see Appendix 2).	
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – screened out (see Appendix 2).	
Lough Oughter and	Natural Eutrophic lakes with *Magnopotamion* or	Yes – screened in and assessed in the current Natura Impact Statement.	*From Wind Farm:* 9.6km South-west;

Natura 2000 Site	Conservation Interests	Included in the current Natura Impact Statement (Yes/No)	Distance (km)
associated Loughs SAC (000007)	*Hydrocharition*-type vegetation [3150]		*From Road Upgrades:* 13.8km South-west; *From closest grid option:* (Option G2) 4.3km West.
	Bog Woodland [91D0]	No – screened out (see Appendix 2).	
	Otter *Lutra lutra* [1355]	Yes – screened in and assessed in the current Natura Impact Statement.	
Upper Lough Erne SAC (UK0016614)	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	Yes – screened in and assessed in the current Natura Impact Statement.	*From Wind Farm:* 10.5km West; *From Road Upgrades:* 14.1km North-west; *From closest grid option:* (Option G1) 10km West.
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	No – screened out (see Appendix 2).	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-padion, Alnion incanae, Salicion albae*) [91E0]	No – screened out (see Appendix 2).	
	Otter *Lutra* [1355]	Yes – downstream hydrological connection and therefore a pathway for impacts	
	Bog woodland [91D0]	No – screened out (see Appendix 2).	
	Alkaline fens [7230]	No – screened out (see Appendix 2).	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinia caerulea)* [6410]	No – screened out (see Appendix 2).	
Slieve Beagh-Mullaghfad-Lisnaskea SPA (UK9020302)	Hen harrier *Circus cyaneus* [A082]	Yes – screened in and assessed in the current Natura Impact Statement.	*From Wind Farm:* 13.5km North; *From Road Upgrades:* 14.1km North; *From closest grid option:* (Option G1) 8.3km North.
Lough Oughter Complex SPA (004049)	Great Crested Grebe *Podiceps cristatus* [A005]	Yes – screened in and assessed in the current Natura Impact Statement.	*From Wind Farm:* 16.4km South-west; *From Road Upgrades:* 20.7km South-west; *From closest grid option:* (Option G2) 6.8km West.
	Whooper Swan *Cygnus* [A038]	Yes – screened in and assessed in the current Natura Impact Statement.	
	Wigeon *Anas penelope* [A050]	Yes – screened in and assessed in the current Natura Impact Statement.	
	Wetland and Waterbirds [A999]	Yes – screened in and assessed in the current Natura Impact Statement.	
Slieve Beagh SPA (004167)	Hen harrier *Circus cyaneus* [A082]	Yes – screened in and assessed in the current Natura Impact Statement.	*From Wind Farm:* 17.5km North; *From Road Upgrades:* 10.3km North-west;

Natura 2000 Site	Conservation Interests	Included in the current Natura Impact Statement (Yes/No)	Distance (km)
			From closest grid option: (Option G1) 13km North.
Slieve Beagh SAC (UK0016622)	Natural dystrophic lakes and ponds [3160]	No – screened out (see Appendix 2).	*From Wind Farm:* 20.5km North; *From Road Upgrades:* 14.5km North-west; *From closest grid option:* (Option G1) 16.3km North.
	Blanket bogs [7130]	No – screened out (see Appendix 2).	
	European Dry Heaths [4030]	No – screened out (see Appendix 2).	

5.2 Upper Lough Erne SPA

Upper Lough Erne SPA is situated in Co. Fermanagh. It is a very large and complex freshwater system. A series of flooded drumlins in the course of the River Erne give rise to a complex of islands, bays and many lakes bordered by damp pastures, fens, reedswamp and alder/willow and oak woodland. The site regularly supports internationally importance numbers of wintering Whooper Swans. Upper Lough Erne provides a core protected area for Whooper Swans in the region of Northern Ireland; there being interchange between the swans using protected areas and those ranging more widely on surrounding farmland. The Screening for Appropriate Assessment identified the potential for impacts on Whooper Swan as a result of the operation of the proposed development.

Table 2 Qualifying Interests and Conservation Objectives for the Upper Lough Erne SPA (Site Code: UK9020071).

Qualifying Interest	Conservation Objectives
Whooper Swan *Cygnus* [A038]	To maintain the favourable condition of this species in the SPA

5.2.1 Qualifying Species

5.2.1.1 Whooper Swan *Cygnus* [A038]

The Whooper Swan population of the Upper Lough Erne SPA is internationally important. The five-year peak mean for the period 1991/92 to 1995/96 was 352 which comprises 2% of the international Icelandic population. The five-year running mean of maximum annual WeBS counts for 1991/92 – 1995/96 was 495 swans. This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

5.3 Upper Lough Erne SAC

Upper Lough Erne SAC is situated in Co. Fermanagh. It is a very large and complex freshwater system. The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural Eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support natural oak woodland; this is particularly well developed within the Crom

Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals. The qualifying features of this SAC are: Natural Eutrophic Lakes, Old Sessile Oak Woods, Alluvial Forests, Otter. Bog Woodland, Alkaline Fen, Molinia meadows and Atlantic Salmon. The Screening for Appropriate Assessment identified the potential for impacts affecting Natural Eutrophic Lakes and Otter.

Table 3 Qualifying Interests and Conservation Objectives for the Upper Lough Erne SAC (Site Code: UK0016614).

Qualifying Interest	Conservation Objectives
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	To maintain (or restore where appropriate) this habitat to favourable condition.
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-padion, Alnion incanae, Salicion albae*) [91E0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Otter *Lutra* [1355]	To maintain (or restore where appropriate) this species to favourable condition.

5.3.1 Qualifying Habitats

5.3.1.1 Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]

Upper Lough Erne in Northern Ireland is a very large natural Eutrophic lake situated in a drumlin landscape and has a predominantly limestone catchment. The site is an example of a northern or western Eutrophic lake of glacial origin. The lake has a very long shoreline and numerous associated satellite lakes, many of which are included in the site. Aquatic vegetation of the *Magnopotamion* and *Hydrocharition* type is extensively developed. Both club-rush – common reed *Scirpo – Phragmitetum* and reed canary grass – shoreweed – spike rush *Phalaris - Littorella – Eleocharis* associations are well-developed on the shore. There are transitions to swamp and fen vegetation.

5.3.2 Qualifying Species

5.3.2.1 Otter *Lutra lutra* [1355]

The Upper Lough Erne is an extensive freshwater system that holds ideal Otter habitat. Otters are semi-aquatic mammals, requiring both good fishing grounds for food and suitable shelter on land for resting and breeding. The ranges of habitats present in the SAC such as the woodland and wetland islands provide such habitat for Otters.

5.4 Lough Oughter and Associated Loughs SAC

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding. This site is designated for the presence of Natural Eutrophic Lakes, Bog

Woodland and Otter. The Screening for Appropriate Assessment identified the potential for impacts on Natural Eutrophic Lakes and Otters only.

Table 4 Qualifying Interests and Conservation Objectives for the Lough Oughter and Associated Loughs SAC (Site Code: 000007).

Qualifying Interest	Conservation Objectives
Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	To maintain (or restore where appropriate) this habitat to favourable condition.
Bog woodland [91D0]	To maintain (or restore where appropriate) this habitat to favourable condition.
Otter *Lutra* [1355]	To maintain (or restore where appropriate) this species to favourable condition.

5.4.1 Qualifying Habitats

5.4.1.1 Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]

The lakes and basins in the SAC are shallow, and the water is well mixed and nutrient rich (Eutrophic). Natural Eutrophic lakes have high nutrient levels that are higher than those of Oligotrophic dystrophic or mesotrophic lakes, resulting in higher natural productivity, and are typically species rich. The species noted in the site synopsis for the Lough Oughter and associated loughs sac note the presence of Blunt-leaved pondweed *Potamogeton obtusifolius*, Shining Pondweed *Potamogeton lucens*, Broad-leaved Pondweed *Potamogeton natans*, Reddish pondweed *Potamogeton alpines* and Various-leaved Pondweed *Potamogeton gramineus* among others.

5.4.2 Qualifying Species

5.4.2.1 Otter *Lutra* [1355]

The Lough Oughter and Associated Loughs SAC is an extensive freshwater system providing an array of habitats useful to Otters, which are semi-aquatic mammals. Otters require both good fishing grounds for food and suitable shelter on land for resting and breeding. Otters occur throughout the Lough Oughter and Associated Loughs SAC.

5.5 Lough Oughter Complex SPA

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Co. Cavan between Belturbet, Killashandra and Cavan town. This area comprises a maze of waterways, islands, small lakes and peninsulas. Lough Oughter, the largest lake in the site, is relatively shallow (maximum depth of 10m) and considered to be a naturally Eutrophic system. This site is designated for the presence of Great Crested Grebe, Whooper Swan, Wigeon, and the Wetland and Waterbirds habitat that these birds utilise.

This site is also a Ramsar Conservation Site and a Wildfowl sanctuary. The Screening for Appropriate Assessment identified the potential for impacts on Wetland and Waterbirds, Great Crested Grebe, Whooper Swan and Wigeon.

Table 5 Qualifying Interests and Conservation Objectives for the Lough Oughter Complex SPA (Site Code: 004049).

Qualifying Interest	Conservation Objectives
Great Crested Grebe *Podiceps cristatus* [A005]	To maintain (or restore where appropriate) this species to favourable condition.
Whooper Swan *Cygnus* [A038]	To maintain (or restore where appropriate) this species to favourable condition.
Wigeon *Anas penelope* [A050]	To maintain (or restore where appropriate) this species to favourable condition.
Wetland and Waterbirds [A999]	To maintain (or restore where appropriate) the wetland habitat to favourable condition.

5.5.1 Qualifying Habitats

5.5.1.1 Wetland and Waterbirds [A999]

The Wetland and Waterbirds habitat comprise all the wetland areas or freshwater areas that the bird species for which this site is designated use. This is because the Birds Directive pays particular attention to wetlands. The bird species designated, Great Crested Grebe, Whooper Swan and Wigeon, could not survive without this habitat.

5.5.2 Qualifying Species

5.5.2.1 Great Crested Grebe *Podiceps cristatus* [A005]

The Lough Oughter Complex SPA supports a nationally important wintering population of Great Crested Grebe. Great Crested Grebes are residents along all Irish Coasts but are less frequently seen inland. Numbers increase during winter due to immigrating birds. Great Crested Grebes breed on large, shallow Eutrophic loughs, and along canals and slow flowing rivers. The Lough Oughter Complex SPA is at the centre of the Irish Breeding Range of Great Crested Grebes and the site supports in excess of 10% of the estimated breeding total of this species (115 individuals in 1986-88). This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

5.5.2.2 Whooper Swan *Cygnus* [A038]

The Lough Oughter Complex SPA supports an internationally important population of Whooper Swans. Whooper Swans utilise the lakes as a roost. Whooper swans are winter visitors to Irish wetlands throughout Ireland from October to April. They winter on mostly lowland open farmland around inland wetlands and are regularly seen feeding on grasslands and stubble. Whooper swans are monitored by the Irish Wetland Bird Survey (I-WeBS) and a special swan census is carried out every five years. This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

5.5.2.3 Wigeon *Anas penelope* [A050]

The Lough Oughter Complex SPA supports a nationally important wintering population of Wigeon. Wigeon currently have a red conservation status in the Birds of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013). This species can be found in flocks of up to and over 1000 birds on large wetlands and waterbodies. However, as noted, the species is red-listed due to a long-term decline in the non-breeding population in Ireland.

5.6 Slieve Beagh SPA / Slieve Beagh-Mullaghfad-Lisnaskea SPA

The Slieve Beagh SPA comprises much of the eastern and south-eastern sectors of the Slieve Beagh upland area that extends from County Monaghan into Northern Ireland. This is also a cross-border SPA, with the Slieve Beagh-Mullaghfad-Lisnaskea SPA in County Fermanagh. This site is of special conservation interest for the bird species Hen harrier. The site is one of the strongholds for Hen Harrier in the country. The mix of forestry and open areas provides optimum habitat conditions for this rare bird. The early stages of new and second- rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bog and open moorland. The Screening for Appropriate Assessment identified the potential for impacts on Hen harrier.

Table 6 Qualifying Interests and Conservation Objectives for the Slieve Beagh SPA (Site Code: 004167).

Qualifying Interest	Conservation Objectives
Hen Harrier *Circus cyaneus* [A082]	To maintain (or restore where appropriate) this species to favourable condition.

5.6.1 Qualifying Species

5.6.1.1 Hen Harrier *Circus cyaneus* [A082]

The cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA is of ornithological importance as it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. A survey in Slieve Beagh in 2005 recorded four pairs, representing over 1.9% of the all-Ireland total. However, when the Northern Ireland sector of Slieve Beagh is considered, there was a total of 10 breeding pairs in 2005. The 2015 National Survey of Breeding Hen Harrier in Ireland (Ruddock *et al.,* 2016) showed that the Hen Harrier population within the Slieve Beagh SPA has declined when compared to previous surveys. This survey revealed that the decline in breeding pairs was likely linked to a shift in distribution, with the traditional moorland pairs now seemingly having relocated to afforested areas or heather margins within or adjacent to forested areas. During the 2015 survey only three pairs were confirmed within the Slieve Beagh SPA in Monaghan, where other traditional breeding pairs from Monaghan seem to have shifted westward to adjacent counties Tyrone and Fermanagh since the previous survey. This species is Amber listed in the Bird of Conservation Concern 2014-2019 list (Colhoun, K. and Cummins, S., 2013).

6. ASSESSMENT

6.1 Upper Lough Erne SPA

6.1.1 Whooper Swan Cygnus [A038]

6.1.1.1 Direct Impacts

6.1.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase of the proposed development that could affect the Whooper Swan population of the Upper Lough Erne SPA as it is not located within the SPA.

6.1.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase of the proposed development that could affect the Whooper Swan population of the Upper Lough Erne SPA as it is not located within the SPA.

6.1.1.2 Indirect Impacts

6.1.1.2.1 Construction Phase

The proposed development is located c. 6.5 rkm (river km) upstream of the Upper Lough Erne SPA via the River Finn [Monaghan]. Additionally, at its closest point the SPA is located c. 5km from the proposed development (Grid Connection Option G1).

As set out in the Screening for Appropriate Assessment, there is a hydrological connection between the proposed development and the SPA as grid connection Option G1 crosses the River Finn which discharges into the SPA. Water quality impacts could potentially arise during the construction of the grid connection Option G1. However, it is considered unlikely that the low-magnitude localised impacts that would be expected to be associated with the construction of the grid connection could impact on water quality c.6.5 rkm downstream. This is due to the very weak hydrological connection. Nonetheless, water quality mitigation (see Section 7) is provided, and this will allow this impact to be avoided in its entirety.

The potential for the introduction and dispersal of non-native invasive species via this hydrological pathway has also been identified. However, it is considered very unlikely that invasive species could affect the Upper Lough Erne SPA due to geographical separation. Biosecurity measures are provided for the construction phase which will allow this impact to be fully avoided.

6.1.1.2.2 Operational Phase

The proposed development is located c. 5km from the SPA at its closest point and 5.4km from the nearest wind turbine. However, during the extensive bird surveys completed, Whooper Swans were never recorded flying in the study area at rotor sweep height or below. Whooper Swans were recorded flying over the proposed wind farm site only once and this was a small flock of 11 individuals during the wintering season of 2018/19 (Ecofact 2019f). No Whooper Swans were ever recorded flying over any of the proposed grid connection options. Through the undertaking of bird surveys, it has been confirmed that the proposed development site is not located within regular flight paths for

Whooper Swans, nor is it used in any significant numbers. It is also not located within any areas for resting or staging. The highest number of Whooper Swans recorded during the 2017/18 wintering period was 22 swans at Long Lough (Ecofact 2019d). During the 2016/17 wintering period, the highest number of Whooper Swans recorded was 5 individuals, at Corlougharoe Lough (Ecofact 2019c). A maximum of 60 Whooper Swans was recorded present in an agricultural field adjacent to Annagose Lough during February 2019, and a maximum of 51 were recorded during March 2019.

It is considered extremely unlikely that Whooper Swans would ever cross the proposed development site and collide with the wind turbines. This is based on the fact that Whooper Swans have never been recorded flying over the proposed development site at rotor sweep height - the only observation was of swans flying much higher than the swept area of the proposed wind turbines. There was only one passage event of 11 swans recorded during the 2017-2019 surveys – they were flying very high over the site. Similarly, the risk of any collision with a transmission line is considered negligible and any swans passing through the area would be well above the height of the electricity lines associated with grid connection Options G1 and G2.

The results of the bird surveys demonstrate – beyond reasonable scientific doubt - that the proposed development site and surrounding countryside is not of importance to Whooper Swans. Whooper Swans were rarely recorded and when they were seen they were present in low numbers. The highest number recorded was 60 individuals, at Annagose Lough c. 6km from grid connection option G1 and 5.9km from the closest proposed wind turbine. The threshold for nationally important numbers of Whooper Swans, 1% of the total population, is given as 100 birds (Crowe, O. *et al*., 2008). Any lakes that do occur adjacent to the proposed development (only present beside grid connection options) are of a small size and Whooper Swans have not been recorded in nationally important numbers at these lakes. No regular flight routes across the proposed development were identified.

The nature of the habitats on the proposed development site and surrounding areas consist of a drumlin landscape with undulating hills. Due to the absence of substantial lakes in the vicinity of the proposed development which would support large numbers, it is considered likely that if Whooper Swans do fly over the site, they would be flying well above rotor swept height.

It is determined that no mitigation is required for Whooper Swans for the operational phase of the proposed development as, on the basis of the best available scientific evidence, adverse impacts regarding collisions, displacement or barrier effects for Whooper Swans associated with the SPA will not occur. As set out above, the bird surveys undertaken have demonstrated that the proposed development site is not located along a regular flight path for Whooper Swan and, given the nature of the landscape, Whooper Swan are likely to be flying at height. Notwithstanding this, it is proposed to install bird diverters at locations where overhead lines (grid connection Options G1 and G2) may be in close proximity to lakes or other waterbodies which will, in accordance with the precautionary principle, provide added certainty as to the absence of effects on Whooper Swan and the SPA. The precise location of these bird diverters will be advised by a suitably qualified ornithologist.

6.1.1.3 Cumulative Impacts

The conservation objectives document for the Upper Lough Erne SPA lists the threats and pressures currently having an impact on the SPA. The document lists recreational boating activity, commercial or recreational fishing, other recreational activities and wildfowling as resulting in disturbance impacts on Whooper Swans in the SPA. It also notes adjoining habitat management, habitat quality, invasive species, drainage schemes and shoreline protection schemes as resulting in impacts. Invasive species and power cables are also noted.

The proposed development has been assessed as unlikely to have any impacts on the SPA. Any water quality impacts would be localised and would not affect the SPA some c. 6.5km downstream of a grid connection option G1. Additionally, no significant impacts regarding invasive species are identified due to geographical separation. Bird surveys undertaken at the proposed development site have shown that Whooper Swans do not use the proposed development area as regular flight routes. It is considered therefore that, based on the best available scientific evidence, the proposed development will not add cumulatively to pressures on the Whooper Swan population of the SPA. Additionally, the precautionary measures provided for biosecurity, water quality and collision risk will avoid any adverse impact.

6.2 Upper Lough Erne SAC

6.2.1 Natural Eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation [3150]

6.2.1.1 Direct Impacts

6.2.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase of the proposed development that could affect the Natural Eutrophic Lakes habitat in the Upper Lough Erne SAC as it is not located within the SAC.

6.2.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase of the proposed development that could affect the Natural Eutrophic Lakes habitat in the Upper Lough Erne SAC as it is not located within the SAC.

6.2.1.2 Indirect Impacts

6.2.1.2.1 Construction Phase

Water quality impacts are likely to be localised and any water quality impacts arising from the proposed development would not have the potential to travel to the SAC and the Natural Eutrophic Lakes habitat. Grid connection option G1 is located c. 16rkm (river kilometres) upstream from the SAC, and the wind farm site is over 45rkm from the SAC. It is therefore considered highly unlikely that the SAC could be adversely affected through any deterioration in water quality but nonetheless, water quality mitigation is provided which will ensure the avoidance of any impact.

The potential for the introduction of non-native invasive species was also noted in the Screening for Appropriate Assessment. Although it is considered unlikely that invasive species could affect the Upper Lough Erne SAC due to geographical separation, biosecurity mitigation is provided which will ensure the avoidance of any impact.

6.2.1.2.2 Operational Phase

Occasional operational phase maintenance of the proposed development could involve the maintenance of access tracks or the use of chemicals / oils (wind turbines or substation options) which could, in turn, lead to localised impacts on water quality. Again, the proposed development is

substantially distant from the Upper Lough Erne SAC. It is determined that, based on available evidence, such localised impacts would not be able to impact the Natural Eutrophic Lakes habitat.

6.2.1.3 Cumulative Impacts

The conservation objectives document for the Upper Lough Erne SAC lists the threats and pressures currently having an impact on this designated site. Siltation is noted as an impact affecting the Natural Eutrophic Lakes habitat, more specifically related to soil erosion. Nutrient enrichment, changes in water levels, recreational pressure and invasive species are also noted as current pressures. As noted above there is no potential for water quality impacts to arise from the proposed development that would affect the Natural Eutrophic Lakes habitat in the Upper Lough Erne SAC. However, as localised impacts may arise, some basic water quality mitigation is provided. Although there is no potential for invasive species impacts to arise that could affect the SAC, biosecurity mitigation is provided. It is considered that there is reasonable scientific certainty as to the absence of cumulative impacts affecting the Upper Lough Erne SAC.

6.2.2 Otter Lutra Lutra [1355]

6.2.2.1 Direct Impacts

6.2.2.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect Otters in the Upper Lough Erne SAC as the proposed development is not located within the SAC.

6.2.2.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect Otters in the Upper Lough Erne SAC as the proposed development is not located within the SAC.

6.2.2.2 Indirect Impacts

6.2.2.2.1 Construction Phase

Indirect water quality impacts can affect fish in the watercourses downstream and therefore can limit the otter's food source. However, as above for the Natural Eutrophic Lakes habitat, water quality impacts, should they occur, will be localised. Grid connection option G1 is located c. 16rkm from the SAC, and the wind farm site is over 45rkm from the SAC. Any siltation or water quality pollution impacts would not have the potential to travel far downstream to indirectly affect Otters in the SAC. However, in accordance with the precautionary principle and to ensure scientific certainty regarding the absence of impacts, basic water quality mitigation measures are proposed.

There is also the potential for the introduction and / or spread of invasive species. Again, due to geographical separation it is considered that invasive species would be unlikely to affect the SAC. However, biosecurity measures are provided to ensure scientific certainty as to the absence of impacts on the SAC.

6.2.2.2.2 Operational Phase

Chemicals / oils used for wind turbines/substations and the maintenance of access tracks can also lead to water quality impacts during the operational phase. Again, given the geographical separation between the proposed development site and the SAC and the localised nature of any water quality

deterioration; following the implementation of water quality protection measures, adverse impacts can be excluded.

6.2.2.3 Cumulative Impacts

The conservation objectives document for the Upper Lough Erne SAC lists the threats and pressures currently having an impact on this designated site. Although specific threats and pressures are not outlined for Otter species within the SAC, the other threats and pressures apply. Nutrient enrichment, siltation, changes in water levels, recreational pressures and invasive species are noted as the current pressures. As noted above there is no potential for water quality impacts to arise from the proposed development that would affect Otters in the Upper Lough Erne SAC due to distance. However, as localised impacts may arise, water quality mitigation is provided. Although there is no potential for invasive species impacts to arise that could affect the SAC, biosecurity mitigation is still provided. The imposition of these measures will ensure, with reasonable scientific certainty, that adverse cumulative impacts on the SAC will not occur.

6.3 Lough Oughter and Associated Loughs SAC

6.3.1 Natural Eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation [3150]

6.3.1.1 Direct Impacts

6.3.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Natural Eutrophic Lakes habitat in the Lough Oughter and Associated Loughs SAC as the proposed development is not located within the SAC.

6.3.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Natural Eutrophic Lakes habitat in the Lough Oughter and Associated Loughs SAC as the proposed development is not located within the SAC.

6.3.1.2 Indirect Impacts

6.3.1.2.1 Construction Phase

Water quality impacts are unlikely to affect the Natural Eutrophic Lakes habitat within the SAC. The grid connection option G2 is c. 7.4rkm from the SAC. The proposed wind farm site is c. 23rkm from the SAC. Given the hydrological connection between the proposed wind farm site and the SAC and that grid connection Option G2 crosses the Annalee River which discharges to the SAC, water quality protection measures are provided to ensure that no adverse impacts occur.

Although it is considered unlikely that invasive species could affect the Lough Oughter and Associated Loughs SAC due to geographical separation, biosecurity mitigation is provided to avoid any risk to the.

6.3.1.2.2 Operational Phase

Operational phase maintenance of wind farm developments could involve the maintenance of access tracks or the use of oils/chemicals for the wind turbines. There is the potential that these activities could lead to localised impacts on water quality. However, the proposed wind farm site is c. 23rkm from the Lough Oughter and Associated Loughs SAC. Again, given the geographical separation between the proposed wind farm site and the SAC, following the implementation of water quality protection measures, adverse impacts on the SAC can be excluded.

6.3.1.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter and Associated Loughs SAC lists the threats and pressures currently having an impact on this designated site. Invasive species, diffuse pollution to surface waters due to agricultural and forestry activities, diffuse pollution to surface waters via storm overflows and urban run-off, flooding and rising precipitations and the removal of hedges and copses or scrub are noted as impacts having a high effect on the site. As described above, any water quality impacts arising from the proposed development will be localised. Despite this, water quality mitigation is provided to ensure scientific certainty regarding the absence of cumulative water quality impacts. Due to geographical separation, any invasive species impacts which may occur at the proposed development site would be unlikely to affect the SAC. Biosecurity mitigation is provided nonetheless, to ensure the avoidance of any impacts on the SAC. Following the imposition of these measures, it can be concluded that there is reasonable scientific certainty regarding the absence of cumulative adverse effects on the SAC.

6.3.2 Otter [1355]

6.3.2.1 Direct Impacts

6.3.2.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect Otters in the Lough Oughter and Associated Loughs SAC as the proposed development is not located within the SAC.

6.3.2.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect Otters in the Lough Oughter and Associated Loughs SAC as the proposed development is not located within the SAC.

6.3.2.2 Indirect Impacts

6.3.2.2.1 Construction Phase

Indirect water quality impacts can affect fish in the watercourses downstream and therefore can limit the otter's food source. However, as above for the Natural Eutrophic Lakes habitat, any water quality impacts may arise would be localised and would not affect Otters in the SAC. The grid connection route option G2 is located c. 7.4rkm from the SAC, and the wind farm site is c. 23rkm from the SAC. Given the hydrological connection between the proposed wind farm site and the SAC and that grid connection Option G2 crosses the Annalee River which discharges to the SAC, water quality protection measures are provided to ensure that no adverse impacts occur which could affect Otter.

There is also the potential for the introduction and/or spread of invasive species. Again, due to geographical separation it is considered that invasive species would be unlikely to affect the SAC.

However, given the hydrological connectivity between the proposed development and the SAC, biosecurity mitigation is provided to avoid any adverse impacts that could affect Otter.

6.3.2.2.2 Operational Phase

Chemicals and oils used for wind turbines/substations and the maintenance of access tracks can also lead to water quality impacts during the operational phase. Again, the proposed wind farm site is c. 23rkm from the SAC. Any operational phase impacts on water quality would be localised and are not considered to have the potential to indirectly affect Otters. Notwithstanding this, measures to avoid any deterioration of water quality in the SAC have been imposed to provide reasonable scientific certainty as to the absence of any impacts on Otter.

6.3.2.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter and Associated Loughs SAC lists the threats and pressures currently having an impact on this designated site. Invasive species, diffuse pollution to surface waters due to agricultural and forestry activities, diffuse pollution to surface waters via storm overflows and urban run-off, flooding and rising precipitations and the removal of hedges and copses or scrub are noted as impacts having a high effect on the site. As described above in indirect impacts, mitigation measures are provided to avoid any potential deterioration of water quality in the SAC and subsequent impact on Otter. Due to geographical separation, any invasive species impacts would be unlikely to affect the SAC; Biosecurity mitigation is provided, nonetheless, to ensure the avoidance of invasive species impacting Otter within the SAC. Following the imposition of these measures, it can be concluded that there is reasonable scientific certainty regarding the absence of cumulative adverse effects on Otter within the SAC.

6.4 Lough Oughter Complex SPA

6.4.1 Wetland and Waterbirds [A999]

6.4.1.1 Direct Impacts

6.4.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Wetland and Waterbirds habitat in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Wetland and Waterbirds habitat in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.1.2 Indirect Impacts

6.4.1.2.1 Construction Phase

Water quality impacts can arise due to accidental releases of silt laden runoff or accidental spillages of cement and hydrocarbons that will be stored on site, as with any construction site. These impacts are considered very unlikely to affect the Wetland and Waterbirds habitat due to geographical separation between the proposed development and the SPA. The proposed wind farm site is c. 30rkm

upstream of the SPA (9.6km direct distance), and the grid connection route Option G2 is c. 15rkm upstream (4.3km direct distance). While it is assessed as unlikely that water quality impacts would travel this far downstream, water quality mitigation has been provided to ensure that adverse impacts on the SPA are avoided.

The potential for the introduction of non-native invasive species was also noted in the Screening for Appropriate Assessment. Although it is considered unlikely that invasive species could affect the Lough Oughter Complex SPA due to geographical separation, biosecurity mitigation is provided to avoid any effects on the SPA.

6.4.1.2.2 Operational Phase

Operational phase maintenance of wind farm developments could involve the maintenance of access tracks or the use of oils/chemicals in wind turbines/substation. There is the potential that these activities could lead to localised impacts on water quality. Again, the proposed wind farm site is c. 30rkm from the Lough Oughter Complex SPA. Given the geographical separation between the proposed wind farm site and the SAC, following the implementation of water quality protection measures, adverse impacts on the SAC can be excluded.

6.4.1.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter Complex SPA lists the threats and pressures currently having an impact on this designated site. Animal breeding and fertilisation are listed as impacts having a high effect on this SPA. Nautical sports, hunting, leisure fishing, silviculture and forestry are noted as having medium impacts on this SPA. The proposed developments would not have interactions with the impacts listed above. However, as fertilisation and forestry may affect water quality, and water quality was identified as a potential impact arising as a result of the proposed development, these cumulative effects must be assessed. As described above in indirect impacts, adverse water quality impacts which could affect the SPA will not arise following the implementation of water quality protection measures.

6.4.2 Great Crested Grebe Podiceps cristatus [A005]

6.4.2.1 Direct Impacts

6.4.2.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Great Crested Grebe population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.2.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Great Crested Grebe population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.2.2 Indirect Impacts

6.4.2.2.1 Construction Phase

It is considered that the only impacts arising from the construction phase that could impact the SPA concern water quality and invasive species impacts. These impacts would be the same as discussed above for the Wetland and Waterbirds habitat and the implementation of the mitigation measures outlined above will provide scientific certainty as to the absence of adverse effects on the Great Crested Grebe.

6.4.2.2.2 Operational Phase

While Great Crested Grebes were recorded at some local lakes during the bird surveys, none were ever recorded flying over the site of the proposed development. There is no suitable habitat for this species on or near the proposed development site. As Great Crested Grebes are resident all over Ireland in many lakes, it is considered unlikely that these populations are connected with the SPA some 9.6km distant from this designated site (and c 30 rkm upstream).

Great Crested Grebes have a low collision risk score for offshore wind farms (Humphreys *et al*., 2015; Cook *et al*., 2012). Grebes are susceptible to disturbance from wind turbines, although not susceptible to barriers to movement, collision or even habitat loss / damage (Langston & Pullan, 2003). It is noted that there are no lakes within the proposed development site or in the immediate vicinity of the wind farm development itself. Therefore, it is considered that the proposed development will not result in any adverse effects on Great Crested Grebes in terms of the general population or that of the SPA. Langston & Pullan (2003) also note that there was little to no effects of displacement on grebes.

Great Crested Grebes are not considered to be at any particular risk to collisions with overhead electricity lines, and are not at risk to collisions with wind turbines. Regarding electricity lines and as a precautionary measure given the presence of Great Crested Grebes on waterbodies in the wider area, prior to the commencement of development, bird diverters will be placed on the chosen grid connection option where it is located in close proximity to a lake or other waterbody. The installation of these diverters is common practice and is proven to divert birds away from overhead lines and ensure the avoidance of collision. As stated above, Great Crested Grebes are not assessed as having significant potential to be adversely affected by the proposed development; however, the mitigation measures outlined in relation to the avoidance of water quality impacts and collision risk will ensure that there is no adverse effects on the SPA.

6.4.2.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter Complex SPA lists the threats and pressures currently having an impact on the SPA in general; no specific threats or pressures are given for Great Crested Grebes. For this reason, the likely impacts would be the same as discussed above for the Wetland and Waterbirds habitat, in relation to water quality and invasive species. No cumulative impacts are expected to arise that would affect Great Crested Grebes in the SPA. Again, this is due to geographical separation, with the SPA being c. 15rkm downstream of the grid connection Option G2 and c. 30rkm downstream of the proposed wind farm. No flight routes for Great Crested Grebes were noted during bird surveys undertaken to inform the assessment of the proposed development. Nonetheless, while adverse cumulative effects on the SPA are not assessed to be significant, the mitigation measures outlined above to ensure the protection of water quality and the avoidance of collision will provide scientific certainty as to the absence of any effects on the SPA. Even so, precautionary mitigation measures are given for Great Crested Grebes in the local lakes not associated with the SPA. This includes the installation of bird diverters placed on overhead lines (grid connection options G1 and G2) in the vicinity of lakes or other waterbodies.

6.4.3 Whooper Swan Cygnus [A038]

6.4.3.1 Direct Impacts

6.4.3.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Whooper Swan population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.3.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Whooper Swan population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.3.2 Indirect Impacts

6.4.3.2.1 Construction Phase

The potential for adverse effects on Whooper Swan as a result of the proposed development are assessed to be similar to those for the same species associated with the Upper Lough Erne SPA. Based on evidence gathered during bird surveys undertaken at the proposed development site, no regular flight routes or feeding zones were identified across the footprint of the proposed development and Whooper Swans were rarely recorded in the study area. It is assessed, therefore, that there is no potential for disturbance or displacement during the construction phase. Impacts which have the potential to arise concern water quality and invasive species impacts. The potential for these impacts to arise have been discussed above in relation to the Wetland and Waterbirds habitat and the measures outlined above provide scientific certainty as to the absence of effects on the SPA.

6.4.3.2.2 Operational Phase

The proposed development is located c. 4.3km from the SPA at its closest point (grid connection Option G2). The proposed wind farm is located c. 9.6km from the SPA as the crow flies is a risk of Whooper Swan collision with transmission lines or wind turbines as a result of the proposed development. Given the absence of significant Whooper Swan populations in the vicinity of the proposed development and the absence of major flight lines through the site, the bird surveys demonstrate that the proposed development area is not of importance to whooper swans.

The nature of the habitats on the proposed development site and surrounding areas consist of a drumlin landscape with undulating hills. Due to the absence of substantial lakes in the vicinity of the proposed development which would support large numbers, it is considered likely that if any Whooper Swans do fly over the site, they would be flying well above rotor swept height.

It is determined that no mitigation is required for Whooper Swans in relation to the operational phase of the proposed development as, on the basis of the best available scientific evidence, there is no potential for adverse impacts regarding collisions, displacement or barrier effects for Whooper Swans associated with the SPA.

6.4.3.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter Complex SPA lists the threats and pressures currently having an impact on the SPA in general; no specific threats or pressures are given for Whooper Swans. For this reason, the potential cumulative impacts would be the same as discussed above for the Wetland and Waterbirds habitat, in relation to water quality and invasive species.

The proposed development has been identified in the Screening for Appropriate Assessment as having the potential for water quality, invasive species and collision impacts. However, as demonstrated above in indirect impacts, none of these impacts are considered to be significant or require mitigation. Water quality and invasive species impacts are discussed above for the Wetland and Waterbirds habitat and following the implementation of mitigation measures, adverse effects will be avoided. The bird surveys undertaken have demonstrated that Whooper Swans do not use the proposed development area as regular flight routes. If Whooper Swans do fly over the area they fly high over the drumlin landscape. It is considered, therefore, that the proposed development does not have the potential to and would not add cumulatively to pressures on the Whooper Swan population of the SPA. As set out above, the bird surveys undertaken have demonstrated that the proposed development site is not located along a regular flight path for Whooper Swan and, given the nature of the landscape, Whooper Swan are likely to be flying at height. Notwithstanding this, the proposed measure to install bird diverters at locations where overhead lines (grid connection Options G1 and G2) may be in close proximity to lakes or other waterbodies will, in accordance with the precautionary principle, provide added certainty as to the absence of adverse effects on Whooper Swan and the SPA.

6.4.4 Wigeon Anas penelope [A050]

6.4.4.1 Direct Impacts

6.4.4.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Wigeon population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.4.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Wigeon population in the Lough Oughter Complex SPA as the proposed development is not located within the SPA.

6.4.4.2 Indirect Impacts

6.4.4.2.1 Construction Phase

Wigeon were not recorded during the current surveys of the proposed Drumlins Park wind farm development – and would never use this site. The proposed development is located c. 16.8km from the SPA and the nearest grid connection route, Option G2, is located c. 8.5km from the SPA. It is envisaged that the only potential indirect impacts affecting Widgeon that may arise during the construction phase concern water quality and invasive species impacts. The likelihood of these impacts arising are assessed as similar to Wetlands and Waterbirds, as set out above.

6.4.4.2.2 Operational Phase

Again, Wigeon were not recorded during the surveys of the proposed development Site. Due to the geographical separation between the proposed development site and the SPA, there are no operational phase impacts that are expected to arise that would adversely affect the Wigeon population of the SPA. Nonetheless, the installation of bird diverters on overhead lines (grid connection Options G1 and G2) that run adjacent to lakes will provide certainty that there will be no adverse effects on Widgeon.

6.4.4.3 Cumulative Impacts

The Natura 2000 form for the Lough Oughter Complex SPA lists the threats and pressures currently having an impact on the SPA in general; no specific threats or pressures are given for Wigeon. For this reason, the impacts would be the same as discussed above for the Wetland and Waterbirds habitat, in relation to water quality and invasive species.

As discussed above, the proposed development will not result in any impacts on the Wigeon population of the Lough Oughter Complex SPA. Therefore, no cumulative impacts are evaluated as likely to arise as a result of the proposed development, in combination with current pressures on the SPA.

6.5 Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA

6.5.1 Hen Harrier Circus cyaneus [A082]

6.5.1.1 Direct Impacts

6.5.1.1.1 Construction Phase

There will be no direct impacts arising from the construction phase that could affect the Hen harrier population in the Slieve Beagh SPA as the proposed development is not located within the SPA.

6.5.1.1.2 Operational Phase

There will be no direct impacts arising from the operational phase that could affect the Hen harrier population in the Slieve Beagh SPA as the proposed development is not located within the SPA.

6.5.1.2 Indirect Impacts

6.5.1.2.1 Construction Phase

The closest element of the proposed development to the Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA is the most northerly extent of grid connection Option G1, located c. 8.3km from the SPA The proposed wind turbines are located c. 13.5km from the SPA. Hen Harrier have not been recorded during the extensive bird surveys undertaken at the site and, due to the absence of suitable nesting or foraging habitat within the site of the proposed development, Hen Harrier will never visit this site and there is scientific certainty regarding the absence of disturbance or displacement impacts arising during the construction phase.

6.5.1.2.2 Operational Phase

Hen harriers have never been recorded in the study area of the proposed development. There are no records and this species was no recorded during three years of bird surveys at the proposed development site. Again, the closest element of the proposed development to the Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA most northerly extent of grid connection Option G1, located c. 8.3km from the SPA The foraging range for Hen harrier range does not extend this far south. Due to the absence of suitable nesting or foraging habitat within the site of the proposed development, Hen Harrier will never visit this site and there is scientific certainty regarding the absence of collision risk, disturbance or displacement impacts arising during the operational phase.

6.5.1.3 Cumulative Impacts

The Natura 2000 form for the Slieve Beagh SPA notes the current threats and pressures having an impact on the SPA. Peat extraction is noted as having a high impact. Roads and motorways and paths, tracks and cycling tracks are noted as having a low impact on the SPA. Given the large distance of the proposed development from the SPA, the fact hen harriers have not been recorded in the study area and the habitat composition of the site, it is concluded that there is scientific certainty that the proposed development will not result in cumulative impacts on Hen Harrier or on Slieve Beagh//Slieve Beagh-Mullaghfad-Lisnaskea SPA.

7. MITIGATION MEASURES

The preceding section has determined that no likely significant impacts have been identified as a result of the proposed development which could result in adverse effects on the Natura 2000 network. Notwithstanding this, and in accordance with the precautionary principle, a range of measures is provided below to ensure the avoidance of any effects on Natura 2000 sites. These measures have been discussed in general terms in the preceding sections and are detailed further below

7.1 Water Quality

7.1.1 Construction Phase

As has been set out above, the protection of water quality is key to the avoidance of effects on both SPAs and SACs. While the Upper Lough Erne SPA and Lough Oughter Complex SPA are designated because of the presence of bird species, the quality of the aquatic habitat is central to their presence at these locations. While adverse effects are not expected or predicted to occur, the greatest potential for adverse water quality effects to arise is evaluated to be at its greatest during the construction phase due to the nature of construction activities. It should be noted that the protection of water quality has been a central component during the design process of the proposed development. This is evidenced by the fact that, except for watercourse crossings and a small section of the 110kV substation, a 50m buffer has been implemented around all watercourses.

In the first instance, water quality will be protected through best practice construction phase management process. For example, excavation works will not be undertaken during times of prolonged or intense rainfall or if such weather events are forecast and no development works will be commenced at a specific location until such time as the drainage management system is in place, to the satisfaction of the Environmental Manager, for the relevant works. Secondly, the implementation and management of the drainage network will be subject to strict control measures set out in the Construction Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP). Outline plans, which will be developed further prior to the commencement of development to include precise details of water quality protection measures, have been prepared and have had regard to the '*Guidelines for the crossing of watercourses during the construction of national road schemes*' (NRA, 2008b) and '*Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*' (IFI, 2016). The (detailed) SWMP will set out measures to avoid siltation, erosion, surface water run-off and accidental pollution events which all have the potential to adversely affect water quality within the site during the construction phase. The implementation of these measures will ensure that no surface water runoff is discharged to any watercourse without being fully treated in advance.

Timing of the proposed works will also take account of the fisheries constraints within the study area, where no works will be undertaken in the instream/near-stream environment during the salmonid close season (October–March annually), which also avoids the lamprey spawning season, as a precautionary measure.

All infrastructures shall have a setback 50m away from all streams within the site except for the locations of watercourse crossings. Any access tracks crossing watercourses will be constructed as clear span bridges (bottomless culverts), insofar as is possible to minimise works within/in the immediate vicinity of watercourses. Where access tracks pass close to watercourses, silt fencing will be used to protect the streams. A sealed silt fence will be placed at both sides of any crossing points and to a minimum of 10m upstream and downstream of each crossing at both sides of the access

track. The maintenance and monitoring of such silt fences will be subject to an on-site water quality monitoring programme.

All access tracks, foundations and areas of hardstanding will be designed to minimise excavation on the site and to reduce the risk of sediment runoff. The drainage management system will be constructed to ensure that all 'dirty' water is intercepted and is fully attenuated by passing it through a treatment train to remove all sediment. Runoff, once treated, will be discharged via a buffered outfall to ensure that no erosion of soil occurs.

Spoil heaps, from the excavations for the turbine bases and trenches (where cables are to be buried), will be covered with geotextile and surrounded by silt fences to filter sediment from the surface water run-off from excavated material. Spoil will only be stockpiled on-site for a short duration and will be used for landscaping/reinstatement (e.g. berms) or will be disposed of in the dedicated spoil deposition areas. Berms will be surrounded by silt fencing until vegetation has been established in the following growing season.

Secure concrete washout areas will be designated on site and the washout of concrete truck will only be permitted at these locations.

Standing water in the excavations at the turbine bases will contain an increased concentration of suspended solids. The excavations will be pumped into the drainage treatment train and all such water will be fully treated prior to discharge.

Portaloos will be used to provide toilet facilities for site personnel and all sanitary waste will be removed from site via a licensed waste disposal contractor and will not be discharged on site.

Any diesel or fuel oils stored on site will stored in the temporary construction compound and will be bunded to 110% of the capacity of the storage tank. The bund will also be roofed to avoid the ingress of rainwater. Such facilities will not be located near any drain or watercourse and will be placed as far away from any drainage feature as is possible. Design and installation of fuel tanks will be in accordance with best practice guidelines.

From the construction compound, fuel will be transported to works area by a 4x4 in a double skinned bowser with drip trays under a strict protocol and carried out by suitably trained personnel. The bowser/4x4 will be fully stocked with spill kits and absorbent material, with delivery personnel being fully trained to deal with any accidental spills. The bowser will be bunded appropriately for its carrying capacity.

7.1.2 Operational Phase

The proposed development will have a negligible effect on local watercourses during the operational phase, as there are no further potential impacts of surface water run-off to watercourses within the site. During the operation phase, oils will be required within both wind turbines and substation, thereby giving rise to the potential for oil spills. However, the transformers will be bunded to 110 % of the volume of oil within them thus eliminating any potential for adverse effects on water quality.

7.2 Invasive Species

While no non-native invasive species were recorded at the proposed development site, the importation of construction materials give rise to the potential for adverse effects to occur. To ensure

that biosecurity measures are implemented, an Invasive Species Management Plan will be prepared and incorporated into the CEMP, prior to the commencement of development. The Invasive Species Management Plan will incorporate measures set out in *'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*' by NRA (2010).

7.3 Birds

The potential for adverse effects on avian species was identified in the Screening for Appropriate Assessment. However, given the qualifying interests for which SPAs have been designated, the drumlin nature of the landscape and the relatively low height of proposed infrastructure, it is considered that there no potential for adverse effects on any SPA to arise. Notwithstanding this, and out of an abundance of caution, bird diverters will be installed at specific areas along grid connection Options G1 or G2 should either of these be constructed. Diverters shall be installed at locations where the overhead lines run adjacent to lakes to eliminate any potential for adverse effects and to provide scientific certainty that Whooper Swans and other avian species will not be impacted.

8. INTEGRITY OF EUROPEAN SITES

Favourable conservation status is defined for Annex I habitats and Annex II species in the Habitat Directive (1992):

Article 1 (e)

> Conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.
>
> The conservative status of a natural habitat will be taken as 'favourable' when: its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.

Article 1 (i)

> Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;
>
> The conservation status will be taken as 'favourable' when: population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) defines 'integrity' as the: 'coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or population of species for which the site is or will be classified'.

8.1 Upper Lough Erne SPA

The proposed development was identified as having the potential to impact the Upper Lough Erne SPA and the Whooper Swan population it supports in the Screening for Appropriate Assessment. The Screening identified the potential for collision risk, due to the nature of the development which involves a wind farm and associated grid connection infrastructure.

This NIS has assessed the above potential impacts and has provided mitigation measures to ensure the avoidance of any impacts on the SPA. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I species for which the Upper Lough Erne SPA is designated. No regular flight paths across the proposed development site have been identified for Whooper Swans and no mitigation measures are required. However, some bird diverters near lakes and large watercourses are recommended for the chosen grid connection (overhead line) as an additional precautionary measure for local birds. It can therefore be concluded, with reasonable scientific certainty, that the proposed development will not result in any adverse effects on the integrity of the Upper Lough Erne SPA.

8.2 Upper Lough Erne SAC

The proposed development was identified as having the potential to impact the Upper Lough Erne SAC, and the Natural Eutrophic Lakes habitat and Otters . The Screening for Appropriate Assessment

identified the potential for water quality impacts due to the hydrological connection with the SAC. The potential for invasive species impacts was also identified.

This NIS has assessed the above potential impacts and has provided mitigation measures to avoid any adverse impacts on the SAC. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I habitats or Annex II species for which the Upper Lough Erne SAC is designated. Due to geographical separation, no impacts on water quality or invasive species are considered likely to arise and the implementation of water quality protection measures will provide scientific certainty as to the avoidance of any impacts affecting the integrity of the Upper Lough Erne SAC.

8.3 Lough Oughter and Associated Loughs SAC

The proposed development was identified as having the potential to impact the Lough Oughter and Associated Loughs SAC and the Natural Eutrophic Lakes habitat and Otters. The Screening for Appropriate Assessment identified the potential for water quality impacts due to the hydrological connection with the SAC. The potential for invasive species impacts was also identified.

This NIS has assessed the above potential impacts and has provided mitigation measures to ensure that all effects are avoided. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I habitats or Annex II species for which the Lough Oughter and Associated Loughs SAC is designated. Due to geographical separation, no impacts on water quality or invasive species are considered likely to arise and the implementation of water quality protection measures will provide scientific certainty as to the avoidance of any impacts affecting the integrity of the Lough Oughter and Associated Loughs SAC.

8.4 Lough Oughter Complex SPA

The proposed development was identified as having the potential to impact the Lough Oughter Complex SPA, the wetland and waterbirds habitat it's designated for and the following bird species that it supports: Great Crested Grebes, Whooper Swans and Wigeon. The Screening for Appropriate Assessment identified the potential for water quality, invasive species and collision risk impacts.

This NIS has assessed the above potential impacts and has provided mitigation measures to provide certainty that all significant impacts are avoided. There are no impacts arising from the proposed development which would have the potential to affect the Conservation status of the Annex I habitats or Annex I species for which the Lough Oughter Complex SPA is designated. Due to geographical separation, no significant adverse impacts on water quality or invasive species are considered likely to arise that could affect the Wetland and Waterbirds habitat in the SPA. The imposition of water quality protection measures provide certainty that all significant effects are avoided. Additionally, no significant impacts are envisaged that could impact the conservation status of bird species in this SPA. As a result, it is concluded that there is reasonable scientific certainty as to the absence of effects which could affect the integrity of the Lough Oughter Complex SPA.

8.5 Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA

The proposed development was identified as having the potential to impact the Slieve Beagh SPA, and the Hen Harrier population for which the SPA is designated, in the Screening for Appropriate Assessment. The Screening for Appropriate Assessment identified the potential for impacts on hen harrier due to the nature of the proposed development and the relative proximity of the

There are no impacts arising from the proposed development which would have the potential to adversely affect the Conservation status of the Annex I species for which the Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA is designated. Hen harrier have not been recorded within the site of the proposed development and the development site does not contain suitable breeding or foraging habitat, In addition, the closest aspect of the proposed development is significantly beyond the foraging range of the Hen harrier. Therefore, it is assessed that the proposed development will not result in any adverse effects which could affect the integrity of the Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA.

9. NIS CONCLUSION STATEMENT

The proposed development is not located within the boundary of or close to any Natura 2000 site. On this basis, it can be concluded that there are no direct impacts which would have the potential to adversely affect the conservation status of any Natura 2000 site. In terms of the avoidance of impacts on SPAs, the Birdlife International Position Statement on Wind Farms and Birds (2005) gives a list of precautionary avoidances when selecting a site for wind farm and grid connection developments in order to reduce the potential for impacts on birds. These avoidances include: Special Protection Areas (SPAs) and Important Bird Areas (IBAs); Natura 2000 sites or national sites for nature conservation; Other locations of significance for bird species identified as being Unfavourable Conservation Status in Europe; Sites along major migration routes and migration bottlenecks which large numbers of birds are highly concentrated and Habitats where wind farms are known to pose high collision risks to birds e.g. wetlands and mountain ridges. The proposed development complies with each of the above listed precautionary avoidances when selecting a site and provides certainty that direct impacts will be avoided.

The Screening for Appropriate Assessment identified the potential for impacts on the Upper Lough Erne SAC and SPA, the Lough Oughter and Associated Lakes SAC, the Lough Oughter Complex SPA and the Slieve Beagh SPA due to the potential for indirect and cumulative effects to arise and, as a result, a Stage 2 Appropriate Assessment is required.

This assessment has examined the qualifying interests for which the above sites have been designated, the connectivity between the proposed development site and the Natura 2000 network and the likelihood for impacts to arise. It was determined that water quality, invasive species and collision risk with overhead electricity lines had only limited potential to arise in the absence of mitigation; however, mitigation measures have been provided to ensure certainty regarding the avoidance of any adverse effects. These mitigation measures include the provision and implementation of standard construction phase surface water management measures to avoid the deterioration of water quality and the installation bird diverters at specific locations along grid connection Options G1 and G2, should either of these options be constructed. Due to the geographical separation between the proposed development and the Natura 2000 sites assessed, it is unlikely that localised adverse impacts arising from the construction phase would be likely to affect the integrity or conservation interests of the Natura 2000; however, the provision of mitigation measures provides scientific certainty that adverse effects will be avoided.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) defines 'integrity' as the 'coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and / or population of species for which the site is or will be classified'. Although there is no potential for significant or integrity level impacts, some mitigation measures were proposed as a precautionary measure to ensure the avoidance of adverse effects.

Therefore, and on the basis of the best available scientific evidence, it is concluded that there is reasonable scientific certainty that the proposed development will have no direct, indirect or cumulative impacts on the conservation status or integrity of the Upper Lough Erne SAC, Upper Lough Erne SPA, the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA or the Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA.

REFERENCES

Birdlife International, Birds and Habitats Directive Task Force, (2005). Position Statement on Wind Farms and Birds.

Bowers-Marriott, B., (1997). Practical Guide to Environmental Impact Assessment: *A Practical Guide.* Published by McGraw-Hill Professional, 1997, 320 pp.

Colhoun, K and Cummins, S., (2013). Birds of Conservation Concern in Ireland 2014-2019.

Cook, S. C. P. A, Johnston, A., Wright, J. L., Burton, H. K. N., (2012). Strategic Ornithological Support Services: Project SOSS-02. A Review of Flight Heights and Avoidance Rates of Birds in Relation to Offshore Wind Farms. British Trust for Ornithology.

Crowe, O., (2005). Ireland's Wetlands and their Waterbirds: Status and distribution. BirdWatch Ireland, Rockingham, Co. Wicklow.

DoEHLG, (2010) *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

Ecofact (2019a) *Drumlins Park Wind Farm Screening for Appropriate Assessment*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019b) *Drumlins Park Wind Farm Winter Bird Survey January to March 2017*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019c) *Drumlins Park Wind Farm Breeding Bird Surveys 2017*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019d) *Drumlins Park Wind Farm and Grid Connection Winter Bird Surveys 2017/18.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019e) *Drumlins Park Wind Farm and Grid Connection Breeding Bird Surveys 2018*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019f) *Drumlins Park Wind Farm and Grid Connection Winter Bird Surveys 2018/19.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019g) *Drumlins Park Wind Farm Breeding Bird Surveys 2019.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Ecofact (2019h) *Drumlins Park Wind Farm Biodiversity Report.* A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

European Commission (2001a) Wind energy developments and Natura 2000. https://ec.europa.eu/environment/nature/natura2000/management/docs/Wind_farms.pdf

European Commission (2001b) *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission Environment, Brussels.

http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

European Commission, (2007). *Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interests, compensatory measures, overall coherence and opinion of the Commission.* European Commission, Brussels
http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

European Commission (2018). Commission Notice: *'Managing Natura 2000 Sites. The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.*
http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/Provisions_Art_._nov_2018_endocx.pdf

Hall, C., Crowe, O., McElwaine, O., Einarsson, N., Calbrade & E. Rees, (2016). *Population size and breeding success of the Icelandic Whooper Swan Cygnus cygnus: Results of the 2015 International Census.* Wildfowl 66: n75-97
https://wildfowl.wwt.org.uk/index.php/wildfowl/article/view/2645
Humphreys, M. E, Cook, S. C. P. A., Burton, H. K. N, (2015). Collision, Displacement and Barrier Effect Concept Note. British Trust for Ornithology, The Nunnery, Thetford, Norfolk, IP24 2PU.

IFI, (2016). *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*. Inland Fisheries Ireland.

Langston, RHW & Pullan, JD., (2003). Windfarms and Birds: Analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues. Report written on behalf of BirdLife International.

NIEA, (2015a). Upper Lough Erne Special Protection Area (SPA) Conservation Objectives UK9020071. Northern Ireland Environment Agency, Belfast, United Kingdom.
https://www.daera-ni.gov.uk/sites/default/files/publications/doe/upper-lough-erne-spa-conservation-objectives-2015.pdf

NIEA, (2015b). Upper Lough Erne Special Area of Conservation (SAC). Conservation Objectives Uk0016614. Northern Ireland Environment Agency, Belfast, United Kingdom.
https://www.daera-ni.gov.uk/sites/default/files/publications/doe/land-information-upper-lough-erne-conservation-objectives-2015.pdf

NIEA, (2015c). Slieve Beagh – Mullaghfad – Lisnaskea Special Protection Area (SPA) Conservation Objectives UK9020302. Northern Ireland Environment Agency, Belfast, United Kingdom.
https://www.daera-ni.gov.uk/sites/default/files/publications/doe/slieve-beagh-mullaghfad-lisnaskea-SPA-conservation-objectives-2015.pdf

NPWS, (2015). Hen Harrier Conservation and the Forestry Sector in Ireland. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.
https://www.npws.ie/sites/default/files/publications/pdf/HHTRP%20-%20Forestry%20-%20V3.2.pdf

NPWS, (2017a) Natura 2000 Standard Data Form: Lough Oughter and Associated Loughs SAC (000007). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000007.pdf

NPWS, (2017b) Natura 2000 Standard Data Form: Lough Oughter Complex SPA (004049). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004049.pdf

NPWS, (2017c) Natura 2000 Standard Data Form: Slieve Beagh SPA (004167). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004167.pdf

NPWS, (2018) Conservation Objectives: Lough Oughter and Associated Loughs SAC 000007. Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000007.pdf

NPWS, (2018) Conservation Objectives: Lough Oughter Complex SPA (004049). Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004049.pdf

NPWS, (2018) Conservation Objectives: Slieve Beagh SPA (004167). Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004167.pdf

NRA, (2008). *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*. National Roads Authority, Dublin.

Ruddock, M., Mee, A., Lusby, J., Nagle, T., O'Neill, S. & O'Toole, L., (2016). The 2015 National Survey of Breeding Hen Harrier in Ireland. *Irish Wildlife Manuals,* No. 93. National Parks and Wildlife Service, Departments of the Arts, Heritage and the Gaeltacht, Ireland.

PLATES

Plate 1 Typical drumlin landscape of Improved Agricultural Grassland and hedgerows at the proposed wind farm site (June 2019).

Plate 2 Whooper Swans at Annagose lough in February 2019. The highest number of Whooper Swans were recorded here, at 60 individuals.

Plate 3 Some of the 51 Whooper Swans present in an agricultural field adjacent to Annagose Lough during March 2019.

Plate 4 Some of the Golden Plover flock that were recorded at vantage point 3 during March 2019.

Plate 5 Some of the Golden Plover flock that were recorded at vantage point 3 during December 2018.

Plate 6 Great Crested Grebes (including chicks) at Lough Long during June 2019.

APPENDIX 1 SITE SYNOPSES

Site Name: Upper Lough Erne SPA
Site Code: UK9020071

Upper Lough Erne Lough is situated in Co. Fermanagh in the west of Northern Ireland. It is a very large and complex freshwater system. A series of flooded drumlins in the course of the River Erne give rise to a complex of islands, bays and many lakes bordered by damp pastures, fens, reedswamp and alder/willow carr and oak woodland.

The Special Protection Area site boundary is entirely coincident with the composite boundary of the following Areas of Special Scientific Interest:

- Corraslough Point
- Finn Floods
- Killymackan Lough
- Upper Lough Erne - Crom
- Upper Lough Erne -Trannish
- Dernish Island
- Inishroosk
- Upper Lough Erne - Belleisle
- Upper Lough Erne - Galloon

The site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting internationally important numbers of wintering Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to 1995/96 was 352 which comprises 2 % of the international Icelandic population). Upper Lough Erne provides a core protected area for Whooper Swans in the region of Northern Ireland, there being interchange between the swans using protected areas and those ranging more widely on surrounding farmland.

Upper Lough Erne contributes to the maintenance of the geographic range of the Annex 1 Greenland White-fronted Goose *Anser albifrons flavirostris* population of Northern Ireland through supporting regionally important numbers.

Upper Lough Erne also supports an important assemblage of breeding birds which includes Common Tern *Sterna hirundo* and has in the past supported breeding Corncrake *Crex crex*. Both are Annex 1 species. Other migratory birds breeding on the site include Great Crested Grebe *Podiceps cristatus* (100 pairs - 3 % of Irish population) and important concentrations of three species of waders which are declining elsewhere, Curlew *Numenius arquata*, Snipe *Gallinago gallinago*, and Redshank *Tringa totanus*.

Nationally important wintering wildfowl species, many of which are migratory, include Great Crested Grebe *Podiceps cristatus*, Cormorant *Phalacrocorax carbo*, Mute Swan *Cygnus olor*, Tufted Duck *Aythya fuligula*, Wigeon *Anas penelope*, Teal *Anas crecca*, Goldeneye *Bucephala clangula*, Coot *Fulica atra*, Mallard *Anas platyrhynchos*, Snipe *Gallinago gallinago*, Curlew *Numenius arquata* and Redshank *Tringa totanus*.

Site Name: Upper Lough Erne SAC
Site Code: UK0016614

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals.

The site regularly supports large numbers of over-wintering and breeding birds important in an all-Ireland context in addition to internationally important numbers of wintering Whooper Swan Cygnus cygnus, which has been recognised by its SPA designation.

Site Name: Lough Oughter and Associated Loughs SAC
Site Code: 000007

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding.

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

- [3150] Natural Eutrophic Lakes
- [91D0] Bog Woodland*
- [1355] Otter (Lutra lutra)

As well as the habitats and species listed above, the site also contains areas of dry woodland, marsh, reedbed and wet pasture.

Drainage within the area is inefficient and the water levels are prone to natural fluctuation as a result. The regularly flooded areas still accommodate a variety of specialist plant species such as Amphibious Bistort (*Polygonum amphibium*) and Marsh Foxtail (*Alopecurus geniculatus*), as well as rarer species such as Needle Spikerush (*Eleocharis acicularis*) and Lesser Marshwort (*Apium inundatum*).

The lakes and basins are shallow, and the water well mixed and nutrient rich (eutrophic). The aquatic flora is varied with several pondweed species such as Bluntleaved Pondweed (*Potamogeton obtusifolius*), Shining Pondweed (*Potamogeton lucens*), Broad-leaved Pondweed (*Potamogeton natans*), Reddish Pondweed (*Potamogeton alpinus*) and Various-leaved Pondweed (*Potamogeton gramineus*). Typical in the zone of aquatic plants are Yellow Water-lily (*Nuphar lutea*), Canadian Pondweed (*Elodea canadensis*), Mare's-tail (*Hippuris vulgaris*), Water Milfoil (*Myriophyllum spicatum*),

Brooklime (*Veronica beccabunga*), Water-dropwort species (*Oenanthe* spp.) and Waterstarwort (*Callitriche* sp.). The aquatic community includes species of limited distribution in Ireland such as the Duckweed species Lemna gibba and Spirodela polyrhiza.

Around much of the shoreline there are well developed swamp and marsh communities, typically with a zone of Common Club-rush (*Scirpus lacustris*) in front of a zone of Common Reed (*Phragmites australis*) which is in turn backed by a more species-rich zone of sedges, grasses and herbs, particularly Bottle Sedge (*Carex rostrata*), Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*), Water Plantain (*Alisma plantago-aquatica*), Rough Horsetail (*Equisetum hyemale*), Water Horsetail (*Equisetum fluviatile*) and Wild Angelica (*Angelica sylvestris*). Less widespread species also occur on the wet lake margins; species such as Marsh Helleborine (*Epipactis palustris*), Water Dock (*Rumex hydrolapathum*), Greater Water-parsnip (*Sium latifolium*), Cowbane (*Cicuta virosa*), Tufted-sedge (*Carex elata*), Water Soldier (*Stratiotes aloides*), Arrowhead (*Sagittaria sagittifolia*), Flowering Rush (*Butomus umbellatus*) and Greater Spearwort (*Ranunculus lingua*) may be locally prominent.

There are many variations on this typical zonation of sheltered shores with species such as Bulrush (*Typha* sp.), Branched Bur-reed (*Sparganium erectum*) and Reed Canary-grass (*Phalaris arundinacea*) gaining local prominence. More exposed shores lack the extensive swamp zones; here smaller species such as Common Spike-rush (*Eleocharis palustris*) can be found.

Level, wet pastures tend to be dominated by Creeping Bent and rushes (*Juncus* spp.) with a scattering of marshland and wet grassland plants such as Marsh-marigold (*Caltha palustris*), Water Forget-me-not (*Myosotis scorpioides*) and Yellow Iris (*Iris pseudacorus*). Soft Rush (*Juncus effusus*) is most abundant with frequent Hard Rush (*Juncus inflexus*) and Sharp-flowered Rush (*Juncus acutiflorus*), and less widespread Conglomerate Rush (*Juncus conglomeratus*) also occurring.

Where a general lack of grazing pressure or a particular slope has allowed it, deciduous woodland has re-established itself behind the reedbeds. Two species of Willow (*Salix caprea* and *S. cinerea*) are common constituents, along with Alder (*Alnus glutinosa*), Downy Birch (*Betula pubescens*), Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*). Along submerged margins Alder and Willow are most commonly found with a flooded understorey typically containing Reed Canarygrass, Meadow Sweet, Yellow Iris and in places Tufted-sedge and Greater Tussocksedge (*Carex paniculata*). Downy Birch occurs along lake edges and also forms stands of wet woodland on cutover bog with varying degrees of wet and dry peat. Purple Moor-grass (*Molinia caerulea*), Marsh Cinquefoil (*Potentilla palustris*) and bog mosses (*Sphagnum* spp.) occur in areas with pools and dry areas. Where there is dry peat, Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus* agg.) and gorse (*Ulex* sp.) occur under the birch canopy. Birch dominated wood is also found in association with Heather (*Calluna vulgaris*) bog.

In areas of wet bog with good Sphagnum cover, bog woodland has developed. Downy Birch characterises this habitat; other typical species include Purple Moorgrass and Bottle Sedge.

Dry broadleaved woodland is characterised by Ash (*Fraxinus excelsior*), Hazel, Holly (*Ilex aquifolium*) and Oak (*Quercus* spp.), while shrubs include Blackthorn (*Prunus spinosa*), Spindle (*Euonymus europaeus)* and Guelder-rose (*Viburnum opulus*). The Red Data Book species Bird Cherry (*Prunus padus*) has also been recorded from the site.

The clayey soils have a characteristic flora, including Wood Avens (*Geum urbanum*), Wood-sorrel (*Oxalis acetosella*), Primrose (*Primula vulgaris*), Herb-Robert (*Geranium robertianum*) and Wood-sedge (*Carex sylvatica*).

The site supports a substantial population of water birds including internationally important numbers of Whooper Swan (average peak 231) and nationally important numbers of Tufted Duck (average peak 247) and Cormorant (average peak 130), as well as important numbers of species such as Greenland White-fronted Goose, Great Crested Grebe, Wigeon, Teal and Pochard. Lapwing, Snipe and Golden Plover also utilise the wet grassland areas. Wildfowl Sanctuaries exist at Inchin Lough, Derrygid Lough, Farnham Lough, Derrybrick Lough, Derrinishbeg Lough and Annagh Lough. Part of the site is designated a Special Protection Area (SPA) under the E.U. Birds Directive.

Otter, a species listed on Annex II of the E.U. Habitats Directive, occurs at the site. Irish Hare has also been recorded. Both of these species are listed in the Irish Red Data Book and are legally protected under the Wildlife Act, 1976.

The main threats to the quality of the site are water polluting activities (such as runoff from fertiliser and slurry application, and sewage discharge) which have raised the nutrient status of some lakes to hypertrophic. Housing and boating developments are on the increase, both adjacent to and within the site. There is also significant fishing and shooting pressure on and around the lakes. Increased afforestation has resulted in some loss of wetland habitat and also loss of feeding ground for wintering birds such as Greenland White-fronted Goose.

The Lough Oughter area contains important examples of two habitats listed on Annex I of the E.U. Habitats Directive and supports a population of the Annex II species, Otter. The site as a whole is the best inland example of a flooded drumlin landscape in Ireland and has many rich and varied biological communities. Nowhere else in the country does such an intimate mixture of land and water occur over a comparable area, and many of the species of wetland plants, some considered quite commonplace in Lough Oughter and its associated loughs, are infrequent elsewhere.

Site Name: Lough Oughter Complex SPA
Site Code: 004049

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Co. Cavan between Belturbet, Killashandra and Cavan town. This area comprises a maze of waterways, islands, small lakes and peninsulas. Lough Oughter, the largest lake in the site, is relatively shallow (maximum depth of 10 m) and considered to be a naturally eutrophic system. Its main inflowing rivers are the River Erne and the Annalee River, whilst the main outflow is the River Erne, which connects the lake to Upper Lough Erne and Lower Lough Erne to the north.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Whooper Swan, and Wigeon. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Lough Oughter Complex is of importance for a range of wintering waterfowl. Of particular note is an internationally important population of Whooper Swan (318) that is based in the area and which uses the lakes as a roost - all figures are five year mean peaks for the period 1995/96 to 1999/2000. A population of Greenland White-fronted Goose (75) of regional importance also roosts on the lakes and feeds mainly on agriculturally improved grassland nearby. The site supports nationally important

wintering populations of two species, Great Crested Grebe (89) and Wigeon (903). Other species which occur regularly include Mute Swan (139), Teal (220), Mallard (336), Pochard (58), Tufted Duck (105), Goldeneye (117), Lapwing (381), Curlew (33), Little Grebe (8), Cormorant (81) and Black-headed Gull (311). A small colony of Common Tern occurs (10 pairs recorded at Farnham Lough in 1995).

Lough Oughter is at the centre of the Irish breeding range of Great Crested Grebe and the site supports in excess of 10% of the estimated national breeding total of this species (115 individuals in 1986-88).

The Lough Oughter Complex SPA is of ornithological importance for its wintering waterbird populations. Of particular note is the internationally important population of Whooper Swan that is based in the area. The site also supports nationally important populations of a further two wintering species. Two of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan and Greenland White-fronted Goose. Lough Oughter is a Ramsar Convention site and a Wildfowl Sanctuary.

Site Name: Slieve Beagh SPA / Slieve Beagh – Mullaghfad – Lisnaskea SPA
Site Code: 004167 / UK9020302

The Slieve Beagh SPA comprises much of the eastern and south-eastern sectors of the Slieve Beagh upland area that extends from County Monaghan into Northern Ireland.

Mountain blanket bog is well developed at the higher altitudes and especially at Eshbrack (peak of 365 m). The vegetation is largely dominated by Deergrass (*Scirpus cespitosus*), Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Common Cottongrass (*E. angustifolium*), Crowberry (*Empetrum nigrum*) and a range of mosses such as *Sphagnum capillifolium, S. papillosum, S. tenellum* and *Hypnum cupressiforme*. Elsewhere the bog is mostly cutover and there are also wet and dry heaths present. In total, bog and heath occupies 43% of the site. The mid-slopes are afforested (40% of site), with plantations of various ages (open canopy, closed canopy, clear-fell). The remainder of the site is rough or marginal grassland (16%). Some of the old field systems support species-rich wet grassland vegetation dominated by Soft Rush (*Juncus effusus*). Several small dystrophic lakes are present within the site.

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

The site is one of the strongholds for Hen Harrier in the country. A survey in 2005 recorded four pairs, representing over 1.9% of the all-Ireland total. However, when the Northern Ireland sector of Slieve Beagh is considered, there was a total of 10 breeding pairs in 2005. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site also supports breeding Merlin, with two pairs recorded in 2002-03. Further survey is required to determine the exact status of this small falcon. Red Grouse is found in unplanted areas of bog and

heath – this is a species that has declined in Ireland and is now Red-listed. Peregrine nest in the Northern Ireland sector of Slieve Beagh and can be seen over the site at times.

Slieve Beagh SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The presence of three species, Hen Harrier, Merlin and Peregrine, which are listed on Annex I of the E.U. Birds Directive is of note.

APPENDIX 2 SCREENING FOR APPROPRIATE ASSESSMENT

Ecofact (2019a) *Drumlins Park Wind Farm Screening for Appropriate Assessment*. A Report to Galetech Energy Services, October 2019. Ecofact Environmental Consultants Ltd.

Drumlins Park Wind Farm

SCREENING FOR APPROPRIATE ASSESSMENT

Version: 22nd October 2019

Tait Business Centre, Dominic Street,
Limerick City, Ireland.
t. +353 61 419477, f. +353 61 414315
e. info@ecofact.ie
w. www.ecofact.ie

EXECUTIVE SUMMARY

The current document is a 'Screening for Appropriate Assessment' for the proposed Drumlins Park Wind Farm located near Newbliss, Co. Monaghan. The proposed development will involve the construction of a wind farm, associated road upgrades for the transport of turbine components, a grid connection route and all associated ancillary development. While three grid connection route options have been put forward for assessment, only one will be constructed. This report assesses whether this project is likely to have a significant effect on the Natura 2000 site network.

The proposed Drumlins Park Wind Farm is not located within any SAC or SPA. The closest SPA is the Upper Lough Erne SPA, which is located c. 5km from the development at its closest point, which is the grid connection route Option G1. The proposed development also has weak downstream hydrological connections with the following Natura 2000 Sites: Lough Oughter and Associated Loughs SAC, Upper Lough Erne SAC and Lough Oughter Complex SPA. The cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA is located c. 8.3km from the development at its closest point, which is the most northerly point of the grid connection route option to Clones (Option G1), as can be seen in Figure 1. It is also noted that a number of proposed temporary road upgrades are located within approximately 10km from the SPA at its nearest point.

There is no potential for direct impacts on the Natura 2000 network as the proposed development is not located within any SAC or SPA. There is a weak hydrological pathway for potential indirect construction phase water quality impacts affecting the Lough Oughter and Associated Loughs SAC, Upper Lough Erne SAC and Lough Oughter Complex SPA. The potential operational phase impacts regarding collision with overhead wires and wind turbines requires consideration due to the Whooper Swan populations located in the Upper Lough Erne SPA and the Lough Oughter Complex SPA. Although it is unlikely that Hen harriers would be affected by the proposed development due to distance, the cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA will be assessed due to its relative proximity to aspects of the project.

From examination of the best available scientific information, it is determined that the proposed Drumlins Park Wind Farm has the potential to give rise to likely significant indirect or cumulative impacts which would have the potential to affect the conservation interests of the Upper Lough Erne SPA and SAC, the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA and the cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA. For this reason, and based on a precautionary approach, this Screening for Appropriate Assessment has determined that a Stage 2 Appropriate Assessment (AA) and the preparation of a Natura Impact Statement (NIS) is required.

TABLE OF CONTENTS

1. INTRODUCTION

The current document provides a 'Screening for Appropriate Assessment' of the proposed Drumlins Park Wind Farm in Co. Monaghan. The proposed wind farm site is located south-west of Newbliss village in Co. Monaghan and is in close proximity to the Cavan / Fermanagh border. The proposed development will involve the construction of a wind farm, associated road upgrades for the transport of turbine components, a grid connection route and all associated ancillary development. While three grid connection route options have been put forward for assessment, only one will be constructed. The current report will take into account all three grid connection route options, and will assess the development at its maximum extent, applying the precautionary principle. This report assesses whether the proposed works at these locations is likely to have a significant effect on the Natura 2000 site network. The potential for significant effects upon the conservation objectives and qualifying interests (including habitats and species) within the designated areas are considered in the absence of the consideration of any measures intended to avoid or reduce adverse impacts (mitigation measures).

Appropriate Assessment is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project *may* give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) or the Birds Directive (2009). This report determines whether this development does or does not have the *potential* for effects on the Natura 2000 site network.

The current document was prepared following the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010) *'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities'* and the European Commission (2018) guidelines *'Managing Natura 2000 sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.*

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

(1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
(2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The current Screening report therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, may have significant effects on the Natura 2000 sites within the study area. The European Commission guidelines (2018) state that the procedure for appropriate assessment under Article 6(3) of the 'Habitats' Directive is not triggered by certainty but by the possibility of significant effects.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (Appropriate Assessment (AA)), where a Natura Impact Statement is required. When assessing the significance of potential effects, DoEHLG (2010) recommends that *"a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant".*

1.1 Consultation

The following bodies provided information for this report, via publically available sources:

- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC);
- Environmental Protection Agency (EPA).

Formal consultation was also undertaken with the NPWS.

1.2 Legislative context

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive'*, has been transposed into Irish law by The European Community (Natural Habitats) Regulations 1997 (S.I. No. 94/1997).

The 1997 Regulations were updated in 1998 by The European Communities (Natural Habitats) (Amendment) Regulations 1998 (S.I. No. 233/1998) to include Council Directive 97/62/EC which served to update Council Directive 92/43/EEC, adapting it to technical and scientific progress made in the intervening years.

The 1997 Regulations were again updated in 2005, by The European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378/2005). This amendment served to consolidate the main nature conservation legislation enacted in Ireland, meaning The Wildlife Act 1976, The Wildlife (Amendment) Act 2000, The European Communities (Natural Habitats) Regulations 1997, The European Communities (Natural Habitats) (Amendment) Regulations 1998, and to draw direct reference upon Council Directive (2009/147/EC) on the conservation of wild birds – '*The Birds Directive'*.

The Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs). It lists certain rare habitats (Annex I) and species (Annex II) whose conservation is of community interest. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

The European Communities (Birds and Natural Habitats) also updated the 1997 regulations in 2011 (S.I. No. 477/2011). This amendment consolidated the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing the transposition failures identified in judgments of the Court of Justice of the European Union (CJEU).

Article 6, paragraphs 3 and 4 of the Habitats Directive state that:

'6(3) 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.

6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

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

In addition, the European Court of Justice in Case C-127/02 (the *"Waddenzee Ruling"*) has made a relevant ruling in relation to Appropriate Assessment and this is reflected in the current assessment:

'Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects" and that the plan or project may only be authorised "where no reasonable scientific doubt remains as to the absence of such effects.' Therefore, a project or plan may only pass at the pre-assessment Screening stage if there is no reasonable scientific doubt remaining as to the absence of impacts on the Natura 2000 network.

In case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment. If mitigation measures are required to reduce or avoid a significant adverse effect, then Appropriate Assessment is required. In accordance with this judgement, avoidance or reduction mitigation measures have not been considered in this screening determination, even those measures which would be integral to the project design.

The European Commission guidelines (2018) states that the procedure for appropriate assessment under Article 6(3) of the 'Habitats' Directive is not triggered by certainty but by the likelihood of significant effects and such likelihood exists if significant effects on the site cannot be excluded. In Kelly –v- An Bord Pleanála 2013/802 High Court Judgement, it is stated that the *'possibility of there being a significant effect on the site will generate the need for an appropriate assessment for the purposes of Article 6(3).'*; and that there is no need to establish such an effect, it is only merely necessary to determine that there *may* be such an effect. The threshold at the first stage (screening) of Article 6(3) is therefore a very low one.

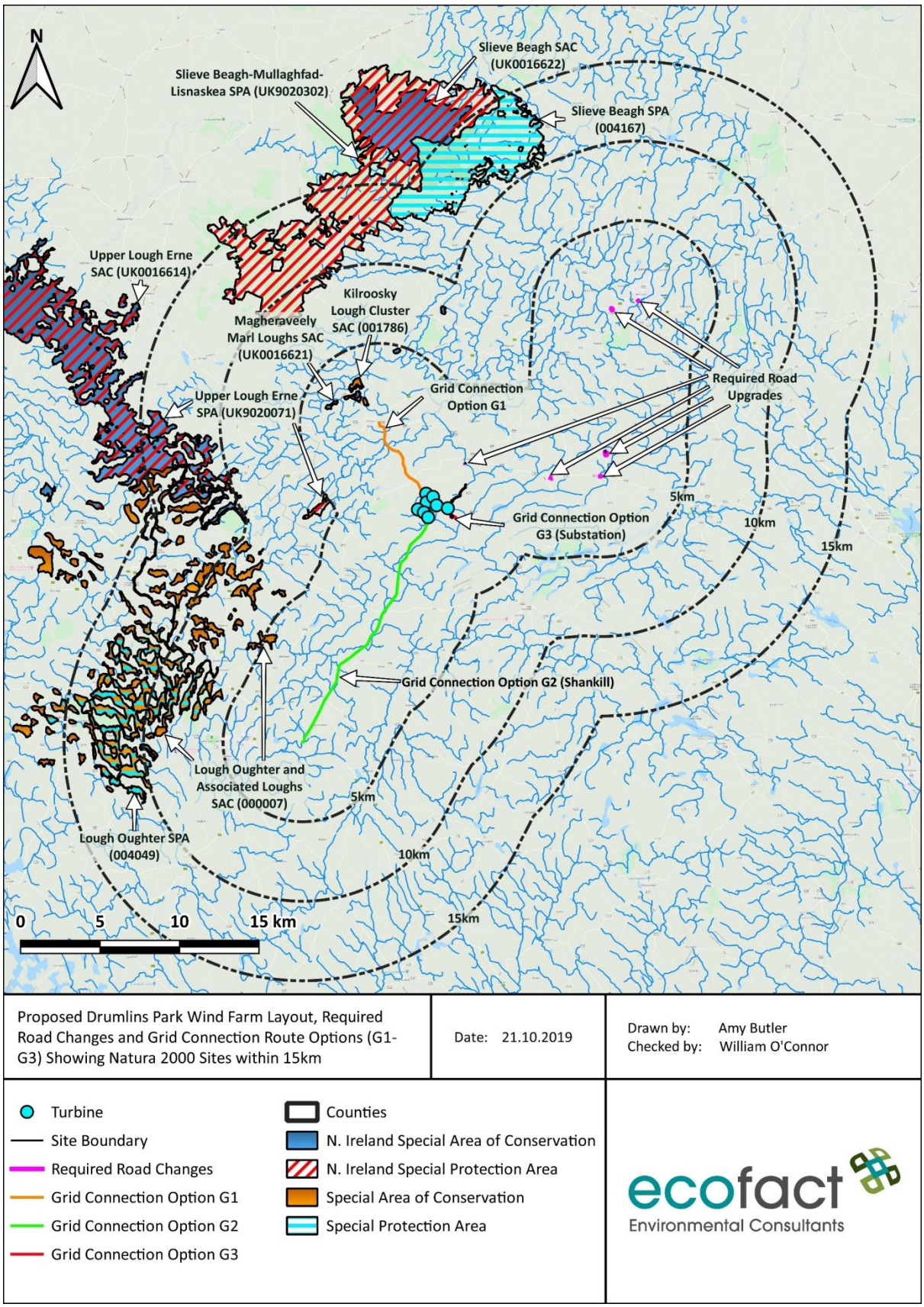


Figure 1 Proposed Drumlins Park Wind Farm Layout, Required Road Upgrades and Grid Connection Route Options (G1-G3) Showing Natura 2000 Sites within 15km.

2. METHODOLOGY

2.1 Desk study

A desktop study was undertaken to identify the extent and scope of the potentially affected designated Natura 2000 sites within the current study area in relation to the proposed development, including wind farm, grid connection route options and required road upgrades. The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area. Given the proximity of the proposed development to the international border with Northern Ireland, Natura 2000 sites with Northern Ireland form part of this transboundary screening assessment.

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of, the Environmental Protection Agency (EPA), NPWS and the Inland Fisheries Ireland (IFI) were also reviewed. Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed, and mapping software QGIS was utilised, to characterise the nature of proposed works and their location relative to the Natura 2000 network.

2.2 Assessment Methodology

This current pre-assessment Screening follows the guidance published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'*. Based on these guidelines, the Appropriate Assessment process is a four staged approach described below:

- *Stage One: Screening / Test of Significance* - the process which determines, giving reasoning and conclusions, both whether a plan or project is directly connected to or necessary for the management of the Natura 2000 site and whether this plan or project, either alone or in combination with other projects and plans, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives. Mitigation cannot be provided at this stage, as per case C-323/17 People Over Wind and Peter Sweetman v Coillte, ruling of the Court of Justice of the European Union (CJEU). The European Commission (2018) guidelines describe the first stage as the pre-assessment Screening;

- *Stage Two: Appropriate Assessment* - the consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

- *Stage Three: Assessment of Alternative Solutions* - the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and

- *Stage Four: Imperative Reasons of Overriding Public Interest (IROPI) / Derogation* - an assessment of compensatory measures where, in the light of an assessment of Imperative

Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The current report is a Screening Report and therefore makes a Stage One pre-assessment only.

According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:

1. **AA is not required.** Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.

2. **No potential for significant effects/AA is not required.** Screening establishes that there is no potential for significant effects (any effect) and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file.

3. **Significant effects are certain, likely or uncertain.** The plan or project **must either proceed to Stage 2 (AA), or be rejected**. Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. In Kelly –v- An Bord Pleanála 2013/802 High Court Judgement Ruling it is stated that the *'possibility of there being a significant effect on the site will generate the need for an appropriate assessment for the purposes of Article 6(3).'*; and that there is no need to establish such an effect, it is only merely necessary to determine that there *may* be such an effect. The threshold at the first stage (pre-assessment Screening) of Article 6(3) is therefore a very low one. Thus, in line with the precautionary principle, if the potential for any effect on the Natura 2000 network is identified at the pre-assessment Screening Stage, an Appropriate Assessment (and preparation of a Natura Impact Statement) must be undertaken.

The approach to screening is likely to differ somewhat for plans and projects, depending on scale and on the likely effects. It is stated in DoEHLG (2010) that any Natura 2000 site within or adjacent to the proposed development area as well as any Natura 2000 sites within the likely zone of impact should be included for assessment. A distance of 15km is currently recommended by DoEHLG (2010) to loosely define the zone of impact in the case of plans but the distance could be much less than 15km, and in some cases less than 100m: this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.

3. DESCRIPTION OF PROJECT CHARACTERISTICS

The proposal includes the construction of eight wind turbines and all ancillary infrastructure including access tracks, turbine foundations and hardstands, underground cabling and a permanent met mast. Three grid connection route options are also put forward, although only one will be constructed. These grid connection route options are Option G1, Option G2 and Option G3, and a description of each is given below.

- Option G1: Construction of a 38kV substation on the proposed development site and installation of a 38kV part overhead electricity line (OHL) and part underground electricity line

(UGL) to the existing Clones 38kV substation on the national grid, which lies approximately 5km to the northwest;

- Option G2: Construction of a 38kV substation on the proposed development site and installation of a 38kV OHL to the existing Shankill 110kV substation on the national grid, which is located approximately 16km to the southwest;
- Option G3: Construction of a 110kV substation approximately 500m to the south of the nearest turbine and connection to the existing Lisdrum to Shankill 110kV overhead line by way of approximately 500m of UGL and the erection of 2 no. strain towers.

Some minor road upgrades are also proposed to ensure that wind turbine components can be transported to the site, i.e. turbine blades etc. The proposed upgrade works comprise both permanent and temporary works. Temporary works will be undertaken at 13 no. locations between Dublin Port and the main site entrance and will generally comprise the temporary placing of hardcore at junctions/bends to increase the running width of the carriageway and temporary removal of street furniture to ensure the blade transporters can fit. Permanent works will be required at 5 no. locations, including a left-hand bend on the R188, a right-hand bend on the R188, a vertical crest on a right-hand bend on the R188, a right-hand bend on the R183 and a left-hand bend on the R189. These permanent works will involve the removal of roadside verges/banks and replacement with aggregates, the lowering of a crest on the R188, and the removal of a tree and lowering of a bridge wall.

4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

Article 6 assessments are required under the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (Special Areas of Conservation, here after referred to as SACs) because of the presence of habitats or species that are of European importance or the Birds Directive (Special Protection Areas, here after referred to as SPAs) based on the presence of internationally significant populations of bird species.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive: Whether a plan or project is directly connected to or necessary for the management of the site, and; Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The proposed development does not comply with the first screening test (i.e. the proposed works are not directly connected to or necessary for the management of any Natura 2000 site). This pre-assessment Screening therefore sets out to determine whether the development, alone or in combination with other plans and projects, *may* have significant effects on the Natura 2000 sites within the study area.

4.2 Natura 2000 sites considered for the proposed works

The location of the proposed development in the context of the Natura 2000 network is indicated in Figure 1.

Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) considered in the current screening are listed in Table 1. The proposed development is not located within any SAC or any SPA. The closest SPA is the Upper Lough Erne SPA, which is located c. 5km from the development at its closest point, which is the grid connection route Option G1. The cross-border Slieve Beagh/Slieve Beagh-Mullaghfad-Lisnaskea SPA is located c. 8.3km from the development at its closest point, which is the northern point of grid connection Option G1. The nearest SAC to the proposed development is the Kilroosky Lough Cluster SAC; however, there is no hydrological connection between the sites and no pathways for effects. The proposed development has downstream hydrological connections with the following Natura 2000 Sites: Lough Oughter and Associated Loughs SAC, Upper Lough Erne SAC and Lough Oughter Complex SPA.

Table 1 Summary details of the designated Natura 2000 sites within 15km of proposed development considered in the current screening.

Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
Upper Lough Erne SPA (UK9020071)	Whooper Swan *Cygnus cygnus* [A038]	Yes – pathways for impacts due to proximity with wind farm and grid connection routes.	*From Wind Farm:* 5.4km West; *From Road Upgrades* 8.8km South-west; *From closest grid option:* (Option G1) 5km South-west.
Kilroosky Lough Cluster SAC (001786)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – no hydrological connection or other pathway for impacts	*From Wind Farm:* 6.4km North-west; *From Road Upgrades:* 7.1km North-west; *From closest grid option:* (Option G1) 1.2km North.
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – no hydrological connection or other pathway for impacts	
	Alkaline fens [7230]	No – no hydrological connection or other pathway for impacts	
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – no hydrological connection or other pathway for impacts	
Magheraveely Marl Loughs SAC (UK0016621)	Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]	No – no hydrological connection or other pathway for impacts	*From Wind Farm:* 7.1km North-west; *From Road Upgrades:* 7.9km North-west; *From closest grid option:* (Option G1) 2km North-west.
	White-clawed Crayfish *Austropotamobius pallipes* [1092]	No – no hydrological connection or other pathway for impacts	
	Alkaline fens [7230]	No – no hydrological connection or other pathway for impacts	
	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	No – no hydrological connection or other pathway for impacts	
Lough Oughter and associated	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type	Yes – downstream hydrological connection and therefore a pathway for impacts	*From Wind Farm:* 9.6km South-west; *From Road*

Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
Loughs SAC (000007)	vegetation [3150]		*Upgrades:* 13.8km South-west; *From closest grid option:* (Option G2) 4.3km West.
	Bog Woodland [91D0]	No – terrestrial habitat located a far distance from the footprint of the works – no pathway	
	Otter *Lutra lutra* [1355]	Yes – downstream hydrological connection and therefore a pathway for impacts	
Upper Lough Erne SAC (UK0016614)	Natural Eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation [3150]	Yes – downstream hydrological connection and therefore a pathway for impacts	*From Wind Farm:* 10.5km West; *From Road Upgrades:* 14.1km North-west; *From closest grid option:* (Option G1) 10km West.
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	No – terrestrial habitat located a far distance from the footprint of the works – no pathway	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-padion, Alnion incanae, Salicion albae*) [91E0]	No – terrestrial habitat located a far distance from the footprint of the works – no pathway	
	Otter *Lutra lutra* [1355]	Yes – downstream hydrological connection and therefore a pathway for impacts	
	Bog woodland [91D0]	No – terrestrial habitat located a far distance from the footprint of the works – no pathway	
	Alkaline fens [7230]	Yes – downstream hydrological connection, although impacts are unlikely - will be included in current screening using the precautionary principle	
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinia caerulea)* [6410]	Yes – downstream hydrological connection, although impacts are unlikely - will be included in current screening using the precautionary principle	
Slieve Beagh-Mullaghfad-Lisnaskea SPA (UK9020302)	Hen harrier *Circus cyaneus* [A082]	Yes – although not in close proximity to works will be included in current screening using the precautionary principle	*From Wind Farm:* 13.5km North; *From Road Upgrades:* 14.1km North; *From closest grid option:* (Option G1) 8.3km North.
Lough Oughter Complex SPA (004049)	Great Crested Grebe *Podiceps cristatus* [A005]	Yes – pathways for impacts and downstream hydrological connection	*From Wind Farm:* 16.4km South-west; *From Road Upgrades:* 20.7km South-west; *From closest grid option:* (Option G2) 6.8km West.
	Whooper Swan *Cygnus cygnus* [A038]	Yes – pathways for impacts due to proximity with grid connection routes.	
	Wigeon *Anas penelope* [A050]	Yes – pathways for impacts and downstream hydrological connection	
	Wetland and Waterbirds [A999]	Yes – pathways for impacts and downstream hydrological connection	
Slieve Beagh	Hen harrier *Circus*	Yes – although not in close proximity to	*From Wind Farm:*

Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
SPA (004167)	*cyaneus* [A082]	works will be included in current screening using the precautionary principle	17.5km North; *From Road Upgrades:* 10.3km North-west; *From closest grid option:* (Option G1) 13km North.
Slieve Beagh SAC (UK0016622)	Natural dystrophic lakes and ponds [3160]	No – no downstream hydrological connection and no pathways for impacts	*From Wind Farm:* 20.5km North; *From Road Upgrades:* 14.5km North-west; *From closest grid option:* (Option G1) 16.3km North.
	Blanket bogs [7130]	No – no downstream hydrological connection and no pathways for impacts	
	European Dry Heaths [4030]	No – no downstream hydrological connection and no pathways for impacts	

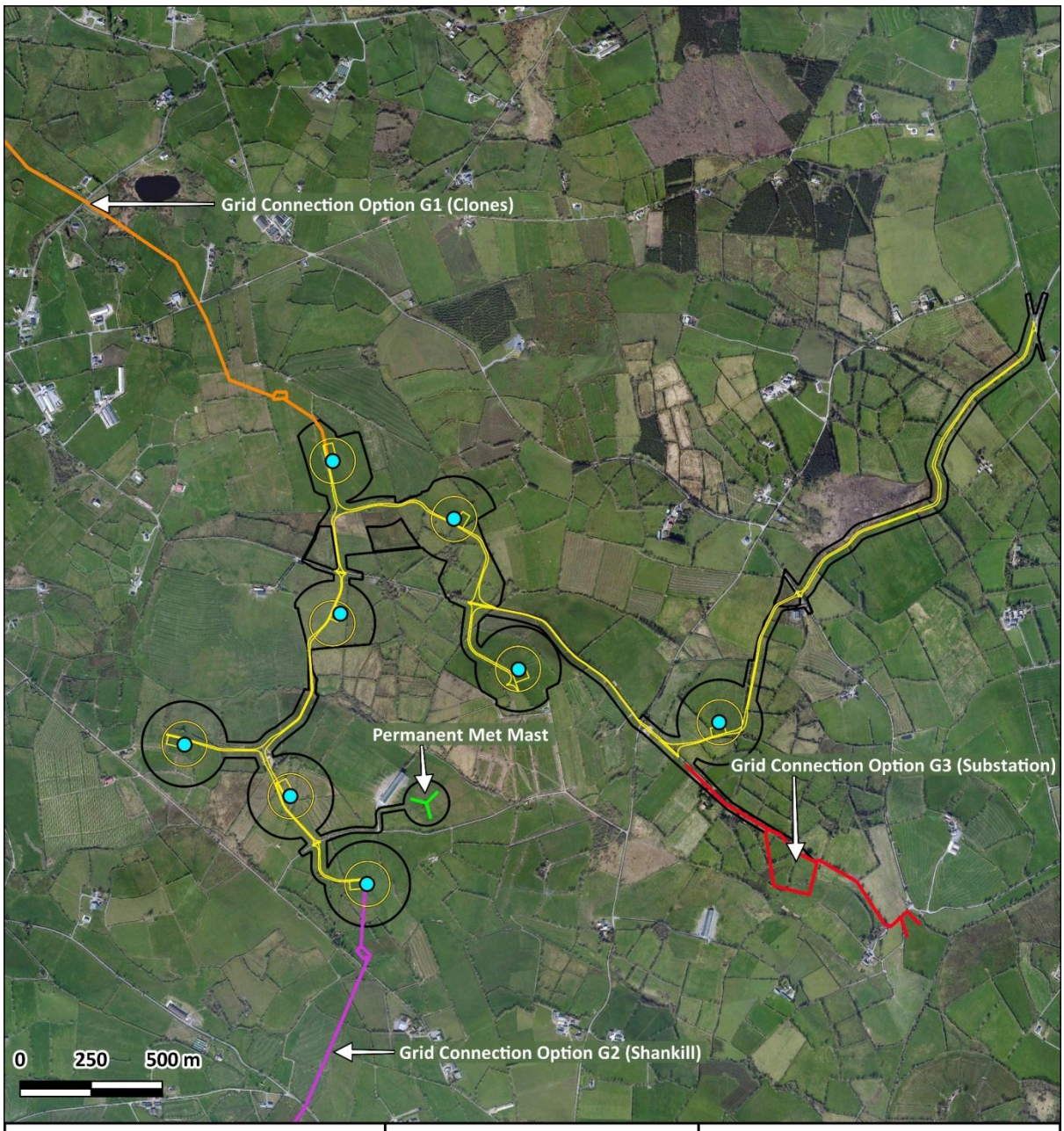


Figure 2 Location of the Proposed Drumlins Park Wind Farm Indicating Grid Connection Route Options.

5. ASSESSMENT OF EFFECTS

The potential direct, indirect and cumulative impacts on Natura 2000 sites identified in Section 4 resulting from the proposed development are discussed below.

5.1 Assessment of potential direct impacts affecting the Natura 2000 site

5.1.1 Construction Phase

The proposed development is located outside of the Natura 2000 network and therefore will not result in any direct construction phase impacts on any designated area.

5.1.2 Operational Phase

The proposed development is located outside of the Natura 2000 network and therefore will not result in any direct operational phase impacts on any designated area.

5.2 Assessment of potential indirect impacts affecting the Natura 2000 site

5.2.1 Construction Phase

The Lough Oughter and Associated Loughs SAC (Site Code: 000007) is located c. 4.8 rkm (river km) downstream of the proposed development at its closest point, which is the grid connection route Option G2. Option G2 also crosses, via overhead line (OHL), the River Annalee which discharges into the SAC. Therefore, there is a hydrological pathway for potential indirect water quality impacts affecting the lake habitat and otters for which this SAC is designated. There is also a downstream hydrological connection with the Lough Oughter Complex SPA (Site Code: 004049), via the same watercourse c. 12rkm downstream. There is also hydrological connection to the Upper Lough Erne SAC (UK0016614) via the River Finn [Monaghan] (c.16rkm downstream) over which grid connection Option G1 passes. As with any development site, construction activities can give rise to an increase in suspended solids from ground clearance / excavation works and run-off, along with the potential for accidental spillages of oil / fuel from machinery. It is noted that due to distance, it is unlikely that any water quality impacts arising from the construction of grid connection Option G1would be significant.

The risk of the spread of non-native invasive species to Natura 2000 sites during the construction phase of the proposed development is not considered to have the potential to significantly affect any Natura 2000 site due to the separation distances involved.

5.2.2 Operational Phase

Due to the nature of the development, the Upper Lough Erne SPA (Site Code: UK9020071), the Slieve Beagh / Slieve Beagh – Mullaghfad – Lisnaskea SPA (Site Code: 004167/ UK9020302) and the Lough Oughter Complex SPA (Site Code: 004049) have the potential to be impacted by the operational phase of the development. These SPAs, at their closest points, are located 5km, 8.3km and 6.8km from the proposed development respectively. Whooper swans (Upper Lough Erne SPA and Lough Oughter Complex SPA) and Hen harriers (Slieve Beagh / Slieve Beagh–Mullaghfad–Lisnaskea SPA), which are the species of interest for which these SPAs have been designated, are particularly sensitive to wind energy developments and an assessment in relation to the implications on these Annex I species is required. Impacts which have the potential to arise during the operational phase concern collision risk with the operational wind turbines and overhead lines associated with the

respective grid connection options. Given that the proposed development *may* impact upon the qualifying interests of these SPAs, further assessment is required.

5.3 Assessment of potential cumulative impacts affecting the Natura 2000 site

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

The Natura 2000 Standard Data Form for the potentially affected SACs and SPAs list the threats and pressures having an impact on each Natura 2000 site. Power cables are noted as a threat to swans in the Upper Lough Erne SPA. The cross-border Slieve Beagh/Slieve Beagh–Mullaghfad–Lisnaskea SPA notes the main threats to Hen harriers as a loss of suitable habitat. The main threats and pressures for the Lough Oughter Complex SPA mainly concern habitat, water quality and recreational activities. The Lough Oughter and Associated Loughs SAC data form notes the main threats as invasive species and diffuse pollution, which is similar to the main threats noted in the Upper Lough Erne SAC. It is therefore considered that, given the presence of hydrological connectivity between the proposed development and SACs within the study area and the potential for collision between qualifying interests of SPAs in the study are and the proposed development, it is determined that there is the potential for in-combination impacts with existing pressures affecting these designated sites. These cumulative impacts are predominately related to water quality and collision risk due to power cables and wind turbines. As the potential for an impact has been identified, further assessment is required.

6. SCREENING STATEMENT WITH CONCLUSIONS

According to the guidance published by the DoEHLG (2010), Screening for Appropriate Assessment can either identify that an Appropriate Assessment is not required where a project / proposal is directly related to the management of the site; or that there is no potential for significant effects affecting the Natura 2000 network; or that significant effects are certain, likely or uncertain (i.e., the project must either proceed to Stage 2 (AA) or be rejected).

The pathways for potential impacts affecting the Upper Lough Erne SPA and SAC, the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA and the cross-border Slieve Beagh/Slieve Beagh–Mullaghfad–Lisnaskea SPA have been identified. There is the potential for water quality impacts during the construction phase affecting downstream SACs. Although it is unlikely these impacts would be significant, the potential has been identified and basic avoidance/reduction measures will be required. Measures may also be required to ensure the protection of bird species during the operation phase, specifically Whooper Swan, which cannot be provided in the pre-assessment screening stage.

From examination of the best available scientific information, it is therefore considered that the proposed Drumlins Park Wind Farm has the potential to give rise to indirect or cumulative impacts which may have the potential to affect the conservation interests of the Upper Lough Erne SPA and SAC, the Lough Oughter and Associated Loughs SAC, the Lough Oughter Complex SPA and the cross-border Slieve Beagh/Slieve Beagh–Mullaghfad–Lisnaskea SPA. For this reason, the current Screening for Appropriate Assessment has determined that the proposed development warrants

progression to a Stage 2 Appropriate Assessment and the production of a Natura Impact Statement (NIS).

REFERENCES

Bowers-Marriott, B., (1997). Practical Guide to Environmental Impact Assessment: *A Practical Guide.* Published by McGraw-Hill Professional, 1997, 320 pp.

DoEHLG, (2010) *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

European Commission, (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission Environment, Brussels. http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

European Commission, (2007). *Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interests, compensatory measures, overall coherence and opinion of the Commission.* European Commission, Brussels http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

European Commission (2018). Commission Notice: *'Managing Natura 2000 Sites. The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.* http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/Provisions_Art_._nov_2018_endocx.pdf

NIEA, (2015c). Slieve Beagh – Mullaghfad – Lisnaskea Special Protection Area (SPA) Conservation Objectives UK9020302. Northern Ireland Environment Agency, Belfast, United Kingdom. https://www.daera-ni.gov.uk/sites/default/files/publications/doe/slieve-beagh-mullaghfad-lisnaskea-SPA-conservation-objectives-2015.pdf

NIEA, (2015a). Upper Lough Erne Special Protection Area (SPA) Conservation Objectives UK9020071. Northern Ireland Environment Agency, Belfast, United Kingdom. https://www.daera-ni.gov.uk/sites/default/files/publications/doe/upper-lough-erne-spa-conservation-objectives-2015.pdf

NIEA, (2015b). Upper Lough Erne Special Area of Conservation (SAC). Conservation Objectives Uk0016614. Northern Ireland Environment Agency, Belfast, United Kingdom. https://www.daera-ni.gov.uk/sites/default/files/publications/doe/land-information-upper-lough-erne-conservation-objectives-2015.pdf

NPWS, (2017a) Natura 2000 Standard Data Form: Lough Oughter and Associated Loughs SAC (000007). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000007.pdf

NPWS, (2017b) Natura 2000 Standard Data Form: Lough Oughter Complex SPA (004049). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004049.pdf

NPWS, (2017c) Natura 2000 Standard Data Form: Slieve Beagh SPA (004167). National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004167.pdf

NPWS, (2018) Conservation Objectives: Lough Oughter and Associated Loughs SAC 000007. Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000007.pdf

NPWS, (2018) Conservation Objectives: Lough Oughter Complex SPA (004049). Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004049.pdf

NPWS, (2018) Conservation Objectives: Slieve Beagh SPA (004167). Generic Version 6.0. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004167.pdf

APPENDIX 1 NPWS Site Synopsis

SITE NAME: Lough Oughter and Associated Loughs SAC
SITE CODE: 000007

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes): [3150] Natural Eutrophic Lakes; [91D0] Bog Woodland*; [1355] Otter *Lutra lutra*.

As well as the habitats and species listed above, the site also contains areas of dry woodland, marsh, reedbed and wet pasture.

Drainage within the area is inefficient and the water levels are prone to natural fluctuation as a result. The regularly flooded areas still accommodate a variety of specialist plant species such as Amphibious Bistort (*Polygonum amphibium*) and Marsh Foxtail (*Alopecurus geniculatus*), as well as rarer species such as Needle Spikerush (*Eleocharis acicularis*) and Lesser Marshwort (*Apium inundatum*).

The lakes and basins are shallow, and the water well mixed and nutrient rich (eutrophic). The aquatic flora is varied with several pondweed species such as Bluntleaved Pondweed (*Potamogeton obtusifolius*), Shining Pondweed (*Potamogeton lucens*), Broad-leaved Pondweed (*Potamogeton natans*), Reddish Pondweed (*Potamogeton alpinus*) and Various-leaved Pondweed (*Potamogeton gramineus*). Typical in the zone of aquatic plants are Yellow Water-lily (*Nuphar lutea*), Canadian Pondweed (*Elodea canadensis*), Mare's-tail (*Hippuris vulgaris*), Water Milfoil (*Myriophyllum spicatum*), Brooklime (*Veronica beccabunga*), Water-dropwort species (*Oenanthe* spp.) and Waterstarwort (*Callitriche* sp.). The aquatic community includes species of limited distribution in Ireland such as the Duckweed species *Lemna gibba* and *Spirodela polyrhiza*.

Around much of the shoreline there are well developed swamp and marsh communities, typically with a zone of Common Club-rush (*Scirpus lacustris*) in front of a zone of Common Reed (*Phragmites australis*) which is in turn backed by a more species-rich zone of sedges, grasses and herbs, particularly Bottle Sedge (*Carex rostrata*), Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*), Water Plantain (*Alisma plantago-aquatica*), Rough Horsetail (*Equisetum hyemale*), Water Horsetail (*Equisetum fluviatile*) and Wild Angelica (*Angelica sylvestris*). Less widespread species also occur on the wet lake margins; species such as Marsh Helleborine (*Epipactis palustris*), Water Dock (*Rumex hydrolapathum*), Greater Water-parsnip (*Sium latifolium*), Cowbane (*Cicuta virosa*), Tufted-sedge (*Carex elata*), Water Soldier (*Stratiotes aloides*), Arrowhead (*Sagittaria sagittifolia*), Flowering Rush (*Butomus umbellatus*) and Greater Spearwort (*Ranunculus lingua*) may be locally prominent.

There are many variations on this typical zonation of sheltered shores with species such as Bulrush (*Typha* sp.), Branched Bur-reed (*Sparganium erectum*) and Reed Canary-grass (*Phalaris arundinacea*) gaining local prominence. More exposed shores lack the extensive swamp zones; here smaller species such as Common Spike-rush (*Eleocharis palustris*) can be found.

Level, wet pastures tend to be dominated by Creeping Bent and rushes (*Juncus* spp.) with a scattering of marshland and wet grassland plants such as Marsh-marigold (*Caltha palustris*), Water Forget-me-not (*Myosotis scorpioides*) and Yellow Iris (*Iris pseudacorus*). Soft Rush (*Juncus effusus*) is most abundant with frequent Hard Rush (*Juncus inflexus*) and Sharp-flowered Rush (*Juncus acutiflorus),* and less widespread Conglomerate Rush (*Juncus conglomeratus*) also occurring.

Where a general lack of grazing pressure or a particular slope has allowed it, deciduous woodland has re-established itself behind the reedbeds. Two species of Willow (*Salix caprea* and *S. cinerea*) are common constituents, along with Alder (*Alnus glutinosa*), Downy Birch (*Betula pubescens*), Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*). Along submerged margins Alder and Willow are most commonly found with a flooded understorey typically containing Reed Canarygrass, Meadow Sweet, Yellow Iris and in places Tufted-sedge and Greater Tussocksedge (*Carex paniculata).* Downy Birch occurs along lake edges and also forms stands of wet woodland on cutover bog with varying degrees of wet and dry peat. Purple Moor-grass (*Molinia caerulea*), Marsh Cinquefoil (*Potentilla palustris*) and bog mosses (*Sphagnum* spp.) occur in areas with pools and dry areas. Where there is dry peat, Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus* agg.) and gorse (*Ulex* sp.) occur under the birch canopy. Birch dominated wood is also found in association with Heather (*Calluna vulgaris*) bog.

In areas of wet bog with good Sphagnum cover, bog woodland has developed. Downy Birch characterises this habitat; other typical species include Purple Moorgrass and Bottle Sedge

Dry broadleaved woodland is characterised by Ash (*Fraxinus excelsior*), Hazel, Holly (*Ilex aquifolium*) and Oak (*Quercus* spp.), while shrubs include Blackthorn (*Prunus spinosa*), Spindle (*Euonymus europaeus*) and Guelder-rose (*Viburnum opulus*). The Red Data Book species Bird Cherry (*Prunus padus*) has also been recorded from the site.

The clayey soils have a characteristic flora, including Wood Avens (*Geum urbanum*), Wood-sorrel (*Oxalis acetosella*), Primrose (*Primula vulgaris*), Herb-Robert (*Geranium robertianum*) and Wood-sedge (*Carex sylvatica*).

The site supports a substantial population of water birds including internationally important numbers of Whooper Swan (average peak 231) and nationally important numbers of Tufted Duck (average peak 247) and Cormorant (average peak 130), as well as important numbers of species such as Greenland White-fronted Goose, Great Crested Grebe, Wigeon, Teal and Pochard. Lapwing, Snipe and Golden Plover also utilise the wet grassland areas. Wildfowl Sanctuaries exist at Inchin Lough, Derrygid Lough, Farnham Lough, Derrybrick Lough, Derrinishbeg Lough and Annagh Lough. Part of the site is designated a Special Protection Area (SPA) under the E.U. Birds Directive.

Otter, a species listed on Annex II of the E.U. Habitats Directive, occurs at the site. Irish Hare has also been recorded. Both of these species are listed in the Irish Red Data Book and are legally protected under the Wildlife Act, 1976.

The main threats to the quality of the site are water polluting activities (such as runoff from fertiliser and slurry application, and sewage discharge) which have raised the nutrient status of some lakes to hypertrophic. Housing and boating developments are on the increase, both adjacent to and within the site. There is also significant fishing and shooting pressure on and around the lakes. Increased afforestation has resulted in some loss of wetland habitat and also loss of feeding ground for wintering birds such as Greenland White-fronted Goose.

The Lough Oughter area contains important examples of two habitats listed on Annex I of the E.U. Habitats Directive and supports a population of the Annex II species, Otter. The site as a whole is the best inland example of a flooded drumlin landscape in Ireland and has many rich and varied biological communities. Nowhere else in the country does such an intimate mixture of land and water occur over a comparable area, and many of the species of wetland plants, some considered quite commonplace in Lough Oughter and its associated loughs, are infrequent elsewhere.

SITE NAME: Lough Oughter Complex SPA
SITE CODE: 004049

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Co. Cavan between Belturbet, Killashandra and Cavan town. This area comprises a maze of waterways, islands, small lakes and peninsulas. Lough Oughter, the largest lake in the site, is relatively shallow (maximum depth of 10 m) and considered to be a naturally eutrophic system. Its main inflowing rivers are the River Erne and the Annalee River, whilst the main outflow is the River Erne, which connects the lake to Upper Lough Erne and Lower Lough Erne to the north.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Whooper Swan, and Wigeon. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Lough Oughter Complex is of importance for a range of wintering waterfowl. Of particular note is an internationally important population of Whooper Swan (318) that is based in the area and which uses the lakes as a roost - all figures are five year mean peaks for the period 1995/96 to 1999/2000. A population of Greenland White-fronted Goose (75) of regional importance also roosts on the lakes and feeds mainly on agriculturally improved grassland nearby. The site supports nationally important wintering populations of two species, Great Crested Grebe (89) and Wigeon (903). Other species which occur regularly include Mute Swan (139), Teal (220), Mallard (336), Pochard (58), Tufted Duck (105), Goldeneye (117), Lapwing (381), Curlew (33), Little Grebe (8), Cormorant (81) and Black-headed Gull (311). A small colony of Common Tern occurs (10 pairs recorded at Farnham Lough in 1995).

Lough Oughter is at the centre of the Irish breeding range of Great Crested Grebe and the site supports in excess of 10% of the estimated national breeding total of this species (115 individuals in 1986-88). The Lough Oughter Complex SPA is of ornithological importance for its wintering waterbird populations. Of particular note is the internationally important population of Whooper Swan that is based in the area. The site also supports nationally important populations of a further two wintering species. Two of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan and Greenland White-fronted Goose. Lough Oughter is a Ramsar Convention site and a Wildfowl Sanctuary.

SITE NAME: SLIEVE BEAGH SPA
SITE CODE: 004167

The Slieve Beagh SPA comprises much of the eastern and south-eastern sectors of the Slieve Beagh upland area that extends from County Monaghan into Northern Ireland.

Mountain blanket bog is well developed at the higher altitudes and especially at Eshbrack (peak of 365 m). The vegetation is largely dominated by Deergrass (*Scirpus cespitosus*), Ling Heather

(*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Common Cottongrass (*E. angustifolium*), Crowberry (*Empetrum nigrum*) and a range of mosses such as *Sphagnum capillifolium, S. papillosum, S. tenellum* and *Hypnum cupressiforme*. Elsewhere the bog is mostly cutover and there are also wet and dry heaths present. In total, bog and heath occupies 43% of the site. The mid-slopes are afforested (40% of site), with plantations of various ages (open canopy, closed canopy, clear-fell). The remainder of the site is rough or marginal grassland (16%). Some of the old field systems support species-rich wet grassland vegetation dominated by Soft Rush (*Juncus effusus*). Several small dystrophic lakes are present within the site.

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

The site is one of the strongholds for Hen Harrier in the country. A survey in 2005 recorded four pairs, representing over 1.9% of the all-Ireland total. However, when the Northern Ireland sector of Slieve Beagh is considered, there was a total of 10 breeding pairs in 2005. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the E.U. Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site also supports breeding Merlin, with two pairs recorded in 2002-03. Further survey is required to determine the exact status of this small falcon. Red Grouse is found in unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed. Peregrine nest in the Northern Ireland sector of Slieve Beagh and can be seen over the site at times.

Slieve Beagh SPA is of ornithological importance because it provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The presence of three species, Hen Harrier, Merlin and Peregrine, which are listed on Annex I of the E.U. Birds Directive is of note.

SITE NAME: Upper Lough Erne SAC
SITE CODE: UK0016614

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals.

The site regularly supports large numbers of over-wintering and breeding birds important in an all-Ireland context in addition to internationally important numbers of wintering Whooper Swan Cygnus cygnus, which has been recognised by its SPA designation.

SITE NAME: Upper Lough Erne SPA
SITE CODE: UK9020071

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Wintering Whooper Swan generally utilise improved or semi-improved grassland close to water bodies used for roosting. Foraging in flooded fields and of emergent vegetation in shallower lakes is common.