FEHILY TIMONEY

DESIGNING AND DELIVERING A SUSTAINABLE FUTURE

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED LITTLETON WIND FARM, CO. TIPPERARY

Natura Impact Statement

Prepared for:

Littleton Wind Farm DAC

BnM | sse

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NATURA IMPACT STATEMENT

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Abstract: This document is to inform the Competent Authority in carrying out their statutory obligations relating to the Habitats Directive requirement for Appropriate Assessment for plans and projects seeking consent. Appropriate Assessment is required under Article 6 (3) of the Habitats Directive for any project or plan that may give rise to significant effects on a European (Natura 2000) site.

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1. INTRODUCTION

Fehily Timoney and Company (FT) was commissioned by Littleton Wind Farm DAC to prepare an Appropriate Assessment Screening Report and Natura Impact Statement for the proposed Littleton Wind Farm, Co. Tipperary. The project assessed in this report encompasses the following elements:

- The '*Proposed Wind Farm*' (also referred to in this EIAR as the 'Site');
- The '*Proposed Grid Connection*' (also referred to in this EIAR as the 'GC');
- The '*Turbine Delivery Route*' (also referred to in this EIAR as the 'TDR');
- The '*Biodiversity Management and Enhancement Plan Lands*' (also referred to in this EIAR as the 'BEMP Lands');

The current planning application for the Proposed Development concerns the Site, TDR and BEMP Lands. Consent for the proposed GC will be sought under a separate process. However, for the purposes of Appropriate Assessment, this report considers the development in its entirety, i.e. Site, TDR, BEMP and GC (referred to as the Project).

This report presents an examination of whether the Project is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is based on best available scientific knowledge. This report has been prepared to inform the competent authority in completing their statutory obligations in relation to Appropriate Assessment, as required by Article 6(3) under Council Directive 92/43/EEC (Habitats Directive).

1.1 Legislative Context

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

> *"6(3) Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

The competent authority must carry out a screening for appropriate assessment to assess, in view of best scientific knowledge, if the development, individually or in combination with another plan or project is likely to have a significant effect on the European site. If it cannot be excluded, on the basis of objective information, that the Project, individually or in combination with other plans or projects, will have a significant effect on a European site, an appropriate assessment of its implications for the European Site(s) in view of the Site's conservation objectives is required to be carried out.

The provisions of Article 6(3) do not apply where the proposed plan or project is 'connected with or necessary to the management of the site'. In this case, the Project is not directly connected with or necessary to the management of any European site(s).

1.2 Statement of Authority

This report has been prepared by Ben O'Dwyer and reviewed by Rita Mansfield (Fehily Timoney Ecologists).

Ben O'Dwyer is a senior project ecologist with Fehily Timoney (FT) and has 9 years' experience in ecological assessment and holds a BSc in Wildlife Biology from Institute of Technology Tralee. Ben has prepared Appropriate Assessment Screening reports and Natura Impact Statements for numerous large scale infrastructure projects in the commercial, energy, waste management and transport sectors.

Rita Mansfield is an experienced Ecologist and Associate Director at FT. She holds a BSc.(Hons) in Applied Ecology and a H. Dip Environmental Protection and Pollution Control and is experienced as a technical ecology lead within the environmental and planning services sector. Rita has 22 years' experience specialising in statutory consent and environmental assessment for large scale public infrastructure projects in the energy, water (including flood relief schemes) and transport sectors.

Personnel who carried out ecological field survey which informed the NIS are listed hereunder and the full CVs, qualifications and experience of these field surveyors are presented in Appendix 1.1 of the EIAR:

- Ben O'Dwyer
- Yumi Mihara
- Shannon Burke
- Ross Macklin
- Bill Brazier
- Adrian Allen
- Brian Porter
- Gyr Penn
- Kevin Collins
- Lorraine Benson
- Mara Van Aelst
- Stephen King

1.3 Methodology

1.3.1 Guidance

The assessment was conducted in accordance with the following guidance:

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (European Commission, 2002).
- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Commission Notice (2021) Brussels, 28.9.2021 C(2021) 6913 final (European Commission, 2021).
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin (2009, updated 2010) (Environment Heritage and Local Government, 2009).
- Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission (2019). Brussels, (2019/C 33/01). OJ C 33, 25.1.2019.
- Interpretation Manual of European Union Habitats. Version EUR 28. (European Commission, 2013)
- OPR Practice Note PN01 Appropriate Assessment Screening for Development Management, (Office of the Planning Regulator, 2021).
- Atkinson, S., Magee, M., Moorkens, E.A. & Heavey, M. (2024). Guidance on Assessment and Construction Management in Margaritifera Catchments in Ireland. https://e-mussels.eu/europe/conservation-guidelines

Ecological field survey was conducted in accordance with the following guidelines:

- Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Version 1.1)' (CIEEM, 2018 and revisions);
- Best Practice Guidance for Habitat Survey and Mapping (Smith *et al*., 2011);
- 'PE-ENV-01112 - Guidelines for the Assessment of Ecological Impacts of National Road Schemes' (TII/NRA, 2009);
- PE-ENV-01113 - Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (TII/NRA, 2008);
- Chanin P (2003) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough, and National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76 (Reid, et al., 2013);
- 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (Environment Agency, 2003);
- 'Recommended bird survey methods to inform impact assessment of onshore windfarms (SNH, 2017)'.

1.3.2 Process

The process of determining the likelihood of significant effects from a Project on European sites is an iterative process centred around a Source-Pathway-Receptor model. In order for an effect to be established, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance.

- Source(s) – e.g., pollutant run-off, noise, removal of vegetation, etc.;
- Pathway(s) – functional link, or ecological pathway e.g., groundwater connecting to nearby qualifying wetland habitats; and,
- Receptor(s) –the qualifying habitats and species of European sites and ecological resources supporting those habitats/species.

In the context of this report, a source is any identifiable element of the Project that is known to interact with the receiving environment. A receptor is the Qualifying Interests (QI)[1] for an SAC or Special Conservation Interests (SCI)[2] for an SPA or an ecological feature that is known to be utilised by the QI/SCI. In practice, the term Qualifying Interests also applies to SCIs (and is used in this document for simplicity). A pathway is any connection or link between the source and the receptor.

The assessment commences with a description of the Project, along with a description of the receiving environment and the associated sources for impacts to the receiving environment. All elements of the Project are presented including the location and existing baseline environment. The type of impacts that are likely due to the development (Source) are identified having regard to the spatial and temporal scale of the project, resource requirements and likely emissions. These sources are then used to define the zone of influence (ZoI) of the project as detailed in Section 2.3.

The European Commission Notice (2021) on the 'Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC, states that in identifying European sites (Natural 2000 sites), which may be affected by the project, the following should be identified:

- Any European sites geographically overlapping with any of the actions or aspects of the plan or project in any of its phases, or adjacent to them;
- Any European sites within the likely zone of influence of the plan or project. European sites located in the surroundings of the plan or project (or at some distance) that could still be indirectly affected by aspects of the project, including as regards the use of natural resources (e.g., water) and various types of waste, discharge or emissions of substances or energy;
- European sites whose connectivity or ecological continuity can be affected by the plan or project.

[1] SACs are areas designated under the Habitats Directive to conserve habitats listed in Annex I of the Directive and plant and animal species listed in Annex II. Collectively these are referred to as the 'Qualifying Interests' or 'QIs' of the SAC.
[2] SPAs are sites classified under the Birds Directive to protect rare or vulnerable bird species listed in Annex I to the Directive as well as regularly occurring migratory species and wetlands. Wetland habitats that support internationally important populations of migratory birds may be coastal or inland. Collectively, these species and habitats are referred to as the 'Special Conservation Interests' of the SPA.

The zone of influence of a Project is the geographical area over which it could affect the receiving environment in a way that could have potential effects on the Qualifying Interests of a European site. The OPR (2021) practice note states that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor (S-P-R) framework and not by arbitrary distances (such as 15 km). Section 3.2 sets out the detailed rationale for the identification of relevant European sites within the ZoI based on the sources of impacts arising from the Project. Subsequently, an assessment is undertaken with respect to potential connectivity (Pathways) to European Sites and their qualifying interests/special conservation interests are identified.

The potential for in-combination effects with other plans and projects is examined in Section 3.3, having regard to the identified impacts of the Project along the ecological pathways identified to European sites.

In section 3.4 the likelihood of significant effects on the European Sites within the ZoI is examined having regard to the sensitivity of the site with pathways for impacts associated with the Project on its own and in combination with other plans and projects.

Having regard to the European Commission Communication on the Precautionary Principle (European Commission, 2021) the:

> *"absence of scientific evidence on the significant negative effect of an action cannot be used as justification for approval of this action. When applied to Article 6(3) procedure, the precautionary principle implies that the absence of a negative effect on Natura 2000 sites has to be demonstrated before a plan or project can be authorised. In other words, if there is a lack of certainty as to whether there will be any negative effects, then the plan or project cannot be approved."*

Where significant effects are determined to be likely, or where there is uncertainty regarding the likelihood of significant effects, the Project will be required under law to be subjected to Appropriate Assessment.

This AA screening is based on best scientific knowledge and has utilised ecological expertise. In addition, a detailed online review of published scientific literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives.

1.4 Consultation

Refer to Chapter 2 of the EIAR for details of consultation carried out. Specific to biodiversity and Appropriate Assessment, the following responses were received.

1.4.1 Initial Consultation

Development Applications Unit (DAU)/ National Parks and Wildlife Service (NPWS) (consultation reference Pre00244/2021): A response was issued following submission of the EIAR scoping report in 2021. The response advised on best-practice assessment approaches and key areas to cover in relation to nature conservation in order to prepare a robust assessment. Specific subjects raised included consideration of existing bog rehabilitation proposals, potential for effects on habitat/species of high biodiversity value, potential conflicts between strategic ecological value and use of site for wind energy, consideration of optimal site use in contributing to reductions in carbon emissions, effects of site/habitat management on how wildlife uses the site during operational the phase, assessment of drainage requirements and associated potential for water quality effects, long term peatland rehabilitation plans following wind farm decommissioning, and potential effects on a known wintering whooper swan flock in the immediate locality.

The response noted that the EIAR should take account of Objective 1 of the National Biodiversity Action Plan which is to mainstream biodiversity into decision-making across all sectors and also referenced guidance which should inform the preparation of the EIAR. The importance of avoidance through design as a first principle was highlighted. The response also noted that thorough and complete descriptions of both the Project and baseline environments are required for a robust assessment, with a particular focus on peat management, drainage and hydrological connectivity. The requirement to mitigate habitat loss and the importance of potential Annex I habitats occurring outside the Natura 2000 network were also noted. Potential effects of turbine lighting and consideration of alternatives were also raised.

A section on key survey requirements was included, with ornithology, bats, aquatic ecology, habitats, marsh fritillary butterfly and invasive alien plant species noted as key areas of interest. Guidance and legislation relevant to the impact assessment was listed and discussed, in addition to guidance relevant to Appropriate Assessment.

Assessment of cumulative effects, post-construction monitoring, and derogation licence requirements were also discussed.

These matters were taken into account when scoping surveys to inform the EIAR and NIS for the Project. Further details on baseline ecology, insofar as it pertains to Appropriate Assessment, are presented in Section 2.1.8.

1.4.2 Follow-Up Consultation

Based on availability of more detailed project information, requests for updated consultation were issued to the DAU and IFI in on 22 September 2023.

The DAU response to this request referred back to their initial response summarised above in Section 1.4.1.

Inland Fisheries Ireland (IFI) did not respond to a request for consultation (issued to South Eastern district office in Clonmel via email on 22 November 2023).

1.4.3 Final Stage of Consultation

A further request for consultation was issued to the DAU/NPWS on 15 December 2025. A response from NPWS offering a meeting and summarising key ecological considerations was received on 22 January 2026 (DAU ref. G Pre00401/2025). The key items communicated by NPWS in advance of the meeting were:

- Requirement to ensure robustness of collision risk model (CRM) by ensuring adequate visibility of flight activity study area from vantage points (VPs);
- Importance of completing robust survey using suitable methodology for breeding curlew which are known to occur in the locality;
- Importance of contextualising any potential effects on breeding curlew, noting their conservation status and distribution;
- Ensure survey effort and methodology for hen harrier roost surveys are adequate and suitable.

These items and others were discussed during the consultation meeting (14 February 2026) and are considered as appropriate to AA in this report. The key items presented for discussion at the meeting were:

- Summary of Project and key ecological considerations;
- Use of iterative design informed by surveys to avoid and minimise potential effects;

- Summary of how initial NPWS observations (DAU ref. G Pre00244/2021) have informed project design, survey effort and design;
- Responses to the key ecological considerations communicated by NPWS on 22 January 2026 (DAU ref. G Pre00401/2025).
- Importance of assessing effects on the local curlew population robustly, noting the small size of this population means it is vulnerable
- Potential indirect effects on raised bog remnants

The above DAU/NPWS observations have been addressed through the design process, within the EIAR assessment, and by mitigation prescribed in this Biodiversity Chapter and also within the Hydrology chapter of the EIAR. Matters arising as might pertain to AA relate to collision risk for SPA birds. This is discussed within this report.

2. DESCRIPTION OF THE PROJECT

2.1 Existing Environment

2.1.1 Proposed Wind Farm (Site and BEMP Lands)

The proposed wind farm development lands i.e. the lands containing the 'Site' and 'BEMP Lands' are located in east Co. Tipperary, with the Tipperary-Kilkenny county border located 4.6km to the northeast. The closest settlements to the development lands are Urlingford (approximately 5 km to the north-east), Gortnahoe (approximately 2.5 km to the east), Twomileborris (approximately 2 km to the west), Littleton (approximately 2.5 km to the west) and New Birmingham (approximately 2 km to the east). The town of Thurles is located approximately 9km to the west.

The development boundary extends for approximately 12km from north to south and ranges between 1km (at northern end) and 3km (at southern end) from east to west. The lands consists of 3 no. Bord na Móna bogs which form part of the Littleton Bog Group. The bogs comprising the Site include Lanespark Bog in the south, Littleton Bog towards the centre and Longfordpass Bog (Popes Bog) in the north. These bogs were historically used for peat extraction, with peat extraction ceasing in 2018. Today the lands comprise cutover peat bogs with a large proportion consisting of revegetating cutaway (heath, scrub and woodland habitats) but also includes some open areas with large bodies of open water. Some areas have also been planted with coniferous forestry plantations.

There is an extensive network of roads in the local areas. The M8 motorway and the R639 run to the northwest/west, the R689 and R690 run to the east and the L4101 runs to the south. The main access points are at the northern and southern ends of Littleton Bog adjacent to the Bord na Móna railway line. A Bord na Móna works area lies in the south of Ballybeg Lanespark Derryvella Bog, in the townland of Killeen and contains offices, storage sheds, roads and a peat loading area.

The current topography of the development lands is relatively flat with elevations ranging between 120 and 130m OD (metres above Ordnance Datum). Topography has been modified through the previous peat extraction activities and associated drainage. The highest elevations are found at the headlands and remnant peat banks which create elevated boundary berms, forming a basin effect within the former extraction areas of the bogs.

2.1.2 Turbine Delivery Route

The TDR travels from the port of entry of Foynes to Junction 4 of the M8 Motorway to the Site entrance on the R639 at Longfordpass. Temporary accommodation works will be required at three locations along the TDR to facilitate the delivery of large components to the site. These works comprise tree felling at one location, placement of temporary load bearing surface to public road verges and roundabouts and temporary removal of street furniture and signage within the public road corridor to facilitate oversized loads associated with wind turbine component deliveries. No modifications to existing watercourse crossings are proposed along the TDR. Further details on the TDR are included in Section 2.2.3. The TDR does not include any accommodation works within any European site.

2.1.3 Proposed Grid Connection

The proposed Grid Connection (GC) route extends from the proposed onsite 110kV electrical substation in the north of Littleton Bog to the existing Ballyragget 110/220kV substation within the townland of Ballyragget, Co. Kilkenny. The proposed GC route measures 30.9km in length and is located primarily within the curtilage of the public road corridor (28.4km), running along the Longfordpass local road, R639, R693 and R694 regional roads, and along theN77. The grid pass by the Loughans SAC on the R639 and will cross under the River Barrow and River Nore SAC by horizontal directional drilling (HDD) crossing from the N77.

Ground elevations along the proposed GC route are variable with topography ranging from ~80 to ~140mOD.

There are a total of 11 no. crossings over watercourses along the proposed GC route, all of which will be crossed by HDD with entry and exit pits located in-road. One crossing is in the Suir catchment and all others in the Nore catchment.

The proposed GC route, whilst assessed for the purposes of Appropriate Assessment, will not form part of this planning application. If the Proposed Development is permitted, the GC route will be subject to a separate planning application.

2.1.4 Waterbody Catchments

2.1.4.1 Suir Catchment

The Site and BEMP Lands are located in River Suir surface water catchment within Hydrometric Area 16 of the South Eastern River Basin District. The Suir Catchment includes the area drained by the River Suir (which is s part of the Lower River Suir SAC) and all stream entering the tidal water between Drumdowney and Cheekpoint, Co. Waterford. The catchment has a total area of 3,542km2. In the vicinity of the Site and BEMP Lands, the main tributary of the River Suir is the Drish River. This river discharges into the River Suir to the south of Thurles and ~7.7km west of the Site. The River Suir then continues to flow to the south, past Cahir, before it veers to the east and flows through Clonmel. Downstream of Clonmel, the River Suir becomes tidal in the vicinity of Carrick-on-Suir. A regional hydrology map is shown in Figure 2-1.

All watercourses draining the Site and BEMP Lands eventually discharge into the Drish River and the River Suir further downstream (refer to **Figure 2-2**).

More locally the Site is located in the Suir_040 WFD sub-catchment (Suir_SC_040) and is drained by the Drish River and its tributaries. This Site is mapped within a total of 8 no. WFD river sub-basins as detailed in the succeeding paragraphs:

The southwest of Ballybeg Lanespark Derryvella Bog is mapped in the Breagagh (Tipperary)_010 WFD river sub-basin. The closest mapped watercourses to this area of the Site is the Ballyley River, referred to on the EPA online mapping as the Breagagh River (EPA Code: 16B03) (note that for consistency this watercourse will be referred to as the Breagagh River within this chapter). This watercourse flows to the northwest ~140m from the Site. Further downstream, the Breagagh River discharges into the Drish River (EPA Code: 16D02) near Archerstown Bridge to the south of Thurles, just upstream of its confluence with the River Suir.

The north of Lanespark Bog is mapped in the North Glengoole_010 WFD river sub-basin. The closest mapped watercourses to this area of the Site is the EPA named North Glengoole Stream (EPA Code: 16N28) which is a tributary of the Black River, referred to by the EPA as the Black [Tow Mile Borris] River (EPA Code: 16B01). The North Glengoole Stream flows to the northwest along the northern boundary of Ballybeg Lanespark Derryvella Bog.

A large area in the south of Littleton Bog is mapped in the Black (TwoMileBorris)_010 WFD river sub-basin. This area is drained by the Black (Two Mile Borris) River. The EPA map the Black (Two Mile Borris) River to flow to the south/southeast along the eastern boundary of Littleton Bog. The Black (Two Mile Borris) River continues to flow to the northwest and discharges into the Drish River to the north of Twomileborris.

Much of the centre of Littleton Bog is mapped in the Clover_010 WFD river sub-basin. The EPA map 2 no. watercourses to flow to the northwest from this area of Littleton Bog. One of these streams is referred to as the Derheen River on local basemaps and is not assigned a name by the EPA). The other stream is referred to as the Clover Stream (EPA Code: 16C04) on the EPA blueline database. These streams merge downstream of the Site, forming the Clover River. The Clover River discharges into the Black (Two Mile Borris) River to the north of the village of Twomileborris.

A small area in the northwest of Littleton Bog is mapped in the Clover_020 WFD river sub-basin. An unnamed stream is mapped to originate at the western boundary of the bog and flows to the west before discharging into the Clover River.

The northeast of Littleton Bog is mapped in the Drish_010 WFD river sub-basin. This area of the Site is drained by the Drish River (EPA Name: 16D02) which flows to the north. It is noted that this watercourse is referred to as the Black River on local base maps, and is only referred to as the Drish River downstream of Ballyduff Bridge near Shanballyduff.

A small area in the north of Littleton Bog is mapped in the Drish_020 WFD river sub-basin. The Drish River flows to the northwest ~1.3km from this area of the Site. The northwest of the Site, including an area of Longfordpass Bog (Popes Bog) is mapped in the Drish_050 WFD river sub-basin. An unnamed stream is mapped by the EPA to flow along the western boundary of this area of Longfordpass Bog (Popes Bog) before it discharges into the Drish River.

Within the River Suir Catchment, there is 1 no. grid connection watercourse crossing (GC-WC-01) proposed over an EPA mapped watercourse, where thelocal road passes over the Black River (Drish River) (EPA river entity code 16D02) within the Drish_020 WFD river sub-basin. This will be crossed by HDD.

2.1.4.2 Nore Catchment

Within the River Nore surface water catchment, the proposed GC route is mapped across a total of 9 no. WFD river sub-basins with a total of 9 no. watercourse crossings over EPA mapped watercourses. There is also 1 no. crossing over a watercourse which is not included in the EPA blueline database. All crossing locations are situated at existing bridge/culvert locations as follows, and all will be crossed by HDD bar one:

- **GC-WC-02:** at an existing road bridge crossing over the Goul River (EPA Code: 15G02) to the southwest of Urlingford along the R639 in the Goul_202 WFD river sub-basin;
- **GC-WC-03:** An existing road bridge crossing along the R639 at Urlingford over the Ardreagh Stream (EPA Code: 15A03) in the Ardreagh_010 WFD river sub-basin;
- **GC-WC-04 and GC-WC-05:** 2 no. existing crossings (road bridges) along the R693 over the Borrisbeg Stream (EPA Code: 15B18) in the Goul_030 WFD river sub-basin;
- **GC-WC-06:** A crossing along the R693 over the EPA mapped Clomantagh Lower Stream (EPA Code: 15C91) in the Nuenna_010 WFD river sub-basin. However, site inspections could not identify a watercourse at this location. This crossing is included in the impact assessment for the purposes of a conservative assessment. Note the crossing here will be within road as opposed to HDD);

- **GC-WC-07 and GC-WC-08:** There are 2 no. existing crossings located in the Nuenna_020 WFD river sub-basin in the vicinity of Freshford. These crossings occur along the R693 over the Gorteenahilla Stream (EPA Code: 15G08) and along the R694 over an unmapped watercourse;
- **GC-WC-09:** An existing road bridge crossing over the Lismaine Stream (EPA Code: 15L16) along the R694 in the Nore_150 WFD river sub-basin;
- **GC-WC-10:** An existing crossing over the Lisdowney Stream (EPA Code: 15L02) along the R694 in the Nore_140 WFD river sub-basin; and,
- **GC-WC-11:** A new proposed crossing of the River Nore(EPA Code: 15N01) in the vicinity of Ballyragget substation.

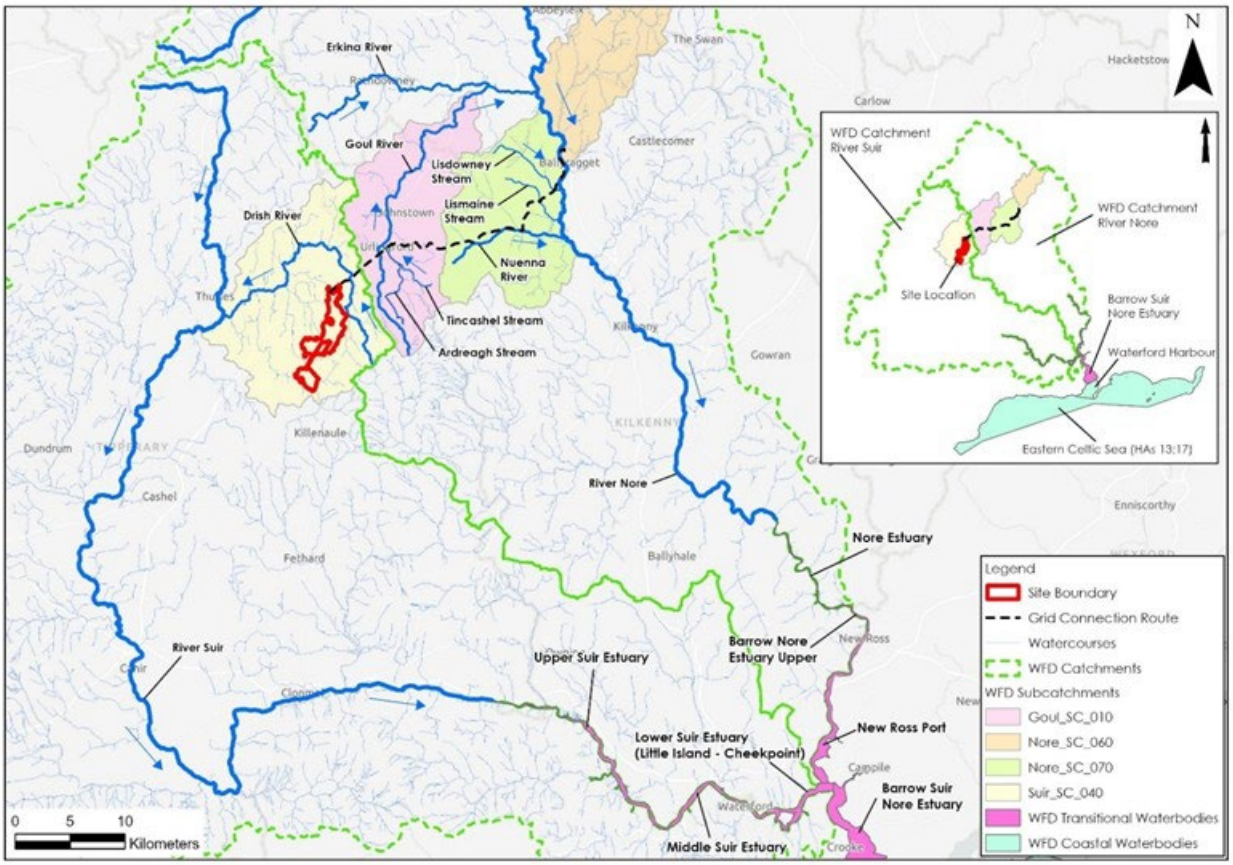


Figure 2-1: Waterbody Catchments

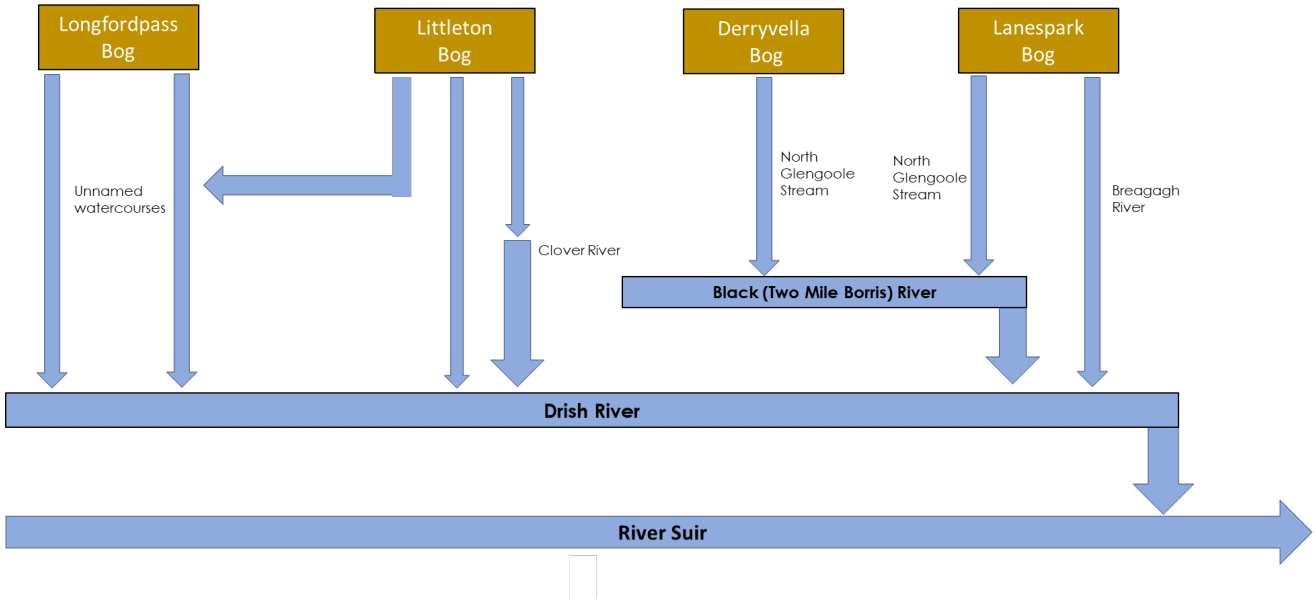


Figure 2-2: Hydrological Flowpaths for the Site

2.1.5 Flood Risk

2.1.5.1 Proposed Wind Farm (Site and BEMP Lands)

No recurring flood incidents or instances of historical fluvial flooding have been recorded within the Site or BEMP Lands on historic OS maps. The NIFM for the Present-Day Scenario records some flood zones within the northern section of Ballybeg Lanespark Derryvella Bog. These modelled flood zones are associated with Black (Two Mile Borris) River and a small tributary which runs along the northern boundary of the bog. However, these flood zones do not encroach significantly upon the Site and are in excess of 750m from the closest proposed turbine location (T9). The only infrastructure proposed in the vicinity of the flood zones comprises of internal site access tracks. Existing watercourse crossings (large diameter culverts) already exist at these locations as the Bord na Mona railway line, and an adjacent machine pass, cross these watercourses. NIFM fluvial flood zones are also mapped along the Drish River to the northeast of Littleton Bog. However, these flood zones do not encroach upon the Site.

The Site or BEMP Lands do not host any recorded historic or modelled groundwater flood zones. The closest historic groundwater flood zone is located ~1km to the west of Littleton Bog in the townland of Leigh.

The main risk of flooding is via pluvial flooding due to the low permeability of the peat soils and subsoils. The GSI Winter (2015/2016) Surface Water Flooding map shows several areas of surface water ponding within the Site. This flooding was associated with pluvial flooding following rainfall events. These flood zones correspond with large areas of surface water ponding which were recorded during the site walkover surveys i.e. the Bawnreagh Lakes, Derryhogan Lakes and Longfordpass South lakes. No infrastructure is proposed in any of these flooded areas.

2.1.5.2 Turbine Delivery Route

No recurring flood incidents are noted at the TDR accommodation works locations.

2.1.5.3 Proposed Grid Connection

The OPW and GSI hold records of recurring flood events to the east and north of the proposed GC route in the townlands of Borrismore and Balief Lower. This recurring flood event (Flood ID: 742) is associated with a The Loughans SAC turlough (i.e. groundwater flooding). It is noted that the low probability flood zone do not encroach upon the local road network at these locations.

Recurring flood events are also mapped along the proposed GC route at Freshford and at Ballyragget. At Freshford the recurring flooding is associated with flooding of the Nuenna River (Flood ID: 2814) whilst the River Nore is noted to flood near Ballyragget (Flood ID: 2813).The majority of the proposed GC route is at low risk of flooding. However, there are areas as noted above which may be prone to flooding. Due to the depth of the proposed GC underground cabling, this will have no impact during the operational phase. During the construction phase, works along the proposed GC route will be postponed in the event of a risk of a flood event.

2.1.6 Surface Water Quality

2.1.6.1 EPA Monitoring

2.1.6.1.1 Proposed Wind Farm

Biological Q-rating data for EPA monitoring points in the local watercourses downstream of the Site are shown in Table 2-1 below, and the locations of same are available through https://gis.epa.ie/EPAMaps/Water. The Q-Rating is a water quality rating system based on both the habitat and the invertebrate community assessment and is divided into status categories ranging from Q1 (Bad) to 4-5 (High).

The most recent available data dates from 2023 and the Q-status of the watercourses in the vicinity of the Site ranges from 'Poor' to 'Good' Q-status.

No recent EPA biological monitoring has been completed on the Breagagh River in the vicinity of the Site. Meanwhile, the Black (Two Mile Borris) River achieved a Q3 rating ('Poor' Q-status) at Black River Bridge between Littleton and Ballybeg Lanespark Derryvella bogs in 2023 (Station ID: RS16B010030). Further downstream the Black (Two Mile Borris) River also achieved 'Poor' Q-status in 2023 at a bridge west of Twomileborris (Station ID: RS16B010100). To the west of Littleton Bog, the Clover River achieved a Q3 rating ('Poor' status) at a bridge at Turnpike (Station ID: RS16C040100) and 'Moderate' Q-status (Q3-4) upstream of its confluence with the Drish River (Station ID: RS16C040300).

To the north of the Site, the Black River (Drish River) achieved a Q3 rating ('Poor' status) at a bridge upstream of Longfordpass Bridge (Station ID: RS16D020040) and at a bridge northeast of Castletown (Station ID: RS16D020070) in 2023. Further downstream the Drish River achieved a Q3-4 rating ('Moderate' status) at Boolabeha Bridge (Station ID: RS16D020100). Downstream of the Clover and the Black (Twomileborris) rivers, the Drish River achieved a Q4-rating ('Good' Status) at a bridge south of Athlummon (Station ID: RS16D020200). Downstream of the Breagagh River, the Drish River achieved a Q3-4 rating in 2023 (Station ID: RS16D020400). Further downstream the River Suir achieved 'Moderate' Q-status at Cabragh Bridge to the south of Thurles in 2023.

Table 2-1: EPA Water Quality Monitoring Q-Rating Values (Site)

Watercourse	Station ID	Easting	Northing	Year	EPA Q-Rating
Drish River	RS16D020040	225175	159924	2023	Q3 (Poor)
Drish River	RS16D020070	221735	163526	2023	Q3 (Poor)
Drish River	RS16D020100	219081	161949	2023	Q3-4 (Moderate)
Clover River	RS16C040100	221411	157582	2023	
Clover River	RS16C040300	219661	159263	2023	Q3-4 (Moderate)
Black (Two Mile Borris)	RS16B010030	221462	152911	2023	Q3 (Poor)
Black (Two Mile Borris)	RS16B010100	219241	157908	2023	Q3 (Poor)
Drish River	RS16D020200	217661	159405	2023	Q4 (Good)
Drish River	RS16D020400	213730	157058	2023	Q3-4 (Moderate)
River Suir	RS16S020900	211235	156066	2023	Q3-4 (Moderate)

2.1.6.1.2 Proposed Grid Connection

Within the River Suir surface water catchment the Drish River achieved a Q3 rating ('Poor' status) upstream of Longfordpass Bridge in 2023 (Station ID: RS16D020040).

Within the River Nore surface water catchment, the Goul River achieved 'Moderate' status (Q3-4) downstream of the proposed GC route at a bridge west of Johnstown (Station ID: RS15G020200). Further to the east, the proposed GC route is drained by the Nuenna River which achieved a Q3-4 rating ('Moderate' status) at a bridge downstream of Clomantagh (Station ID: RS15N020100) and a Q3 rating ('Poor' status) at Freshford (Station ID: RS15N020200). The River Nore achieved a Q4 rating at a bridge in Ballyraggett (Station ID: RS15N011450) and a Q3-4 rating downstream of its confluence with the Nuenna River (Station ID: RS15N011700).

Table 2-2: EPA Water Quality Monitoring Q-Rating Values (Grid Connection)

Watercourse	Station ID	Easting	Northing	Year	EPA Q-Rating
Drish River	RS16D020040	225175	159924	2023	Q3 (Poor)
Goul River	RS15G020200	228302	166794	2022	Q3-4 (Moderate)
Nuenna River	RS15N020100	236268	163711	2022	Q3-4 (Moderate)
Nuenna River	RS15N020200	219661	159263	2022	Q3 (Poor)
River Nore	RS15N011450	244524	170820	2022	Q4 (Good)
River Nore	RS15N011700	245821	162679	2022	Q3-4 (Good)

2.1.7 Geology and Hydrogeology

2.1.7.1 Proposed Wind Farm

The GSI online 1:100,000 scale bedrock geology map shows that the Site is underlain by the following formations:

- Ballysteen Formation – Dark muddy limestone, shale (BA).
- Lisduff Oolite Member (Ballysteen Formation) – thick bedded, pale-bluegrey, cross-bedded, well jointed oolite, with some crinoid ossicles and rare well-preserved calices (BAld);
- Waulsortian Limestone - Massive unbedded lime-mudstone (WA).
- Aghmacart Formation - Dark shaly micrite, peloidal limestone (AG).

There are no karst features mapped within the proposed Site. The nearest karst features are 2 no. swallow holes located approx. 2km southeast of the Site boundary near T08 (approx. 2.1km from this turbine). There are also 2 no. swallow holes located 3km west of the Site, an enclosed depression 4km northeast of the site boundary.

The GSI online 1:50,000 scale Quaternary Geology map shows that the Site comprises of the following:

- Cut over raised peat (Cut) present on most of the site, within the footprint of turbines and other infrastructure elements.
- The north-eastern part of the site, in the location of the borrow pit, comprises a Till derived from Limestone (TLs) and Bedrock outcrop or subcrop (Rck).

The GSI online 1:50,000 scale Teagasc Soils shows that the Site comprises of the following:

- Basin peat is present across the majority of the site. The topography is described as Flat and Undulating Lowland comprising mainly wet mineral and organic soils.
- The site is surrounded by Minimal Grey Brown Podzolics Till derived from Limestone Till. The soil is characterised as 'deep well drained mineral (mainly basic)' identified by the code BminDW.

A geotechnical assessment was undertaken using findings from the site walkover surveys and intrusive ground investigations and is presented in Peat Stability and Geotechnical Assessment Report (GAR) (see EAIR Volume III). The drained and undrained stability analysis returned Factor of Safety Results of >1.3 for all infrastructure elements assessed, indicating the risk of peat landslide is 'Negligible and Insignificant'.

No recurring flood incidents or instances of historical flooding were identified within the Site on historic OS maps. Identifiable map text on local available historical 6" or 25" mapping for the Site does not identify any lands that are "liable to flood".

2.1.7.2 Proposed Grid Connection

The underlying bedrock (Waulsortian Formation) at the eastern extent of the proposed GC is prone to karstification. The Regionally Important Gravel Aquifer overlies the bedrock along the proposed GC route in the Nore valley.

CFRAM flood zones are mapped along the proposed GC route at Freshford and Ballyragget. The CFRAM fluvial flood zones along the proposed GC route are associated with the Nuenna River and its tributaries in Freshford and the River Nore near Ballyragget.

The National Indicative Fluvial Flood Mapping for the Present Day Scenario shows fluvial flooding along many of the watercourse mapped in the vicinity of the proposed GC route. NIFM fluvial flood zones are mapped along the R694 to the north of Freshford and along the Nuenna River to the west of Freshford. Fluvial flood zones are also mapped along the R693 at Urlingford over the Goul River, the Ardreagh Stream and further to the east over the Borrisbeg Stream. Fluvial flood zones are also mapped along the Drish River within the River Suir surface water catchment. Existing roads and watercourse crossings exist at all of these locations.

2.1.8 Ecological Baseline

2.1.9 Peatland Rehabilitation

Phase 1 peatland rehabilitation has been completed at the Site and as such is represented within the existing ecological baseline. Thus, the rehabilitation forms an inherent component of the baseline environment and is assessed in detail herein.

Phase 1 rehabilitation works were completed in Littleton, Longfordpass and Lanespark bogs between 2018-2021. The measures completed included the blocking of drains which has resulted in the presence of areas of standing water within the Site. It is noted that no drain blocking has been carried out in the small area of Longfordpass Bog overlapped by the site.

The current baseline in the peatland areas is variable in terms of progress of rehabilitation/revegetation; areas where peat extraction and ancillary activities ceased earlier are at more advanced stages of revegetation/rehabilitation, while areas where peat extraction ceased later are in the earlier stages of revegetation.

As such, parts of the Site where more advanced revegetation occurs are indicative of the habitats which will develop at the more advanced stages of rehabilitation. It is noted that while rehabilitation was completed several years ago, wetland habitats may not yet be fully at equilibrium and may continue to expand where suitable conditions exist. Similarly, woodland habitats are likely to increase in structural and species diversity as they mature.

As such, the areas with longer-stablished revegetation processes are considered to be indicative of the habitats which will ultimately develop across the cutaway bogs within the Site, i.e. a mosaic of wetland areas characterised by lakes and high-sphagnum areas of regenerating bog, woodland, and intermediate habitats with open scrub and grassy heath-type vegetation. While habitat types are likely to stabilise eventually, some level of dynamism is likely to persist even at the stage where habitats have become relatively stable (e.g. mature woodland and regenerating bog).

While a relatively uniform approach to rehabilitation was undertaken. i.e. drain blocking across the Site, existing topography and hydrology have also influenced the character and pace of revegetation/rewetting, with some areas having achieved a greater extent and faster pace of re-wetting than others.

In summary, while trends indicative of the future ecological development of the Site are well established, the habitats at the Site are expected to develop successionally over time.

It is noted that ecological and hydrological surveys for the Proposed Development have been ongoing since 2021, facilitating an in-depth understanding of the existing and emerging baseline based on repeated observations of how revegetation is progressing since implementation of rehabilitation measures.

2.1.9.1 Terrestrial & Aquatic Ecology

The suite of ecological surveys completed between 2020-2025 for the Project are detailed in Chapter 6 and Chapter 7 of the EIAR. Of the surveys carried out, the following are relevant for Appropriate Assessment (i.e. have a relationship to European Sites as a potential special conservation interest/ qualifying interest of European sites or a habitat / species that can support a special conservation interest/ qualifying interest) and are included here as information relied upon in this NIS:

Habitats and Flora

The wind farm site is located wholly outside of any SAC or SPA boundary. Review of NPWS Article 17 (2019) and protected habitat and FPO mapping indicates that there are no recorded protected habitats or species within the grid squares which encompass the wind farm Site.

A review of BSBI data shows only one plant species of note, namely *Epipactis palustris* (Marsh Helleborine), recorded in grid square S25H. While not protected in the Republic of Ireland, it is protected in Northern Ireland under the Wildlife Order 1985. BSBI Plant Atlas shows it is not rare in Ireland, and the IUCN Red List categorises it as Least Concern, with declines but not at a level of high threat.

Habitat, botanical and invasive species surveys were carried out by Fehily Timoney between July 2025 and October 2025. A habitat map is provided in Figure 6-7, Volume IV of this NIS/EIAR package.

The Site and BEMP Lands are predominantly located within cutover bog (PB4) which often occurs in mosaics with areas of scrub (WS1) of grey willow/downy birch or gorse, immature woodland (WS2) and wet grassland (GS4). Various more mature woodland types occur in small areas, such as (mixed) broadleaved woodland (WD1), (mixed) conifer woodland (WD3), Ornamental/non-native shrub (WS3), oak-birch-holly woodland (WN1) and bog woodland (WN7).

Intact raised bog (PB1) is present in a number of areas bounding Littleton Bog, and adjacent to the proposed northern access track. These bogs have been subjected to an Acrotelm Capacity Model[3] to assess whether they can be considered as Annex I habitat "Degraded raised bogs still capable of natural regeneration [7120]". All areas of intact raised bog have been fully avoided by the Project and are outside of the Project footprint (see Figure 6-8 Volume IV of the EIAR/NIS which shows these habitat locations). No areas of Annex I habitat are overlapped by any proposed infrastructure. Additionally, these Annex I type habitats are fully outside of European sites and are not part the landscape / ecological continuity of any SAC designated for such bog habitat.

[3] As per Mackin, F., Flynn, R. & Fernandez-Valverde, F. Application of a GIS-Based Hydrological Model to Predict Surface Wetness of Blanket Bogs. *Wetlands* **44**, 10 (2024). https://doi.org/10.1007/s13157-023-01765-5

Calcareous and neutral grassland (GS1) occurs in patches along the existing bog railway along the northern site access route and also in the southern part of Lanespark Bog, establishing respectively on imported material associated with the bog railway and on dry cutover bog.

Waterbodies within the Site include a network of drainage ditches (FW4), dystrophic lakes (FL1) and acid oligotrophic lakes (FL2), which have been established by flooding of drainage ditches and cutover bog. Reed and large sedge swamps (FS1) occurs, vegetating some ditches and surrounding some lakes. The hedgerows and treelines within the Site are associated with the agricultural lands in the proposed borrow pit footprint; a linear Scrub (WS1) formation also occurs in association with dystrophic lakes (FL1).

The hedgerows and treelines within the Site are associated with the agricultural lands in the proposed borrow pit footprint.

A small stand (several shoots) of Japanese knotweed is present near the existing northern site entrance (ITM 623110 659330). Although the stand is located in the vicinity of the proposed bell-mouth site entrance from the Longfordpass East local road, the location is outside of any footprint of the Proposed Development.

Artificial habitats within the Site include earth banks (BL2), buildings and artificial surfaces (BL3), spoil and bare ground (ED2) and recolonising bare ground (ED3).

The habitat type(s) at each turbine location and associated hard standings are presented in Table 2-3.

Table 2-3: Habitat at Each Turbine Location

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
T01 Turbine Location	Cutover Bog (PB4) (occurring within open Scrub WS1)	*Calluna vulgaris*	Ling	55
		Pinus contorta	Lodgepole pine	0.5
		Cladonia portentosa	-	1
		Cladonia floerkeana	-	0.5
		Cladonia chlorophaea	-	20
T01 Hardstand 1	Cutover Bog (PB4) (occurring within open Scrub WS1)	*Calluna vulgaris*	Ling	95
		Pinus contorta	Lodgepole pine	5
		Betula pubescens	Downy birch	1
		Hypnum jutlandicum	Heath plaitmoss	80
T01 Hardstand 2	Cutover Bog (PB4) (occurring within open Scrub WS1)	*Calluna vulgaris*	Ling	20
		Pinus sylvestris	Scots pine	10
		Eriophorum angustifolium	Common cottongrass	70
		Campylopus introflexus	Heath-star moss	1
		Dicranum scoparium	Broom forkmoss	0.5
		Cladonia floerkeana	-	2
		Cladonia chlorophaea	-	0.5
		Cladonia portentosa	-	0.5
T02 Turbine Location	Mosaic of Scrub (WS1) and Cutover Bog (PB4) - Low Sphagnum (LS1)	*Calluna vulgaris*	Ling	60
		Pinus sylvestris	Scots pine	20
		Rubus fruticosus agg.	Bramble	2
		Betula pubescens	Downy birch	10
		Salix cinerea	Grey willow	5
T02 Hardstand 1	Mosaic of Scrub (WL1) and Cutover Bog (PB4) (occurring on margin of Immature woodland WS2)	*Calluna vulgaris*	Ling	80
		Pinus sylvestris	Scots pine	50
		Betula pubescens	Downy birch	0.5
		Eriophorum angustifolium	Common cottongrass	0.5
T02 Hardstand 2	Mosaic of Scrub (WS1) / Cutover Bog (PB4)	*Calluna vulgaris*	Ling	50
		Molinia caerulea	Purple moor-grass	30
		Rubus fruticosus agg.	Bramble	10
		Pinus sylvestris	Scots pine	5

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
	(occurring on margin of Immature woodland WS2)	*Picea sitchensis*	Sitka spruce	0.5
		Betula pubescens	Downy birch	0.5
		Salix cinerea	Grey willow	35
		Thuidium tamariscinum	Common Tamarisk-moss	1
T03 Location Turbine Location	Cutover bog (PB4) (occurring within Immature woodland WS2 clearing)	*Eriophorum angustifolium*	Common cottongrass	25
		Betula pubescens	Downy birch	5
		Equisetum arvense	Field horsetail	2
		Campylopus introflexus	Heath-star moss	30
		Dicranum scoparium	Broom forkmoss	1
		Cladonia chlorophaea	-	2
		Cladonia subulata	-	0.5
T03 Hardstand 1	Cutover Bog (PB4)	*Molinia caerulea*	Purple moor-grass	80
		Succisa pratensis	Devil's-bit scabious	60
		Calluna vulgaris	Ling	10
		Potentilla erecta	Tormentil	2
		Centaurea nigra	Common knapweed	2
		Hypochaeris radicata	Cat's-ear	1
		Pilosella officinarum	Mouse-ear-hawkweed	10
		Polygala serpyllifolia	Heath milkwort	0.5
		Carex demissa	Common yellow-sedge	1
		Hypericum pulchrum	Slender St John's-wort	0.5
		Viola riviniana	Common dog-violet	0.5
		Epipactis palustris	Marsh helleborine	0.5
		Cladonia chlorophaea	-	2
T03 Hardstand 2	Mosaic of Scrub (WL1) and Cutover Bog (PB4) (occurring on margin of	*Molinia caerulea*	Purple moor-grass	100
		Betula pendula	Silver birch	55
		Equisetum arvense	Field horsetail	0.5

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
	Immature woodland WS2)	*Equisetum sylvaticum*	Wood horsetail	0.5
T04 Turbine Location	Mosaic of Immature Woodland (WS2) and Cutover Bog (PB4) (occurring within Immature woodland WS2 clearing)	*Betula pubescens*	Downy birch	25
		Polytrichum commune	Common haircap	25
		Molinia caerulea	Purple moor-grass	10
		Eriophorum angustifolium	Common cottongrass	1
		Calluna vulgaris	Ling	0.5
		Hypnum jutlandicum	Heath plaitmoss	0.5
		Campylopus introflexus	Heath-star moss	1
T04 Hardstand 1	Immature Woodland (WS2)	*Salix cinerea*	Grey willow	60
		Molinia caerulea	Purple moor-grass	40
		Potentilla sterilis	Barren strawberry	1
		Equisetum arvense	Field horsetail	2
		Juncus effusus	Soft-rush	0.5
		Eriophorum angustifolium	Common cottongrass	0.5
		Cirsium vulgare	Spear thistle	0.5
T04 Hardstand 2	Cutover bog (PB4) (occurring within Immature woodland WS2 clearing)	*Calluna vulgaris*	Ling	80
		Hypnum jutlandicum	Heath plaitmoss	75
		Equisetum arvense	Field horsetail	0.5
		Molinia caerulea	Purple moor-grass	3
T05 Turbine Location	Cutover bog (PB4)	*Eriophorum angustifolium*	Common cottongrass	80
		Calluna vulgaris	Ling	20
		Betula pubescens	Downy birch	5
		Hypnum jutlandicum	Heath-star moss	10
T05 Hardstand 1	Immature Woodland (WS2)	*Molinia caerulea*	Purple moor-grass	30
		Betula pendula	Silver birch	100
T06 Turbine Location	Cutover Bog (PB4)	*Eriophorum angustifolium*	Common cottongrass	35
		Juncus effusus	Soft-rush	10
		Molinia caerulea	Purple moor-grass	3
		Betula pendula	Silver birch	25
		Chamaenerion angustifolium	Rosebay willowherb	0.5
		Salix cinerea	Grey willow	5

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
		Hypochaeris radicata	Cat's ear	1
T06 Hardstand 1	Cutover Bog (PB4)	*Eriophorum angustifolium*	Common cottongrass	90
		Typha latifolia	Bulrush	1
		Juncus effusus	Soft-rush	3
		Polytrichum commune	Common haircap	5
T06 Hardstand 2	Cutover Bog (PB4)	*Molinia caerulea*	Purple moor-grass	2
		Eriophorum angustifolium	Common cottongrass	60
		Betula pubescens	Downy birch	10
		Hypochaeris radicata	Cat's ear	0.5
		Hydrocotyle vulgaris	Marsh pennywort	0.5
		Campylopus flexuosus	Rusty swan-neck moss	1
		Kindbergia praelonga	Common feathermoss	1
T07 Turbine Location	Immature Woodland (WS2)	*Eriophorum angustifolium*	Common cottongrass	5
		Betula pendula	Silver birch	70
		Dryopteris dilatata	Broad buckler-fern	20
		Rubus fruticosus agg.	Bramble	3
		Juncus effusus	Soft-rush	5
		Equisetum arvense	Field horsetail	2
T07 Hardstand 1	Cutover Bog (PB4) (occurring on margin of Immature woodland WS2)	*Molinia caerulea*	Purple moor-grass	40
		Dryopteris dilatata	Broad buckler-fern	1
		Rubus fruticosus agg.	Bramble	3
		Hypnum jutlandicum	Heath plaitmoss	0.5
		Polytrichum commune	Common haircap	0.5
		Dicranum scoparium	Broom forkmoss	1
		Campylopus flexuosus	Rusty swan-neck moss	1
T08 Turbine Location	Immature Woodland (WS2)	*Rubus fruticosus* agg.	Bramble	30
		Betula pubescens	Downy birch	70
		Salix cinerea	Grey willow	5
		Kindbergia praelonga	Common feathermoss	50
T08 Hardstand 1	Cutover bog (PB4)	*Calluna vulgaris*	Ling	70
		Eriophorum angustifolium	Common cottongrass	50
		Hypnum jutlandicum	Heath plaitmoss	25

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
T08 Hardstand 2	Cutover bog (PB4)	*Calluna vulgaris*	Ling	95
		Hypnum jutlandicum	Heath plaitmoss	90
T09 Turbine Location	Scrub (WS1)	*Holcus lanatus*	Yorkshire-fog	50
		Salix cinerea	Grey willow	20
		Betula pubescens	Downy birch	5
		Juncus effusus	Soft-rush	2
		Cirsium dissectum	Meadow thistle	0.5
		Agrostis canina	Velvet bent	20
T9 Hardstand	(Species list only) Recolonising ground (ED3) (occurring within Immature woodland WS2 clearing)	*Brachypodium sylvaticum*	False brome	-
		Hypochaeris radicata	Cat's ear	-
		Cirsium dissectum	Meadow thistle	-
		Succisa pratensis	Devil's-bit scabious	-
		Juncus effusus	Soft-rush	-
		Polytrichum commune	Common haircap	-
		Calluna vulgaris	Ling	-
		Calliregonnella cuspidata	Pointed spearmoss	-
		Plantago lanceolata	Ribwort plantain	-
		Daucus carota	Carrots	-
		Jacobaea vulgaris	Common ragwort	-
		Chamaenerion angustifolium	Rosebay willowherb	-
		Achillea millefolium	Yarrow	-
		Rumex acetosella	Sheep's sorrel	-
		Cladonia chlorophaea	-	-
		Betula pubescens	Downy birch	-
		Salix cinerea	Grey willow	-
T10 Turbine Location	Cutover bog (PB4)	*Juncus effusus*	Soft-rush	10
		Equisetum arvense	Field horsetail	0.5
		Hypnum jutlandicum	Heath star moss	2
		Dicranum scoparium	Broom forkmoss	0.5
T10	(Species list only)	*Eriophorum angustifolium*	Common cottongrass	-

Relevé	Habitat Type	Relevé at Turbine Foundation Location		
		Scientific name	Common name	Percentage cover (%)
Hardstand	Cutover bog (PB4)	*Juncus bulbosus*	Bulbous rush	-
		Triglochin palustris	Marsh arrowgrass	-
		Salix cinerea	Grey willow	-
		Betula pubescens	Downy birch	-
		Dryopteris affinis	Scaly male fern	-
		Scirpoides holoschoenus	Bulrush	-
		Hypochaeris radicata	Cat's ear	-
T11 Turbine Location	Cutover bog (PB4)	*Eriophorum angustifolium*	Common cottongrass	40
		Betula pubesens	Downy birch	2
		Campylopus flexuosus	Rusty swan-neck moss	2
T11 Hardstand 1	Cutover Bog (PB4) (occurring on Scrub WS1 margin)	*Chamaenerion angustifolium*	Rosebay willowherb	15
		Eriophorum angustifolium	Common cottongrass	80
		Holcus lanatus	Yorkshire-fog	5
		Juncus effusus	Soft-rush	2
		Epilobium montanum	Broad-leaved willowherb	0.5
T11 Hardstand 2	Cutover Bog (PB4)	*Eriophorum angustifolium*	Common cottongrass	95
		Betula pubesens	Downy birch	5
		Juncus effusus	Soft-rush	5
		Hypochaeris radicata	Cat's ear	0.5
		Salix cinerea	Grey willow	0.5
		Campylopus flexuosus	Rusty swan-neck moss	0.5

After leaving the proposed farm site, the grid connection follows existing local and regional roads. These existing roads represent highly artificial surfaces which are of no value to wildlife. The habitats bordering the roads predominantly comprise grassy verge (GS2) and improved agricultural grassland (GA1) with associated drainage ditches (FW4), hedgerows (WL1), treelines (WL2) and pockets of immature (WS2) and broadleaf woodland (WD2). Arable fields (BC1) occur occasionally in the lands bordering the roads. The rivers that will be crossed by the proposed grid connection vary in size, character, and condition and are described within the aquatic baseline report in Appendix 6.2, Volume IV of this EIAR/NIS package (sites G2 – G11). These range from small streams encompassing a variety of depths, morphologies and conditions, up to the main channel of the Barrow which reaches 1.5m in depth and 12-15m width. The presence of a turlough (FL6) at the Loughans SAC adjacent to the GC is noted.

The habitats along the TDR accommodation works areas are dominated by dry meadows and grassy verges (GS2) alongside hedgerow (WL1) and scrub (WS1) as follows:

TDR Node 1: M8 Junction 4 East Roundabout - Dry meadows and grassy verges GS2 on roundabout and road verges will be affected by placement of load bearing surfaces. Scrub WS1 surrounding roundabout will be affected by vegetation trimming.

TDR Node 2: R693 / R639 Roundabout - Dry meadows and grassy verges GS2 on road verges and roundabout will be affected by placement of load bearing surfaces. Hedgerows WL1 along road verges will be affected by tree felling and vegetation trimming.

TDR Node 3: R639 Longford Pass & Proposed Site Entrance - Dry meadows and grassy verges GS2; dry calcareous/neutral grassland GS1, and recolonising bare ground ED3 will not be affected as oversail only at this location.

Marsh Fritillary

Marsh fritillary (*Euphydryas aurinia*) is Ireland's only legally protected insect species. NBDC holds multiple records for Marsh fritillary from within the Littleton Bog group.

Habitat appraisal for Marsh Fritillary was conducted during the habitat surveys listed above. This was then supported with targeted Marsh Fritillary larval web searches carried out in September 2021, 2023 and 2025.

During the walkovers in 2021, marsh fritillary larval webs were recorded clustered in a number of locations, including: dense mature grassy vegetation *c.* 40m west of the proposed access track leading to T01; grassy/heath type vegetation *c.* 30m west of the internal access track between T02 and T04; heath type vegetation between T05 and T07 and a grassy ride south of T08. In the walkovers in 2023, larval webs were recorded at a number of locations across the Site, including several webs in grassy vegetation recolonising bare peat within c. 6m of the proposed internal access track in the south of T07; a web in similar vegetation c. 14m from the proposed internal access track in the east of T05; a web on a recolonised peat bank beside the existing railway in the north of the Site (*c.* 20m from proposed access track) and a web in open vegetation on recently recolonised bare peat in the north of the Site, c. 35m from the proposed internal access track. Furthermore, active larvae were also recorded at the latter two locations.

The 2025 survey within the Site confirmed the distribution of suitable habitat remained similar to 2023. In 2025, nine larval webs were recorded, eight of which were active (see Table 2-4 and Figure 6-12, Volume IV of the EIAR/NIS package). An adult was also observed in flight near a section of the proposed internal access track, south-west of T07.

Table 2-4: Marsh fritillary Survey results

Map id	Type	Quantity	Year
1	Larval web with caterpillars	1	2023
2	Larval webs with caterpillars	3	2023
3	Discarded larval web	1	2023
7	Discarded larval web	1	2023
8	Larval web	1	2023
10	Larval webs	2	2023
11	Larval webs	3	2023
12	Larval webs (2 active)	13	2023
13	Larval web with caterpillars	1	2023

14	Larval Webs (2 active)	5	2023
15	Larval web with caterpillars	1	2023
4	Discarded larval web	1	2025
5	Larval webs (2 active)	3	2025
6	Larval webs with caterpillars	5	2025
9	Adult	1	2025

Desmoulin's Whorl Snail

There are historical records of Desmoulin's whorl snail (*Vertigo moulinsiana*) (Annex II) in 10 km grid square S47 which overlaps Ballyragget (grid connection substation location). Locations of records within this hectad occur at Lisbigney bog, in wet riparian vegetation along the Barrow (just south of Ballynakill), and to the east of Ballyragget. As such, there are no records of this species in areas which could potentially be affected by the GC.

Field survey confirmed the absence of suitable habitat for this species at the HDD crossing and grid route to the substation.

Lesser Horseshoe Bat

Lesser horseshoe bats (LHB) are the only bat species in Ireland that are also a Qualifying Interest of SAC. As per the Lesser Horseshow Bat Species Action Plan 2022-2026[4], the LHB in Ireland has a very limited and highly regionalised range, occurring almost entirely in the west and southwest of the country, particularly from Mayo down through Galway, Clare, Limerick, Kerry and into Cork. This restricted distribution is repeatedly emphasised in national conservation documents, which note that—unlike Ireland's other bat species—the lesser horseshoe bat is confined to these western counties and does not occur across the wider island. It is noted also that Bat Conservation Trust[5] prescribes the core sustenance zone for LHB as 2km from roost sites. There are no European sites designated for lesser horseshoe bats within 2 km of the proposed scheme.

Otter

As per NBDC records, otter are prevalent in the Suir-Drish-Black sub-catchments in which the proposed wind farm is located, and on the Nore-Erkina sub-catchments in which the GR is proposed. Otter signs recorded in these catchments include sprainting sites, slides, paths and tracks. Most notable is a possible holt (see Figure 2-3) on the river Nore, located c. 850m downstream of the proposed HDD crossing on the river Nore, and located c. 20m from the proposed grid route on the N77. NBDC records here note a bridge with dry arch at this location with "exposed stones and mud" within the river. Otter records here include multiple footprints under the dry arch and on the sand bar plus fresh spraints on rocks and logs, and active otter slides. The records note a "possible holt at the foot bridge on west bank".

[4] NPWS & VWT (2022) Lesser Horseshoe Bat Species Action Plan 2022- 2026. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
[5] Bat Conservation Trust (2020). *Bat Species Core Sustenance Zones and Habitats for Biodiversity Net Gain*.

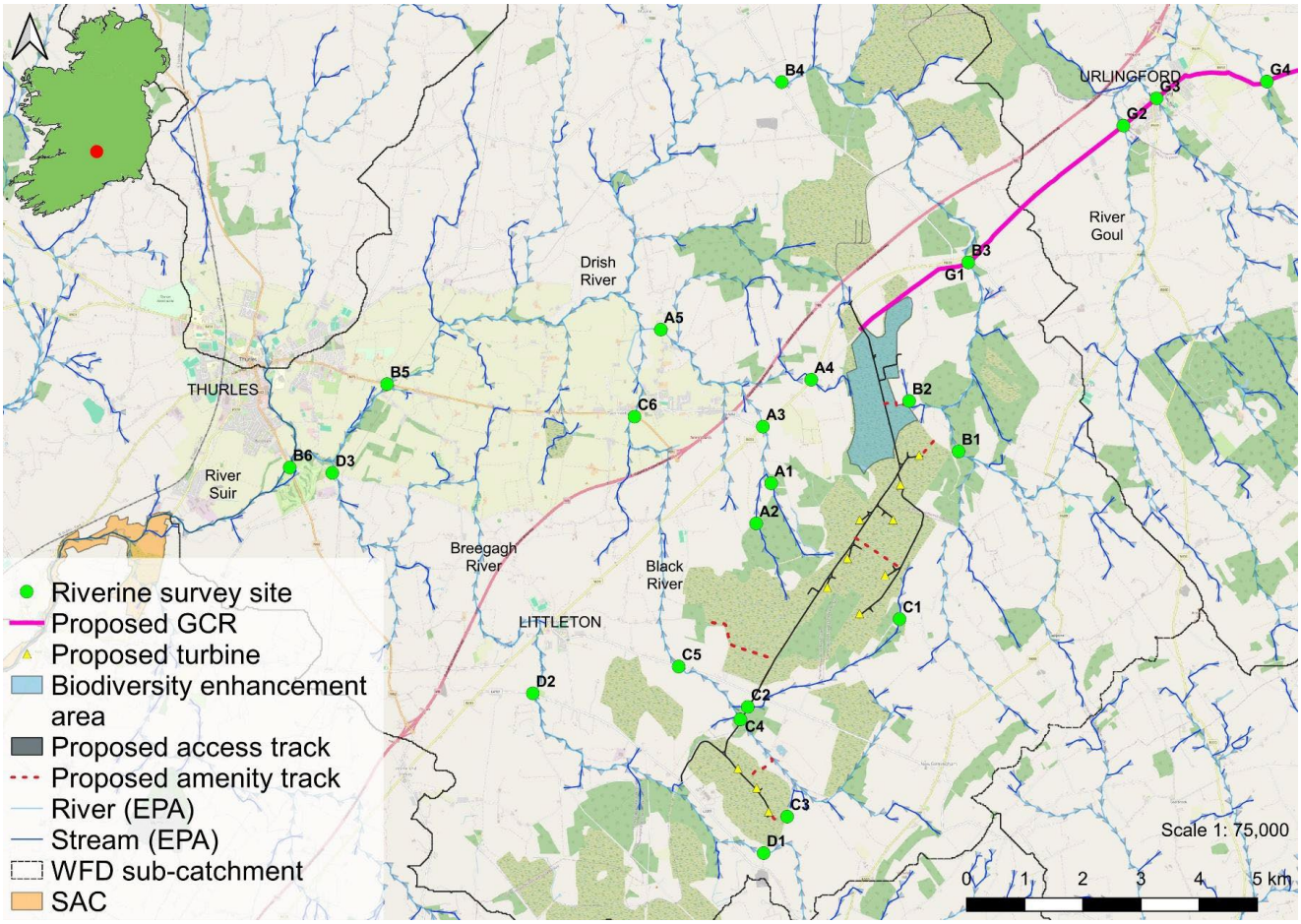
Source: https://maps.biodiversityireland.ie/Map

Figure 2-3: Otter Records near HDD Location on the Nore

General mammal surveys were conducted between 2023 and 2025, with targeted Otter survey carried out in September 2025 along with detailed aquatic ecology survey. No otter resting or breeding sites were recorded within the Site during dedicated otter surveys, which extended 200m upstream and downstream of watercourse crossings and where any drain or watercourse occurred within 150m of proposed infrastructure. Field signs were however observed in the Site and live sighting of an adult otter was observed along an existing internal access track between the proposed substation and T02 (otter was at a cutaway lake margin c. 270m west of the existing rail line) in October 2021. BNM hold a historical record of otter at a small cutaway lake at Bawnreagh (c. 370 m southeast of T02)

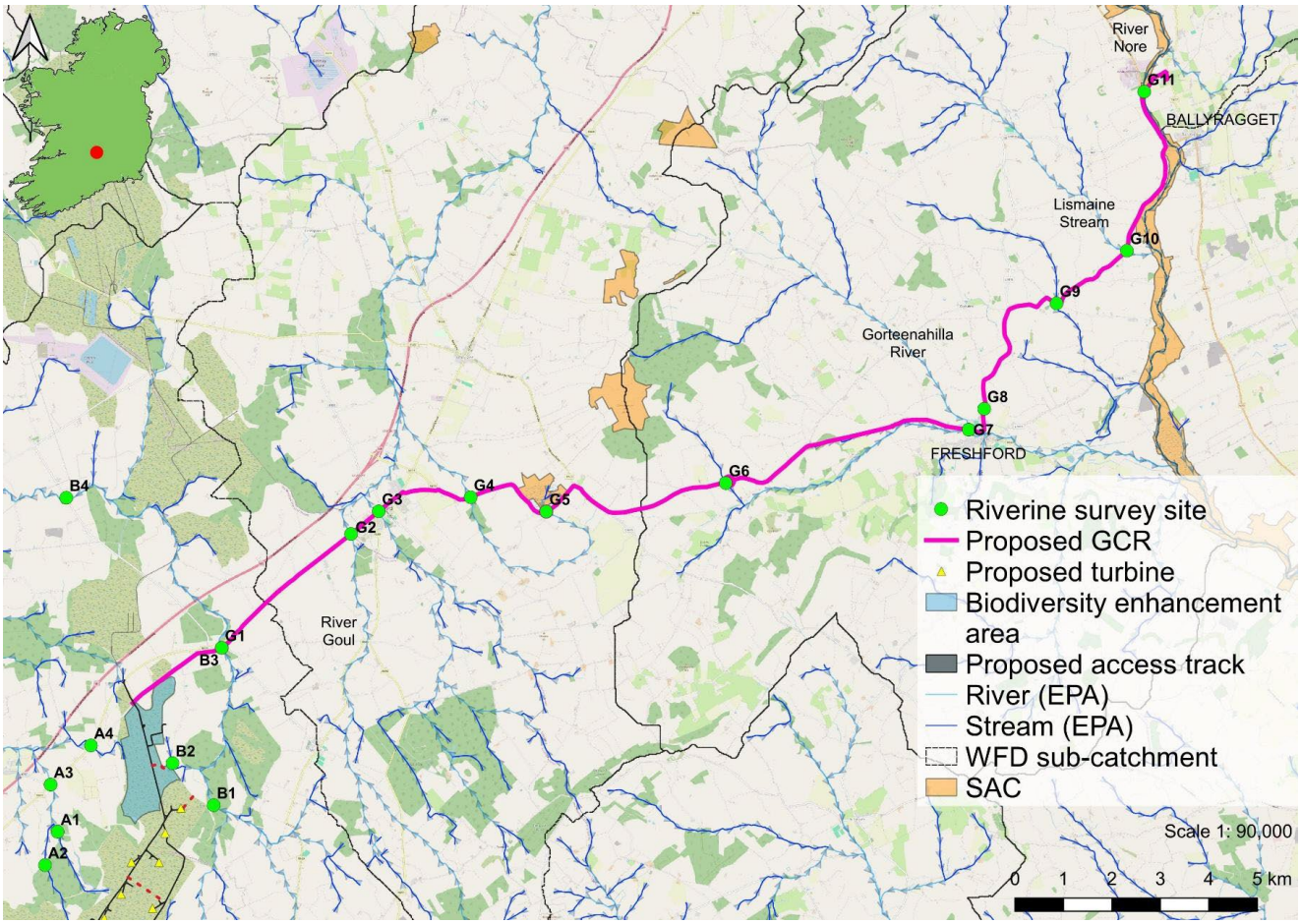
Otter activity was noted at the following locations on the GC route (see Figure 2-4 and Figure 2-5):

- SITE: A4 - Regular spraint
- SITE A6 – spraint
- SITE A – spraint
- SITE: A7 – prints
- SITE B2 – sprainting area upstream
- SITE B5 – sprainting area upstream
- SITE C5 - Abundant prints and spraint
- Site D2 - Abundant prints.
- SITE D3 – otter signs
- Site G9 - Regular spraint site
- SITE G10 – suitable for foraging
- Site G11 - suitable for foraging – possible holt downstream



Source: Aquatic baseline report for Littleton wind farm, Co. Tipperary (Triturus Environmental Ltd, 2025)

Figure 2-4: Overview of the riverine survey sites in the vicinity of the proposed Littleton wind farm, 2025



Source: Aquatic baseline report for Littleton wind farm, Co. Tipperary (Triturus Environmental Ltd, 2025)

Figure 2-5: Overview of the GCR survey sites (watercourse crossings), 2025

There is no suitable habitat for otter at the TDR accommodation works locations.

Aquatic Ecology

Detailed aquatic ecology surveys were conducted in September 2025. The results of the surveys are presented in 'Appendix 6.2: Aquatic Survey reports' in Volume III of the documentation in support if the EIAR and NIS, and are summarised hereunder.

Waterbodies within the Site include a network of drainage ditches, dystrophic lakes and acid oligotrophic lakes, which has been established by flooding of drainage ditches and cutover bog. Reed and large sedge swamps occurs, vegetating some ditches and surrounding some lakes.

The Nore Middle and Nore Upper catchments overlapping the Proposed Grid Connection are designated as Catchments of other extant populations for freshwater pearl mussel (FPM) and catchments of SAC populations listed in S.I. 296 of 2009 respectively. The specific legislation under which the River Barrow and River Nore SAC is designated is S.I. No. 648 of 2024. The aquatic ecology baseline (Triturus, 2025) noted the following: "*a low number of records were available for freshwater pearl mussel (Margaritifera margaritifera) for the River Nore located between the River Erkina confluence and Ballyragget in the 1993 to 2007 period (i.e. including a stretch downstream of the proposed project). However, no live mussel has been recorded in this area of the River Nore since 2007 (Pascal Sweeney pers. comm.), including during a survey completed in May 2023 (Triturus data)*". Conservation objectives mapping for the River Barrow and River Nore SAC (NPWS, 2025) indicates the section of the Nore crossed by the proposed GC is overlapped by the suitable habitat distribution target for FPM.

Aquatic ecology surveys results are summarised in Table 2-5 (summarised from Appendix 6.3 of the EIAR).

Table 2-5: Aquatic Ecology Summary Results

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
SITE A1a (2021) Unnamed stream, Longfordpass North	Unsuitable for salmonids and lamprey due to dry, ephemeral nature.	N/A, site was dry in 2021
SITE A2 (2021)/A1b (2023) Upper reaches of an unnamed Drish River tributary	Poor salmonid and lamprey habitat Unsuitable for white-clawed crayfish	N/A, site was dry in 2021 Q-value=3 (poor) in 2023
SITE A2 (2023) Lower reaches of an unnamed tributary of the Drish River	Unsuitable for salmonids and lamprey due to dry, ephemeral nature. Unsuitable for white-clawed crayfish	Q-value=2-3 (poor) in 2023
SITE: A3 (2021, 2023)/ A4 (2025) Unnamed tributary of the Clover River	Unsuitable for salmonids and lamprey due to dry, ephemeral nature. Unsuitable for white-clawed crayfish	Q-value=2-3 (poor) in 2023 N/A, site was dry in 2025
SITE A4 (2021) Unnamed stream, Noard in cutover bogs	Poor salmonid, lamprey and white-clawed crayfish habitat	Q-value=3 (poor) in 2021
SITE: A4 (2023)/ A1 (2025) Upper reaches of unnamed tributary of the Clover River, Noard.	Poor holding / nursery, no salmonid spawning habitat. Unsuitable for lamprey. Poor white-clawed crayfish habitat. Regular spraint site in 2023. No otter signs in 2025.	Q-value=3 (poor) in 2023, 2025
SITE: A5 (2023)/A2 (2025) Unnamed tributary of the Clover River.	Unsuitable for salmonids and lamprey due to siltation and enrichment. Poor white-clawed crayfish habitat	Q-value=3 (poor) in 2021 & 2023 N/A, site was dry in 2025

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
SITE A6 (2021) Clover River, Noard	Hodd adult/limited spawning habitat for salmonids. Moderate lamprey spawning habitats; Sub-optimal for lamprey ammocoetes. Two predated white-clawed crayfish recorded in 2021. Spraint recorded upstream of bridge in 2021.	Q-value=3-4 (moderate) in 2021
SITE A5 (2021), A6 (2023)/A3 (2025) Clover River, Leigh	Good salmonid holding habitat; Limited, localised salmonid spawning habitat Moderate lamprey spawning habitat. upstream Sub-optimal to unsuitable lamprey nursery habitat. Moderate white-clawed crayfish habitat. Remains of predated crayfish recorded in 2021.	Q-value=3 (poor) in 2021, 2023 & 2025
SITE: A7 (2023)/ A5 (2025) Clover River, Noard	Moderate salmonid holding habitat. Limited salmonid spawning / nursery habitat. Atlantic salmon recorded in 2023. Sub-optimal lamprey spawning / nursery habitat. Lamprey sp. recorded 2023. Good white-clawed crayfish habitat. Otter prints in 2023 No otter signs in 2025.	Q-value=3-4 (moderate) in 2023 Q-value=3 (poor) in 2025
SITE B1 (2021) Unnamed stream, Longfordpass South	Unsuitable for salmonids and lamprey due to siltation and the lack of flow. Unsuitable for white-clawed crayfish.	Q-value=3 (poor) in 2021
SITE B1 (2023 & 2025) Drish River, Longfordpass South	Poor salmonid habitat. Low suitability for white-clawed crayfish.	Q-value=3 (poor) in 2023, 2025
SITE B2 (2025) Uppermost reaches of unnamed Drish River tributary	Low suitability for white-clawed crayfish.	N/A, site was dry

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
SITE B2 (2021, 2023)/ B3/G1 (2025) Drish River, Longfordpass North	Atlantic salmon recorded in 2023. Overall, poor-quality salmonid and lamprey habitat. Low suitability for white-clawed crayfish. Otter known to use spraint site upstream). Annex I hydrophilous tall herb (6430) habitat present.	Q-value=2-3 (poor) in 2023 Q-value=3 (poor) in 2025
SITE B3 (2021, 2023)/ B4 (2025) Drish River, Castletown Bridge	Good salmonid holding habitat. Poor spawning / nursery habitat. Poor lamprey spawning / nursery habitat. Lamprey Sp. recorded in 2023. Good white-clawed crayfish habitat.	Q-value=2-3 (poor) in 2023 Q-value=3 (poor) in 2021 & 2025
SITE B4 (2021) Cooleeny River, Killoran	Unsuitable for salmonids and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE B5 (2021)/ B4 (2023) Drish River at Ballyduff Bridge	Good salmonid holding / spawning habitat. Excellent nursery habitat Atlantic salmon recorded in 2021 & 2023. Limited lamprey spawning habitat. Unsuitable lamprey nursery habitat. Good white-clawed crayfish habitat. Regular otter spraint site known upstream.	Q-value=3-4 (moderate) in 2021 Q-value=3 (poor) in 2023
SITE B5 (2023 and 2025) Drish River, Drish Bridge	Excellent salmonid holding / nursery habitat. Good to high quality salmonid spawning habitat upstream. Atlantic salmon recorded in 2023. Limited lamprey nursey habitat. Good to high lamprey spawning habitat upstream. Lamprey sp. recorded in 2023. Good white-clawed crayfish habitat.	Q-value=4 (good) in 2023 Q-value=3 (poor) in2025

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
SITE B6 (2021) Ballygammane River, Athlummon	Limited salmonid holding habitat. Some suitability for spawning salmonids. Salmonid nursery habitat present. Atlantic salmon recorded in 2021. There were some soft sediment accumulations providing habitat for lamprey ammocetes but largely flocculent. Lamprey sp. recorded in 2021. Low suitability for white-clawed crayfish	Q-value=3 (poor) in 2021
SITE B6 (2025) River Suir (16S02), Thurles Bridge	Limited salmonid holding habitat. Moderate salmonid spawning habitat. Good salmonid nursery habitat. Sub-optimal lamprey nursery habitat. Moderate to Poor white-clawed crayfish habitat.	Q-value=3 (poor) in 2025
SITE C1 (2021) Black River, Clonoura	Unsuitable for salmonids and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE C1 (2023 and 2025) Black River, Clonoura	Unsuitable for salmonids, white-clawed crayfish and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE C2 (2021, 2023 and 2025) Black River, Derryvella	Good salmonid holding habitat. Limited spawning habitat. Moderate salmonid nursery habitat. Limited lamprey spawning habitat. Limited white-clawed crayfish habitat.	Q-value=3 (poor) in 2021, 2023 & 2025
SITE C3 (2021) North Glengoole River, Derryvella	Low suitability salmonid nursery. Salmonid spawning habitat present. Atlantic salmon recorded in 2021. Unsuitable for lamprey. Poor white-clawed crayfish habitat.	N/A
SITE C3 (2025) Heavily modified tributary of Glengoole North River	No salmonid or lamprey habitat. Unsuitable for white-clawed crayfish .	N/A, site was dry

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
adjacent to the proposed turbine array .		
SITE C3 (2023)/C4 (2021, 2025) North Glengoole River at rail crossing (culvert), upstream of the Black River	Moderate salmonid holding / spawning habitat. Poor lamprey habitat. Limited white-clawed crayfish habitat.	Q-value=3-4 (moderate) in 2021 Q-value=3 (poor) in 2023, 2025
SITE C4 (2023)/C5 (2021, 2025) Black River, Derryhogan .	Good salmonid holding habitat. Moderate salmonid spawning / nursery habitat. Limited lamprey spawning habitat (improved upstream). Unsuitable as lamprey nursery. Poor white-clawed crayfish habitat. White-clawed crayfish DNA detected in 2021.	Q-value=3 (poor) in 2023 Q-value=3-4 (moderate) in 2025
SITE C5 (2023)/C6 (2021, 2025) Black River, Two Mile Borris Annex I floating river vegetation [3260]	Good salmonid holding habitat. Limited spawning habitat. Very high to good salmonid nursery habitat. Atlantic salmon recorded in 2021 & 2023. Limited lamprey spawning & nursey habitat. Lamprey sp. recorded in 2021 & 2023. Good white-clawed crayfish habitat. Abundant otter prints (2023 & 2025) and spraint (2025).	Q-value=4 (good) in 2021 Q-value=3 (poor) in 2023, 2025
SITE D1 (2021) Breegagh River, Killeen	Excellent quality adult salmonid habitat. Good holding Moderate nursery No spawning habitat Atlantic salmon recorded in 2021. No lamprey spawning habitat. Low suitability white-clawed crayfish habitat.	Q-value=3 (poor) in 2021
SITE D1 (2023 and 2025) Breegagh River, Killeen	High quality salmonid holding habitat. Poor-quality spawning habitat. Good nursery habitat. Atlantic salmon recorded in 2023. Poor lamprey habitat. Limited white-clawed crayfish habitat.	Q-value=3-4 (moderate) in 2023 Q-value=3 (poor) in 2025

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
SITE D2 (2021, 2023 and 2025) Breegagh River, Ballymurreen Bridge	Poor quality salmonid holding habitat. Sparse spawning habitat. Moderate salmonid nursery habitat. Atlantic salmon recorded in 2021 & 2023. Localised lamprey spawning habitat. Sub-optimal lamprey nursery habitat. Lamprey sp. recorded in 2021 & 2023. Good white-clawed crayfish habitat. Abundant otter prints. Otter signs recorded in 2025.	Q-value=3 (poor) in 2021, 2023 & 2025
SITE D3 (2023 and 2025) Breegagh River, Archerstown Bridge Annex I floating river vegetation [3260] (2023 only; absent in 2025)	Excellent to high quality salmonid holding / nursery habitat. High to good quality salmonid spawning habitat. Atlantic salmon, brown trout recorded in 2023. Poor lamprey nursery habitat. High quality lamprey spawning habitat upstream. High quality white-clawed crayfish habitat. Otter signs recorded in 2023.	Q-value=3-4 (moderate) in 2023 Q-value=3 (poor) in 2025
SITE E5 (2023) Clomantanagh Lower Stream, Clomantanagh Lower	Unsuitable for salmonids and lamprey due to heavy siltation and modification. Unsuitable for white-clawed crayfish .	Q-value=2 (bad) in 2023
SITE G2 (2025) River Goul, Urlingford	Poor quality salmonid and lamprey habitat. Unsuitable for white-clawed crayfish .	Q-value=3 (poor) in 2025
SITE G3 (2025) Ardreagh River, Urlingford	Moderate salmonid spawning / nursery habitat. Some salmonid holding habitat upstream. Some nursery suitability for lamprey ammocoetes. Low suitability for white-clawed crayfish; however, single individual was recorded in 2025.	Q-value=3 (poor) in 2025
SITE G4 (2025) Borrisbeg River, Borrismore	Low suitability salmonid spawning habitat. Moderate salmonid nursery habitat.	Q-value=3 (poor) in 2025

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
	Limited salmonid holding habitat. Some suitability for lamprey ammocoetes. Moderate suitability for white-clawed crayfish	
SITE G5 (2025) Borrisbeg River, Borrismore	Poor to Unsuitable for salmonids, white-clawed crayfish and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE G6 (2025) Clomantagh Lower Stream, Clomantagh Lower	Unsuitable for salmonids, white-clawed crayfish and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE G7 (2025) Gorteenahilla River, Freshford	Unsuitable for salmonids, white-clawed crayfish and lamprey due to dry, ephemeral nature.	N/A, site was dry
SITE G8 (2025) Unmapped stream at the R694	Unsuitable for salmonids, white-clawed crayfish and lamprey due to being highly modified and dry.	N/A, site was dry
SITE E8 (2023) / G9 (2025) Lismaine Stream (15L16), a tributary of the River Nore	Unsuitable for salmonids, white-clawed crayfish and lamprey due to dry, ephemeral nature but some physical suitability for salmonids further downstream.	N/A, site was dry
SITE E9 (2023) / G10 (2025) Lismaine Stream (15L16), a tributary of the River Nore	Highest value as salmonid nursery. Some valuable holding habitat. Atlantic salmon, brown trout recorded in 2023. Of some value for spawning salmonids & lamprey but affected by calcification/ compaction. Moderate suitability for white-clawed crayfish.	Q-value=3 (poor) in 2025
SITE E10 (2023) River Nore, Parksgrove In River Barrow and River Nore SAC (002162) & River Nore/Abbeyleix Woods Complex pNHA (002076) and River Nore SPA (004233)	Known to support Atlantic salmon lamprey spp. (Triturus 2021 data). Valuable salmonid holding habitat; limited nursery & spawning habitat. Low suitability for white-clawed crayfish . No otter signs; some suitability for foraging otter.	Q-value=3-4 (moderate) in 2023
SITE G11 (2025) River Nore, Moatpark	Highly valuable salmonid spawning habitat upstream; no suitable spawning / nursery habitat downstream.	Q-value=3 (poor) in 2025

Survey Site/Description	Species Recorded/Habitat Appraisal	Q-value
In River Barrow and River Nore SAC (002162), The River Nore/Abbeyleix Woods Complex pNHA (002076) and the River Nore SPA (004233)	Good salmonid holding habitat. Some value for lamprey ammocoetes. Moderate suitability for white-clawed crayfish High suitability for foraging otter. No otter signs recorded. No freshwater pearl mussel (FPM) present. Overlapped by the suitable habitat distribution target for FPM.	
SITE L1 -16 (2023) Small-large cutover bog lakes and ponds	No high conservation value fish species recorded.	N/A
SITE L17 (2023) Artificial lake near Loch Doire Bhile	No high conservation value fish species recorded. Good suitability for white-clawed crayfish.	N/A
SITE L18 - 21 (2025) Oligotrophic cutover peatland bog lakes	No high conservation value fish species recorded.	N/A

2.1.9.2 Ornithology

Ornithological were carried out during the breeding seasons of 2021, 2022, 2023 and 2024 and non-breeding seasons of 2020-21, 2021-22, 2022-23, 2023-24 and 2024-25. Ornithological surveys carried out to inform the impact assessment, which accord with NatureScot (2017, updated March 2025) 'Recommended bird survey methods to inform impact assessment of onshore windfarms', are included in the baseline bird report which accompanies the planning application in 'Appendix 7.1: Baseline Ornithology Report' of Volume III. A full list of bird species observed within the study area of the Project are discussed therein. The 'study area' was defined as the area extending 500 m around the proposed turbine locations, with hinterland surveys extending to habitats within 15km of the Site, which accords with the NatureScot guidelines. Surveys comprised the following:

- Vantage point (VP) watches recording flight activity.
- Breeding bird surveys: breeding waders survey transects and point counts, incorporating a number of methods combined from published literature including Bibby *et al.*, (2000), Gilbert *et al.*, (1998), O'Brien & Wilson (2011) and SNH (2017) to estimate numbers of target species;
- dusk surveys for crepuscular/nocturnal species
- breeding kingfisher habitat suitability survey
- Wider area surveys: breeding raptor surveys within a 2km site buffer
- Winter site walkover surveys;
- Wider area wintering waterbird surveys (IWeBS); and,

- Hen harrier roost watches

Of the birds observed, this AA screening report focuses on the species which are listed as Special Conservation Interest species in Ireland for which SPAs must be designated. These are presented in Table 2-6.

Wintering whooper swan roosts on a flooded cutover bog lake to the north of the proposed turbine array, and the same flock feeds in nearby agricultural fields to the west.

Black-headed gull breeding occurs onsite, having been recorded at one of the flooded cutover bog lakes to the north of the proposed turbine array, and also in a wetland complex in recolonising cutover bog to the west of the proposed turbines.

Low numbers of breeding curlew are also present onsite, with breeding activity located away from the proposed infrastructure footprint.

Hen harrier and merlin occur onsite in the winter, foraging onsite, and (hen harrier) occasionally roosting on the bog margins.

Kingfisher has been observed onsite, but no evidence of nesting onsite was recorded. While desktop records (NBDC, 2010) indicate the presence of kingfisher on the section of the Nore crossed by the proposed GC, these records noted individual birds and did not record any breeding behaviour or nesting. Current surveys confirmed the riverbanks in this area are unsuitable for kingfisher nesting due to compacted soils and dense scrubby vegetation. The presence of good kingfisher foraging habitat with frequent perches was noted, particularly upstream near the island located c. 70m upstream of the proposed crossing point.

Table 2-6: Avian Target Species Recorded within the Study Area

Species	Scientific Name	BoCCI Status	Annex I
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No
Black-tailed godwit	*Limosa limosa*	Red	No
Brent goose	*Branta bernicla*	Amber	No
Common Tern	*Sterna hirundo*	Amber	Yes
Cormorant	*Phalacrocorax carbo*	Amber	No
Curlew	*Numenius arquata*	Red	No
Dunlin	*Calidris alpina*	Red	No
Golden Plover	*Pluvialis apricaria*	Red	Yes
Goldeneye	*Bucephala clangula*	Red	No
Greylag Goose	*Anser anser*	Amber	No
Hen Harrier	*Circus cyaneus*	Amber	Yes
Kingfisher	*Alcedo atthis*	Amber	Yes
Lapwing	*Vanellus vanellus*	Red	No
Lesser Black-backed Gull	*Larus fuscus*	Amber	No
Little Egret	*Egretta garzetta*	Green	Yes

Species	Scientific Name	BoCCI Status	Annex I
Mallard	*Anas platyrhynchos*	Amber	No
Merlin	*Falco columbarius*	Amber	Yes
Peregrine	*Falco peregrinus*	Green	Yes
Pintail	*Anas acuta*	Amber	No
Redshank	*Tringa totanus*	Red	No
Ringed Plover	*Charadrius hiaticula*	Amber	No
Scaup	*Aythya marila*	Red	No
Shoveler	*Spatula clypeata*	Red	No
Snipe	*Gallinago gallinago*	Red	No
Teal	*Anas crecca*	Amber	No
Tufted Duck	*Aythya fuligula*	Amber	No
Whooper Swan	*Cygnus cygnus*	Amber	Yes
Wigeon	*Anas penelope*	Amber	No

2.1.9.3 Migratory SCI Species

As part of this assessment the potential for activity of migratory SCI species potentially associated with SPAs in the wider region was examined. It is important to note that the Project is not located along any established flyways; the main migration corridor runs along the east coast, and the primary flight route for Greenland white-fronted geese is c. 50km north-east, running between Sligo and Wexford.

It is further noted that the Project is not located within 25km (taken as the largest bird core foraging range) of any SPAs designated for migratory species; the examination of these species is included to ensure full and complete consideration of potential links with SPAs based on the species observed at the Site. The closest SPA in this category, Lough Derg (Shannon) SPA, is c. 48 km north-west of the Project.

Snipe are not SCIs of any SPAs located within 25km of the Site.

Amongst the target species recorded at the Project, a total of 13species with potential for migratory movements and/or internal movement of national populations were identified, namely: black-headed gull, common tern, curlew, golden plover, goldeneye, greylag goose, lapwing, lesser black-backed gull, mallard, redshank, ringed plover, teal and whooper swan.

The majority of these occurred in low numbers; common tern and goldeneye, occurred in very low numbers only. There were no records of redshank or ringed plover during migration surveys.

Small number of greylag geese were observed during migration surveys (maximum of three birds across five records); this species was also recorded during summer and winter, indicating the presence of a resident population. Burke et al. (2022) note a feral flock several kilometres west, and a flock of unknown origin in the area of Littleton during the 2017/18 to 2018/19 winter seasons. The low numbers recorded during migrations surveys indicate negligible potential for links to SPAs designated for greylag goose.

A total of 11 lapwing observations were recorded during migration surveys, with a maximum flock size of 16 birds observed. These relatively low numbers, in combination with the presence of a resident population, means there are no strong indications of potential lapwing migratory activity at the Site.

Similarly for teal and mallard, the low numbers recorded during migration surveys (16 records/max. flock 8 birds for mallard; 8 records/max. flock 26 for teal), coupled with the presence of resident populations and higher numbers during both the winter and breeding seasons show there are no strong indications of potential teal or mallard migratory activity at the Site.

As such, potential links with SPAs designated for any of these migratory species (common tern, goldeneye, greylag goose, lapwing, redshank, ringed plover teal and mallard) are negligible.

The black-headed and lesser black-backed gull activity recorded at the Project is indicative of local populations, including breeding black-headed gulls around Littleton Bog. The presence of resident populations throughout the year indicate that potential for migratory activity is negligible. As such, potential links with SPAs designated for gull species occurring at the Project are negligible.

The patterns of whooper swan activity observed onsite confirm the presence of a local wintering population. This species disperses widely across the country during the winter season. Based on the widely dispersed nature of the wintering population and patterns of localised movement dominated by lower altitude flights observed during surveys, there are no strong indications of potential whooper swan migration through the Site, and negligible potential for connectivity with SPAs in the wider region.

A total of five migration survey observations of golden plover were recorded, in addition to one record in April which is also assessed to be indicative of migration. Wide variation in bird numbers is present within these observations, ranging from a single bird to a flock of 150. The relatively low number of observations, absence of proximate SPAs designated for golden plover and the widely dispersed nature of the wintering population collectively indicate negligible potential for connectivity with SPAs in the wider region.

For Curlew, outside of the local breeding population, consistent curlew activity in July is indicative of post-breeding dispersal from breeding areas in Ireland (see Colhoun et al., 2021, for detailed information on national distribution of breeding curlew). During this period, flocks of up to 55 birds were recorded at the Site (total of 19 records with flocks ranging from 6 to 55 birds). However, while the activity patterns observed for curlew indicate post-breeding dispersal of birds from the Irish breeding population towards the south of Ireland, these movements cannot be associated with specific SPAs. It is also noted that the wintering distribution of curlew in the south of Ireland also includes inland areas outside the SPA network. Given the low proportion of SPA wintering populations provided by the Irish breeding population (vs. Scandinavian and Scottish winter visitors), potential for ecological links with the SPAs is negligible.

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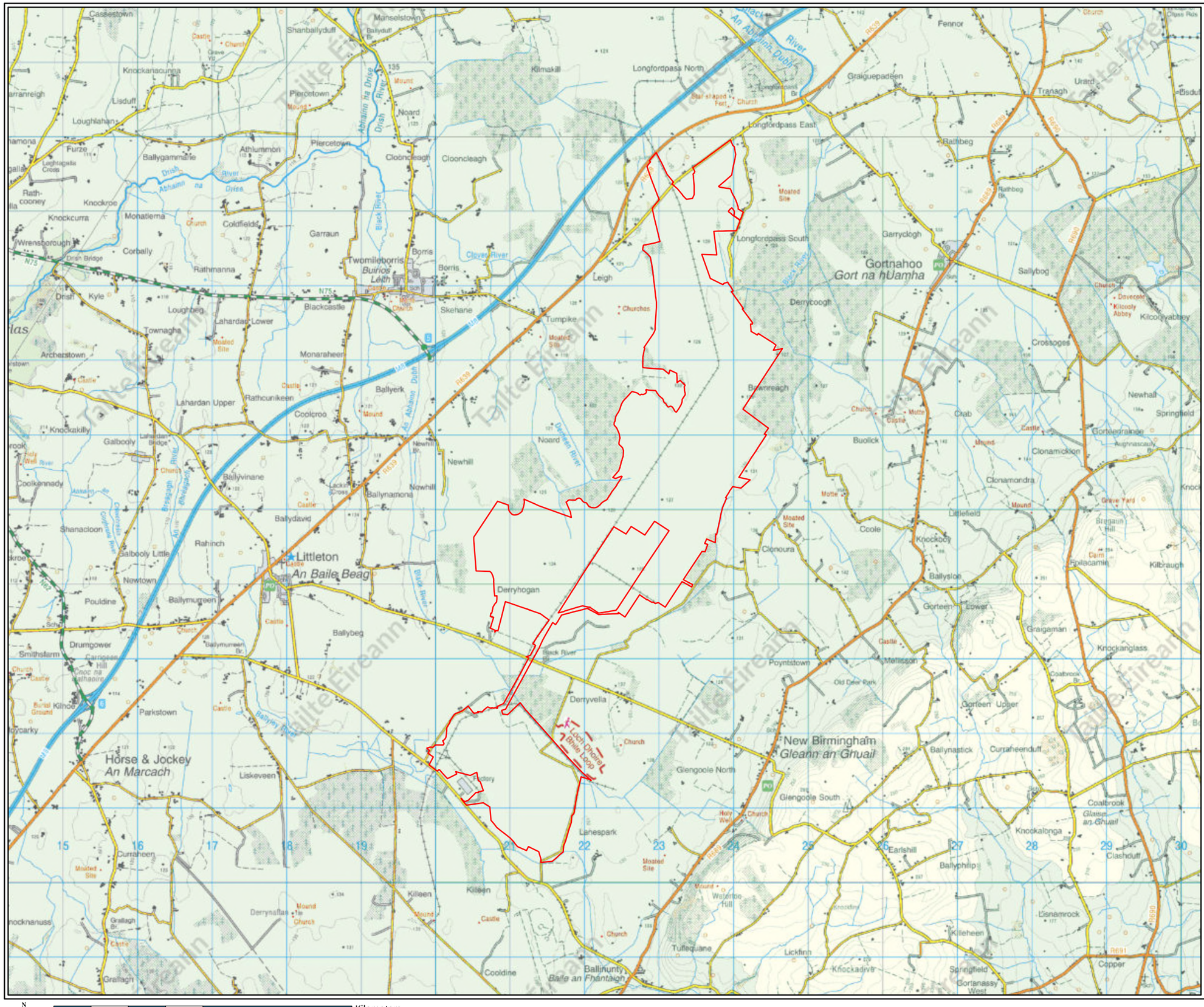
Cassestown
Manselstown
Shanballyduff
Knockanacunna
Lisduff
Loughlahans
Furze
Ballygammadle
Athlummon
Piercetown
Noard
Kilmakill
Longfordpass North
Graiguepadeen
Fennor
Tranagh
Urard
Longfordpass East
Rathbeg
Clooncleagh
Rath-cooney
Knockroe
Knockcurra
Monatierna
Coldfields
Garraun
Wrensborough
Corbally
Rathmanna
Twomileborris
Burrios Léith
Borris
Leigh
Longfordpass South
Garryclogh
Gortnahoo
Gort na hUamha
Sallybog
Derrycoogh
Kyle
Loughbeg
Blackcastle
Skehane
Tumpike
Townagha
Lahardan Lower
Archerstown
Monaraheen
Crossoges
Kilcooly Abbey
Kilcoolyabbey
Lahardan Upper
Rathcunikeen
Ballyerk
Coolcroo
Beanreagh
Crab
Newhall
Springfield
Knockakilly
Galbooly
Buolick
Gorteenrainde
Clonamickon
Coolkennady
Ballyvinane
Ballynamona
Nowhill
Clonamondra
Shanacloon
Rahinch
Ballydavid
Littleton
An Baile Beag
Galbooly Little
Newtown
Clonoura
Coole
Knockboy
Ballysloe
Pouldine
Ballymureen
Derryhogan
Gorteen Lower
Graigaman
Drumgower
Smithsfarm
Carrigeen Hill
Ballybeg
Poyntstown
Melissoon
Knockanglass
Parkstown
Derryvella
Gorteen Upper
Horse & Jockey
An Marcach
Liskeveen
New Birmingham
Gleann an Ghuail
Ballynastick
Curraheenduff
Glengoole North
Glengoole South
Coalbrook
Glaise an Ghuail
Lahespark
Knockalonga
Curraheen
Earlshill
Ballyphilip
Clashduff
Killeen
Derrynaflan
Tullequane
Lickfinn
Knockadrve
Lisnamrock
Kileheen
Springfield
Copper
Cooldine
Ballinunty
Baile an Fhantaigh
Fenor
Longford Pass
Loch Dhorail
Bhaile Loop
Moated Site
Church
Castle
Mound
Motte
Grave Yard
Holy Well
Old Deer Park
Burial Ground
Dovecote
Ballyvinane Br.
Ballymureen Br.
Coalbrook Br.
Lahardan Bridge
Drish Bridge
Lackan Cross
Leighcastle Cross
Star shaped Fort
Ring Fort
Standing Stone
Ballybeg Br.
Gallagh Br.
Gallagh
Knocknanuss
Derrycoogh Br.
Kilbraugh
Knockanglass
Gorteenrainde
Clonamickon
Springfield
Lisnamrock
Clashduff
Ballyphilip
Earlshill
Curraheen
Knockalonga
Coalbrook
Glengoole South
Glengoole North
New Birmingham
Horse & Jockey
Littleton
Tullequane
Killeen
Lahespark
Ballinunty
Cooldine
Derryvella
Derryhogan
Ballybeg
Poyntstown
Melissoon
Gorteen Upper
Gorteen Lower
Graigaman
Knockanglass
Ballynastick
Curraheenduff
Sallybog
Derrycoogh
Gortnahoo
Gort na hUamha
Garryclogh
Longfordpass South
Longfordpass East
Rathbeg
Graiguepadeen
Fennor
Tranagh
Urard
Kilmakill
Longfordpass North
Noard
Piercetown
Cloncleagh
Athlummon
Ballygammadle
Furze
Loughlahans
Lisduff
Knockanacunna
Cassestown
Manselstown
Shanballyduff
Rath-cooney
Knockroe
Knockcurra
Monatierna
Coldfields
Garraun
Wrensborough
Corbally
Rathmanna
Twomileborris
Burrios Léith
Borris
Leig

2.2 Project Description

2.2.1 Wind Farm

The Proposed Wind Farm will consist of 11 no. wind turbine generators (WTG's), creation of 3 no. new site accesses (2 no. on the Local Road L4114 and 1 no. on the Regional Road R639) to serve as construction and operation accesses to the Proposed Wind Farm Site, upgrading of 3 no. existing site entrances (1 no. on the L2201 and 2 no. on the Local Road L4153) to serve as construction and operation accesses to the Proposed Wind Farm Site, construction of 15.45 km of new internal access tracks and associated drainage infrastructure, upgrading of 2.95 km existing tracks and associated drainage infrastructure, 1 no. permanent onsite 110 kV electrical substation compound and associated infrastructure to facilitate connection to the existing Ballyragget 110kV substation. In addition, 1 no. on-site construction borrow pit is proposed which will be backfilled and restored for agricultural use. There are 6 no. dedicated peat and spoil deposition areas, 5 no. temporary construction compounds, and 1 no. permanent meteorological mast along with ancillary civil, drainage and electrical infrastructure. Construction of 4.0 km of a new recreational amenity in the form of walking/cycling trails within the Wind Farm Site and associated car parks. The Site also contains biodiversity enhancement measures within the Proposed Biodiversity Enhancement and Management Plan Lands.

2.2.1.1 Wind Turbine Description

The proposed turbine is a conventional 3 blade design. Schematic drawings of the candidate turbine accompany the planning application. The plans and particulars are precise and provide specific dimensions for the proposed turbine. The turbine specification will have a hub height of 119m and a rotor diameter of 162m with a tip height of 200m.

2.2.1.1.1 Turbine Layout

The Proposed Wind Farm layout reflects the outcome of iterative engineering and environmental constraints assessments carried out during the wind farm design process aimed at eliminating or minimising adverse effects on the environment and considered inter alia risks to sensitive habitats, presence of known or potential archaeological features, risk to sensitive species, assessment of ground conditions and optimisation of cut-fill balance as part of design and existing drainage patterns and water catchment characteristics. The layout of the Proposed Wind Farm has been designed to minimise the potential environmental effects of the wind farm while at the same time maximising the energy yield of the wind resource passing over the site.

The proposed turbine layout is shown in Figure 2-7.

Turbine location co-ordinates in Irish Transverse Mercator (ITM) are listed in Table 2-7 below.

Table 2-7: Wind Turbine Generator (WTG) Location Coordinates

WTG ID	ITM Easting	ITM Northing
T01	624044	657148
T02	623721	656639
T03	623595	656033
T04	623023	656034
T05	622809	655374
T06	623461	655081
T07	622465	654873
T08	623020	654421
T09	620928	651759
T10	621249	651425
T11	621455	651016

The turbines will have multiple painted coatings to protect against corrosion with an off-white or light grey non-reflective finish. This minimises visual impact, in accordance with the following guidelines on wind energy development:

- "Wind Energy Development – Planning Guidelines" (2006), Department of the Environment, Heritage and Local Government;
- "The Influence of Colour on the Aesthetics of Wind Turbine Generators," ETSU W/14/00533/00/00;
- PAN 45, The Scottish Office Environment Department;
- PPG22, Department of the Environment - Welsh Office; and
- Technical Advice Note 8, Welsh Assembly, 2005.

It is proposed to install lighting on the turbines in accordance with the requirements of the Irish Aviation Authority (IAA) for aviation visibility purposes. The lighting configuration and type will be in accordance with the International Civil Aviation Organisation (ICAO) obstacle light requirements.

2.2.1.1.2 Turbine Tower and Foundation

Following detailed site investigations, it has been determined that the wind turbine foundations at the proposed Wind Farm Site will be a combination of standard shallow and piled reinforced concrete foundations. The turbine foundation bases are circular in shape, 31 m in diameter for shallow foundations, 27 m in diameter for piled foundations, and 3.65 m in depth.

The turbine foundations shall be constructed using standard reinforced concrete construction techniques.

A section of reinforced concrete foundation called a plinth shall protrude above ground to which the turbine tower will be bolted.

Turbine foundations will be designed to Eurocode Standards. Foundation loads will be provided by the wind turbine supplier, and factors of safety will be applied to these in accordance with European design standards:

- EN 1992-1-1: Eurocode 2: Design of concrete structures.
- BS EN 61400-1:2005: Wind Turbines Design Requirements.

The tower of the turbine is a conical steel tube, delivered to site in sections and bolted together using flanged connections.

Once the turbine components arrive on site they will be placed on the hard standing and lay down areas prior to assembly. The towers will be delivered in sections, and each blade will be delivered in a separate delivery. Once there is a suitable weather window the turbine will be assembled.

The first (base) section is bolted to a steel frame, which is cast into the turbine concrete foundation. The upper sections of the tower are bolted to the lower ones in sequence. The base of the tower is 6.5m in diameter, tapering to 4m where it is attached to the nacelle. The first floor of the tower is 2-3m above ground level it is accessed by a galvanised steel staircase and a steel hatch door which will be kept locked except during maintenance. Access to the top platform in the tower is by a ladder or service lift. Access to the nacelle from the top platform is by ladder. Access to the transformer room in the nacelle is controlled with an interlock.

2.2.1.1.3 Turbine Blades and Hub/Nacelle

The blades of the proposed wind turbine are made up of glass fibre reinforced polyester. They turn at between 5-15 revolutions per minute depending on the wind speed and type of turbine.

A turbine begins generating electricity at a wind speed of 3-4 m/s depending on the turbine type, with rated power generation at wind speeds of 12-14 m/s. The turbines usually shut down at wind speeds greater than 25 m/s, although some machines are designed to operate at up to 30 m/s.

The cast iron hub supports the three blades and transfers the reaction loads to the nacelle which houses the generating components of the wind turbine including the generator and gearbox, electrical components and control unit. These convert the rotation of the blades to generator rotation.

A yaw mechanism turns the nacelle and blades into and out of the wind. A wind vane on the nacelle controls the yaw mechanism.

The blade bearings allow the blades to operate at varying pitch angles. Based on the prevailing wind conditions (determined by the wind vane), the blades are continuously positioned to optimise the pitch angle.

The turbines are equipped with an aerodynamic brake. Stopping the turbine is done by full feathering the three blades (individually turning each blade).

A glass fibre reinforced polyester hood covers the nacelle. The turbines are equipped with a Lightning Protection System (LPS) earthing and isolation to help protect the wind turbine against the physical damage caused by lightning strikes. Additionally, the turbines will be equipped with a Fire Suppression System. The turbine will also be equipped with an Ice Detection and Anti-Icing System.

2.2.1.1.4 Turbine Installation

It is anticipated that each turbine will take approximately 3 to 5 days to erect (depending on the weather) using two cranes. It is expected that the turbine installation phase of the construction works shall take place over a period of approximately 5-months.

2.2.1.1.5 Turbine Transformer and Wind Farm Power Output

The Proposed Development will have an estimated Maximum Export Capacity (MEC) of 68.2MW. Assuming an installed capacity of 68.2 MW, this level of generation capacity has been used to calculate the power output of the proposed Wind Farm based on the following calculation:

A x B x C = Megawatt Hours of electricity produced per year

where:

A = The number of hours in a year: 8,760 hours B = The capacity factor, which takes into account the intermittent nature of the wind, the availability of wind turbines and array losses etc. A capacity factor of 31% is applied here[6].

C = Rated capacity of the wind farm: 68.2 MW (worst case scenario to calculate the minimum theoretical power output)

The Proposed Development has the potential to produce approximately 185,203.92 MWh (megawatt hours) of electricity per year and over 6,482.14 GWh (gigawatt hours) of electricity over the 35-year lifetime of the Proposed Development. The electricity produced by the proposed wind farm would be sufficient to supply 44,906 Irish households annually, based on the average Irish household using 4.2 MWh of electricity[7].

2.2.1.2 Site Access, Internal Access Tracks and Hard Standings

2.2.1.2.1 Site Access Points

Access to the proposed Wind Farm Site shall be taken from the public road network at 6 no. points. These are a combination of existing bog operations accesses which shall be upgraded and proposed access points to be created to facilitate the construction and operation of the proposed wind farm. The individual access points are summarised as follows:

- 1 no. site access point (Access Point 1) in the south of the Site from the Local Road L-2201 to Lanespark at Ballybeg comprising the re-use and upgrading of an existing bog operations rail line and vehicular access crossing point. This access point shall be used during the construction phase only for general construction traffic;

[6] EirGrid in their All-Island Generation Capacity Statement (2017-2026) estimates a capacity factor of approximately 31% for onshore wind.
[7] This figure is taken from the March 2017 Commission for Energy Regulation (CER) Review of Typical Consumption Figures Decision Paper and Commission for Regulation of Utilities Energy and Water Monitoring Report for 2021

- 2 no. access points (Access Point 2 and 3) between Lanespark and Littleton Bog from the Local Road L-4153 at Derryhogan comprising the re-use and upgrading of an existing bog operations vehicular access road crossing point. These access points shall form a public road crossing. For Access Point 3 a minor realignment of a private gate and hedgerow is also proposed to allow for an appropriate sightline. A letter of consent for this is included. This shall be used as a crossing point for turbine components, and during the construction and operation phases of the Proposed Development;
- 2 no. access points (Access Point 4 and 5) within Littleton Bog off the Local Road L-4114 at Longfordpass North comprising the creation of two new access points on opposite sides of the public road. These access points shall form a public road crossing with the northern of these acting as a crossover point for HGVs, oversized loads and component deliveries only. The southern access point off the L-4114 local road shall be used during the construction and operation phases of the Proposed Development and will be the main access for day to day operations of the wind farm;
- 1 no. access point (Access Point 6) in the north of the site from the R639 at Longfordpass North comprising the creation of a new access point. This shall act as the primary access point to the site for the delivery of large turbine components and shall be used during the construction and operation phases of the Proposed Development. Access shall be via left turn only. It will not be used for general construction or operations traffic.

Table 2-8 to Table 2-10 below show the exact nature of the proposed accesses.

Table 2-8: Component Deliveries / Oversized Loads / HGVs Access

Access number	Road	Entrance	Exit	Notes
Access 1	L4101	X	X	No access or egress for component deliveries permitted.
Access 2	Unnamed local road at Derryhogan	✓	✓	No left or right turn, crossover to Access 3 permitted.
Access 3	Unnamed local road at Derryhogan	✓	✓	No left or right turn, crossover to Access 2 permitted.
Access 4	Unnamed local road at Longfordpass North	✓	✓	No left or right turn, crossover to Access 5 permitted.
Access 5	Unnamed local road at Longfordpass North	✓	✓	No left or right turn, crossover to Access 4 permitted.
Access 6	R639	✓	✓	Access will be via a left turn only

Table 2-9: General Construction Traffic (excluding HGVs) Access

Access number	Road	Entrance	Exit	Notes
Access 1	L4101	✓	✓	Construction vehicles permitted to enter and exit, both left and right turns permitted.
Access 2	Unnamed local road at Derryhogan	✓	✓	No left or right turn, crossover to Access 3 permitted.
Access 3	Unnamed local road at Derryhogan	✓	✓	Construction vehicles permitted to enter and exit, both left and right turns permitted.
Access 4	Unnamed local road at Longfordpass North	✓	✓	No left or right turn, crossover to Access 5 permitted.
Access 5	Unnamed local road at Longfordpass North	X	X	No access or egress for general construction traffic permitted.
Access 6	R639	X	X	No access or egress for general construction traffic permitted.

Table 2-10: General Operations Traffic Access

Access number	Road	Entrance	Exit	Notes
Access 1	L4101	X	X	No access or egress for general operations traffic permitted.
Access 2	Unnamed local road at Derryhogan	✓	✓	General operations vehicles permitted to enter and exit, both left and right turns permitted. No oversized loads to enter.
Access 3	Unnamed local road at Derryhogan	✓	✓	General operations vehicles permitted to enter and exit, both left and right turns permitted. No oversized loads to enter.
Access 4	Unnamed local road at Longfordpass North	✓	✓	General operations vehicles permitted to enter and exit, both left and right turns permitted.
Access 5	Unnamed local road at Longfordpass North	X	X	No access or egress for general operations traffic permitted.
Access 6	R639	X	X	No access or egress for general operations traffic permitted.

The layout of the site access points is shown on the planning application site layout plan drawings. For detail on the proposed access points to the Site, please refer to Figure 2-7.

The access points have been selected with consideration for safety of public road users, construction staff and to ensure that it can be constructed to comply with the requirements of both Tipperary County Council and TII design requirements for direct accesses.

All HGV traffic travelling to the site shall only be permitted to use approved transport routes and site access points as identified in the Traffic Management Plan (TMP).

2.2.1.2.2 Internal Access Tracks

The Proposed Wind Farm will include the construction of 15.45 km of new internal access tracks and the upgrading of 2.95 km of existing bog operations tracks and associated drainage infrastructure.

The proposed internal site track layout will permit access for vehicles during the construction phase, for maintenance during the operational phase and for vehicles to decommission the turbines at the end of the life of the Project.

All access tracks serving wind turbines will be 6 m wide along straight sections and wider junctions and turning areas as required as shown on accompanying planning application drawings in accordance with wind turbine manufacturer requirements. Access tracks serving the permanent met mast and onsite borrow pit exclusively shall be 6.0 m wide.

Internal wind farm access tracks shall be a constructed by a combination of founded and floating methods as required, the majority of the access tracks will be floated, with elements of access tracks for areas around hardstands and around accesses to public roads being founded. The design of access tracks has been determined by geotechnical walkovers and detailed site investigations.

The proportion of access track construction within the Site is as follows:

- Total length of new founded access track: 2.1 km;
- Total length of upgraded existing bog operations track: 2.95 km;
- Total length of new floating access track: 13.35 km.

Access track formation will consist of a minimum 500 mm compacted hardcore on geo-textile membrane with a capping layer of compacted granular stone (CL 804) to form a suitable running surface. The proposed construction methodology for newly constructed tracks is as follows:

Excavated soil will be placed along the side of sections of the tracks in suitable locations as identified in the Peat and Spoil Management Plan (Appendix 8.2, Volume 3) and where appropriate to blend in with surrounding landscaping and partially obscure visibility of the track during operation. Surplus spoil material shall be deposited in designated construction borrow pits and deposition areas as identified in the Peat and Spoil Management Plan.

The stone required for the construction of the internal access tracks will be sourced from within the Site construction borrow pit and from licenced quarries in the vicinity of the Proposed Development. The location of licensed quarries and haulage routes are identified in Chapter 15 and in Figure 15.6, Volume 4.

Further details on access track construction are provided in the CEMP in Appendix 4.1, Volume 3.

Internal access track drawings are presented in the 100-Series planning application drawings.

A drainage system will be installed adjacent to the internal access tracks. Existing drainage infrastructure will be maintained and upgraded where necessary. Existing drainage channels will be upgraded to the same standard as the proposed drainage infrastructure in accordance with the drainage design and Surface Water Management Plan which can be found in Appendix 9.2, Volume 3.

Drainage infrastructure will be constructed in parallel with the access track construction.

Drainage ditches will be formed, within the excavated width and along the sides of the internal access tracks.

The layout of the proposed drainage system can be found on planning application drainage drawings, prepared by Hydro-Environmental Services (HES).

2.2.1.2.3 Hard Standing and Laydown Areas

Each wind turbine will have a turbine hard standing and laydown area adjacent to the foundation to accommodate the delivery and temporary storage of the turbine components prior to their erection and to support the cranes during erection.

Once the turbine components arrive on site they will be placed on the hard standing and lay down areas prior to assembly. The towers will be delivered in sections, and each blade will be delivered in a separate delivery. Subject to suitable weather conditions the turbine will be assembled.

A turbine hard standing area consists of a main crane pad hard standing of 88 m x 30 m with a number of additional smaller hard standings that act as ancillary crane pads and set down and assembly areas, located as shown on the accompanying planning drawings, Series No. 0102. This area will accommodate a main crane and an assist crane during the assembly of the turbine, as well as during occasional maintenance periods during operation. It will also facilitate parking for operation and maintenance staff.

2.2.1.2.4 Watercourse Crossings

Table 2-11 below lists the Watercourse Crossings of WFD Watercourses within the Site. Please refer to Appendix 8 for a full description and assessment of all other drain and minor crossings.

Table 2-11: List of EPA Watercourse Crossings in Wind Farm Site

EPA Watercourse Name	EPA Code	Existing Crossing Description	Existing Crossing Details	Proposed Crossing
North Glengoole	16N28	Existing, well-established culvert With machine pass, rail bed, and associated drainage overtop	Open and working upstream and downstream. Corrugated circular culvert pipe. Heavy tree and scrub growth at inlet and outlet. Culvert diameter 1.2m, culvert length ~52m	Existing Culvert
Black [Two Mile Borris]	16B01	Existing, well-established culvert With machine pass, rail bed, and associated drainage overtop.	Open and working upstream and downstream Corrugated circular culvert pipe. Heavy tree and scrub growth at inlet and outlet. Culvert diameter 1.5m, culvert length ~55m	Existing Culvert

2.2.1.3 Permanent Meteorological Mast

One (1 no.) permanent meteorological (met) mast shall be erected on Site at the location shown on the Site Layout Figure 2-7.

The mast shall comprise a 120m high lattice steel structure with a shallow reinforced concrete foundation. A lightning rod will extend above the mast by 4 metres.

The met mast installation works will be as follows:

- An access track will be extended towards the mast location from the local road as shown on Figure 2-7. The access track will be 6 m in width. Temporary and permanent drainage infrastructure will be extended, and underground cable power supply will be provided along the new access.
- A small aggregate crane pad of 40 m x 15 m in size will be constructed in front of the proposed mast location.
- General construction methods for the above access track and hard standing will match those described for wind farm access tracks and hard standings however the dimensions and stone depth requirements of the infrastructure will be considerably less than that required for that serving the wind turbine construction.
- The foundation will be excavated followed by shuttering, steel fixing and finally concrete pouring by ready mix truck. The foundation will be 12 m x 12 m x 1.8 m in size.
- Following crane setup, the mast sections will be delivered and unloaded by truck.
- In accordance with an agreed lifting plan, mast sections will be lifted by crane into place. Wind speeds will be monitored at all times during lifting operations by the lead climber and crane operator.

- Mast sections will be bolted together by climbers.
- Following erection of main mast sections, lightning protection and other ancillary components will be fixed to the mast.

Details of the proposed met mast design can be found in the planning application drawings, Series No. 0500 (Appendix 9).

2.2.1.4 On-Site Electrical Cabling

Electricity generated from wind turbines will be collected at medium voltage (33kV) by an internal circuit of buried cables. This circuit will be terminated at the proposed onsite substation. The internal collector circuit cable routes are shown on the 0100 series planning application drawings and will follow the alignment of the internal access tracks.

The electricity will be transmitted as a three-phase power supply so there will be three individual conductors (or individual cables) in each cable circuit. The three conductors will each be laid in separate ducts which will be laid in a trefoil formation but may also be laid in a flat formation where conditions require it such as where the ducts need to cross an existing structure or culvert in such cases, cable ducts will be cast into the structures to allow the power cables to cross the watercourses under the access tracks.

Internal cable trench section types associated with on-site electrical cabling are presented in the accompanying planning application drawings.

2.2.1.5 Construction Borrow Pit and Peat /Spoil Deposition Areas

The civil engineering assessment of the Proposed Development indicates the requirement for over 316,148 m^3 of stone across the Site to provide for the internal access tracks, hard standings, upfill to foundations and construction of the temporary compounds. Further details are provided in the Peat and Spoil Management Plan contained in Appendix 8.1 and Chapter 8 – Land, Soils and Geology.

One (1 no.) construction borrow pit has been identified within the Site.

The construction borrow pit will be excavated only as required. Where rock and fill material are available from the formation of turbine foundations, turbine hard standings and internal access tracks this material will be used first.

Weaker rock will be extracted using a hydraulic excavator and a ripper. Where stronger rock is encountered and cannot be extracted using an excavator, then rock breaking equipment will be employed. This will typically involve the use of a hydraulic excavator with a rock breaker.

Excavated rock will be crushed on site using a mobile crusher and crushed down into the correct grade for use in the construction.

The location and design of the construction borrow pit is shown planning drawings - Series 0100 and 0600.

The construction methodology for borrow pit is provided in the CEMP in Volume III, Appendix 4.1.

Surplus topsoil/peat and spoil will be deposited in berms for reinstatement purposes around turbine bases, hardstanding and within proposed designated Peat Deposition Area (PDAs), shown in Figure 4.2. Details of peat and spoil management are presented in Appendix 8.1 – Spoil and Peat Management Plan in Volume 3.

2.2.1.6 Biodiversity Enhancement and Management Plan Measures

A Biodiversity Enhancement and Management Plan (BEMP) has been prepared to outline a set of land management prescriptions as part of proposed project. The BEMP is located in Appendix 6.1 of Volume III of the EIAR/NIS.

The BEMP lands are located wholly inside the site boundary, in Littleton Bog, and shown on Figure 6.15.

The BEMP includes the following:

- Details of all measures to be taken to protect and enhance habitats of local biodiversity value occurring at the site and the species which utilise the same within the vicinity;
- A description of target habitats and range of species appropriate to the site;
- Appropriate strategies for maintaining existing and targeted habitats and species;
- Timelines for new planting and habitat creation;
- Details of ecological oversight and monitoring;
- A map identifying the areas to be managed.

The measures set out in the BEMP include those designed to protect and enhance existing habitats. Higher value habitats will be actively managed to maintain and improve their value and lower value habitats will see specific interventions designed to improve their attractiveness for a range of species. Appropriate planting will increase the available feeding, roosting and nesting cover for wildlife.

The BEMP programme will run for the lifetime of the Proposed Development and many of the proposed features (e.g. tree and hedgerow planting) will have a longer-lasting biodiversity benefit.

It is expected that measures associated with the implementation of the proposed BEMP will be equivalent to standard agricultural activities and will be maintained by BnM.

2.2.1.7 Recreational Amenity Trails

As part of the Proposed Development, a recreational amenity in the form of walking and cycling trails is proposed within the Wind Farm Site to enhance public access and promote the recreational use of the area.

A network of trails forming loops and links is proposed utilising a combination of the internal access tracks proposed for the windfarm and approximately 4.0 km of new floating dedicated amenity tracks, with all new amenity trails designed to a width of 3 m to accommodate both pedestrians and cyclists. To support public access, an additional car parking area is proposed adjacent to the site entrance to the R639 in proximity to the amenity trail.

As part of this dog proof fencing is included, which will help to protect adjacent sensitive areas.

A drainage system will be installed adjacent to the amenity tracks. Existing drainage infrastructure will be maintained and upgraded where necessary. Existing drainage channels will be upgraded to the same standard as the proposed drainage infrastructure in accordance with the drainage design and Surface Water Management Plan which can be found in Appendix 9.2, Volume 3.

The proposed locations and layouts of the recreational trails and associated infrastructure are illustrated in the planning application drawings, Series No. 0100.

2.2.1.8 On-Site Electricity Substation

An onsite 110 kV electricity substation will be constructed within the Proposed Wind Farm Site as shown in Figure 2-7. This will provide a connection point between the wind farm and national grid via underground cabling to the existing Ballyragget 110kV substation within the townland of Ballyragget, Co. Kilkenny.

The total area of the on-site substation compound is 9,375 m^2 and consists of 3 no. sub-compounds as follows:

- TSO compound measuring 25 m x 18 m, 9.69 m in height;
- IPP compound measuring 29.2 m x 9.3 m, 4.71 m in height;
- Ancillary services equipment compound measuring 36.7 m x 12.2 m.

The substation compound will include 2 no. substation control buildings and electrical components necessary to export the electricity generated from the wind farm to the national grid. The substation compound will be surrounded by a 2.7-metre-high steel palisade fence and internal fences will also be provided to segregate different areas within the main substation compound. A total of 10 no. car parking spaces are proposed of the overall substation compound, 4 no. to serve the ESB compound and 6 no. for the developers IPP compound, of which 4 no. are to be EV parking spaces with chargers provided.

Lighting will be required on site, and this will be provided by lighting poles located around the substation and exterior wall mounted lights on the control buildings. This lighting will be sensor activated.

2 no. wastewater holding tanks will be provided outside the substation compound fence line so that it can be maintained where required without requiring access to the substation compound. The wastewater holding tank will be a sealed storage tank with all wastewater tankered off site as required by an authorised waste collector to a wastewater treatment plant. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007, will be employed to transport wastewater away from the site. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. 2 no. bored wells are proposed which will provide water to the substation, additionally, 2 no. rainwater harvesting tanks associated with the substation will also be installed.

The substation compound will also contain external electrical and ancillary infrastructure including the following:

- Cable sealing ends;
- Surge arrestors;
- Cable disconnectors;
- Post insulators;
- Circuit breakers;
- Current and voltage transformers;
- Steel gantry's and cable chairs;
- Power transformers;
- Power quality compensation equipment;
- Concrete plinths and bunds;
- External lighting;
- Lightening protection masts;
- Telecommunications mast;
- Security cameras;
- Palisade and stock proof fencing and gates.

There is 1 no. 36m high telecommunications mast located adjacent to the substation compound with an approximately 1 m long lightning protection rod protruding above this).

There are 6 no. lightning protection masts (18 m in height), these will represent the tallest structures in the compound.

Details of the proposed substation compound and equipment can be found in planning application drawings, Series 0102.

2.2.2 Grid Connection

2.2.2.1 Grid Connection Cabling

The proposed Grid Connection (GC) route will consist entirely of underground 110kV cable and will connect the on-site substation at Littleton Bog to the existing Ballyragget 110 kV substation within the townland of Ballyragget, Co. Kilkenny.

The proposed GC route will be 30.9 km in length, with 28.4 km to be constructed within the existing road corridor and the remainder in private lands. Refer to Figure 2-8 for the overall layout of the GC route.

Connection works from the onsite substation to Ballyragget substation will involve the installation of ducting, joint bays and ancillary infrastructure and the subsequent running of cables along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches and road surfaces.

For cable trenches located in public roads, the contractor will excavate cable trenches and then lay high density polyethylene (HDPE) ducting in the trench in a surround of cement bound material. A rope will be inserted into the ducts to facilitate cable-pulling later. The as-constructed detail of the cable duct locations will be carefully recorded. Cable marker strips will be placed above the ducts and two communication ducts will also be laid. An additional layer of cable marker strips will be laid above the communication ducts and the trench backfilled. Back-filling and reinstatement in public roads will be to a specification to be agreed with the road authority, at a minimum matching the pre-construction surface. Please refer to Appendix 13 for details of the grid connection and cabling.

A minimum separation distance of 300mm will be maintained between existing services and new cable ducts. New cable ducts will be laid below existing services wherever possible.

In advance of the construction phase, cable detection tools, a ground penetrating radar and slit trenches will be used, as appropriate, to verify the exact locations of existing services. The final locations of the proposed cable routes in the public roads and in the verge along the public road will be within the area indicated and assessed in the EIAR and NIS supporting the planning application and will minimise conflicts with other services.

It is expected that full road closures will be put in place to facilitate cabling works in combination with lane closures, partial road closures and stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time for residents of the area. These works shall be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section. This is described in more detail in Chapter 15, Volume 2 of the EIAR.

Connection works within the Ballyragget substation property boundary will be carried out by the network operator in accordance with a future grid connection offer.

2.2.2.2 Watercourse Crossings Along the Grid Connection Route

The GC cable route contains 11 no. watercourse crossings, 10 no. of which are EPA mapped. These are listed in Table 2-12 below.

Table 2-12: Grid Connection Watercourse Crossings

Crossing ID	Easting (ITM)	Northing (ITM)	Feature	EPA Watercourse Name	EPA Code	Proposed Crossing Methodology
GC-WC-01	624884	660459	River	Drish River	16D02	HDD
GC-WC-02	627557	662814	River	Goul River	15G02	HDD
GC-WC-03	628129	663283	Stream	Ardreagh Stream	15A03	HDD
GC-WC-04	630026	663573	Stream	Borrisbeg Stream	15B18	HDD
GC-WC-05	631586	663278	Stream	Borrisbeg Stream	15B18	HDD
GC-WC-06	635357	663902	Stream	Clomantagh_Lower Stream (not present)	15C91	Within road
GC-WC-07	640307	664969	Stream	Gorteenahilla Stream	15G08	HDD
GC-WC-08	640626	665400	Stream	No EPA mapped stream at this location	N/A	HDD
GC-WC-09	642120	667578	Stream	Lismaine Stream	15L16	HDD
GC-WC-10	643572	668666	Stream	Lisdowney Stream	15L02	HDD
GC-WC-11	643930	671951	River	River Nore	15N01	HDD

10 no. crossings will be traversed using horizontal directional drilling (HDD). The remaining crossing will be traversed by undercrossing or overcrossing methods, depending on the depth of the culvert or using open trenching.

2.2.2.3 Joint Bays and Communication Chambers

Joint bays are pre-cast concrete chambers where individual lengths of cables are joined to form one continuous cable. A joint bay is constructed in a pit. The bay is 6m x 2.5m x 2.1m deep. A reinforced precast concrete slab is laid in the bay to accommodate the jointing enclosure.

Suitable joint bay locations along the grid connection route have been identified and assessed as part of the EIAR/NIS.

It is expected that 70 no. joint bays will be required for the grid connection. Of these, 67 no. joint bays shall be located in public roads with 3 no. located on private lands. The locations of joint bays are shown in Figure 2-8.

Precast concrete cable joint bays will be installed within excavations in line with the cable trench. The cable joint bays are backfilled and the finished surface above the joint bay reinstated as per its original condition.

The cable joint bays are re-excavated a second time during cable pulling and jointing, after which the finished surface above the joint bays is reinstated again to its original condition. Construction work areas and traffic management measures will be set up at 2 no. consecutive cable joint bays simultaneously. The underground cable will be pulled through the installed ducts from a cable drum set up at one joint bay and using a winch system which is set up at the next joint bay, the cable is pulled through. The cables are jointed within the precast concrete cable joint bays. The finished surface above each cable joint bay is reinstated to its original condition, and the construction work area removed.

2.2.3 Turbine Delivery Route

Large components associated with the wind farm construction e.g. turbine blades and tower sections, will be transported to site via the identified turbine delivery route (TDR) which travels along the following summarised route:

- Loads will exit the Port of Entry (PoE) of Foynes Port and join the N69 heading east;
- At Limerick, they will join the N18 heading northeast and merge onto the M7;
- Loads will exit at Junction 17 Portlaoise Interchange and perform a U-turn to re-join the M7 heading southwest;
- They will merge onto the M8 and continue southwest;
- At the M8 Junction 4 East Roundabout loads will turn left to join the R693;
- At the following roundabout loads will turn right onto the R639 then drive through Urlingford;
- To the southwest of Urlingford loads will turn left at the proposed site entrance.

A substation transformer unit will be transported to site which will be categorised as an abnormal load. As a result, an abnormal load permit will be sought for this movement. Multiple transformers have already been delivered to ESBN substations in the area without any impact on the structures along the road network.

A route selection process was carried out to identify the optimum delivery route to the Site. Please refer to Appendix 14 for details of the TDR.

2.2.3.1 Temporary Accommodation Works

Temporary accommodation works will be required at selected locations along the TDR to facilitate the delivery of large components to the site. No permanent road widening or junction accommodation works are required along the turbine delivery route. Some temporary hardcore surfacing will be required at roundabouts or areas of oversail. All temporary accommodation works associated with the TDR will be fully reinstated following the construction stage.

Temporary accommodation works will only be required during the operational phase in the unlikely event of a major turbine component replacement. The temporary accommodation works will not be required for the decommissioning phase as turbine components can be broken up on site and removed using standard HGVs.

Table 2-13: TDR Temporary Accommodation Works between M8 and Site

TDR Node Reference	Location	Summary Description of Proposed TemporaryTemporary Accommodation Works
18	M8 / R693 Roundabout	Removal of two lighting columns and road signs and vegetation clearance to facilitate oversail. Load bearing surface to be laid.
19	R693 / R639 Roundabout	Removal of lighting columns, road signs and tree clearance and laying of load bearing surfacing.
20	R639 Splitter Island	Removal of traffic calming bollards and a load bearing surface to be laid.

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Site Boundary:
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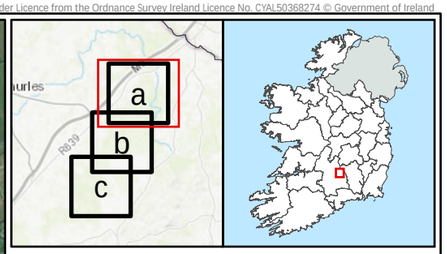

Legend

- Site Boundary
- Access Tracks
- Amenity Car Park
- Borrow Pits
- Hardstanding
- Peat Deposition Area
- Substation Compound
- Construction Compound
- Amenity Track
- Access Points
- Telecom Mast
- Turbine Locations

TITLE:	Site Layout		
PROJECT:	Littleton Wind Farm		
FIGURE NO:	2.2.a		
CLIENT:	Littleton Wind Farm DAC		
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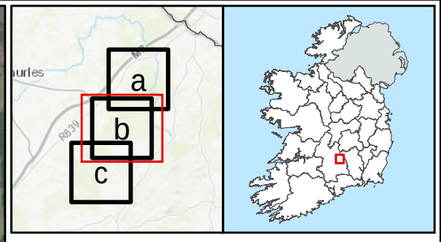

Legend

- Site Boundary
- Access Tracks
- Hardstanding
- Peat Deposition Area
- Construction Compound
- Amenity Track
- Access Points
- Met Mast
- Turbine Locations

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TITLE:	Site Layout		
PROJECT:	Li t leton Wind Farm		
FIGURE NO:	2.2.b		
CLIENT:	Li t leton Wind Farm DAC		
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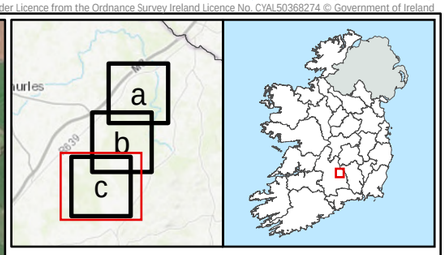

Legend

- Site Boundary
- Access Tracks
- Hardstanding
- Peat Deposition Area
- Construction Compound
- Amenity Track
- Access Points
- Turbine Locations

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TITLE:	Site Layout		
PROJECT:	Lisleton Wind Farm		
FIGURE NO:	2.2.c		
CLIENT:	Lisleton Wind Farm DAC		
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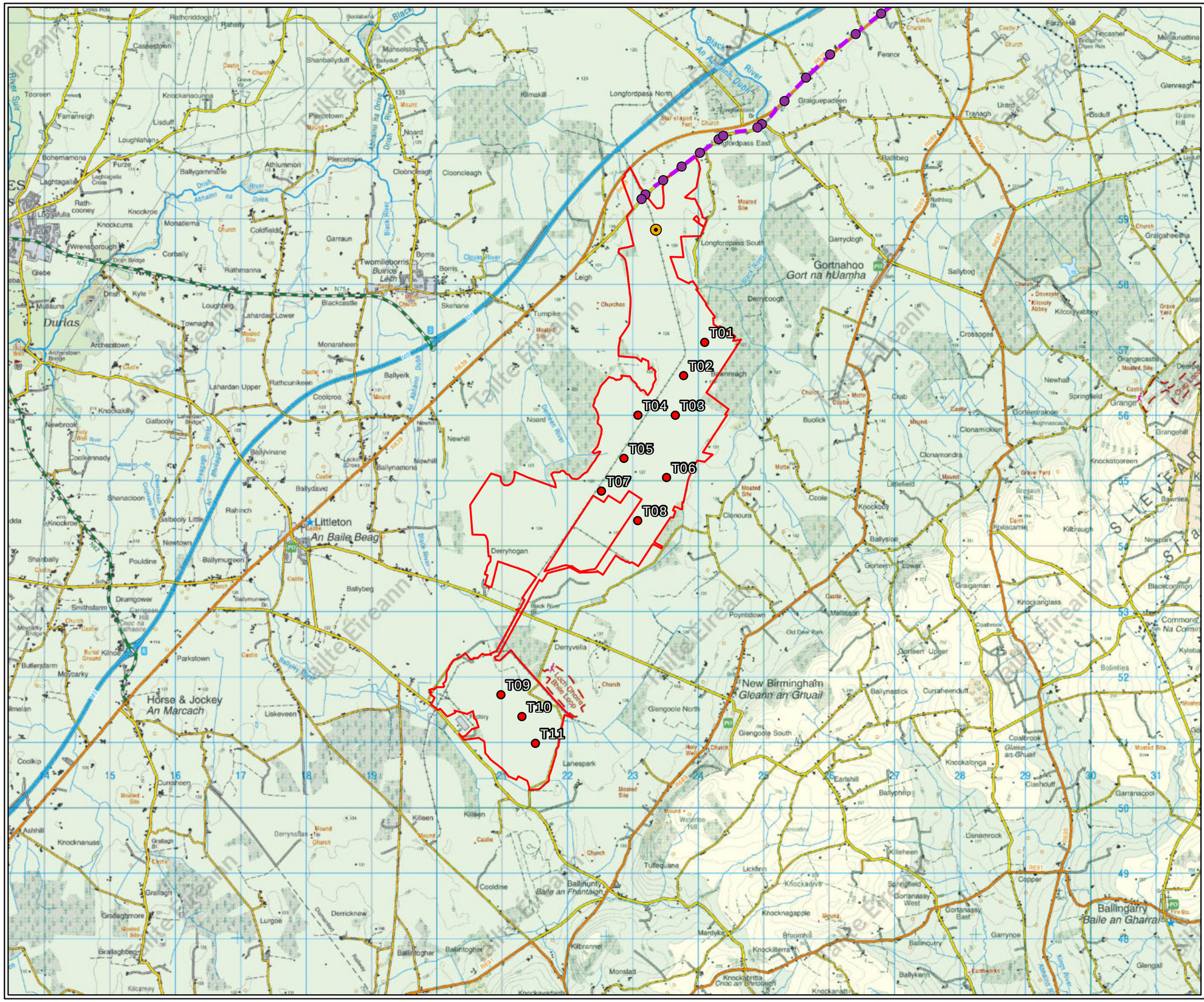

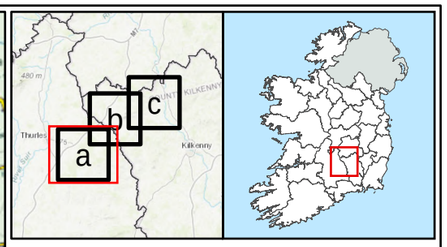

Legend

- Site Boundary
- Grid Connection Route
- Onsite Substation
- Turbine Locations
- Joint Bays

TITLE:	Grid Connection Route
PROJECT:	Littleton Windfarm
FIGURE NO:	2.3.a
CLIENT:	Littleton Wind Farm DAC
SCALE: 1:57,000	REVISION: 0
DATE: 03/03/2026	PAGE SIZE: A3

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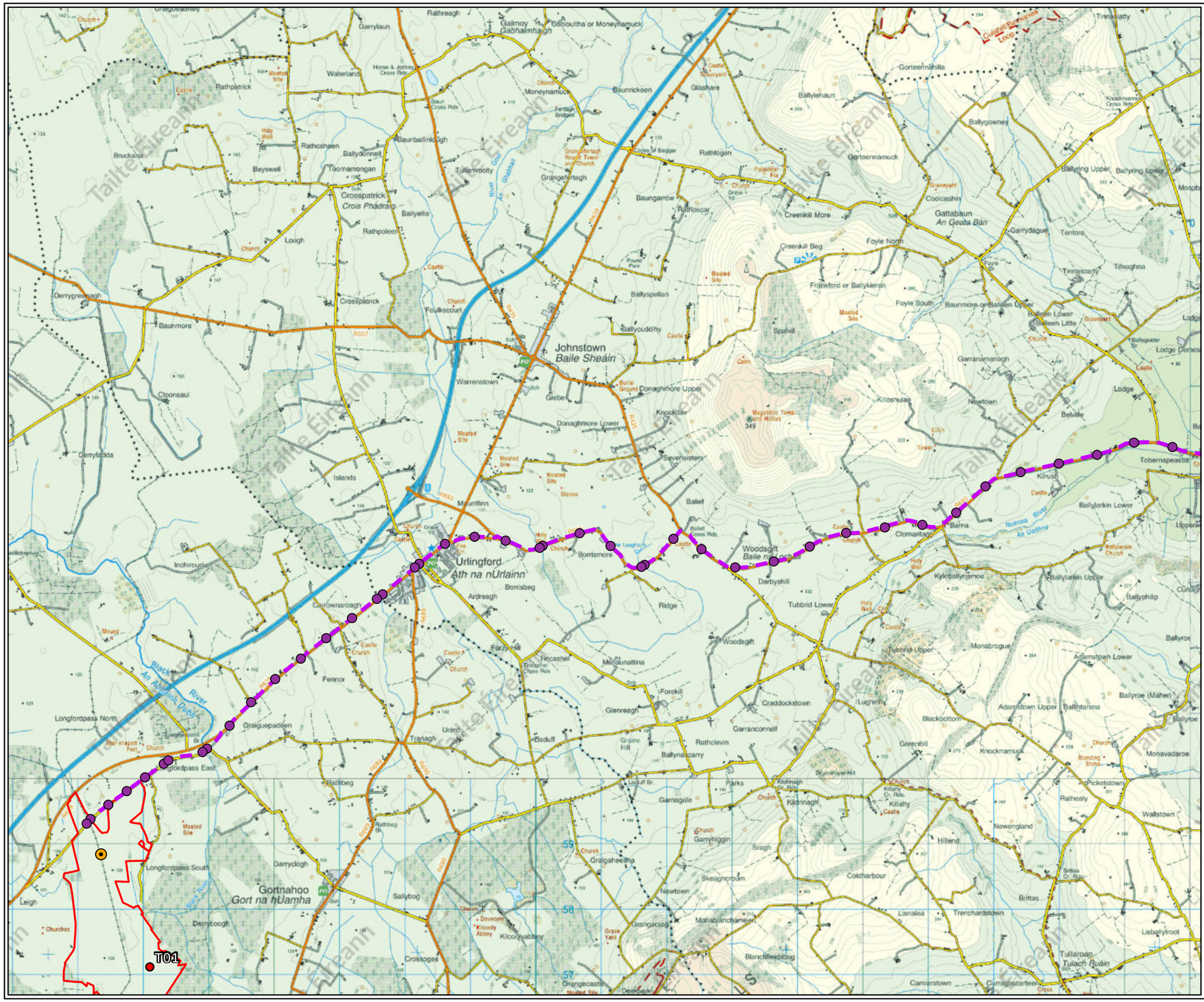

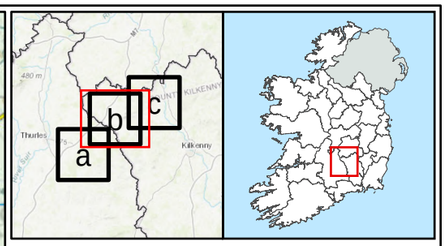

Legend

- Site Boundary
- Grid Connection Route
- Onsite Substation
- Turbine Locations
- Joint Bays

TITLE:	Grid Connection Route		
PROJECT:	Littleton Windfarm		
FIGURE NO:	2.3.b		
CLIENT:	Littleton Wind Farm DAC		
SCALE:	1:57,000	REVISION:	0
DATE:	03/03/2026	PAGE SIZE:	A3

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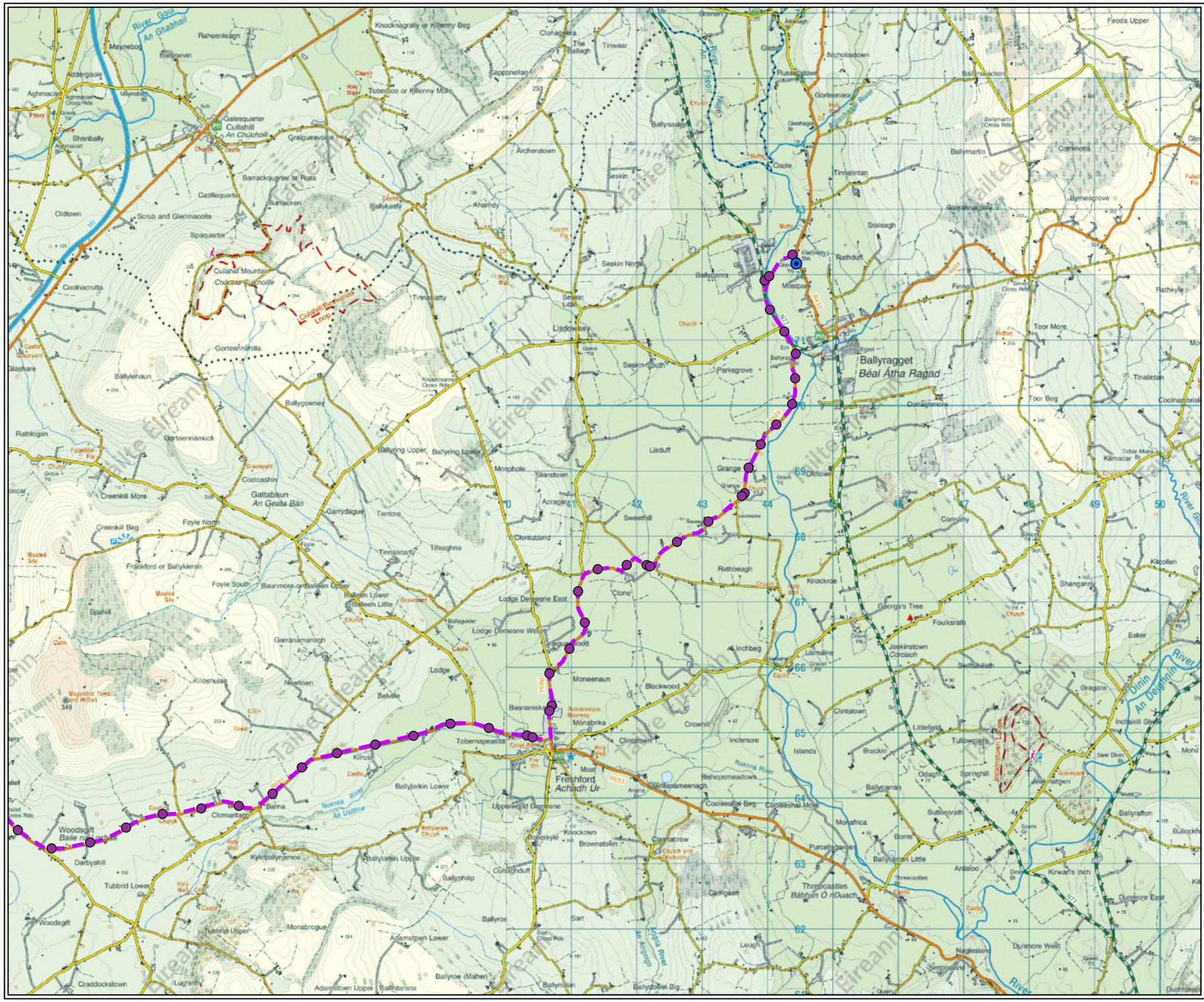

Legend

- Grid Connection Route
- Ballyragget 110kV Substation
- Joint Bays

TITLE:	Grid Connection Route		
PROJECT:	Littleton Windfarm		
FIGURE NO:	2.3.c		
CLIENT:	Littleton Wind Farm DAC		
SCALE:	1:57,000	REVISION:	0
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2.3 Potential Interactions of the Project with the receiving environment

Having regard to the European Commission (2021) guidance document and the OPR (2021) practice note, the potential sources of impacts from the project to be considered are set out (in Table 2-14) relative to the following criteria:

- Habitat destruction/fragmentation/deterioration;
- Surface water run-off carrying suspended silt and contaminants, into local watercourses;
- Changes to groundwater quality, yield and/or flow paths associated with the Project ;
- Project related activities (noise, vibration, lighting, human presence, structures, etc);
- Air pollution due to dust and other airborne emissions; and

These impacts are further examined in defining the Zone of Influence (ZoI) of the project to identify likely significant effects through the Source-Pathway-Receptor assessment (Section 3.2).

Table 2-14: Identification of sources for impacts arising from the Project that have potential for interactions with the receiving environment.

Criteria	Potential sources of impact	Conclusion
Habitat destruction / fragmentation / deterioration	*Construction Phase* Site clearance and land take resulting in the removal of areas/lengths of: • FL1 - Dystrophic lakes • FL2 - Acid oligotrophic lakes • FS1 - Reed and large sedge swamps • FW4 - Drainage ditches • GS1 - Dry calcareous and neutral grassland • GS2 - Dry meadows and grassy verges • GS4 - Wet grassland • PB4 - Cutover bog • WN1 - Oak-birch-holly woodland • WN7 - Bog woodland • WS1 - Scrub • WS2 - Immature woodland • FS1 - Reed and large sedge swamps • FW4 - Drainage ditches • WL1 - Hedgerows	The potential for biophysical change by disturbance/damage/degradation to habitats is taken as the footprint of the works (including any site clearance and all temporary works areas) plus 10m beyond on OPW (Ryan Hanley), 2014[8] (to account for a construction works area). No Annex I habitat is present within the proposed footprint. Limited areas of degraded raised bog with links to the Annex I habitat type 'Degraded raised bogs still capable of natural regeneration' [7120] are present near proposed access tracks but are not overlapped by proposed infrastructure. All proposed works are located outside European Sites. Vegetation clearance of wooded habitats will reduce habitat and foraging opportunities for some bird species. There is potential for effects from the spread of invasive plant species during construction and also during maintenance and decommissioning.

[8] Ryan Hanley (2014) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes. Prepared by Ryan Hanley Consulting Engineers on behalf of the Office of Public Works.

Criteria	Potential sources of impact	Conclusion
	A small growth (several stems) of Japanese knotweed is present adjacent to the proposed access track at the Longfordpass local road bell mouth entrance. The Japanese knotweed is currently over 8m from the edge of the proposed works area; however, due to the ability of this species to spread vegetatively via rhizome growth, there is potential for interactions with this growth. *Operational Phase* Periodic maintenance of bat felling buffers affecting Scrub and semi-natural successional habitat mosaics establishing in felling buffers. In the event that Japanese knotweed spread to the proposed access road, a risk of further spread to other parts of the site would exist. In the event that invasive species spread to turbine locations during operation, activities such as maintenance of bat felling buffers could accelerate the spread of these invasive species. *Decommissioning Phase* Land take associated with the decommissioning phase will be minimal and habitat loss will be limited to trimming or felling of limited areas of wooded habitats at the Project site to facilitate clear passage of turbine parts being removed.	

Criteria	Potential sources of impact	Conclusion
	Turbine components will be broken down prior to removal, resulting in reduced clearance requirements and therefore reduced effects arising from transport off site. If invasive species were present at decommissioning, potential for similar effects to those associated with construction would exist.	
Surface water run-off carrying suspended silt and contaminants into local watercourses.	*Construction Phase* Soil disturbance caused by heavy machinery tracking, earth works and construction activities. De-watering of excavations generating silted discharges. Leaks of hydrocarbons such as fuel or lubricating oils. Washout of wet cement. Construction of watercourse crossings at the Site. Runoff from grid connection trench excavations and HDD launch pits and /or frac-out. *Operational Phase* Periodic maintenance of bat felling buffers could give rise to localised runoff of silted surface water.	Inland Fisheries Ireland (2020) guidelines[9] on the protection of watercourses through the use of buffer zones states that to protect waterbodies, "*the recommended buffer zone width from larger river channels (>10m) is 35m to 60m and from smaller channels (<10m) is 20m or greater*". For the purpose of this assessment, it is assumed that where the activities listed as potential sources of impact occur within 60m of a watercourse then pollution is likely. The layout of the Project has been specifically designed to ensure that the major wind farm infrastructure (i.e. turbines, hardstands, substation, met mast, borrow pit and construction compounds) avoid the main watercourses, achieving a minimum 60m setback from watercourses. However, the Project lands are heavily drained and there will be interaction with land drains as part of the Project. While these land drains are not themselves ecologically important habitat and do not support QIs, they do provide connectivity to the larger watercourses in the catchment. As such, there is potential for degradation or loss of aquatic habitat of ecological value during the works through indirect effects resulting from water pollution.

[9] Inland Fisheries Ireland (2020) 'Planning for Watercourses in the Urban Environment: A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning'.

Criteria	Potential sources of impact	Conclusion
	Potential hydrocarbon pollution from vehicles or transformer oils. *Decommissioning Phase* There is potential for similar effects to those associated with construction to arise from soil disturbance and reinstatement activities.	
Changes to groundwater quality, yield and/or flow paths associated with the Project.	*Construction Phase* De-watering associated with excavation of the construction borrow pit has potential to affect local groundwater levels; however, any reductions would be temporary and localized due to permeability of the local subsoil. The installation of turbine bases in underlying glacial deposits is likely to require temporary dewatering. However, due to the dominance of moderate to low permeability glacial till subsoils and lacustrine deposits below the bogs the effects on groundwater levels will be localised and temporary during construction work. Effects on water levels are unlikely to occur beyond 50m from any excavation. Due to the limited size and depth of excavation required for the GC, there is no potential for excavations to influence water levels within the Loughans Turlough. There is potential for reductions in groundwater quality in the event of pollution (e.g. hydrocarbon or cement spillage).	Any potential alterations to groundwater quality, yield and/or flow paths will be localised (affecting the proposed site and adjacent areas) and are unlikely to give rise to effects to surface or groundwater at greater distances. *'Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems'*, (SEPA, 2024) prescribes the following distances in assessing risk to Groundwater Dependent Terrestrial Ecosystems GWDTE: 10m for all activities, 100m for subsurface activities <1m deep and 250m for subsurface activities >1m depth. As such a ZoI of 250m has been adopted when assessing the potential for impacts on GWDTE. It is noted that any groundwater pumped from excavations will be discharged by diffuse outfall over land following treatment, and as such there will be no net loss to the groundwater volumes or to baseflow in watercourses (where there is a groundwater – surface water interaction.

Criteria	Potential sources of impact	Conclusion
	Operational Phase No operational phase effects on ground water. *Decommissioning Phase* As per the construction stage.	
Project related activities (noise, vibration, lighting, human presence, structures, etc.) leading to disturbance / displacement of species.	*Construction Phase* During the construction phase (24 Months) there will be human presence and machinery on site, typically during sociable working hours (no regular night-time or early morning work is proposed, however occasional late night or early morning activities may occur). *Operational Phase* Turbine operation resulting in bird collision and / or displacement. Intermittent inspection and maintenance of the Project is unlikely to result in disturbance. *Decommissioning Phase* There is potential for similar effects to those associated with construction to arise.	The general disturbance zone for otter adopted for this assessment is 50m beyond the footprint of onsite activities having regard to Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (CC-ENV-01104) (TII, 20006 republished 2025). Note that this ZOI is extended to 150m to account for any breeding places of protected otter. Noise, vibration, artificial lighting and human presence during the construction phase of the Project could potentially disturb otter. Note however, no breeding or resting places have been recorded through desktop assessment and field survey within this ZoI of the Project.

Criteria	Potential sources of impact	Conclusion
		The 'Waterbird Disturbance & Mitigation Toolkit' (Cutts, et al., 2013), while developed for the assessment of waterfowl disturbance impacts arising from construction works on or adjacent to intertidal areas, the tool provides information on disturbance effects from a range of construction works to commonly encountered waterbirds (species of geese, ducks and waders) on estuaries and other wetlands, and as such can be used to understand the likely impact zone for bird disturbance from the potential sources of impact. The toolkit prescribes visual disturbance levels for birds from human activity ranging from high (bird response to stimuli) to low (unlikely to cause bird response). The toolkit notes that "in most instances visual stimuli will create a disturbance effect before any associated noise starts to have an effect". The toolkit also notes that where the works are out of sight of the birds then a low visual disturbance is likely. The toolkit also includes species accounts which sets out the sensitivity of individual species to construction works disturbance along with the distance at which they will react to potential disturbance stimuli (with the more sensitive species reacting when further away from works). Having regard to the bird species which use the Project lands, Brent Goose is identified in the toolkit as being the most sensitive species, with the toolkit recommending that "If [brent] geese are within 400m of works then consideration should be given to mitigation". Regard is also had to the disturbance zones prescribed in NatureScot, 2022[10] and a disturbance zone for birds defined as 800m. Additionally, the toolkit also prescribes an acceptable 'dose' level of noise for birds, i.e. noise that is unlikely to have an effect, as up to 55 dB LAeq, with levels above 70 dB LAeq highly likely to elicit a behavioural response in birds. Review of construction stage noise impact assessment, (see EIAR Chapter 11), shows that noise levels will be below 55dB at or before 500m distance from the works locations.

Criteria	Potential sources of impact	Conclusion
		The potential impact zone for bird collision risk follows Scottish Natural Heritage Collision Risk Model (Scottish Natural Heritage, 2000; Band et al., 2007, Band, 2012, and Band, 2024).
Air pollution due to dust and other airborne emissions.	*Construction Phase* During earthworks, dust from vehicular movements/earthworks could be generated as well as emissions from plant and machinery. *Operational Phase* Intermittent maintenance activities are unlikely to result in significant airborne emissions. *Decommissioning Phase* There is potential for similar effects to those associated with construction to arise; however the potential magnitude of decommissioning effects is much lower than construction stage effects.	IAQM guidelines[11] states that for ecological receptors, effects from dust soiling are 'High' to 'Medium' up to 20m from the source (depending on sensitivity of ecological receptor) and reduces to 'Medium' to 'low' over 50m from the source. The guidelines state that ecological receptors should be considered within 50m of the project and within 250m of site entrances where trackout[12] may occur. A such a 250m ZoI for dust effects is considered.

[10] Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance DistancesReview: An updated literature review of disturbance distances of selected birdspecies. NatureScot Research Report 1283.
[11] Holman et al (2024). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London.
[12] The movement of dust and dirt from a construction/demolition site onto the public road network.

3. SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Introduction

This section of the report examines if the Project is likely to have a significant effect upon European sites, either alone or in combination with other plans or projects. Figure 3-1 shows the locations of European Sites relative to the Project.

3.2 Identification of European Sites within the Zone of Influence of the Project

The OPR (2021) AA Screening practice note states that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor model. The S-P-R model has been used to identify the ZoI to ensure that relevant European sites are identified. The S-P-R model minimises the risk of overlooking distant or obscure effect pathways, while also avoiding an over reliance on buffer zones (e.g. 15 km), within which all European sites should be considered. This approach follows the DoEHLG (2009 rev 2010) guidance on AA which states that:

> *"For projects, the distance could be much less than 15 km, and in some cases less than 100m, but 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".*

As detailed in Section 1.3.2, for an effect to occur, all three elements of this mechanism must be in place. The absence of one of the elements of the mechanism means there is no likelihood for the effect to occur. The potential impacts of the Project are set out in Section 2.3 of this report. The impact is essentially the 'source' in the S-P-R model.

These impacts may be very localised and confined to the Project site with no potential connectivity to a European site and therefore no potential for effects. Alternatively, where an ecological or functional pathway exists, they may give rise to a potential effect to a Qualifying Interest of a European site.

The precautionary zones of influence of the various impact sources are set out in Table 2-14 and are summarised hereunder:

- Habitat destruction / fragmentation / deterioration - the footprint of the works (including any site clearance and all temporary works areas) plus 10m beyond;
- Impacts on water quality and aquatic habitats - any works within 60m of a drain or watercourse, and any watercourse downstream of such locations;
- Impacts on groundwater related terrestrial ecosystems – any works within 250m of GWDTEs;
- Project related activities (noise, vibration, lighting, human presence, structures, etc) - Otters - 150m beyond the onsite activities during construction, Birds – visual disturbance zone of 800m. noise disturbance zone of 500m; and
- Air pollution due to dust - 250m ZoI for dust effects.

In respect of the wind farm Site, there are no European sites located within the zones of impact considered above (other than by hydrological connectivity). The closest European site is the River Barrow and River Nore SAC (002162), located 9.1 km southeast of the Site, outside of the ZoIs of the Site. As per Section 2.1 of this report, the Site is located within river sub-catchments[13], all of which flow into the River Suir. As such, there is no hydrological pathway from the Site to the River Barrow and River Nore SAC. The River Suir, however, is part of the Lower River Suir SAC. As such, consideration is given to the potential for effects due to potential hydrological connectivity to this SAC. The wind farm infrastructure is located more than the 60m potential ZoI of all watercourses with the exception at two locations:

- North Glengoole – Existing culvert with machine pass, rail bed, and associated drainage overtop (corrugated circular culvert pipe, diameter 1.2m, culvert length ~52m)
- Black [Two Mile Borris] - Existing culvert with machine pass, rail bed, and associated drainage overtop (corrugated circular culvert pipe, diameter 1.5m, culvert length ~55m)

These existing culverts will be used as part of the wind farm design and the existing machine pass will be upgraded. As such there will be works in proximity to these culverted watercourses.

In terms of the grid connection, the route includes a section along the R694 and the N77, which parallels the River Nore, which is part of the River Barrow and River Nore SAC. The route includes a HDD crossing of the River Nore, north of Ballyragget. This crossing will be below the river, within the SAC boundary, by horizontal directional drilling (HDD) (see planning drawing WLN-CVL-SK-0009). The HDD launch pit will be in the N77 road to the immediate west of the SAC boundary and the exit pit will be within agricultural lands c. 15m to the east of the SAC boundary. The SAC is as such within the ZoIs as described above of the proposed GC works. The GC route also includes several crossings watercourses which flow into the River Barrow and River Nore SAC (but are not part of the SAC, see Table 4.7: Grid Connection, of Chapter 2 of the EIAR for further details). These watercourses are crossed by existing roads (by bridge/culvers), and the grid crossings of these watercourses will be by HDD.

The River Nore is also part of the River Nore SPA (004233), designated for the protection of Kingfisher (*Alcedo atthis*), and is located within the potential ZoI of the grid construction works on the R694 and N77 and HDD crossing of the Nore.

The GC route will travel along the R693 road and will pass the Loughans SAC (000407) (c. 1m away), designated for the protection of turlough habitat[14]. The turlough has been historically subjected to drainage which feeds into the Goul River, which is culverted under the R693 road and is connected to additional turloughs to the south (which are not designated as European sites). A report by Roger Goodwillie[15] identified this turlough as being of national importance given large turlough rarity in the south-east of the country. The Site Synopsis Report for the Loughans Turlough SAC (NPWS, 2013) states that the basin associated with the turlough has a predominantly level floor, but swallow holes and subsidence holes are present. The turlough floods regularly and retains a permanent central pond in summer. The turlough is located within the precautionary 250m ZoI for impacts on GWDTEs.

[13] Black (twomileboirris), Breagagh (Tipperary), Clover, Drish and North Glengoole.
[14] A turlough is a seasonal or periodic lake, almost unique to Ireland, that forms in karst limestone landscapes. During wet periods (typically winter), rising groundwater fills a closed depression to create a temporary lake. In summer, as groundwater levels fall, the water drains away through underground fissures, leaving the basin generally dry.
[15] Roger Goodwillie (1992) Turloughs over 10 ha - Vegetation Survey & Evaluation, A Report for the National Parks & Wildlife Service to the Office of Public Works

The TDR accommodation works are not located near any European sites and lacks ecological connectivity with European sites.

On the basis of the above, the European sites within the potential ZoI of the Project are as follows:

- Lower River Suir SAC (002137)
- River Barrow and River Nore SAC (002162)
- The River Nore SPA (004233)
- the Loughans SAC (000407)

Consideration must however also be given to the potential for the lands within the impact zones of the Project to support mobile qualifying features / special conservation interests of European sites. To that end, connectivity or ecological continuity is considered. Connectivity or ecological continuity refers to the degree to which different parts of a landscape, ecosystem, or habitat are physically or functionally linked, allowing the movement of organisms, nutrients, energy, or ecological processes across space. Consideration is therefore given to whether there is a landscape[16] or ecological[17] feature which provides connectivity / continuity for habitats and species of European sites:

Special Conservation Interest Birds

For bird species, the Scottish Natural Heritage (SNH) guidance (2016)[18] which prescribes dispersal and core foraging distances for a range of bird species in winter, during breeding and between alternative nest sites was followed in determining potential connectivity to SPAs. Consideration of these distances allows for the assessment of the effects of displacement/disturbance of bird species from the habitats within the disturbance / impact zone of the Project relative to the likely importance of these habitats as part of the broader ecological continuity in the environment for these species. Of the bird species documented in the SNH guidance, the largest core foraging range documented is 20km, and the maximum distance is 25km (these distances are for geese and swan species). The only SPA within 25km of the Project is the River Nore SPA, designated for Kingfisher. Kingfisher generally show very limited movement within their riverine territories, with SPA conservation objectives documents indicating they typically move no more than c. 10 km along a river system, with juveniles moving only a few kilometres from the natal site. Kingfisher has been observed within the wind farm Site, but no evidence of nesting or feeding onsite was recorded and is evidently not an ecologically important site outside of the SPA.

[16] Landscape connectivity is a combined product of structural and functional connectivity, i.e. the effect of physical landscape structure and the actual species use of the landscape.
[17] Ecological connectivity is defined as a measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts and foraging areas or the corridors of appropriate habitat needed by some slow colonising species if they are to spread.
[18] Scottish Natural Heritage. 2016. Assessing Connectivity with Special Protection Areas (SPAs). 2016.

The SNH guidance notes the foraging ranges of raptor species to be up to c.20km during breeding season (noting that winter ranges are not provided). Hen Harrier and Merlin have been documented within the wind farm Site during the winter season. Merlin in Ireland are primarily short-distance migrants with many remaining in or near their upland breeding areas year-round, while others move modestly to nearby lowlands or coasts[19]. Studies[20] have shown that Hen Harriers in Ireland are mostly short-distance migrants, with many individuals remaining within 10–50 km of their breeding sites during winter. In Ireland, about 24% of winter roosts are located within 500 meters of breeding sites, indicating strong site fidelity, while others move modest distances to nearby lowlands. Juvenile harriers typically disperse over 25 km from their natal sites in their first autumn, often exploring multiple temporary wintering areas before settling. The only SPAs locayed within 50km of the Project are the Slievefelim to Silvermines Mountains SPA [004165] and Slieve Bloom Mountains SPA [004160], located c. 26.9km west and c. 27.7km north of the wind farm Site respectively. Both are designated for the protection of Hen harrier. Hen harrier has been observed wintering in the Littleton Bog by Bord na Móna and by Fehily Timoney ecologists (recorded years include 2012, 2014 and 2025). These birds are assumed to be part of the Slievefelim to Silvermines Mountains SPA and Slieve Bloom Mountains SPA populations, and as such it is considered that the wind farm Site is part of the ecological continuity for this species.

Having regard to Section 2.1.8.3 of this report, there are no SPAs designated for the protection of wetland or waterbirds with likely landscape or ecological connectivity to the wind farm Site.

Mobile Qualifying Interests

Otter - Consideration is given to the potential for the freshwater habitats within the ZoI of the Project to be part of the ecological continuity of habitat for otter. Otter is a mobile species with a potential territory of 20 km in food poor areas e.g. upland streams (Marnell, F., Ó Néill, L., Lynn, D., 2011). However, in areas with an abundance of food and other resources (as is the case in the Nore and Suir catchments, ref. IFI WFD monitoring data) territories are smaller, with NPWS[21] noting that *'otters only need to maintain small territories (1- 2km*)' in such food-rich circumstances. The drains and ponds within the Site are unlikely to form habitat continuity for the SAC otter populations given habitat quality. Many of the watercourses downstream of the Site which drain to the Suir are confirmed to be in use by otter, however given the location of the SAC relative to these streams (c. 9km straight line measurement and >14km in-stream measurement), it would be unlikely that the otter here are part of the SAC population on the basis of likely smaller territories held in higher value habitats. Watercourse crossing on the grid connection route near the main river Nore (at aquatic monitoring sites G9 and G10) provide habitat continuity for otter outside of the River Barrow and River Nore SAC boundary and otter here are considered to be part of the SAC population.

Marsh Fritillary - Studies[22] show that marsh fritillaries are capable of dispersal up to 10 kilometres, however most individuals remain within c. 5km of their natal site. There are no European sites designated for the protection of marsh fritillary located within 10 km of the Project.

[19] https://raptormonitoring.org/wp-content/uploads/2015/05/Raptors-2014-Merlin.pdf
[20] O'Donoghue, B.G. (2021) – Hen Harrier Circus cyaneus ecology and conservation during the non-breeding season in Ireland, Bird Study. AND McCarthy, A. (2022) – Seasonal ecology and the conservation of hen harriers (Circus cyaneus) in Ireland, PhD Thesis, University College Cork. AND O'Donoghue, B.G. (2010) – The Ecology and Conservation of Hen Harriers (Circus cyaneus) in Ireland, PhD Thesis, National University of Ireland, Cork.
[21] https://www.npws.ie/sites/default/files/publications/pdf/Otter_leaflet.pdf
[22] Zimmermann, K. et al. (2011). _Mark–recapture on large spatial scale reveals long-distance dispersal in the Marsh Fritillary, Euphydryas Aurinia. *cological Entomology*, 36(4): 499–510 AND Franzén et al. (2024), "Long-distance movements, large population sizes and density-dependent dispersal in three threatened butterfly species" (E. aurinia, Parnassius apollo, Phengaris arion).

3.2.1 Summary

The European sites identified to be within the potential ZoI of the Project are:

- Lower River Suir SAC (002137)
- River Barrow and River Nore SAC (002162)
- The River Nore SPA (004233)
- the Loughans SAC (000407)
- Slievefelim to Silvermines Mountains SPA (004165)
- Slieve Bloom Mountains SPA (004160)

These European sites are considered further in Table 3-1 in relation to the potential pathways for effects emanating from the potential sources of impact (including consideration of connectivity or ecological continuity), and considers the QI/SCI species which are likely to be affected.

Table 3-1: Source Pathway Receptor Assessment

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
River Barrow and River Nore SAC (002162)	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Reefs [1170] • *Salicornia* and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • European dry heaths [4030]	0 m from GR	**S-P-R Assessment – Surface Water Runoff** The construction, operation and decommissioning works/activities at the wind farm Site have no potential connectivity to this SAC given its location in separate waterbody catchments. The River Barrow and River Nore SAC is located within the potential ZoIs of the grid connection construction works, in particular a section along c. 2km of the R694 road and c. 1km of the N77 road and at the HDD crossing location. The majority of the works (with the exception of the HDD crossing and 110kV cable from HDD exit pit to the Ballyragget substation) will be in-road, with no potential pathway for runoff into the SAC given that the road drainage is over the edge drainage to grassed verges in these sections. This will capture any accidental runoff from the works area. Similarly, as the HDD launch pit is located in-road on the N77, there is no potential for runoff to the SAC. The HDD exit pit is located within agricultural grassland c.15m to the east of the River Nore. There is potential for runoff to the river from the HDD exit pit works and grid construction areas on the east of the river. The lands in which the exit pit is proposed are within the flood zone of the river Nore, with greater risk of pollution of the river in the event of the lands flooding during the works. Additionally, HDD can result in frac-out[23], which if it were to enter the river Nore would result in degradation of the aquatic environment.	Y. Due to potential for degradation in water quality and sedimentation from HDD during construction and potential disturbance to otter during construction.

[23] The unintended release of drilling fluid (usually bentonite slurry) into surrounding soils or surface water when pressure causes a fracture in the ground. It occurs when subsurface conditions cannot contain the drilling fluid, allowing it to escape to the surface or nearby waterbodies.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
	• Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Petrifying springs with tufa formation (*Cratoneurion*) [7220] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092]		The aquatic qualifying interests associated with the river Nore which would be sensitive to degradation in water quality and sedimentation, and for which there is a pathway for effect are as follows: • Freshwater Pearl Mussel - the NPWS conservation objectives mapping for Pearl Mussel on the Nore shows the mapped extent of Pearl Mussel habitat to extend roughly from the N77 bridge (Bridge Street) from Ballyragget upstream as far as the L1656 bridge crossing of the Nore. The Nore pearl mussel is in a state of extreme population decline[24]. A low number of records were available for pearl mussel for the River Nore located between the River Erkina confluence and Ballyragget in the 1993 to 2007 period (i.e. downstream of the proposed project). However, no live mussel have been recorded in this area of the River Nore since 2007 (Pascal Sweeney pers. comm.), including during a survey completed in May 2023 (Triturus data). • Lamprey and Atlantic salmon - Inland Fisheries Ireland's fishery monitoring data (available via https://opendata-ifigeo.hub.arcgis.com) shows salmon and lamprey to be present in the catchment. • White-clawed Crayfish – formerly occurred throughout much of the River Nore catchment but suffered a major decline since 2001 due to crayfish plague (*Aphanomyces astaci*), with no crayfish detected in EPA main-channel sites in 2016 and 2019, supporting the view that the main channel population has collapsed.	

[24] Moorkens, E.A. (2014). Report on assisted breeding of the Nore pearl mussel. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
	• *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355] • *Vandenboschia speciosa* (Killarney Fern) [6985]		Recovery is unlikely without the eradication of the crayfish plague. While recovery in the short term is unlikely, any impact on habitat suitability could inhibit pace of / scope for recovery. There are no in-stream works proposed for the grid connection works, as such no pathway for spread of crayfish plague. • Floating river vegetation – while absent from the location of the HDD crossing (see survey location G11 in the Aquatic Ecology Baseline Report included as appendix to the EIAR) is has been confirmed as present in the River Nore upstream of Ballyragget by multiple recent studies and surveys (including for the N77 road improvement). Note Twaite Shad does not occur in the freshwater stretches of the Nore. It remains confined to the estuarine zone near New Ross and is outside of the ZoI, with no tangible pathway for effects from the Project. The GC route also includes the crossing of several watercourses which flow into the River Barrow and River Nore SAC (see Table 4.7: Grid Connection, of Chapter 2 of the EIAR for further details). These watercourses are crossed by existing roads (by bridge/culvers), and the grid crossing of these watercourses will be by HDD. There will be no direct interaction with these water courses given that they are culverted under the roads and HDD grid crossings will be below these culverts.	

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			S-P-R Assessment – Habitat loss/degradation/damage The grid route is located predominantly in-road with a short section located within agricultural grassland (between the HDD exit pit and the Ballyragget substation). No construction or decommissioning works will take place directly within the SAC (noting that the HDD crossing will be below the river and launch and exit pits are outside of the SAC). None of the terrestrial habitats that might be directly impacted by the construction works (i.e. agricultural grassland and hedgerows) are qualifying interests of the SAC or are necessary for the structure or function of QI habitats. The riparian habitat along the River Nore will not be impacted through site clearance nor is it within the construction footprint. There is no pathway for habitat loss/disturbance effects from the works. The SAC is located within the ZoI for dust effects. However, the terrestrial habitats within this zone are not QI habitats of the SAC. Dust deposition within the aquatic environment will have similar effects to that identified for surface water runoff (see discussion above). No works are proposed within the SAC boundary. As such, there is no potential for unintentional translocation of invasive plant species into the SAC. In terms of the potential for the terrestrial habitats to support QI species of the SAC, the following is noted: • otter survey showed that otter commute and forage along the river at this location, but no resting or breeding places are present. The riparian habitat provides cover for otter. This habitat will not be affected by the Project. There is no pathway for habitat loss/degradation effects for otter.	

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			• The habitats that will be impacted by the Project are not suitable to support Desmoulin's Whorl Snail, which are known to be associated with the Kilnaseer Fen, within the SAC (which is outside of the ZoI). There is no pathway for effects. **S-P-R Assessment – Disturbance** There will be no in-stream works within the River Nore, or within waterbodies which flow into the SAC. As such there is no potential pathway for disturbance effects on aquatic QI species. While no otter resting or breeding places occur within the ZoI of any of the in-road watercourse crossings or at the Nore HDD crossing, or near the sections of grid which parallel the river Nore, otter are prevalent on the River Nore and its tributaries. There is potential for disturbance to otter foraging and commuting on these watercourses arising from works near the riparian zones. No operational stage impacts will occur.	
River Nore SPA (004233)	• Kingfisher (Alcedo atthis) [A229]	0 m The River Nore SPA is located within the potential ZoI of the grid connection works along c. 2km of the R694 road and	**S-P-R Assessment – Disturbance and Habitat Damage** While a precautionary disturbance zone of 800m has been initially considered for birds in this assessment, it is noted that this is to account for the most sensitive bird species as documented through literature review, whereas Goodship (2022)[25] has identified Kingfisher as having a low to moderate sensitivity to disturbance, with a disturbance buffer zone of 50-100m prescribed.	Y Due to noise/visual disturbance and potential degradation in water quality during construction.

[25] Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
		c. 1km of the N77 road and at the HDD crossing location.	The grid route is generally located at a greater distance than 100m of the River Nore, with the exception of where it is aligned along the N77 and at the HDD crossing. This equates to a 1.2km length of the grid route where works could be within a potential disturbance zone for Kingfisher. The 2010 Kingfisher study of the River Nore identified Kingfisher within grid square S4371, which is in proximity to where the HDD crossing of the Nore is proposed. M.O'Clery & J.Lusby (2015)[26] note that the typical length of river for a Kingfisher territory in Ireland is estimated to be 1.5 to 4km. Field survey carried out on the river Nore (which included the length of the river which parallels the N77 and the HDD crossing plus 150m) identified no nest sites for Kingfisher and surveys observed that riverbanks within the ZoI of the HDD crossing location are unsuitable for nesting kingfisher due to heavy compacted soils and dense vegetation. However, while no nest banks are present within the potential disturbance zone for Kingfisher, given observations on site, and previous records for Kingfisher, it is likely that the proposed works at this location are within / adjacent to a Kingfisher territory. While no works are proposed on the river banks and no removal of riparian vegetation will take place, there is a potential pathway for temporary disturbance to Kingfisher due to noise and visual disturbance. Kingfisher, may also be indirectly impacted in the event that a water pollution incident was to cause a reduction in prey availability.	

[26] M.O'Clery & J.Lusby (2015). The Kingfisher Nest Box Project in Duhallow: An assessment of current nest box sites and future recommendations.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			No operational stage impacts will occur.	
The Loughans SAC (000407)	• Turloughs [3180]	1 m The Loughans SAC is located within the potential ZoI of the grid connection works along the R693 road.	**S-P-R Assessment – Surface Water Runoff/Water Pollution** The proposed grid along the R693 will be within the road corridor, and as such will be fully outside of the SAC boundary. The SAC is separated from the road by hedgerow, private properties and a section of road layby. The road drainage is over the edge into the grassed road verge. As such, there is no potential for surface water runoff from the works to enter the SAC. The depth of grid in the road will be less than 2m below road level, with joint bays being less than 3m. These works will be constructed within ground which has an appropriate soil bearing capacity and as such will not be located on any karst features. Excavations will be filled with suitable engineered granular sub-base and blinding material before concrete works. As such there is no potential for concrete to enter the groundwater body. The SEPA (2024) 'Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems' notes that consideration should be given to impacts on GWDTEs where excavations >1m are located within 250m of the GWDTE feature. In the case of the Loughans SAC, the karst features of the turlough (i.e. swallow holes, subsidence holes and permanent central pond) are located beyond 250m of the grid route. The surrounding agricultural grasslands which flood seasonally via these karst features are within the 250m ZoI. There is potential that if these works are carried out in the winter season when the water table is higher and adjacent lands are flooded, there will be an increased amount of water ingress to the trench / excavation that would require management.	Y Due to potential for frac-out of HDD drilling fluid to interfere with hydrogeology during construction.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			However, this would not be likely to impact the turlough hydrology and it would not draw down the water table so as to affect hydrology of the turlough. The HDD crossing of the Goul_030 (Borrisbeg Stream) river will be beneath the existing box culvert bridge crossing. In the unlikely event of frac-out from the HDD construction method, drilling fluid could enter the Durrow groundwater body (IE_SE_G_156) in which the turlough is located. Review of GIS karst mapping indicates that there is hydrological and hydrogeological connectivity between the Loughans turlough and the (non-SAC) turlough to the south (swallow hole ref 2315NWK017, at Woodsgift townland) where it is stated that "water from the Borrismore (i.e. from the Loughans) and a nearby well sink here [at Woodgift], and is said to re-emerge at Magoo's spring (2315NWK018-K020). i.e. source of Nuenna River. Drilling fluid has the potential to block karst conduits, and potentially alter this hydrogeological regime. No operational stage impacts will occur.	
Lower River Suir SAC (002137)	• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	9.8 km from the Site and BEMP Lands	**S-P-R Assessment – Habitat destruction/damage** All Project infrastructure is located fully outside of the SAC boundary. The SAC is located outside of the ZoIs for habitat damage/loss/degradation, disturbance to species and dust effects.	Y Due to potential for degradation in water quality and fishery habitat during construction.

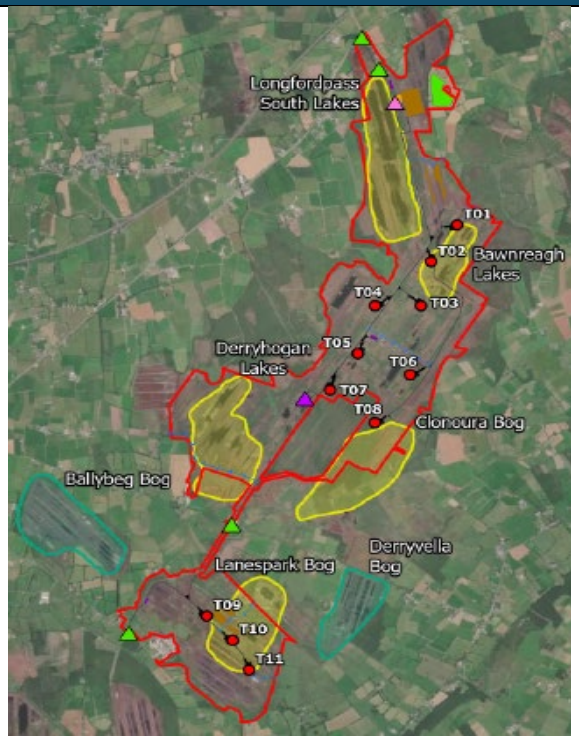
European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
	• Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Taxus baccata* woods of the British Isles [91J0] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]		**S-P-R Assessment – Surface Water Runoff** Consideration is given to the potential for a pathway for effects associated with surface water runoff given that the Project will involve the construction/upgrade of access track over the North Glengoole and Black [Two Mile Borris], which flow into the River Siur (no other works are located near a watercourse). The route of the access road will incorporate the two existing culverts on the rivers and a such will not require any in-stream works. The new access road will be 6m wide and will require a maximum of 10m working area either side for construction and drainage. As such, the road and associated works will require a c. 30m footprint. Given that the existing culverts are 52 and 50m in length respectively, there will be no requirement to interact with the riparian or bankside habitat on these rivers.	

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
	• *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355]		The construction of the access road will require ground preparation and formation construction which will consist of a minimum 500 mm compacted hardcore on geo-textile membrane with a capping layer of compacted granular stone (CL 804). No concrete works are required. Similarly, the drainage will comprise swales and ponds, with geotextile layers, with no concrete works required. As such the potential impacts on the watercourses (and potentially downstream SAC) are from sediment runoff and accidental leaks of fuels and oils from machines. Given the scale and duration of the works at these locations, impacts are likely to be local in nature, with downstream effects likely to have dissipated within <1-1.5km downstream[27]. As such consideration is given to the potential for the North Glengoole and Black [Two Mile Borris] rivers to support the aquatic QIs of the SAC. The aquatic ecology of the North Glengoole and Black [Two Mile Borris] rivers are presented in Appendix 6.3 of the EIAR (Aquatic ecology baseline report) and summarised hereunder: Site C2 - Black [Two Mile Borris] • macrophytes were limited to water mint and fool's watercress, with localised iris and common reed	

[27] Reference: Stephanie Lachance, Maryse Dubé, Renaud Dostie, Pierre Bérubé, Temporal and Spatial Quantification of Fine-Sediment Accumulation Downstream of Culverts in Brook Trout Habitat, *Transactions of the American Fisheries Society*, Volume 137, Issue 6, November 2008, Pages 1826–1838. AND Ashdown, S., Nelson, J., Smith, V. & Thomas, R. (2022). *National Culverts Study*. NRW Evidence Report No. 642. Natural Resources Wales, Bangor. 102 pp. AND Williams, R.D., Downs, P.W., Moir, H.J. & Lavarini, C. (2022). Sediment continuity through run-of-river hydropower schemes. CRW2019_02. Centre of Expertise for Waters (CREW), Scotland.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			• Atlantic salmon were recorded in the 2021 survey. The quality of salmonid spawning habitat was significantly reduced by siltation, but the value likely improved during higher flows. • some limited lamprey spawning habitat was present, ammocoete habitat was unsuitable given the humic, flocculent nature of the silt • no crayfish were recorded via hand searching and sweep netting (limited refugia). • No otter signs were recorded in vicinity of the site. Site C4 - North Glengoole • Cover of macrophytes was locally high in open areas of channel with abundant fool's watercress, frequent water mint and brooklime (*Veronica beccabunga*) and localised bulrush (*Typha latifolia*). • Atlantic salmon were also recorded in the 2021 survey. The shallow stream provided some suitable spawning habitat (exposed gravels), although these were heavily silted. • poorly suited for lamprey ammocoetes • white-clawed crayfish, none were recorded. • No otter sign were recorded	

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			On the basis of the above, a pathway for effects on Atlantic Salmon and lamprey species is determined.	
Slievefelim to Silvermines Mountains SPA (004165)	- Hen Harrier (*Circus cyaneus*) [A082]	26.9km from the Site	**S-P-R Assessment – Disturbance/Displacement/Habitat Loss** Hen Harrier (HH) were observed using the wind farm Site during the non-breeding season for hunting and roosting. Activity levels were highest at the locations of higher wader activity i.e. at the Bawnreagh Lakes, Derryhogan Lakes and Longfordpass South lakes (see image below). Hen Harrier flight activity in these areas is presented in the flightline mapping in Appendix 7.1: Baseline Ornithology Report of the EIAR/NIS. Hen Harrier were also active at Clonoura Bog, where Hen Harrier is confirmed to be roosting within cutover bog c. 600m south of the proposed turbine T8. Data from Hen Harrier winter roost watches carried out at dusk to inform the impact assessment confirmed the south of Clonoura Bog as a roost location in 2023 with one female and one juvenile recorded going to ground at the roost site on several occasions in both January and March 2023. Further survey in 2024 showed a sub-adult male bird at the roost location. The VP watches showed that Hen Harrier activity at Clonoura Bog was mainly during early morning or at evening (when returning to roost). The watches showed that much of the evening hunting activity, shortly before Hen Harrier moved to the roost for the night, was located at the nearby Derryhogan Lakes area (with very little Hen Harrier activity at Longfordpass South Lakes at near the evening time).	Y
Slieve Bloom Mountains SPA (004160)	- Hen Harrier (*Circus cyaneus*) [A082]	27.7km from the Site		Y Due to potential for disturbance from roost site and foraging areas during construction and due to collision risk during operation.

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			 Habitat loss associated with the wind farm development is not located within key hunting areas for Hen Harrier within the bog complex.	

European Site (Code)	List of Qualifying Interests	Distance from the Project (km)	Source-Pathway-Receptor Assessment	S-P-R connectivity (Y/N)
			In relation to disturbance, while a precautionary disturbance zone of 800m has been initially considered for birds in this assessment, it is noted that this is to account for the most sensitive bird species as documented through literature review, whereas Goodship (2022)[28] has assessed Hen Harrier as having medium sensitivity to human disturbance. Goodship's disturbance distances review focussed on breeding season with a buffer of 300-750m prescribed (for breeding and non-breeding on a precautionary basis). Notwithstanding, the key foraging areas and the winter roost location are within the potential construction stage disturbance zone and a pathway for effect is determined. **S-P-R Assessment – Morbidity/Mortality** In terms of turbine operation, Goodship (2022) notes that 'Hen Harrier will nest at 200 to 300m from an operational wind turbine'. It is assumed that they would therefore also roost at this distance. As such, the proposed turbine array layout would be unlikely to affect winter roost locations during operation. The Collision Risk Model prepared to inform the impact assessment has calculated that Hen Harrier may have 0.01 fatalities per year (with a 99% avoidance rate) during the operation of the wind farm, indicating a pathway for effect which must be considered further in terms of significance.	

[28] Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

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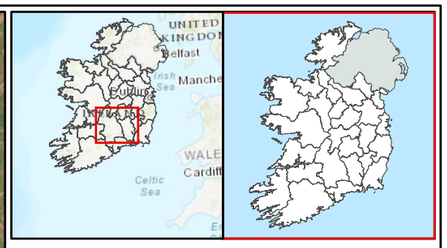
Barroughter Bog SAC
River Shannon Callows Middle - SAC
Pollnaknockaun Wood Nature Reserve SAC
Shannon Callows SPA
Ballyduff/Clonfinane Bog SAC
Arragh More Bog SAC
Kilcarren-Firville Bog (Derrybreen) Bog SAC
Island Fen SAC
Lisduff Fen SAC
Slieve Bloom Mountains SAC
Slieve Bloom Mountains SPA
Cloonmoylan Bog SAC
Derrycrag Wood Nature Reserve SAC
Pollagoona Bog SAC
Liskeenan Fen SAC
Sharavogue Bog SAC
Slieve Aughty Mountains SPA
Scohaboy (Sopwell) Bog SAC
Loughatorick South Bog SAC
Lough Derg, North-east Shore SAC
Coolrain Bog SAC
Knockacoller Bog SAC
Ballyprior Grassland SAC
River Nore SPA
Lough Derg (Shannon) SPA
Lisbigney Bog SAC
Slieve Bernagh Bog SAC
Kilduff Devilsbit Mountain SAC
Galmoy Fen SAC
Cullahill Mountain SAC
Silvermines Mountains West SAC
Lower River Shannon SAC
Silvermine Mountains SAC
Bolingbrook Hill SAC
Keeper Hill SAC
Spahill and Clomantagh Hill SAC
The Loughans SAC
Slievefelim to Silvermines Mountains SPA
Clare Glen SAC
Glenstal Wood SAC
Anglesey Road SAC
Philipston Marsh SAC
Thomastown Quarry SAC
Blackstairs Mountains SAC
River Nore SPA
Glen Bog SAC
Moanour Mountain SAC
Hugginstown Fen SAC
Galtee Mountains SAC
Lower River Suir SAC
Ballyhoura Mountains SAC
Carrigeenamronety Hill SAC
Nier Valley Woodlands SAC
Comeragh Mountains SAC
River Barrow and River Nore SAC
Bannow Bay SAC
Bannow Bay SPA
Blackwater River (Cork/Waterford) SAC



Legend

- Site Boundary
- 10km
- 20km
- 40km
- Special Protection Areas
- Special Area of Conservation
- Grid Connection Route
- Ballyragget 110kV Substation

Sites within ZoI	Code
Lower River Suir SAC	002137
The Loughans SAC	00407
River Barrow and River Nore SAC	002162
River Nore SPA	004233
Slievefelim to Silvermines Mountains SPA	004165
Slieve Bloom Mountains SPA	004160

TITLE:	European Sites within Zone of Influence		
PROJECT:	Lisheen Wind Farm		
FIGURE NO:	3.1		
CLIENT:	Lisheen Wind Farm DAC		
SCALE:	1:375,000	REVISION:	0
DATE:	03/03/2026	PAGE SIZE:	A3

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3.3 Consideration of in-combination Effects with other plans or projects

Article 6(3) of the Habitats Directive requires that:

> *"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".*

It is therefore required that the likely significant effects of the Project are considered in-combination with any other plans or projects within the zone of influence.

The consideration of in-combination effects with other plans or projects, focused on the sources of impacts identified for the Project in section 2.3 and ecological pathways identified in section 3.2.

The following sources were referred to (last reviewed March 2026):

- Tipperary Co. Council Planning Enquiry System https://www.tipperarycoco.ie/planning-and-building/planning-information-and-advice/planning-enquiry-system-eplan
- Kilkenny Co. Council Planning Enquiry System https://planning.kilkennycoco.ie/searchtypes
- Geohive datasets – Planning Application Sites (Planning Registers of participating Irish Local Authorities and includes Planning Applications received since February 2019) https://www.geohive.ie/datasets/d78667c678d543b3b82c424c11ac24cc_1/about
- An Bord Pleanála (Strategic infrastructure development (SID) applications and Strategic Housing Development (SHD) applications) (https://www.pleanala.ie/en-ie/home);
- Department of Department of Housing, Local Government and Heritage's EIA Portal (https://www.gov.ie/en/publication/9f9e7-eia-portal/);
- Cutaway Bog Decommissioning and Rehabilitation Plan - Littleton 2026;
- Cutaway Bog Decommissioning and Rehabilitation Plan - Longfordpass 2026;
- Lanespark, Ballybeg & Derryvella Bog Cutaway Bog Decommissioning and Rehabilitation Plan 2025.

3.3.1 Overview of Cumulative Impact Sources

The planning search encompassed a search for wind farm, solar farm and other large-scale developments within 20 km. The results of these searches are summarised in hereunder. The ongoing forestry management applicable to the northern part of the Project is also considered.

3.3.1.1 Wind Farm Developments

One wind farm within 20 km of the Site is awaiting planning decision, namely Brisklagh Wind Farm. The proposed Brisklagh Wind Farm along with another proposed wind farm; the Seskin Renewable Energy Wind Farm (both under first part appeal with ACP) include proposed HDD grid connection crossing of the River Nore in proximity to that proposed for the Proposed Development. The Brisklagh Wind Farm route will travel north along the N77, similar to the Proposed Development, while the grid route of the Seskin Renewable Energy Wind Farm comes from the north. There is potential for cumulative effects with these proposed HDD crossings.

A further four consented wind farms are also present within 20 km of the Site: Borrisbeg Wind Farm, Knockroe Wind Farm, Brittas Wind Farm and Kyleballyoughter Wind Farm. That within the Nore catchment (Kyleballyoughter) has potential to contribute to in-combination effects on the River Nore SPA/SAC.

A fifth consented wind farm, Farranrory, is currently under construction (with a 24-month construction programme) and as such there is no potential for construction of this wind farm to overlap with construction of the Proposed Development.

Based on assessment of recent aerial imagery, none of the proposed/consented wind farms are located in areas containing suitable hen harrier roosting or breeding habitat. As such, no cumulative effects in this category are predicted.

Potential for cumulative effects associated with collision risk, disturbance and barrier effect arising from all wind farms within 20 km, both proposed/consented and operational have also been considered. Due to the large distances separating these wind farms, low susceptibility of commuting/hunting hen harrier to turbine collisions and absence of suitable roosting or breeding habitat, no cumulative effects in these categories are predicted for hen harrier associated with the Slieve Bloom mountains SPA or Slievefelim to Silvermines Mountains SPA.

There is potential for cumulative effects on water quality from the construction phases for the below-listed wind farms in the absence of mitigation.

Table 3-2: Wind Farm Developments within 20 km of the Project

Development	Distance/Direction	Catchment	(No. of Turbines)	Current Status
Brittas Wind Farm ACP Ref. 321454	12 km NW (T4)	Suir	12	Consented
Brisklagh Wind Farm ACP Ref. 322154	15 km E (T1); Grid connection overlaps part of proposed GC	Nore	7	Unconsented
Borrisbeg Wind Farm ACP Ref. 318704	21 km NW (T1) – within 20km of site boundary.	Suir	10	Consented
Knockroe Wind Farm ACP Ref. 211502	14 km S (T11)	Suir	7	Consented
Farranrory Wind Farm TCC Ref. 20972; subsequently amended by TCC Ref. 2360803	10 km E (T6)	Nore	9	Consented - under construction
Farranrory Wind Farm Grid Connection KCC Ref. 21627; 2360248	Overlaps part of proposed GC	Nore	N/A	Consented

Development	Distance/Direction	Catchment	(No. of Turbines)	Current Status
Kyleballyoughter Wind Farm KCC Ref. 16666; extension of duration KCC Ref.2433	13 km E (T1)	Nore	2	Consented
Lisheen Wind Farm 1 TCC Ref. 06/510773	11 km N (T1)	Suir	18	In Operation
Lisheen Wind Farm 3 KCC Ref. 14//202, 15/629, 19/787, and 20/459. LCC Ref. 14/139 and 19/597. TCC Ref. 12/510275, 14/510138 and 15/6000924	13 km N (T1)	Suir & Nore	8	In Operation
Bruckana Wind Farm TCC Ref. 10/510118 and KCC Ref. 10/145	14 km N (T1)	Suir & Nore	14	In Operation
Lisdowney Wind Farm KCC Ref. 12/172	19 km NE (T1)	Nore	4	In Operation
Ballybay Wind Farm KCC Ref. 20281	9 km E (T1)	Nore	5	In Operation
Foyle/Foyleature Wind Farm KCC Ref. 1617	13 km E (T1)	Nore	4	In Operation
Knocknamuck/Cnoc Wind Farm TCC Ref. 09801 as extended by 15600723	8 km E (T1)	Nore	5	In Operation
Ballincurry Wind Farm TCC Ref. 13/231 and 15600561. ACP Ref. 243357 and 245874	5 km SE (T11)	Suir	2	In Operation
Gurteen Wind Farm TCC Ref. 09801 as extended by 15600723	4 km E (T6)	Suir	1	In Operation

Development	Distance/Direction	Catchment	(No. of Turbines)	Current Status
Kill Hills Wind Farm TCC Ref. 06/1695 amended by TCC Ref. 12466	10 km SW (T11)	Suir	16	In Operation
Lisheen Wind Farm 2 TCC Ref. 09/510100	7 km N (T1)	Suir	12	In Operation
Seskin Wind Farm ACP Ref.323759 KCC Ref 2560418	Near the grid HDD location	Nore	6	First Party Appeal

3.3.1.2 Solar Developments

Three consented solar farm developments were noted within the planning search; one is located 8 km from the Site. This is located within the same catchment (River Suir) as the proposed wind farm. Two interconnected consented solar farms are located west of the Nore; these connect to Ballyragget substation via shared Grid connection which intersects the proposed GC near the proposed Nore HDD crossing point.

There is potential for cumulative effects on water quality from construction phases for these solar farms in the absence of mitigation.

Table 3-3: Solar Farm Developments in proximity to the Project

Development	Distance/Direction	Catchment	Development Site Size (ha)	Current Status
Killough Solar Farm 2560003 (ACP Ref. 323453-22)	8 km W	Suir	222.23 ha	Granted permission following Appeal (3rd Party)
KCC Ref. 2360318; 2360330; 22126	Two interconnected solar farms west of the Nore which connect to Ballyragget substation. Grid connection intersects proposed GC near the proposed Nore HDD crossing point.	Nore	17.3 & 39.6 ha	Consented

3.3.1.3 Other Large-Scale Developments

There are a number of larger scale developments within 20 km of the Project including: a number of large housing developments; a recreational shared cycle and walkway; a healthcare waste treatment/recycling facility and waste transfer station; an anaerobic digestion plant; a single storey drive-thru restaurant; temporary road widening works and construction of temporary sections of stoned roads and all ancillary development on the R691 and L-2107-2 at bends and junctions to enable the delivery of turbine components; a solar structure and all associated site works at an urban location in Thurles town; an increase to the footprint of the substation compound and increase to the footprint of the substation building associated with Farranrory wind farm; modifications to an existing waste facility; construction of an 1,800 sq.m sludge holding building; demolition of existing residential dwelling with the reconstruction of a two storey terrace building as a pre school facility; relocation of a single storey detached prefabricated office building with commercial vehicle weighbridge; the relocation of a public civic amenity recycling facility, signage and planting; upgrade to the existing Togher Crescent Wastewater Pumping Station; a new junior playing field; truck servicing and maintenance workshop building; construction of two anaerobic digesters.

These developments are listed in Appendix A.

There is potential for cumulative effects on water quality from the construction phases for these developments in the absence of mitigation.

Of note also is the N77 Ballyragget Village to Ballynaslee Road Improvement Scheme which was constructed along the N77, north of the proposed HDD crossing of the River Nore. As the scheme is completed there is no potential for cumulative impacts on water quality or disturbance on Kingfisher and otter with this proposed road improvement development.

Other Land Use - turbary turf cutting and forestry activities occur in the vicinity of the Project and within a shared waterbody catchment. These activities can result in sedimentation of the local drains and watercourses and may be contributary to the existing surface water status in the River Suir catchment. While potential effects on water quality from peat slippage or sediment runoff form the Project are deemed unlikely, there is potential for accidental runoff from the Site to act cumulatively with forestry and turbary activities if not properly mitigated.

3.3.1.4 Rehabilitation of Bord Na Móna Bogs

Measures to rehabilitate Littleton, Lanespark and Longfordpass bogs have been undertaken between 2018-2021 (Phase 1) (noting that these are the bogs in which the Project is proposed). Phase 1 Rehabilitation measures are undertaken in accordance with rehabilitation plans approved by the EPA under Condition 10 of the IPC licence P0499. Phase 1 rehabilitation measures were also completed at the nearby Ballybeg and Derryvella bogs between 2018-2021 which are part of the Littleton Bog Group operated under IPC licence P0499. Enhanced rehabilitation measures (Phase 2) are proposed for Ballybeg/Derryvella bogs.

The rehabilitation measures (Phase 1) focus primarily on rewetting the cutaway areas of these bogs through measures such as drain blocking and decommissioning of drainage infrastructure in order to accelerate re-wetting and provide conditions which encourage regeneration of peatland ecosystems and restore the capacity of the remaining peat to store carbon.

Enhanced rehabilitation measures (Phase 2) at Ballybeg and Derryvella, will be carried out within the framework of the Peatlands Climate Action Scheme (PCAS), which is designed to optimise ecosystem service benefits of peatland rehabilitation and restoration, particularly carbon storage and reducing carbon emissions.

The following description of PCAS is provided by Bord Na Móna: '*The primary aim of the Peatlands Climate Action Scheme is to optimise climate action benefits of rewetting the former industrial peat production areas by creating soggy peatland conditions that will allow compatible peatland habitats to redevelop. The scheme will deliver benefits for climate action by optimising carbon storage of residual peat, reducing greenhouse gas emissions from cutaway bog and accelerating the development of carbon sequestration with Sphagnum-rich vegetation in suitable conditions*'.

The Site supports a mosaic of peatland, wetland and woodland habitats. The rehabilitation measures have had, and will continue to have a positive effect on the environment through improvement in water quality in the catchment and increased diversification in habitat types, with associated positive effects for QI/SCI species of the SACs and SPAs with S-P-R connectivity to the rehabilitation lands. The Project footprint is limited relative to the rehabilitation proposals (proposed infrastructure occupies c.1.9% of the Site; proposed Peat Deposition Areas occupy c. 1.6% of the Site), and as such will have negligible potential to negatively impact the positive effects that will be achieved from the rehabilitation works. Wind farm projects shown to be compatible with peatland rehabilitation which have previously been delivered include Cloncreen, Derrinlough, Bruckana & Mountlucas.

3.4 Assessment of Likely Significant Effects

3.4.1 Assessment of Likely Significant Effects

This section of the report explains the metrics used when assessing whether the potential effects (previously identified) are likely to be significant on European sites.

The European sites with evident pathways for potential effects arising from the sources for impact from the Project - either alone or in combination with other projects or plans - are:

- River Barrow and River Nore SAC (002162);
- River Nore SPA (004233);
- The Loughans SAC (000407);
- Lower River Suir SAC (002137);
- Slieve Bloom Mountains SPA (004160);
- Slievefelim to Silvermines Mountains SPA (004165).

These European sites (and their SCI/QI habitats and species, as set out in Table 3-1) are now examined for the potential for likely significant effects in view of the sites' conservation objectives, noting that these European sites have valid and up to date site-specific conservation objectives in place as follows:

- NPWS (2025) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
- NPWS (2024) Conservation Objectives: River Nore SPA 004233. Version 1.National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- NPWS (2017) Conservation Objectives: Lower River Suir SAC 002137. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- NPWS (2020) Conservation Objectives: The Loughans SAC 000407. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

- NPWS (2022) Conservation Objectives: Slieve Bloom Mountains SPA 004160. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- NPWS (2022) Conservation Objectives: Slievefelim to Silvermines Mountains SPA 004165. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

The EC (2021) guidance document notes that the significance of the effects will vary depending on factors such as the magnitude of impact, the type, extent, duration, intensity, timing, probability, in-combination effects and the vulnerability of the habitats and species concerned. The guidance document outlines the following criteria for assessing significance, indicators of significance, in view of the site-specific conservation objectives e.g.:

- Degree of habitat loss (absolute, relative), changes in habitats structure;
- Risk of species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;
- Importance of the habitats and species affected, e.g. representativeness, local variety;
- Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);
- Disruption or alteration of ecological functions;
- Changes to key ecological features of the site (e.g. water quality).

These criteria are considered in determining significance of effect relative to the pathway for effect (see Table 3-1) and the sensitivity of the European sites qualifying interests / special conservation interests to the effects of the impacts.

Table 3-4: Assessment of likely significant effects on the European sites

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
River Barrow and River Nore SAC (002162)	Impacts identified relate to surface water runoff into the river Nore from construction works or from frac-out from HDD works and disturbance to otter during construction works. The significance of these impacts is considered hereunder: **Habitat loss (absolute, relative), changes in habitats structure:** Potential for deterioration in fishery habitat value in the event of frac-out or sediment runoff into the river Nore. The Aquatic Survey Baseline Report notes that substrate at this location (Survey site ref G11) comprises compacted boulder and cobble with localised areas of sand and silt. Extensive areas of mobile gravels and cobbles were present upstream near the island. The River Nore at this location is of good value for salmonids with the riffle and shallow glide areas at the island upstream of the proposed crossing representing a highly valuable salmonid and lamprey spawning area. Effects of sedimentation would likely be localised and temporary, however species present (lamprey and Atlantic salmon) would be sensitive to sedimentation, with population level effects possible whereby spawning gravels were impacted. The habitat is suitable for pearl mussel, however this species has been noted absent from this stretch of river since 2007. **Species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;** Accidental pollution of the River Nore due to sedimentation could result in temporary localised reduction in quality and extent of spawning habitat for lamprey and salmon. Pearl mussel are absent due to other catchment pressures. Temporary sedimentation would be unlikely to change habitat suitability.	Yes

[29] Taken from the EC (2021) Guidelines

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
	Temporary disturbance of otter during construction would be unlikely to result in significant effects through displacement given the absence of breeding or resting places for otter and given the context of the proposed works on the busy and noisy N77 road. Additionally, the works activities are not likely to overlap significantly with otter activity, with otter being largely nocturnal and crepuscular, i.e. being most active around dawn and dusk, as such the works will not inhibit access to habitat. Temporary degradation of the local aquatic environment would be unlikely to have a significant effect on white-clawed crayfish given their current population status in the Nore and their relative tolerance of sedimentation/poorer water quality. **Importance of the habitats and species affected, e.g. representativeness, local variety;** River Nore from N77 bridge (Bridge Street) at Ballyragget upstream as far as the L1656 bridge crossing of the Nore is key habitat for pearl mussel (although population is in a state of decline within the SAC). The mussel has not however been recorded on this stretch of the Nore since 2007. **Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);** The pearl mussel in the Nore is in a state of extreme population decline with limited distribution in the Nore catchment (on the Mountain/Aughnabrisky and Ballymurphy tributaries not with S-P-R connectivity to the Project). Notwithstanding their current absence in this section of the Nore, the habitat here is suitable for them.	

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
	Disruption or alteration of ecological functions; A temporary and localised reduction in water quality / aquatic habitat would be expected in the event of accidental pollution given the scale of the Project works at this location. Such deterioration could have temporary effects on the local fishery population. This effect would be unlikely to result in significant effects on otter in terms of reduction in availability of fish biomass, and would be unlikely to affect mean catchment-wide abundance of salmon and lamprey. **Changes to key ecological features of the site:** As above, a reduction in water quality and aquatic habitat quality would be expected on a local level which would have a brief to temporary duration.	

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
River Nore SPA (004233)	Impacts identified relate to disturbance / displacement and habitat loss / degradation during construction. The significance of these impacts is considered hereunder: **Habitat loss (absolute, relative), changes in habitats structure:** There will be no habitat loss for Kingfisher. **Species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;** Disturbance will be temporary and localised. While works are likely within Kingfisher territory, is not within the ZoI of any breeding nest banks. Overall level of displacement / disturbance will be low and considered not to be significant. Kingfisher will not be inhibited from accessing their full territory. **Importance of the habitats and species affected, e.g. representativeness, local variety;** Kingfisher are prevalent throughout the SPA. The location of the proposed works is not of particular importance in the overall context of the SAC. **Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);** The affected area is not of particular note for Kingfisher in terms of key features necessary to support this species. **Disruption or alteration of ecological functions;** There may be a temporary localised impact on water quality which could temporarily reduce the fishery population at a local level, however this would be unlikely to be such so as to reduce the biomass availability for Kingfisher. **Changes to key ecological features of the site:** None	No

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
The Loughans SAC (000407)	Impacts identified relate to water quality and hydrogeology changes from construction works in particular from frac-out from HDD works. The significance of these impacts is considered hereunder: **Habitat loss (absolute, relative), changes in habitats structure:** No habitat loss, all works are fully outside of the SAC **Species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;** N/A **Importance of the habitats and species affected, e.g. representativeness, local variety;** Turloughs are relative rare in this region, and given the large size of the Loughans turlough, it is deemed nationally important. **Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);** The turlough is hydrologically connected to the wider karst environment and is likely therefore important in terms of water balance. **Disruption or alteration of ecological functions;** There is potential for accidental release of drilling fluid during HDD crossing of the Goul_030 (Borrisbeg Stream) river will be beneath the existing box culvert bridge crossing to block karst conduits, and potentially alter this hydrogeological regime. **Changes to key ecological features of the site (e.g. water quality):** In the event of changes in hydrology, the seasonally wetted area of the turlough could change, with an associated effect on turlough habitats.	Yes

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
Lower River Suir SAC (002137)	Impacts identified relate to surface water runoff into the North Glengoole and Black [Two Mile Borris] rivers from construction works, with local effects on water quality and aquatic habitat likely. The significance of these impacts is considered hereunder. **Habitat loss (absolute, relative), changes in habitats structure:** Potential for deterioration in fishery habitat value in the event of sediment runoff into the rivers. Such an event would likely be brief to temporary given the scale of the works at the location of these watercourses. There is potential for sediment to be carried downstream towards the River Suir SAC, however given the scale of the works, such sedimentation would be likely readily assimilated in the catchment so as not be result in significant effects at a catchment level. As such aquatic habitat effects are likely local and outside of the SAC boundary. **Species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;** Lamprey and salmon are present in the rivers, and are likely part of the SAC population. Temporary increase in sedimentation could result in degradation in habitat quality, however this would unlikely change the current suitability of the rivers for fisheries, which are noted to already have a high level of silt / humic content and as such lower spawning habitat suitability. Sedimentation effects are likely therefore not significant. **Importance of the habitats and species affected, e.g. representativeness, local variety;** Lamprey and salmon are prevalent in the wider catchment and the results of survey of the affected rivers show that these watercourses are not a particular stronghold for these species. **Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);** As above, these rivers are not of particular value for the QI species of the SAC.	Yes – on a precautionary basis

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
	Disruption or alteration of ecological functions; Temporary sedimentation will not alter ecological function of the SAC. **Changes to key ecological features of the site:** A temporary localised reduction in water quality may occur, which in the context of the location of the SAC c. 9.1km downstream, will be unlikely to be significant. However, on a precautionary basis, the SAC is taken forward for further consideration through Appropriate Assessment.	

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
Slieve Bloom Mountains SPA (004160) **AND** **Slievefelim to Silvermines Mountains SPA (004165)**	Impacts identified relate disturbance/displacement during construction works and loss of habitat and collision risk from the constructed wind farm. The significance of these impacts is considered hereunder: **Habitat loss (absolute, relative), changes in habitats structure:** The key habitats for Hen Harrier within the Project boundary are Bawnreagh Lakes, Derryhogan Lakes and Longfordpass South lakes (for hunting) and Clonoura Bog for roosting. These habitats will not be removed for the purpose of the Project, and as such the feeding and roosting resource at the wind farm site will not be altered for Hen Harrier. There will be no habitat loss in the SPAs themselves, all potential effects are ex situ. **Species populations' displacement, level of disturbance, reduction of species home range, feeding area, refuge areas, alteration of favourable condition for breeding;** The Hen Harrier feeding and roosting locations within the Project as listed above are within the potential disturbance zone of the proposed construction works. As such there is potential for short-term displacement of Hen Harrier from these areas during construction. During the 24-month construction stage for the Project, it is likely that Hen Harrier will be disturbed from various areas of the bogs. However, the construction will be carried out progressively (i.e. not all turbines are constructed at the same time), as such displacement will not occur throughout the entirety of the bogs at the same time. Access to hunting adequate hunting ground would likely continue for Hen Harrier during construction. Should works be carried out during the non-breeding season near the winter roost location on Clonoura Bog, then the effects of displacement from habitat would be far more significant as the birds would likely be disturbed from the bogs altogether.	Yes

Site Name (Site Code)	Criteria for assessing potential changes that may occur at a European site, which may result in effects on the function of the site:[29]	Likely Significant Effect
	Importance of the habitats and species affected, e.g. representativeness, local variety; The Hen Harrier population in Ireland has undergone a significant long-term decline, with national assessments indicating a 28.6% decrease since 1972. This decline is linked to an overall reduction in breeding range and unfavourable conservation status, reflected in its Amber-listing in Ireland. A temporary disturbance from available wintering habitat has the potential to increase bird morbidity and mortality. The results of the 2022 National Hen Harrier Breeding Survey show a decline in population recruitment at both these SPAs. As such any further pressure on population could potentially be significant. **Importance of the site (e.g. limit of distribution area for certain habitats and species, stepping stone, important for ecological connectivity);** The Site is likely one of the wintering habitats for Hen Harrier associated with one or both of these SPAs and as such is a key component required to maintain the structure and function of the SPAs. **Disruption or alteration of ecological functions;** The Project will have no impact on the breeding resource available for Hen harrier. The wind farm site is a wintering habitat only. Displacement from hunting grounds during construction in the winter-time could result in potential increase in morbidity or mortality. This can have a knock-on effect on breeding success with weaker birds returning to breed or fewer birds in event of death. A population decline due to wind turbine collision during site operation would be significant also. **Changes to key ecological features of the site:** Short term displacement from parts or all of wintering grounds.	

3.5 Screening Conclusion

In the absence of mitigation measures (which have not been considered/taken into account at this screening stage), likely significant effects on the qualifying interests of the River Barrow and River Nore SAC, The Loughans SAC, Lower River Suir SAC, Slieve Bloom Mountains SPA (004160) and Slievefelim to Silvermines Mountains SPA (004165) cannot be excluded on the basis of objective scientific information.

No potential for significant effects on the River Nore SPA (004233) are determined.

A Natura Impact Statement has been completed (See Section 4) in respect of:

- River Barrow and River Nore SAC (002162);
- The Loughans SAC (000407);
- Lower River Suir SAC (002137).
- Slieve Bloom Mountains SPA (004160)
- Slievefelim to Silvermines Mountains SPA (004165)

The results of the s-p-r assessment identified that - given the scale and nature of the potential sources identified in Table 2-14 - there are no likely significant effects identified for any other European sites not listed above.

The AA screening process has considered potential effects which may arise during all phases of the Project (construction, operation and decommissioning). Through an assessment of the pathways for effects and an evaluation of the sources for impacts, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that there are no likely significant effects on the qualifying interests, special conservation interest or the conservation objectives of any other European site.

4. NATURA IMPACT STATEMENT

4.1 Introduction

This Natura Impact Statement (NIS) has been prepared to support the competent authority (An Coimisiún Pleanála) in carrying out their appropriate assessment of the Project. The conclusions presented in this NIS are intended to enable the competent authority to ascertain whether the Project (alone or in combination with other plans or projects) will adversely affect the integrity[30] of the European sites, in view of the site(s) conservation objectives, with a potential for Source-Pathway-Receptor connectivity to the Project. Measures are identified to mitigate adverse effects on the integrity of European Sites.

An appropriate assessment involves the following steps:

- collecting information on the project and on the European site (upon which it has been determined that there is potential for likely significant effects);
- assessing the implications of the project in view of the European site's conservation objectives, individually or in combination with other plans or projects;
- ascertaining whether the project, individually and in combination with any other plans and projects, is likely to have adverse effects on the ecological integrity of the European site;
- considering mitigation measures (including their monitoring) to avoid or reduce impacts to a level where they will no longer adversely affect the integrity of the European site.

Information on the Project in presented in Section 2. of this report. A description of the baseline environment is presented in Section 2.1.8. and the potential impacts are set out in the AA screening and discussed in further detail below.

4.2 Impact Prediction

Potential impacts from the Project insofar as they might have a significant effect on European sites have been identified as follows:

- Temporary degradation of river water quality local to construction and decommissioning activities near watercourses which may impact the aquatic conservation interests of the River Barrow and River Nore SAC (002162) and the Lower River Suir SAC (002137);
- Disturbance and / or displacement of a population of otter within the River Barrow and River Nore SAC due to construction and decommissioning activities near the river Nore;
- Alteration of local groundwater hydrogeology due to construction activities associated with the grid route which are in-road but adjacent to the Loughans SAC (000407);

[30] The 'integrity of the site' can be defined as the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated. European Commission Notice (2019/C 33/01) notes that the integrity of the site involves its constitutive characteristics and ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives.

- Disturbance and / or displacement of Hen Harrier from habitats during construction and decommissioning resulting in morbidity or mortality of birds associated with the Slieve Bloom Mountains SPA (004160) and/or Slievefelim to Silvermines Mountains SPA (004165);
- Hen Harrier collision during turbine operation resulting in morbidity or mortality of birds associated with the Slieve Bloom Mountains SPA (004160) and/or Slievefelim to Silvermines Mountains SPA (004165).

4.3 Implications for Conservation Objectives and Site Integrity

An overview of the European sites identified through the AA screening as having potential for significant effects is provided hereunder and consideration is given to whether the Project could affect the European sites conservation objectives (CO) and by association the site's integrity.

These European sites have valid and up to date site-specific conservation objectives in place as follows, which have been examined as part of this assessment:

- NPWS (2025) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
- NPWS (2017) Conservation Objectives: Lower River Suir SAC 002137. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- NPWS (2020) Conservation Objectives: The Loughans SAC 000407. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
- NPWS (2022) Conservation Objectives: Slieve Bloom Mountains SPA 004160. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- NPWS (2022) Conservation Objectives: Slievefelim to Silvermines Mountains SPA 004165. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

European and national legislation places a collective obligation on Ireland to maintain or restore habitats and species in the Natura 2000 Network to favourable conservation condition.

Conservation objectives for European sites relate to the site and the QI/SCI for which they are designated. NPWS define the favourable conservation status of an Annex I habitat or Annex II species as achieved when:

- its natural range, and area it covers within that range, are stable or increasing;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of habitats and species is achieved through the maintenance or restoration of conservation status according to the Conservation Objectives of the site, as set out relative to the attributes and targets prescribed.

4.3.1 River Barrow and River Nore SAC (002162)

The River Barrow and River Nore SAC is an extensive multi-system site spanning coastal/estuarine, freshwater and terrestrial habitats from the Slieve Bloom Mountains to Waterford Harbour. Qualifying Interests include estuarine and coastal habitats (Estuaries, Mudflats & sandflats, Reefs, Salicornia stands, Atlantic and Mediterranean salt meadows), freshwater habitats (floating river vegetation [3260], petrifying springs [7220]), woodland habitats (old sessile oak woods [91A0], alluvial forests [91E0]), and a suite of Annex II species including otter, salmon, lampreys, twaite shad, white-clawed crayfish, freshwater pearl mussel, Desmoulin's whorl snail and Killarney fern. Its scale (over 12,000 ha), ecological diversity, and role in maintaining high-status water-dependent habitats contribute to its national and EU importance. The Conservation Objectives report for the SAC (NPWS, June 2025) includes the additional habitat Reefs [1170] and has removed the Nore pearl mussel [1990][31] in lieu of freshwater pearl mussel. The report sets out attributes and targets needed to maintain or restore the conservation status of the SAC's QIs. These are considered in the assessment of potential for significant effects.

The site is vulnerable to threats and pressures which are identified in the Natura 2000 Data Form as occurring both inside and outside of the SAC boundary. These are summarised hereunder and an assessment made on whether the Project could be contributary to any of the existing pressures, either alone or in combination with other projects or plans.

[31] As per the NPWS (2025) Conservation Objectives report "Genetic research has placed the Nore population (formerly *Margaritifera durrovensis*, Species code [1990] within the *Margaritifera margaritifera* taxon".

Table 4-1: River Barrow and River Nore SAC Threats and Pressures

Code	Threats & Pressures	Rank	Inside/Outside/Both	Could the Project add to the Threat/Pressure
H01	Pollution to surface waters	High	Both	Yes – through frac-out and surface water runoff at the HDD crossing. Also, if these lands were to flood during or following the HDD works (and before vegetation has been reinstated), there would be an increased risk of sediment runoff to the SAC.
J02.03	Modifying structures of inland watercourses	High	Inside	No – no instream works.
J02.05	Embankment & flood defence works	High	Inside	No – Project does not include flood works.
K02.01	Erosion (bank & channel)	High	Inside	No - No works in-channel or bankside.
A10	Removal of hedges/scrub/riparian vegetation	High	Inside	No – HDD crossing will not require removal of riparian vegetation, scrub or hedgerows.
J02	Human-induced changes in hydraulic conditions	Moderate	Both	No – while the HDD exit pit will be located within the flood zone of the river Nore, the works will be temporary and lands will be reinstated ensuring no alteration of the manner in which these agricultural lands flood.

The site-specific conservation objectives (CO) for the qualifying interests of the River Barrow and River Nore SAC are set out in Table 4-2 along with the national conservation status for the QIs as per Article 17 Reporting (NPWS, 2025). An assessment is made hereunder as to whether the identified impacts of the Project could be considered to have an adverse effect on the integrity of the site having regard to the attributes and targets set out in the conservation objectives report.

The assessment concludes that there is potential for adverse effects on site integrity due to impacts on the conservation objective for Freshwater Pearl Mussel Margaritifera Margaritifera, Brook Lamprey Lampetra planeri, River Lamprey Lampetra fluviatilis, Salmon Salmo salar and potentially for White clawed Crayfish Austropotamobius pallipes due to potential water quality impacts from surface water runoff and from HDD activities crossing the river Nore.

Table 4-2: Potential for Adverse Effects on the Conservation Objectives of the River Barrow and River Nore SAC

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1016	Desmoulin's Whorl Snail Vertigo moulinsiana	Maintain	Inadequate (U1) conservation status with a deteriorating trend	No – As per the CO document for the SAC, whorl snail are known at two locations: Borris Bridge, Co. Carlow S711503; Boston Bridge, Kilnaseer S338774, Co. Laois. These are located outside of the ZoI of the Project and have no landscape or ecological connectivity to the development.
1029	Freshwater Pearl Mussel Margaritifera margaritifera	Restore	Bad (U2) conservation status with a deteriorating trend	Yes – the proposed HDD crossing of the river Nore is located within a catchment of SAC pearl mussel population listed in S.I. 296 of 2009. The Nore population historically stretched from Poorman's Bridge to Lismaine Bridge, with most of the population found between Poorman's Bridge and the just upstream of the bridge at Ballyragget (NPWS, 2025). This population is contracting due to catchment pressures.

[32] As per 'The Status of EU Protected Habitats and Species in Ireland SPECIES ASSESSMENTS' Volume 3 (NPWS, 2025) AND 'The Status of EU Protected Habitats and Species in Ireland HABITAT ASSESSMENTS' Volume 2 (NPWS, 2025)

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
				The conservation target for pearl mussel is for the restoration of this 21.13km stretch of river. The CO document states that the population on the main channel is 100 individuals (taken from 2104 data), with a target for 5,000 adults. The Aquatic baseline report prepared as part of the EIAR for the Project notes the following: 'A *low number of records were available for freshwater pearl mussel (Margaritifera margaritifera) for the River Nore located between the River Erkina confluence and Ballyragget in the 1993 to 2007 period (i.e. including a stretch downstream of the proposed project). However, no live mussel has been recorded in this area of the River Nore since 2007 (Pascal Sweeney pers. comm.), including during a survey completed in May 2023 [by Triturus]".* While no direct impact on mussels are therefore likely from accidental runoff or frac-out into the river Nore, such impacts could have an effect on the target to restore the distribution of mussel in the event of long term habitat degradation.
1092	White-clawed Crayfish Austropotamobius pallipes	Maintain	Bad (U2) conservation status with a deteriorating trend	Potential – while the population in the main channel of the River Nore has been decimated by crayfish plague, the habitat remains suitable to support this species. The HDD crossing is at a location where crayfish occurred in the past and has suitable habitat for this species. While the Project would have no potential to result in population impacts given current population condition, it is possible that there could be temporary impact on habitat quality and heterogeneity downstream in the event of frac-out, this could have an effect on population recovery.

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1095	Sea Lamprey Petromyzon marinus	Restore	Bad (U2) conservation status with a deteriorating trend	No - Sullivan (2007)[33] notes a sequence of major barriers on the Nore main channel to lamorey movement —including Thomastown Weir, Mount Juliet, Bennettsbridge Weir, Brett's Weir, Ballyragget Freestone Weir, and Castletown Weir. These structures act as partial to total barriers, delaying or preventing lamprey from reaching upstream spawning gravels. The report notes that spawning activity for lamprey often occurs immediately downstream of such obstructions, where flow conditions and substrate remain suitable. Ballyragget weir is located c.800m downstream of the proposed HDD crossing of the Nore, however WFD catchment-wide surveys[34] do not show sea lamprey spawning at Ballyragget weir given suitability of habitat. The Project has no potential to impact sea lamprey distribution or population.
1096	Brook Lamprey Lampetra planeri	Restore	Favourable (FV) conservation status with a Stable trend	
1099	River Lamprey Lampetra fluviatilis	Restore	Inadequate (U1) conservation status with an Unknown trend	

[33] Sullivan (2007) *Assessment of Fish Passage and the Ecological Impact of Migration Barriers on the River Nore Catchment.*
[34] Gallagher, T., O'Gorman, N., Rooney, S.M., Brett, A., and O'Leary, C. (2024) National Programme: Habitats Directive and Red Data Book Species Summary Report 2023. Inland Fisheries Ireland, 3044 Lake Drive, Citywest, Dublin 24, Ireland.

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1106	Salmon Salmo salar	Restore	Bad (U2) conservation status with a deteriorating trend	Yes – While IFI Habitats Directive lamprey monitoring reports (2020, 2021, 2022, 2023)[35] show no spawning Atlantic salmon, Brook or River Lamprey on the section of the River Nore as might be impacted by the HDD crossing, the habitat generally at the HDD crossing and upstream is of value for these species. This is confirmed through field survey (see EIAR Aquatic survey report) which noted that the river at the HDD crossing location to be of good value for salmonids generally, but that the riffle and shallow glide areas at the island c. 100m upstream of the proposed crossing representing a highly valuable salmonid and lamprey spawning area (rare in the wider survey area). The river downstream was not of value as a spawning habitat and was a poor quality salmonid nursery. Such habitat was, though, of good value as a holding area for adult salmonids. Soft sediment accumulations along the margins, although often sand dominated, were of some value to lamprey ammocoetes. Also, Ballyragget weir is noted as a partial barrier to fishery movements. Frac-out from the HDD crossing, which is in a gravel aquifer, can travel upstream (against the direction of groundwater flow) or in any direction, depending on preferential pathways, pressure differentials, and geological structures. As such there is a potential for sedimentation of spawning gravels from breaking out of drilling fluids. This would have an adverse effect on the conservation target for 'no decline in extent and distribution of spawning beds'. Equally, sediment runoff or frac-out could result in degradation of general fishery habitat quality reducing availability of habitat.

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1103	Twaite Shad Alosa fallax fallax	Restore	Bad (U2) conservation status with a deteriorating trend	No – Twaite Shad does not occur in the freshwater stretches of the Nore. It remains confined to the estuarine zone near New Ross, and is beyond the ZoI of the Project.
1355	Otter Lutra lutra	Restore	Bad (U2) conservation status with a Stable trend	Yes – Otter are confirmed to be present on the river Nore and its tributaries. Otter activity is noted at the proposed location of the HDD grid connection crossing of the River Nore. A possible holt is noted at the foot bridge on west bank of the River Nore which is located c. 20m from the proposed grid route works along the N77 road, where it parallels the River Nore. The Project will not impact the extent of otter habitat availability given that no works are to take place within the SAC or within the riparian area. There is potential however for disturbance of otter from the potential holt at the dry bridge due to works on the N77. The target for couching sites and holts is for no significant decline. The Project may result in brief disturbance of the holt, which could be affect the conservation objective in particular if it was a breeding location.

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
				A temporary and localised reduction in water quality / aquatic habitat quality would be expected in the event of accidental pollution given the scale of the Project works at the location of the HDD crossing. Such deterioration could have temporary effects on the local fishery population. This effect would be unlikely to result in adverse effects on otter in terms of reduction in availability of fish biomass, and would be unlikely to affect mean catchment-wide abundance of salmon and lamprey.
1130	Estuaries	Maintain	Favourable (FV) conservation status with a Stable trend	No – no S-P-R connectivity given distance of QI from the Project.
1140	Mudflats & sandflats not covered by seawater at low tide	Maintain	Inadequate (U1) conservation status with a Stable trend	
1170	Reefs	Maintain	Bad (U2) conservation status with a Stable trend	
1310	Salicornia and other annuals colonising mud and sand	Maintain	Bad (U2) conservation status with a Deteriorating trend	

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1330	Atlantic salt meadows	Restore	Bad (U2) conservation status with a Deteriorating trend	
1410	Mediterranean salt meadows	Restore	Inadequate (U1) conservation status with a Deteriorating trend	
1421	Killarney Fern Trichomanes speciosum	Restore	Favourable (FV) conservation status with a Stable trend	No – field survey confirmed the species not present in the ZoI of the Project, and as per CO document, this plant does not occur on the upper reaches of the Nore.
3260	Water courses with Ranunculion fluitantis & Callitricho-Batrachion vegetation	Maintain	Inadequate (U1) conservation status with a Deteriorating trend	No - Present upstream of the HDD crossing location only.
4030	European dry heaths	Maintain	Bad (U2) conservation status with a Deteriorating trend	No – field survey confirmed the habitat not present in the ZoI of the Project.

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[32]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
6430	Hydrophilous tall herb fringe communities	Maintain	Bad (U2) conservation status with a Deteriorating trend	
7220	Petrifying springs with tufa formation (Cratoneurion)	Maintain	Inadequate (U1) conservation status with a Stable trend	
91A0	Old sessile oak woods with Ilex and Blechnum	Restore	Bad (U2) conservation status with a Deteriorating trend	
91E0	Alluvial forests (Alno-Padion, Alnion incanae, Salicion albae)	Restore	Bad (U2) conservation status with a Deteriorating trend	

4.3.2 The Loughans SAC (000407)

The Loughans SAC is a Karst depression in Co. Kilkenny designated for the priority habitat Turloughs [3180]. NPWS conservation objectives set detailed hydrology, soil, water-quality and vegetation targets (e.g., habitat area ≈21.4 ha; maintain/restore natural hydrological regime; maintain typical species and zonation; protect water quality and calcium carbonate processes) for this habitat. The 'Site Specific Conservation Objectives (SSCO): To restore the favourable conservation condition of Turloughs in The Loughans SAC' (NPWS, February 2026)[36] sets out conservation measures, delivery method and timeframe for the restoration of ecological status of the SAC. These are considered in the assessment of the potential for adverse effects on the SAC.

The site is vulnerable to threats and pressures which are identified in the Natura 2000 Data Form as occurring both inside and outside of the SAC boundary. These are summarised hereunder and an assessment is made on whether the Project could be contributary to any of the existing pressures, alone or in combination with other plans or projects.

Table 4-3: The Loughans SAC Threats and Pressures

Code	Threats & Pressures	Rank	Inside/Outside/Both	Could the Project add to the Threat/Pressure
PA17	Agricultural activities generating pollution to surface/groundwaters	High	Both	Yes – while there is no potential for direct runoff into the adjacent SAC from the HDD and grid construction works on the R693 given that the road drainage is over the edge, there is potential for pollution of groundwater from frac-out of drilling fluids or from accidental leaks/spills of oils and fuels from machinery.
PA22	Drainage for use as agricultural land	Medium	Both	No – the works will not involve any land drainage
PA07	Intensive grazing or overgrazing by livestock	Medium	Inside	No – the works will not require any changes to grazing regime. While the farmer may move animals out of the field during the works (in order that they are not disturbed by the noise), such works will be brief in nature which will not affect normal grazing.

[36] www.npws.ie/sites/default/files/protected-sites/conservation-measures/CM000407.pdf

The site-specific conservation objectives (CO) for the qualifying interests of the Loughans SAC are set in the table below along with the national conservation status for the QIs as per Article 17 Reporting (NPWS, 2025). An assessment is made as to whether the identified impacts of the Project could be considered to have an adverse effect on the integrity of the site having regard to the attributes and targets set out in the conservation objectives report.

Potential for adverse effects on site integrity have been determined for Atlantic salmon due to potential for sediment runoff into possible spawning habitat. No other conservation objectives are deemed to be affected.

Table 4-4: Potential for Adverse Effects on the Conservation Objectives of the Loughans SAC

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[37]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
3180	Turloughs	Restore the favourable conservation condition (per site attributes & targets)	Inadequate (U1) conservation status with a Stable trend	Yes - There is potential for accidental release of drilling fluid during HDD crossing of the Goul_030 (Borrisbeg Stream) river. Drilling fluids could block karst conduits and potentially alter the hydrogeological regime. O'Conor (2017)[38] notes that the groundwater contribution to turloughs exerts a strong influence on turlough ecology, notably through mineral contributions (e.g. calcium carbonate). It is, therefore, important that groundwater makes a high percentage contribution to turlough floodwaters. If groundwater flowpaths were to be inhibited this could have an effect on the habitats and species associated with the SAC. This could affect the conservation target to 'Maintain/restore appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat'. In addition, any interference with hydrology can have a knock on effect on soil chemistry (calcium carbonate deposition rate) and turlough wetness, with associated effects on habitat sand species.

[37] As per 'The Status of EU Protected Habitats and Species in Ireland SPECIES ASSESSMENTS' Volume 3 (NPWS, 2025) AND 'The Status of EU Protected Habitats and Species in Ireland HABITAT ASSESSMENTS' Volume 2 (NPWS, 2025)

[38] O Connor, Á. (2017) Conservation objectives supporting document: Turloughs* and Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation. Conservation Objectives Supporting Document Series. National Parks and Wildlife Service, Dublin.

4.3.3 Lower River Suir SAC (002137)

This SAC comprises the river Suir from south of Thurles to the estuary at Cheekpoint, with many tributaries also included. Qualifying Interests include saltmarshes (1330, 1410), floating river vegetation [3260], tall herb fringes [6430], old oak and alluvial/yew woodland (91A0/91E0/91J0), and Annex II species (pearl mussel, white-clawed crayfish, lampreys, twaite shad, salmon, otter).

The site is vulnerable to threats and pressures which are identified in the Natura 2000 Data Form as occurring both inside and outside of the SAC boundary. These are summarised hereunder and an assessment is made on whether the Project could be contributary to any of the existing pressures.

Table 4-5: The Lower Suir SAC Threats and Pressures

Code	Threats & Pressures	Rank	Inside/Outside/Both	Could the Project add to the Threat/Pressure
H01	Pollution to surface waters (nutrients/organic)	—	Both	Yes - impacts identified relate to surface water runoff into the North Glengoole and Black [Two Mile Borris] rivers from construction works. It is expected that any accidental pollution will have a localised effect only given the flows in the rivers. These watercourses do however flow to the River Suir, and are known to support certain QI species of the SAC.
J02.03	Modifying structures of watercourses / barriers to migration	—	Inside	No – the existing culvert crossings on the North Glengoole and Black [Two Mile Borris] rivers will not be modified for the access road construction. These culverts are not included on the IFI National Barrier Programme, but field survey shows the culverts to allow fish passage currently.
E01	Water abstraction	—	Both	No – Project does not include water abstraction.

The site-specific conservation objectives (CO) for the qualifying interests of the Lower River Suir SAC are set in the table below along with the national conservation status for the QIs as per Article 17 Reporting (NPWS, 2025). An assessment is made as to whether the identified impacts of the Project could be considered to have an adverse effect on the integrity of the site having regard to the attributes and targets set out in the conservation objectives report.

Table 4-6: Potential for Adverse Effects on the Conservation Objectives of the Lower River Suir SAC

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[39]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1029	Freshwater Pearl Mussel Margaritifera margaritifera	Restore	Bad (U2) conservation status with a deteriorating trend	No – the pearl mussel associated with the Suir SAC are contained within the Clodiagh system. There is no hydrological pathway between the Project and this waterbody catchment.
1092	White-clawed Crayfish Austropotamobius pallipes	Maintain	Bad (U2) conservation status with a deteriorating trend	No - The CO document for the SAC (NPWS, 2017) notes that "*White-clawed crayfish (Austropotamobius pallipes) occurs extensively on the River Suir and on many of its tributaries*" and prescribes a CO to maintain the conservation status. However, this species is considered in danger in the Suir catchment due to the presence of the deadly Crayfish Plague (Aphanomyces astaci), with outbreaks confirmed in the Suir catchment since 2017. No crayfish were recorded on the North Glengoole and Black [Two Mile Borris] rivers during aquatic survey (see EIAR appendix) not on the River Suir downstream of the confluence. Any sedimentation of the watercourses will be brief and would not effect the distribution of crayfish (or lack thereof) or habitat and water quality such that conservation target (for water quality of Q3-4, and for habitat heterogeneity) for crayfish would be impacted.

[39] As per 'The Status of EU Protected Habitats and Species in Ireland SPECIES ASSESSMENTS' Volume 3 (NPWS, 2025) AND 'The Status of EU Protected Habitats and Species in Ireland HABITAT ASSESSMENTS' Volume 2 (NPWS, 2025)

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[39]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1095	Sea Lamprey Petromyzon marinus	Restore	Bad (U2) conservation status with a deteriorating trend	No - The NPWS CO report noted that access to areas upstream of Clonmel is problematic for sea lamprey due to weirs on the system. It is noted however that IFI are undertaking a barriers improvement programme, with recent planning granted (ref 2660147, granted February 2026) for the partial removal of Bakery Weir and the non-functional fish pass in Cahir to restore the natural river conditions and ecological connectivity of the River Suir. As such it is expected that sea lamprey will achieve improved access to the main Suir channel and tributaries, improving the target to restore extent of the river accessible. However, as per the baseline aquatic report (see EIAR) the North Glengoole and Black [Two Mile Borris] rivers are suboptimal for lamprey due to lack of suitable spawning habitat, poor flows and siltation pressures.
1096	Brook Lamprey Lampetra planeri	Restore	Favourable (FV) conservation status with a Stable trend	No – as above, the North Glengoole and Black [Two Mile Borris] rivers do not provide suitable habitat, and the River Suir is such distance downstream that no effect would occur, given that the impact is localised runoff from construction activities.
1099	River Lamprey Lampetra fluviatilis	Restore	Inadequate (U1) conservation status with an Unknown trend	

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[39]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1103	Twaite Shad Alosa fallax fallax	Restore	Bad (U2) conservation status with a deteriorating trend	No - Twaite Shad in the River Suir are primarily found in the lower, tidal reaches of the river, which form part of the Lower River Suir Special Area of Conservation (SAC). Their range extends from the Waterford Estuary/Cheekpoint area upstream to at least the vicinity of Carrick-on-Suir. They are not within the ZoI of the Project.
1106	Salmon Salmo salar	Restore	Bad (U2) conservation status with a deteriorating trend	Possible – Atlantic salmon were recorded during field survey in the North Glengoole and Black [Two Mile Borris] rivers with some suitable habitat noted, albeit under pressure from sedimentation. Temporary runoff of sediment or runoff of leaks of oils/fuels from machines due to construction at these river crossings would be unlikely to result in an impact on spawning stock level, however could be damaging to redds if runoff was to occur during spawning, which would be contrary to the target for 'No decline in number and distribution of spawning redds due to anthropogenic causes'.
1355	Otter Lutra lutra	Maintain	Bad (U2) conservation status with a Stable trend	No – no otter signs were noted within the ZoI of works at the North Glengoole and Black [Two Mile Borris] rivers, or of the wind farm Site.
3260	Water courses with Ranunculion fluitantis & Callitricho-Batrachion vegetation	Maintain	Inadequate (U1) conservation status with a Deteriorating trend	No – this habitat is not present within the ZoI of the proposed crossings of the North Glengoole and Black [Two Mile Borris] rivers

Code	Qualifying Interest	Conservation Objective (maintain or restore)	National Status[39]	Does the Project provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets
1330	Atlantic salt meadows	Restore	Bad (U2) conservation status with a Deteriorating trend	No – no S-P-R connectivity given distance of QI from the Project.
1410	Mediterranean salt meadows	Restore	Inadequate (U1) conservation status with a Deteriorating trend	
6430	Hydrophilous tall herb fringe communities	Maintain	Bad (U2) conservation status with a Deteriorating trend	No – field survey confirmed the habitat not to be present in the ZoI of the Project.
91A0	Old sessile oak woods with Ilex and Blechnum	Restore	Bad (U2) conservation status with a Deteriorating trend	
91E0	Alluvial forests (Alno-Padion, Alnion incanae, Salicion albae)	Restore	Bad (U2) conservation status with a Deteriorating trend	
91J0	Taxus baccata woods of the British Isles	Restore	Bad (U2) conservation status with a Stable trend	

4.3.4 Slieve Bloom Mountains SPA (004160) and Slievefelim to Silvermines Mountains SPA (004165)

These SPAs are designated for Hen Harrier (A082). These SPAs are considered together as it is uncertain as to whether the Hen Harrier wintering at the proposed wind farm site are associated with both, one or neither SPA. For the purpose of this assessment, it is considered that the Hen Harrier are part of both SPA populations.

NPWS conservation objective targets include numeric and habitat targets (population, productivity, spatial utilisation) and key habitat resource extents for this species. The conservation objective for both SPAs is to restore the favourable conservation condition of hen harrier.

The conservation objectives also include spatial utilisation targets for the habitats within the SPAs. However, none of these are focussed on wintering habitats, rather they focus on extent and condition of bog, heath and grassland habitats within the SPA itself, as well as hedgerows. The Project will have no impacts on habitats within the SPA and as such will have no effects on the following conservation targets:

- Age structure of forest estate - Achieve an even and consistent distribution of age-classes across the forest estate
- Extent and condition of hedgerows - Maintain at least the length and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation
- Extent and condition of low intensity managed grasslands and associated habitats - Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation
- Extent and condition of heath and bog and associated habitats - Restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation

Similarly, the Project can have no impact on the following conservation targets given there is no potential source of impact for breeding habitat within or associated with the SPA:

- Spatial utilisation by breeding pairs - Maintain at least 74-94% spatial utilisation of the SPA by breeding pairs
- Disturbance to breeding sites - Disturbance occurs at levels that does not significantly impact upon breeding hen harrier

The conservation objectives document notes that “the impact of any significant disturbance on the SPA's breeding population will ultimately be manifested in the targets which relate to population demographics (i.e. population size, productivity rate) and the spatial utilisation of the SPA by breeding pairs. Factors such as intensity, frequency, timing and duration of a potentially disturbing activity need to be taken into account to determine its significance on breeding hen harrier in the SPA”. In this regard consideration is given to whether the potential for disturbance and displacement of Hen Harrier during the winter could impact breeding population.

<u>Disturbance / Displacement during construction and decommissioning</u>

Hen Harrier observed at the wind farm site were mix of juvenile birds (ringtails), an adult male and female birds. Hen Harrier were observed at the Site only during non-breeding season, i.e. there is no evidence to show that Hen Harrier uses the Littleton bogs in the breeding season. As such there is no potential to impact directly on breeding birds of the SPAs.

Hen Harrier activity at the bogs was greatest at the Bawnreagh Lakes, Derryhogan Lakes and Longford pass South lakes. Hen Harrier were also active at Clonoura Bog where a confirmed winter roost is located.

In terms of the wider landscape, Hen Harrier were also observed during the non-breeding season. All records were of individual birds and there were 62 records in total over the 2020-2025 survey period. Observations were of juvenile or ringtail birds, with some observations believed to be first winter male (immature male bird). They were observed hunting in bog habitat at Longford Pass (site 45), Bawnmore (sites 48, 49 and 50) and Ballybeg (site 44), see Figure 3.9 of the Bird Report (appendix to EIAR/NIS) for locations of hinterland sites. It is of note that the habitats within the Site and hinterland bogs are likely to evolve and become wetter over time in accordance with the completed and intended future bog rehabilitation that has/will take place. As such, it is possible that the dynamics of how Hen Harrier utilise the habitats within their range may chance as more hunting opportunity may arise where wetland birds are drawn to the newly wetted areas of bogs, or suitable resting places may be lost due to wetting. However, the Project lands have been subject to drain blocking since 2018 and as such the wetland areas within the bogs are established and are not proximal to the Hen Harrier winter roost. An alteration of habitat will therefore not occur such that it might change the manner in which Hen Harrier uses the Site.

The Project has a 24-month construction programme, therefore there is potential for disturbance effects to occur over 2 winter seasons. The potential disturbance / displacement will not be uniform throughout the Project Site given that not all turbines will be constructed at the same time. As such, Hen Harrier will not be disturbed from the entirety of the Site during the construction / decommissioning works. There is sufficient area of habitat and associated feeding resources at any one of the key Hen Harrier foraging areas within the Site (i.e. Bawnreagh Lakes, Derryhogan Lakes and Longfordpass South lakes), as well as at the nearby hinterland sites in which they have been observed, to support this species. As such temporary disturbance / displacement during construction or decommissioning would not have an adverse effect on site integrity as there would be no likely impact on bird morbidity.

However, disturbance or displacement of Hen Harrier from the winter roost location at Clonoura Bog would likely have an adverse effect on site integrity given that the temporary loss of a roost site could deter the birds from the area altogether, thereby displacing them from key winter habitat. Disturbance / displacement could affect bird morbidity given displacement from traditional roosts can force birds into less favourable areas, leading to increased exposure to harsh weather and predation. This would have a knock-on effect on breeding population which is an adverse effect.

Disturbance / Displacement during Operation

Goodship (2022) notes that 'Hen Harrier will nest at 200m to 300m from an operational wind turbine'. It is assumed that they would therefore also roost at this distance (given they are less sensitive to disturbance in non-breeding season). Additionally, O'Donoghue (2021) 'Hen Harrier ecology and conservation during the non-breeding season in Ireland' comprised an analysis of 203 winter roosts recorded nationally between 2004 and 2020, and did not identify a turbine-related avoidance distance, nor did it attribute roost any abandonment to turbine operation alone. Rather, where renewable energy development was recorded as a pressure, impacts related primarily to habitat disturbance rather than proximity to operational turbines. Importantly, many roosts persisted over multiple years within landscapes undergoing wind-energy development, indicating an absence of consistent operational displacement at the roost stage. This finding is supported by wider Irish and UK evidence, including the WINDHARRIER project[40] and subsequent reviews, which conclude that Hen Harriers exhibit low sensitivity to operational turbines, with any displacement effects, where detected, being weak, inconsistent, and largely confined to very localised areas (<100 m) and primarily associated with foraging behaviour rather than roost site selection.

[40] Dr. Mark Wilson et al (2015) The interactions between Hen Harriers and wind turbines WINDHARRIER. School of Biological, Earth & Environmental Sciences, University College Cork.

The winter roost at the Clonoura Bog is located 600m from Turbine T08. As such, the proposed turbine array layout and operation of the turbines would not affect the use of the winter roost at Clonoura Bog during operation phase.

Literature[41] on Hen Harrier (*Circus cyaneus*) indicates limited evidence of large-scale displacement from operational wind farms, though some small-scale foraging avoidance occurs, likely within 100-300m of turbines. Of the main foraging habitats for Hen Harrier in the Project Site, Derryhogan Lakes and Longfordpass South lakes are located beyond a 300m distance of the proposed turbines. No disturbance or displacement is likely for these locations during operational stage of the development. Turbine T1 and T2 are located within 300m of Bawnreagh Lakes, and as such may potentially result in localised displacement. Such localised displacement would not have an adverse effect on site integrity as there would be no impact on bird morbidity given high availability of hunting resources at the bogs and surrounding hinterland sites, with recent studies[42] Indicating that core winter foraging activity typically occurs within approximately 2–5 km of winter roosts.

Direct Impacts on Population through Turbine Collision

The 2022 National Hen Harrier Breeding Survey[43] estimated a population of 85–106 breeding pairs in Ireland, marking a one-third (33%) decline since 2015. NPWS data [44] shows that the breeding population at Slieve Bloom Mountains has remained relatively stable averaging at around 10 breeding pairs between the years 2000 and 2020, with latest (2022) figures being 8-9 breeding pairs. The population at Slievefelim to Silvermines Mountains has been variable with numbers ranging from 4 to 8 pairs in the 2000 to 2020 period, with latest (2022) figures being 9-10 breeding pairs. The population target for the Slieve Bloom Mountains SPA is to maintain numbers at or above 5–10 breeding pairs, for the Slievefelim to Silvermines Mountains SPA the population target is to numbers at or above 4–8 breeding pairs. As such the populations currently align with conservation population targets, albeit there has been an overall decline in population at both SPAs since 2015.

The 2022 National Hen Harrier Breeding Survey includes a population model for each SPA and the wider countryside using breeding parameters from 2022. The data from the model pertaining to the Slieve Bloom Mountains SPA and Slievefelim to Silvermines Mountains SPA is reproduced in Table 4-7 hereunder and shows a modelled population recruitment deficit for both SPAs.

[41] Paul Haworth and Alan Fielding (2012) A review of the impacts of terrestrial wind farms on breeding and wintering hen harriers. AND Madden, B., and B. Porter (2007). Do wind turbines displace Hen Harriers Circus cyaneus from foraging habitat? Preliminary results of a case study at the Derrybrien Wind Farm, County Galway. Irish Birds 8:231-236.
[42] Probst, R.; Probst, R. Winter Ecology of the Hen Harrier, *Circus cyaneus*: Bridging Behavioral Insights and Conservation Requirements. *Animals* **2025**, *15*, 1057. https://doi.org/10.3390/ani15071057
[43] Ruddock, M., Wilson-Parr, R., Lusby, J., Connolly, F., J. Bailey, & O'Toole, L. (2024). The 2022 National Survey of breeding Hen Harrier in Ireland. Report prepared by Irish Raptor Study Group (IRSG), BirdWatch Ireland (BWI), Golden Eagle Trust (GET) for National Parks & Wildlife Service (NPWS). Irish Wildlife Manuals, No. 147. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
[44] NPWS (2022). Conservation Objectives Supporting Document: Breeding Hen Harrier. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

A collision risk model has been prepared for the Project (following NatureScot Collision Risk Model (CRM), also known as the Band model (Band, 2024 / NatureScot, 2024). Collision risk modelling predicts that Hen Harrier will have 0.01 fatalities per year, i.e. 1.52 Hen Harrier collisions in the 35-year operating period of the wind farm. This predicted collision has been considered relative to the likely future downward trend of Hen Harrier population predicted in the 2022 National Hen Harrier Breeding Survey report with results presented in Table 4-7. The population consequences to the SPA / local populations were determined to be <1% with a negligible magnitude for effect relative to the achievement of the SPA population targets given such changes would fall with environmental/demographic stochasticity[45]. As such no adverse effects on site integrity from bird collision are predicted.

[45] Badia-Boher, Jaume A., Antonio Hernández-Matías, Santi Mañosa, Francesc Parés, Josep Maria Bas, Diego J. Arévalo-Ayala, and Joan Real. 2025. "Fall and Rise of a Threatened Raptor: Unravelling Long-Term Population Dynamics with Spatially Explicit Integrated Models." Ecological Applications 35(2): e70013.
James E. Diffendorfer et al (2022) Demographic and potential biological removal models identify raptor species sensitive to current and future wind energy.

Table 4-7: Indicative hen harrier population modelling 2022

Extracted from 2022 National Hen Harrier Breeding Survey								From CRM				
SPA	pairs	Total adults	Adult survival	Live adults	Dead adults	Mean young per breeding pair	Juveniles fledged	Survival rate	Surviving young	Surplus or Deficit	Predicted annual collision mortality	Cumulative Population effect
Slievefelim to Silvermines Mountains	4	8	0.778	6.224	1.776	0.25	1	0.361	0.361	-1.42	0.01 birds	-1.43
Slieve Bloom Mountains	9	18	0.778	14.004	3.996	0.67	6	0.361	2.166	-1.83	0.01 birds	-1.84

4.1 In-Combination Assessment

A review of permitted and proposed developments within the wider landscape was undertaken in order to assess the potential for cumulative impacts on European Sites. The developments assessed are listed Section 3.3 of this report and in Appendix A.

As per Section 4.2 of this report, impacts identified for the Project with potential to negatively affect the integrity European sites (in the absence of mitigation) are summarised as follows:

- Frac-out from HDD Crossing on the proposed Grid Route
- Surface water runoff from works areas into the River Suir and River Nore catchment
- Impacts on otter population due to disturbance during grid connection construction on the N77
- Disturbance or displacement of Hen Harrier from the Winter Roost at Clonoura Bog during construction and decommissioning.

The potential for permitted and proposed developments to act in combination with the Project so as to act cumulatively with the project-related impacts is discussed hereunder relative to the impacts listed above.

4.1.1 Potential for Cumulative Effects on Water Quality / Aquatic Environment

It is accepted best practice that developments within the same catchment and at the construction stage need to be taken into consideration when assessing the potential for cumulative effects. According to Entec's 2008 report *"it is conceivable that two or more wind farms (or indeed other developments) in the catchment of a water receptor could result in combined runoff impacts to water quality, which then exceed Environmental Quality Standard thresholds. It is generally the case that in such circumstances any such effect is only likely to have the potential to be significant during the construction period. Once operational, any effects are likely to be restricted to high rainfall events when the level of dilution of impact is proportionately increased by higher flow levels that can be anticipated under these circumstances. Despite this theoretical potential impact, it is possible to control construction effects by good management techniques and therefore in practice significant effects, either individually or cumulatively, will rarely occur. Where such impacts occur other regulation provides additional controls. Due to the existing regulation over water environment there are absolute controls on the manner in which developments are constructed and operated in respect of the water environment which result in any potential effect being designed out. In this way it is unlikely that any cumulative effect would be significant."*[46]

Therefore, only other developments that lie in the same catchment(s) as the Project that have the potential to have their construction stage overlap with the Project's construction stage are considered.

There are no proposed or consented developments which might act in combination so as to impact the Loughan's SAC. One planning application for a single dwelling house with septic tank and soakaway (ref. 2560236) was granted permission in January 2026. Percolation test associated with the application noted suitable conditions for the septic tank and the planning consent require that the on-site wastewater treatment system shall be installed and maintained in accordance with the manufacturer's instructions. As such cumulative impacts are not anticipated. No other plans or projects have potential to act in combination.

[46] Entec UK Limited (2008) Review of Guidance on the Assessment of Cumulative Impacts of Onshore Windfarms: Phase 1 Report

Within the Suir Catchment, projects which are considered for potential to act in combination with the Project due to their location in proximity to the Black (Twomileborris) River are as follows:

1. Bord na Móna (BNM) recreational cycle and walkway - Bord na Móna (BNM) has proposed the construction of a recreational cycle and walkway to connect into the existing Loch Dhoire Bhile Loop which will include the repurposing of existing former rail bed, existing bog headlands / former high fields, and along pre-existing machine access routes (Tipperary County Council Planning Application: 2560154, appeal to ACP, with grant permission with revised conditions issued on 27/01/2026, ref PL92.323662). The cycle/walkway route is located within the Ballybeg-Lanespark-Derryvilla bog group and within the Black (Twomileborris) River catchment. The application for the recreational cycle and walkway was accompanied by a Natura Impact Statement which includes detailed and robust measures to protect the local watercourse, and as such cumulative effects are not likely.

2. Afforestation application by BNM (CN90049) in 2022 – For the establishment of 203.39 hectares of native broadleaf woodland on industrial cutaway bog areas at Ballybeg and Lanespark. These bogs are within the Black (Twomileborris) River catchment. The afforestation works will be required to be carried out in accordance with the Department of Agriculture, Food & the Marine's (DAFM) Environmental Requirements for Afforestation (June 2024). These Environmental Requirements include the obligation "To create at the outset, a buffer of natural ground vegetation positioned between defined water features and the forest crop and associated operations, in order to protect water quality and aquatic ecosystems from possible sediment and nutrient runoff from the site at afforestation and throughout the remainder of the forest rotation". As such no impacts on the local watercourses are likely. The seeding and planting of native trees will stabilise exposed bogs, reduce wind and water erosion, and enhance biodiversity, which will have a positive effect on local watercourses.

3. Land Use - Turbary turf cutting and forestry activities occur in the vicinity of the Project and within a shared waterbody catchment. These activities can result in sedimentation of the local drains and watercourses and may be contributary to the existing surface water status in the River Suir catchment. While potential effects on water quality from peat slippage or sediment runoff form the Project are deemed unlikely, there is potential for accidental runoff from the Site to act cumulatively with forestry and turbary activities if not properly mitigated.

4. PCAS - Enhanced rehabilitation measures (Phase 2) at Ballybeg and Derryvella, will be carried out within the framework of the Peatlands Climate Action Scheme (PCAS), which is designed to optimise ecosystem service benefits of peatland rehabilitation and restoration, particularly carbon storage and reducing carbon emissions. Drain blocking as part of the PCAS works will have a positive effect on water quality in the Suir catchment. As such no negative impacts on the local watercourses are likely.

Within the Nore Catchment, projects which are considered for potential to act in combination with the Project due to their location on the River Nore in proximity to the grid connection crossing proposed as part of the Project are as follows:

1. The proposed Briskalagh Renewable Energy Development (Planning Authority Case Reference: 2560003 currently under First Party Appeal to An Coimisiún Pleanála, Case reference: PL10.322154) includes a proposed grid connection crossing of the River Nore, located in close proximity to that of the Project. The Briskalagh Renewable Energy planning application includes an EIAR and NIS. While the impact assessments do not include mitigation prescribed specifically for the HDD crossing, measures to prevent impact from surface water runoff and dewatering excavation are included which will act to prevent surface water runoff.

2. The proposed Seskin Wind Farm (Planning Authority Case Reference: 2560418 currently under Appeal to An Coimisiún Pleanála, Case reference: PL10.323759), and the application at the same site for two wind turbines with ancillary and associated development works (submitted for planning in September 2025 to ACP Case reference: PL11.323775) which include a proposed grid connection crossing of the River Nore, located in close proximity to that of the Project. Both applications include an EIAR and NIS which have specific measures to protect water quality including during HDD crossing. As such cumulative effects are not expected.
3. Major Roadworks were completed on the N77 between Ballyragget and Durrow at Ballyconra and Ballynaslee (near the Tirlan Plant). As such there is no potential for in combination effects with the Project.

Other Developments – All other potential cumulative projects within the shared Project waterbody catchments relate to small scale residential and rural developments of single dwellings, house extensions, or farm buildings. None of these consented projects are located within proximity of any watercourse and as such, and given their small-scale nature, there is no potential for them to act cumulatively with the Project to cause a significant effect on water quality or hydrology.

4.1.2 Potential for Cumulative Effects on Disturbance / Displacement of Species

4.1.2.1 Otter

The GC route has potential to result in disturbance to a potential otter holt on the river Nore near the N77 road (see Figure 2-3).

The proposed Briskalagh Renewable Energy Development includes a proposed grid connection HDD crossing of the River Nore. The otter survey carried out in 2024 to inform the Briskalagh Renewable Energy Development noted that "No otter (Lutra lutra) holts were located upstream or downstream within the vicinity of any survey location. Otter prints were recorded approx. 60m upstream of survey location GR-13 [at the HDD crossing] along the righthand bank. No other otter signs (spraint, prints, anal jelly, couches) were recorded in the vicinity of survey locations. However, it is likely that otter populations are utilising the watercourses in which surveys were undertaken". Similar findings were made for the HDD crossing for the proposed GC.

The proposed GC has potential to result in disturbance to a potential otter holt on the river Nore near the N77 road (see Figure 2-3). The proposed grid connection route of the Briskalagh Renewable Energy Development similarly will travel along the N77 in a northern direction to the HDD crossing location. There is potential for the projects to act cumulatively by disturbing otter at the holt at this location in the absence of mitigation.

4.1.2.2 Hen Harrier

Due to the large distances separating other large scale development in the area such as solar and wind farms listed in Appendix A, coupled with the low susceptibility of commuting/hunting hen harrier to turbine collisions (predicted collision rate of 0.01 per year at the Project) and the absence of suitable roosting or breeding habitat at these other large developments, no cumulative effects in terms of collision risk, barrier effect and disturbance/displacement are predicted for hen harrier.

4.2 Mitigating Adverse Effects

4.2.1 Introduction

Mitigation is prescribed in accordance with mitigation by avoidance as a first approach. Where this is not feasible, measures to prevent impacts from giving rise to adverse effects should be adopted (e.g. management of surface water runoff). Where impacts cannot be avoided mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

Note, while bird collision during turbine operation has been determined for Hen Harrier, the magnitude of the effect on the SPA populations is assessed as not significant based on maximum predicted collisions per year as an annual predicted percentage loss of the Slieve Bloom Mountains SPA and the Slievefelim to Silvermines Mountains SPA populations.

4.2.2 Mitigation By Avoidance in Design

A process of 'mitigation by avoidance', as informed by constraints assessment and consultation, was undertaken during the design of the wind farm with the objective of avoiding / minimising the potential for adverse effects on European sites. The Site layout and drainage infrastructure has been designed such that it is sympathetic to the existing topography and aims to maintain the existing hydrological regime of the Site such that it does not create a changed hydrological response to precipitation. The design has been informed by a detailed flood risk assessment for the Site.

The infrastructure has been located such that it is set back as far as reasonably practicable from watercourses with an ethos of ensuring a minimum setback of 60 m between mapped surface waters and wind farm infrastructure, and a minimum setback of 10 m from non-mapped streams and drainage features with the exception of HDD locations and watercourse crossings.

The Project has been specifically designed to avoid, where feasible, the breeding and resting places of protected wild animals and to minimise habitat loss/fragmentation and disturbance/displacement. Riparian corridors of the higher value watercourses are being retained as part of the Project design, as such ecological connectivity at a landscape level will not be impacted.

Swales and drainage channels will discharge runoff from access roads and areas of hardstanding to settlement ponds. These are suitably sized to accommodate flows from storm events up to and including the 1 in 100-year storm event. Settlement ponds will not discharge directly to any drain or watercourse. Rather, flows from the ponds will be dispersed diffusely over land to allow natural overland flow and percolation within the catchment.

The design and turbine layout were informed by multiple collision risk models. The findings of these CRMs were utilised to advise the layout and design alternatives. As such, areas of high avian activity were considered and avoided to minimise collision risk.

4.2.3 Mitigation to Ensure No Adverse Effects

Mitigation is prescribed hereunder to address the impacts such that adverse effects on site integrity of the following European sites does not occur:

- River Barrow and River Nore SAC (002162);
- The Loughans SAC (000407);
- Lower River Suir SAC (002137);

- Slieve Bloom Mountains SPA (004160);
- Slievefelim to Silvermines Mountains SPA (004165)

These measures are best practice construction methods which will be used to avoid potential for effects on water quality following the documents and guidelines listed below:

- Water Run-Off from Construction Sites - SEPA - (WAT-SG-75)
- The SUDS Manual - CIRIA C753.
- Site Handbook for the Construction of SUDS - CIRIA C698 ISBN 0 86017 698 3.
- Works and maintenance in or near water - PPG5 - (October 2007)
- Environmental good practice on site guide (fourth edition) (C741)
- Guidance for Pollution Prevention, dealing with spills: GPP 22-(October 2018)
- Temporary Construction Methods - SEPA -(WAT-SG-29)
- Guidelines on protection of Fisheries During Construction Works in and Adjacent to Waters - Inland Fisheries Ireland - (IFI 2016)
- Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes - TII Publications (2008)

Mitigation measures are set out in accordance with the European Commission (2021) guidance[47]. Mitigation is described with respect to:

- How the measures will avoid / prevent / reduce the adverse impacts on the site to an acceptable level.
- The expected results from implementing and degree of confidence in their likely success.
- The timescale, relative to the project, when they will be implemented and by whom.
- How and when the measures will be monitored.

An Environmental / Ecological Clerk of Works (EnCoW / ECoW) will be appointed by the Developer with responsibility for monitoring during the construction phase of the Development. The Clerk of Works will have the authority to temporarily stop works to prevent negative effects on SCI/QI species of European sites or to ensure corrective action (as set out above) is taken to mitigate adverse effects.

[47] Commission Notice — Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC Published in the Official Journal of the European Union, OJ C 437, 28 October 2021 (2021/C 437/01).

Table 4-8: Measures to Protect Water Quality / Aquatic Habitat

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
Impact # WQI1: Frac-out from HDD Crossing on the Grid Route	Measure # WQM1 The grid route HDD crossings on the NORE_120 (river Nore main channel) NORE_140 (Lisdowney stream) and NORE_150 (lismine River) will be carried out outside of the salmonid and lamprey spawning seasons.	This will be done so as to ensure access to spawning habitat for salmon and lamprey QI species and no impacts on species populations.	Measures will be implemented by the Contractor.	This is a standard method prescribed by IFI to avoid impacts on fisheries.	HDD works will only be carried out during the open season i.e. from 1st July to 30th September to avoid impacting aquatic habitat during fish/lamprey spawning season.	The Environmental Manager / ECoW will monitor the implementation of the mitigation measures with regular reporting to client.

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
	Measure # WQM2 A "fail-safe" approach to HDD will be implemented which will focus on three pillars of environmental protection: mechanical stabilisation of borehole integrity, fluid non-toxicity, and physical containment. The HDD works will be informed by detailed geotechnical investigations prior to drilling. Drilling tools and mud programme will be selected to match soil/rock conditions.	Controlled HDD works will prevent frac-out and as such prevent accidental degradation of the aquatic habitat, which supports (or has potential to support) QI species.	Specialist drilling contractors will be employed with experience in working in gravel aquifers. Measures are as follows:	This methodology is a standard best practice measure for HDD works in gravels and has been successfully employed in multiple projects across Ireland and Europe.	To be implemented for all HDD crossings works (noting Mechanical Stabilisation likely only needed on the River Nore crossing).	The Contractor will report daily to the Developer's Engineer and the Engineer will also be present on site to supervise all HDD works.

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
			Mechanical Stabilisation In the gravelly, non-cohesive aquifer, will be managed by installing steel conductor casing through the shallow gravels to bypass the cover zone (i.e. the material above the bore depth) where fluid would be most likely to breach the surface. This casing acts as a physical barrier, protecting the riverbed from pressure spikes and ensuring returns are directed back to the entry pit rather than into the sensitive substrate.			

			Biocompatible Drilling Fluids (European Standards) In European watersheds, operators utilize NSF/ANSI Standard 60 or CE-marked additives. These are high-performance, biodegradable viscosifiers will be used to provide the necessary "gel strength" to suspend heavy gravel cuttings. Fluid loss will be controlled using biodegradable sealants, which create a thin, flexible filter cake on the borehole wall to prevent fluid migration into the aquifer. These products break down naturally, ensuring no permanent alteration to the hydraulic conductivity of the aquifer or the delicate micro-habitats of the pearl mussel.			

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
			Monitoring and Containment Real-time annular pressure monitoring will be mandatory. By keeping pressures below the Delft Equation48 limits, operators can detect lost circulation before it becomes a surface frac-out.			

[48] The Delft Equation is a geotechnical formula used in Horizontal Directional Drilling (HDD) to calculate the maximum allowable drilling fluid pressure (mud pressure) before the soil fractures, known as a "frac-out". Developed by Luger and Hergarden in 1988, it estimates pressure based on soil cohesion, friction angle, depth, and borehole radius.

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
Impact # WQ2: Surface water runoff from works areas	Measure # WQM3 In addition to the standard best practice construction measures, a DOUBLE ROW of silt fences will be established along the perimeter of source areas of contaminated runoff at the following works locations: Surrounding the works area at the HDD exit pit adjacent to the River Nore At the watercourse crossings of the North Glengoole and Black [Two Mile Borris] rivers, along both sides of the works areas and extending 15m beyond the crossings themselves.	Silt fencing will prevent the runoff of sediment into the local watercourses from the works areas.	Silt fencing will be installed by the construction contractor in advance of the works. Silt fencing will consist of a UV-stabilized geotextile membrane (e.g., Hy-Tex Terrastop Premium or similar) attached to wooden posts. The fabric will be buried at least 100-250mm below ground level and anchored, with clean drainage stone, to prevent undercutting.	The use of silt fencing is a standard environmental protection technique and is set out in industry guidelines as listed in the EIAR.	The silt fencing will be left in place until the works are completed (which includes removal of any temporary ground treatment). Silt fences will not be removed during heavy rainfall. The silt fence will not be pulled from the ground but cutaway at ground level and posts removed.	The integrity of the silt fencing will be checked daily and after poor weather conditions (rain or wind) and any failures rectified immediately. Any build-up of sediment along the fence will be removed as deemed necessary and in accordance with manufacturers requirements. A record of when it was installed, inspected and removed will be maintained.

To ensure no adverse effects on the integrity of the River Barrow and River Nore SAC (002162); the Loughans SAC (000407); and Lower River Suir SAC (002137)						
Impact	Measure	How the measure will contribute to avoiding/reducing the effects on the integrity of the site	How it will be implemented and by whom	Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)	Timescale of implementation, relative to the plan or project	Proposed monitoring scheme and reporting requirements.
				Measures will be in accordance with Guidelines on Protection of Fisheries during Construction Works in and adjacent to waters, Invalid source specified. and Control of water pollution from construction sites - Guidance for consultants and contractors (C532)Invalid source specified..		

Table 4-9: Mitigation for the protection of Otter

To ensure no adverse effedcts on the integrity of the River Barrow and River Nore SAC (002162)						
Impact	**Measure**	**How the measure will contribute to avoiding/reducing the effects on the integrity of the site**	**How it will be implemented and by whom**	**Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)**	**Timescale of implementation, relative to the plan or project**	**Proposed monitoring scheme and reporting requirements.**
Impact # OTI1: Impacts on otter population	Measure # OTM1 A pre-construction survey of the otter holt at the dry bridge on the river Nore will be undertaken in accordance with TII (2006) CC-ENV-01104 - Guidelines for the Treatment of Otters Prior To the Construction of National Road Schemes. This will include camera trap survey which must be carried out under licence from NPWS. Particular effort will be made to determine if it is a breeding holt. Otters in Ireland do not have a fixed breeding season. Breeding can occur at any time of year, although births are most commonly recorded from late spring through summer. Cubs remain dependent on the female for approximately 8–9 months (sometimes up to a year),	The measure will ensure no disturbance effects on otter and no impact on population.	An EcOW will be appointed to the Project and will carry out survey in accordance with TII guidelines.	TII Guidelines for the Treatment of Otters Prior To the Construction of National Road Schemes will be followed and is best practice.	Surveys will commence no later than 12 months prior to construction and will be conducted on a monthly basis to establish otter breeding or otherwise.	Reporting will be issued to the NPWS where otter resting / breeding place is recorded.

To ensure no adverse effedcts on the integrity of the River Barrow and River Nore SAC (002162)						
Impact	**Measure**	**How the measure will contribute to avoiding/reducing the effects on the integrity of the site**	**How it will be implemented and by whom**	**Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)**	**Timescale of implementation, relative to the plan or project**	**Proposed monitoring scheme and reporting requirements.**
	meaning breeding holts may be occupied for long periods. Where survey indicates a breeding holt, no works will be carried out within 200m of the holt location until it is shown that cubs are fully dependent from the female. Where non-breeding, is confirmed, works may proceed as per the TII guidelines i.e. No wheeled or tracked vehicles (of any kind) will be used within 20m of the holt. (Note the holt location is screened from the road by a vegetated berm, as such visual barrier is not deemed necessary).					

Table 4-10: Mitigation for the protection of Hen Harrier

To ensure no adverse effedcts on the integrity of the Slieve Bloom Mountains SPA (004160) and Slievefelim to Silvermines Mountains SPA (004165)						
Impact	**Measure**	**How the measure will contribute to avoiding/reducing the effects on the integrity of the site**	**How it will be implemented and by whom**	**Demonstrate its effectiveness (e.g. based on scientific evidence / expert rationale)**	**Timescale of implementation, relative to the plan or project**	**Proposed monitoring scheme and reporting requirements.**
Impact # HHI1: Disturbance or displacement of Hen Harrier from the Winter Roost at Clonoura Bog during construction and decommissioning.	Measure # HHM1 Turbines T8 and the section of internal access track between turbine 6 and 8 will not be constructed during the non-breeding season (September to April). Similarly, these elements of infrastructure will not be decommissioned during non-breeding season for Hen harrier.	No construction or decommissioning works will take place in the potential disturbance zone (i.e. within 750m of) of the Hen Harrier winter roost during the period when Hen Harrier might be using the roost (during the non-breeding season September to April). This covers the following infrastructure: Turbines T8 and the section of internal access track between turbine 6 and 8. Displacement / disturbance from the roost will be fully avoided.	The Contractor will programme works at T8 and the access road thereto to outside of the non-breeding season.	Mitigation by avoidance is a proven best practice measure.	No works at T8 and associated access road from T6 during non-breeding season.	EcOW will carry out once-weekly VP daytime and dusk survey at the roost site to determine activity. These surveys will commence 1 month in advance of typical Hen Harrier presence on the site i.e. will commence in September and continue to April inclusive.

4.3 Conclusions on Post-Mitigation Impacts

The potential for adverse effects on each of the individual Qualifying Interests (QIs) and Special Conservation Interests (SCIs) that were identified as being at risk of potential effects are assessed in view of the Conservation Objectives of those habitats and species. Mitigation measures have been incorporated into the Project for the avoidance of impacts as fully described in this NIS. The potential for residual adverse effects area discussed:

- All potential pathways for direct and indirect deterioration in habitat quality which supports QI aquatic species have been prevented. A range of bespoke mitigation measures have been prescribed in terms on water quality to ensure that no impacts will occur in relation to alteration in community, extent, structure or distribution of aquatic QI species of any SAC as a result of the proposals and no deterioration in the condition of aquatic habitat will occur due to the proposed works.
- Mitigation measures are prescribed to ensure no effects on SCI bird populations through displacement during the construction works.

Based on the above, following the implementation of mitigation measures, it can be concluded, in view of the best scientific knowledge and based on objective information, that the Project will not adversely affect the integrity of any European site.

5. CONCLUSION

For the reasons set out in detail in this NIS, in the light of the best scientific knowledge in the field, all aspects of the Project which, by itself, or in combination with other plans or projects, may affect the relevant European Sites have been assessed and it has been concluded that the Project will not adversely affect the integrity of any relevant European site in view of that site's conservation objectives.

The NIS contains information which the competent authority may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Project on the integrity of the relevant European sites.

Taking cognisance of measures incorporated into the project design and mitigation measures to avoid effects that are considered in the preceding section, the Project will not adversely affect the integrity of any European Site including:

- River Barrow and River Nore SAC (002162);
- The Loughans SAC (000407);
- Lower River Suir SAC (002137);
- Slieve Bloom Mountains SPA (004160);
- Slievefelim to Silvermines Mountains SPA (004165)

6. REFERENCES

Bord na Móna (2026) Cutaway Bog Decommissioning and Rehabilitation Plan - Littleton 2026;

Bord na Móna (2026) Cutaway Bog Decommissioning and Rehabilitation Plan - Longfordpass 2026;

Bord na Móna (2025) Lanespark, Ballybeg & Derryvella Bog Cutaway Bog Decommissioning and Rehabilitation Plan 2025

Department of Housing, Planning, and Local Government- EIA Portal

Environment Heritage and Local Government. (2009, updated 2010). *Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities*. Dublin

Environmental Protection Agency (EPA) - https://gis.epa.ie/EPAMaps/ (accessed (07/11/23)

European Commission (2000) Communication from the Commission on the Precautionary Principle. Luxembourg.

European Commission. (2002). *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Communities.

European Commission. (2013). *Interpretation Manual of European Union Habitats*. EUR 28.

European Commission. (2019). Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC.

European Commission. (2021). Commission notice- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (Issue 2021/C 437/01).

European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).

Fossitt, J. A. (2000). A guide to habitats in Ireland. Heritage Council/Chomhairle Oidhreachta.

Kildare County Council planning enquiry system [online]: https://webgeo.kildarecoco.ie/planningenquiry

Kruuk, H. (1992). Scent marking by otters (Lutra lutra): signaling the use of resources. Behavioral Ecology, 3(2), 133-140.

National Biodiversity Data Centre Maps - Biodiversity Maps (biodiversityireland.ie) (accessed 21/03/2025)

National Parks and Wildlife Service – online European site network information, including site conservation objectives (accessed 07/11/23)

National Parks and Wildlife Service – Information on the status of EU protected habitats and species in Ireland (including Article 17 and Article 12 Reports)

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS Report.

NRA (2008). Guidelines for the Treatment of Otters Prior to the Construction of National Road. National Roads Authority (name has since changed to Transport Infrastructure Ireland), Ireland.

Office of the Planning Regulator. (2021). OPR *Practice Note PN01. Appropriate Assessment Screening for Development Management.*

Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013a). National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Reid, N., Thompson, D., Hayden, B., Marnell, F., & Montgomery, W. I. (2013a). Review and quantitative meta-analysis of diet suggests the Eurasian otter (Lutra lutra) is likely to be a poor bioindicator. Ecological indicators, 26, 5-13.

Scottish Natural Heritage. (2016). *Assessing Connectivity with Special Protection Areas (SPAs) Guidance*.

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APPENDIX A

Large scale projects within 20 km

Application Number	Development Description	Status	Grant Date	Distance to RLB
2560674	The construction of 52 no. residential dwelling units comprising of 3 no. house-type G (4 bed 7 person two-storey semi-detached house), 15 no. house-type H (3 bed 5 person two-storey semi-detached house), 18 no. house-type K (3 bed 5 person two-storey semi-detached / terraced house), and 2 no. two-storey duplex blocks, Block C & Block D, comprising each of 4 no. duplex-type A (2 bed 3 person unit) at ground floor level, and 4 no. duplex-type B (1 bed 2 person unit) at first floor level. The application also seeks permission for new vehicular entrance to the site from Brittas Rd, local roads and footpaths, resident and visitor parking, bicycle parking, 1 no. external communal bin store, site landscaping and amenity areas, boundary treatments, lighting, drainage, and all associated site works	Granted Permission	9/10/2025	14.7km
2560154 (ACP Ref. 323662-25)	A recreational shared cycle and walkway to connect into the existing Loch Dhoire Bhile Loop - a) the delivery of a shared cycle and walkway on Bord na Móna lands. This will include the repurposing of 602 meters of existing former rail bed, 2859 meters along existing bog headlands / former high fields, and 721 meters along pre-existing machine access routes, b) the construction of car and / or bicycle parking facilities at a number of gateway locations along the proposed route and the provision of EV charging spaces at the gateway locations. This will include; i. 2 no. Type 2 Gateways, ii. 1 no. Type 4 Gateway, iii. 1 no. Minor Rest Points, c) Upgrade works to 1 no. local access road crossing and 4 no. agricultural access crossings, d) the erection of wayfinding and interpretative signage at Gateway locations along the route, e) the implementation of Sustainable Drainage Systems (SuDS) nature-based drainage proposals at the Gateway locations to cater for surface water drainage at car park locations, f) fencing and screening will be erected where required for health and safety and biodiversity reasons which will include 2250 meters of screening and 1925 meters of boundary treatment fencing, g) all other ancillary and associated site work. This Planning Application is accompanied by a Natura Impact Statement (NIS).	Appealed (3rd Party)	N/A	0.02 – on Ballybeg bog

Application Number	Development Description	Status	Grant Date	Distance to RLB
2460978	A state-of-the-art healthcare waste treatment and recycling facility and a waste transfer station. The development will include the construction of 3 no. buildings; Building 1 (total gross floor area of circa (ca.) 2,242m2 and ca. 9m tall), Building 2 (total gross floor area of ca. 229m2 and ca. 6m tall) and Building 3 (total gross floor area of ca. 68m2 and ca. 4m tall) along with associated ancillary development including rooftop solar photovoltaic panels, 1no. battery energy storage system (total gross floor area of ca. 34m2 x 2m tall) and inverter, onsite tank with bunding, vehicle parking, rainwater harvesting tank, surface water retention ponds, firewater retention pond, firewater storage pillow tank, an on-site wastewater treatment system and associated polishing filter bed percolation area, dedicated container storage yard for the temporary storage of container units, signage, landscaping, perimeter security fencing and all ancillary works. The total development area will be ca. 3.75 hectares(ha). The development will intake ca. 10,000 tonnes per annum of healthcare waste for treatment and recycling and an additional ca. 15,000 tonnes per annum of hazardous waste will be accepted, temporarily stored, handled and consolidated onsite for onward transfer - an EIAR has been submitted with the application	Granted Permission	27/05/2025	7.5km
2460936 (ACP Ref. 322641-25)	Construction of an anaerobic digestion plant comprising: 4 no. primary digester tanks (each measuring c. 7.6 m in height); 3 no. secondary digester tanks (each measuring c. 14.5 m in height); 4 no. feed hoppers; 4 no. technical rooms (ranging in size from c. 35 sq m to c. 95 sq m GFA); 2 no. biogas conditioning units; process, storage and buffer tanks (comprising: 1 no. buffer digestate storage tank (c. 7.5 m in height), 1 no. suspension buffer tank (c. 8 m in height), 1 no. process area runoff storage tank (c. 4.5 m in height); 1 no. buffer digestate process tank (c. 4.5 m in height), 1 no. treated digestate liquids recycle storage tank (c. 4.5 m in height); 1 no. roofed liquids feed-mix tank (c. 3 m in height)); these components will be located within a containment bund constructed c. 3 m below ground level.	Granted Permission with revised conditions by ACP	05/12/2025	7.35

Application Number	Development Description	Status	Grant Date	Distance to RLB
	The Project will also consist of: feedstock storage (comprising 3 no. storage clamps (c. 1,050 sq m in area each) and 2 no. storage sheds (c. 500 sq m GFA each)); a biomethane upgrading plant (including natural gas compression unit); a biomethane loading facility (comprising 4 no. loading bays with associated gates and safety features measuring c. 490 sq m in area); a biomass boiler with its associated pellet storage silo (c. 12.5 m in height); Combined Heat and Power (CHP) plant and associated heat exchanger; a single storey bio-based fertiliser processing and storage unit (c. 3,890 sq m GFA) (including digestate dewatering plant, fertiliser pasteurisation plant and bio-based fertiliser loading facilities); a single storey office building (c. 105 sq m GFA) (including offices, meeting room, control room, laboratory, welfare facilities, storeroom and a first-aid facility); bin storage; 9 no. car parking spaces (including 5 no. standard parking spaces, 2 no. electric vehicle (EV) spaces and 1 no. accessible car parking space); electric vehicle (EV) charging infrastructure; 10 no. bicycle parking spaces; vehicular, cyclist and pedestrian access / egress and associated circulation routes; 2 no. weighbridges; a vehicle steam wash area; fuel storage tank and associated bund; an emergency flare (c. 7.6 m in height); a process area runoff lagoon; an attenuation pond; an ESB sub-station; boundary treatments [including gates, piers and fencing]; site lighting; all hard and soft landscaping; provision of sustainable urban drainage systems (SUDS); and all other associated site excavation, infrastructural and all other associated site excavation			
2460922 (ACP Ref. 323590-25)	The construction of 60 no. residential dwelling units comprising of 5 no. house-type G (4 bed 7person two-storey semi-detached house), 11no. house-type H (3 bed 5person two-storey semi-detached house), 16 no. house-type K (3 bed 5 person two-storey semi-detached house), 12 no. house-type N (2 bed 4 person two-storey terraced house), and 2 no. two-storey duplex blocks comprising each of 4 no. duplex-type A (2 bed 3 person unit) at ground floor level, and 4 no. duplex-type B (1bed 2 person unit) at first floor level, and a two-storey detached creche building with a 47 no. child capacity.	Appealed (3rd Party)	N/A	14.8km

Application Number	Development Description	Status	Grant Date	Distance to RLB
	The application also seeks permission for the demolition of an existing detached bungalow and accompanying shed structure, new vehicular entrance to the site from Brittas Rd, local roads and footpaths, resident and visitor parking, creche parking and set-down, bicycle parking, 1 no. external communal bin store, site landscaping and amenity areas, boundary treatments, lighting, drainage, and all associated site works			
2460829	The development of a single storey drive-thru restaurant including the ancillary sale of hot food for consumption off the premises with an associated corral area, elevational signage, modifications to existing vehicular access off the Thurles Relief Road, car parking including accessible parking spaces, grill bays, EV charging spaces, bicycle parking, a height restrictor, customer order points with associated canopies, totem signage, free-standing signage, banner frames and digital menu boards, ESB substation and kiosk, landscaping including outdoor furniture/seating area with parasols, boundary treatments, lighting, and all associated site and engineering works necessary to facilitate the development. A Natura Impact Statement (NIS) has been prepared and is submitted to the planning authority with the application	Permission granted by ACP after 3rd Party Appeal	26/08/2025	13.8
2460514	Temporary road widening works and construction of temporary sections of stoned roads and all ancillary development on the R691 and L-2107-2 at bends and junctions to enable the delivery of turbine components to consist of: • Construction of a temporary section of stoned road located adjacent to the R691 in the townland of Harleypark to accommodate abnormal load deliveries. The works will require a temporary bridge crossing and all associated drainage and sediment protection, temporary works and storage area, temporary stockpiles and demolition and reinstatement of a section of stone wall to accommodate the works. • Temporary widening of section of the R691 in the townland of Harleypark to accommodate abnormal load deliveries	Granted Permission	12/03/2025	18.8 (potential interaction with TDR/GCR)

Application Number	Development Description	Status	Grant Date	Distance to RLB
	comprising construction of a stoned area on a bend • Construction of a temporary section of stoned road adjacent to the R691 in the townland of Harleypark to accommodate abnormal load deliveries. Works include the demolition and reinstatement of a section of stone wall to accommodate the works. • Construction of a temporary section of stoned road off the R691 at a second location in the townland of Harleypark to accommodate abnormal load deliveries. Works include the demolition and reinstatement of a section of stone wall to accommodate the works. • Construction of a temporary section of stoned road off the R691 and L-2107-2 in the townland of Ballingarry Upper to accommodate abnormal load deliveries. Works include the demolition and reinstatement of 2 no. sections of stone wall to accommodate the works. • Temporary widening of a section of the L-2107-2 in the townland of Gortnasmuttaun comprising construction of a stoned area at the wind farm entrance to accommodate abnormal load deliveries - An NIS is submitted with the application			
2460280 (ACP Ref. 320072-24)	a) an increase to the footprint of the substation compound of 381.6m2, b) an increase to the footprint of the substation building of 51.5m2, c) amendments to the layout of the offices and welfare facilities within the substation building, d) addition of 2 no. containers sized 6m by 2.43m by 2.59m in height for storage of parts and equipment during the operational phase, e) addition of 2 no. parking spaces and an extension of the access road, f) associated relocation of the permitted fence, g) amendments to the drainage design to accommodate changes to the layout,	Granted permission with revised conditions following 3rd Party Appeal	11/11/2024	15.7

Application Number	Development Description	Status	Grant Date	Distance to RLB
	h) minor amendments to the red line of the permitted development to accommodate the above and i) addition of new joint bay			
2460124	A solar structure and all associated site works	Granted permission	19/05/2024	14.7
2460077	1. the empty wheelie bin storage area and permission for construction of new canopy to enclose same, 2. the current layout and uses of the storage area for open recyclables bins, empty skips, and empty trailers, 3. the flood lighting and CCTV cameras to the east, west, and north facades of the existing buildings, 4. the current operational processes used at the facility building from those previously authorised, 5. the as-built odour control unit and permission for a revised stack height of 14 m, 6. the as-installed weighbridge container office, 7. the as-built site access, 8. the as-built facility yard, 9. the relocated as-built wash-down area, 10. the as-built lower area to the west of site (including attenuation tank, screening mounds, and existing ground levels & profiles). Planning Permission for the amendment to Condition 13 of current planning permission, and all associated and ancillary works	Granted retention permission	26/11/2024	12.2
2361035	The construction of an 1,800 sq.m sludge holding building of c. 60m in length, 30m in width and 13.5m in height, to incorporate an open faced biofilter to be installed at the western end of the facility building, for the acceptance and temporary storage of up to 12,000 tonnes per annum of sludges produced from wastewater treatment; internal site roads and parking; a 50 sq.m welfare/office facility of c. 10m in length, 5m in width and 5m in height; 1 no. surface mounted weighbridge; an electrical sub-station of c. 7.5m in length, 4.3 m in width and 3.2 m in height; underground holding tanks, infiltration areas and	Granted permission	06/11/2024	9.9

Application Number	Development Description	Status	Grant Date	Distance to RLB
	associated drainage pipework; pumphouse of c. 2.5m in width, 2.5 m in length and 2.8m in height; permeable and impermeable hardstanding; entrance gate and fencing and perimeter landscaping. An Environmental Impact Assessment Report has been submitted as a part of this application			
2360935	The demolition of existing residential dwelling with the reconstruction of a two storey terrace building as a pre school facility to include 3 classrooms and outdoor play area with ancillary site works to accommodate up to 60 children at any one time with opening hours between 7am to 7pm	Granted permission	18/04/2024	5.1
2360850	the relocation of a single storey detached prefabricated office building with commercial vehicle weighbridge, the relocation of a public civic amenity recycling facility, signage and planting. This development is subject to a waste licence	Granted retention permission	26/01/2024	14.3
2460666	For an upgrade to the existing Togher Crescent Wastewater Pumping Station, comprising; a new 5.2m3 below-ground water storage tank (2.1m in diameter x 2.4m deep); construction of a new access road from Togher Crescent; new 100mm diameter rising main within the R639; replacement of existing kiosk with two new kiosks (Kiosk 01 = 3.6m x 0.8m, 1.8m in height, Kiosk 02 = 2m x 1.2m, 1.8m in height) each set on concrete plinths 0.15m above ground level; a ground mounted solar PV array (26m2 total); and associated ancillary works including new landscaping, all on a site of 0.8ha.	Granted permission	25/03/2025	7.8
2560003 (ACP Ref. 323453-22)	A 10-year permission for the development of a solar farm on a site of 222.23 hectares consisting of the following: 745,168 sq. metres of solar photovoltaic panels on ground mounted steel frames; 23 no. inverter/transformer stations; underground power and communication cables and ducts; boundary security fencing; 1 no. Medium Voltage (MV) Ring Main Unit (RMU) Control Building; new internal access tracks and associated drainage infrastructure; continued use of existing site entrances off the L-4106 and L-13101 local roads; CCTV/Lighting posts; landscaping and all associated site services and works.	Granted permission following Appeal (3rd Party)	19/12/2025	GIS

Application Number	Development Description	Status	Grant Date	Distance to RLB
	The project will also include biodiversity enhancement and bat/bird and archaeological buffers within the site. The development is located proximate to Killough Castle and Tower House, which is a Protected Structure (TRPS 1029). Temporary works to the existing splayed entrance onto the L-4106 are proposed to accommodate construction works for the solar farm. The solar farm will be operational for 40 years			
2560003 (ACP Ref. 322154-25)	For a period of 10 years for a development at this site situated in the townlands of Acragar, Ballyconra, Ballycuddihy, Ballyroe, Ballyroe (Grace), Ballyroe (Maher), Baunaniska, Boherkyle, Briskalagh, Brittas, Clone, Coolnapisha, Curraghduff, Freshford, Freshford Lots, Graigueswood, Grange, Huntstown, Kilmanagh, Knockeenglass, Knockown, Moatpark, Monabrika, Monavadaroe, Moneenaun, Oldtown, Oldtownhill, Parksgrove, Picketstown, Rathealy, Sart, Sweethill, Tobernapeastia, Tullaroan, Upperwood Demesne, Co. Kilkenny. The development will consist of the provision of the following: i. 7 no. wind turbines with an overall turbine tip height of 185 metres; a rotor blade diameter of 163 metres; and hub height of 103.5 metres, and associated foundations and hard-standing areas; ii. A permanent 38kV substation compound (control building with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, storage containers, wastewater holding tank, site drainage and all ancillary works); iii. Permanent underground electrical (38kV) and communications cabling to the existing Ballyragget 110kV substation in the townland of Moatpark (including joint bays, communication and earth sheath link chambers and all ancillary works along the route). This cabling route is primarily located within the public road corridor which includes a Protected Structure (Kilkenny RPS Ref. C886); iv. Underground electrical (33kV) and communications cabling connecting the wind turbines and meteorological mast to the on-site substation; v. 3 no. temporary construction compounds (including site offices and welfare facilities); A meteorological mast with a height of 30 metres, security fencing and associated foundation and hard standng area; vii. A new temporary site entrance on the L1009; viii. A new gated site entrance on the L5024; ix.	N/A – Under appeal	Appealed 21/11/2025.	GIS

Application Number	Development Description	Status	Grant Date	Distance to RLB
	Upgrade of existing site tracks/ roads and provision of new site access roads, junctions and hardstand areas; x. A borrow pit; xi. Spoil Management; xii. Tree felling and hedgerow removal; xiii. Biodiversity Management and Enhancement Plan measures (including establishment of a riparian buffer and hedgerow enhancement); xiv. Site Drainage; xv. Operational Stage site signage; and xvi. All ancillary works and apparatus. A thirty five-year operational life from the date of full commissioning of the wind turbines and subsequent decommissioning of the wind turbines is being sought. An Environmental Impact Assessment Report and Natura Impact Statement has been prepared in respect of the Project and accompany this application.			
21627	For a ten-year appropriate period planning permission for development of this site; the Project will constitute the provision of the following: The installation of 31.49km of a 38kV underground electrical cabling and all other ancillary works including joint bays, culverts, maker posts and all associated development in the townlands of Killeen, Rathmacan, Gortnagap, Kyleballyoughter, Courtstown, Raheen, Lates, Curraghscarteen, Canvarstown, Trenchardstown, Lisnalea, Hillend, Coldharbour, Killahy, Greenhill, Lughinny, Craddockstown, Tubbrid Lower, Clomantagh Lower, Barna, Newtown, Kilrush, Belville, Lodge, Garranamanagh, Balleen Lower, Lodge, Tifeaghna (Browne), Lodge Demesne West, Lodge Demesne East, Clontubbrid, Clone, Acragar, Skinstown, Lisdowney, Seskin South, Parksgrove Ballyragget & Moatpark, Co. Kilkenny. Advisory Note: The full extent of the grid connection is 33.8km, and a separate planning application will be made for an underground grid connection to Tipperary County Council. The development comprises part of an overall development for which planning permission was granted for a 9 turbine wind farm and all associated works on lands located in the townlands of Farranroy Upper, Farranroy Lower, Coolnashinnagh & Gortnasmuttaun, Co. Tipperary. The planning application will be accompanied by an Environmental Impact Assessment Report (EIAR) and Natura Impact Statement.	Granted Permission	24/08/2022	Within part of assessed grid route

Application Number	Development Description	Status	Grant Date	Distance to RLB
2360248	For an amendment to planning application previously granted under reference PL/21/627 in the townlands of Killeen, Rathmacan, Gortnagap Kyleballyoughter, Courtstown, Raheen, Lates, Curraghscarteen, Canvarstown, Trenchardstown, Lisnalea, Hillend, Coldharbour, Killahy, Greenhill, Lughinny, Craddockstown, Tubbrid Lower, Clomantagh Lower, Barna, Newtown, Kilrush, Belville, Lodge, Garranamanagh, Balleen Lower, Lodge, Tifeaghna (Browne), Lodge Demesne West, Lodge Demesne East, Clontubbrid, Clone, Acragar, Skinstown, Lisdowney, Seskin South, Parksgrove Ballyragget & Moatpark, Co Kilkenny. The previously consented planning application comprised the installation of 31.4 km of a 38kV underground grid connection comprising cable ducting and associated electrical cabling and all other ancillary works including joint bays, culverts, maker posts and all associated development. The proposed amendments to the previously consented grid connection comprise: • Increase in number of joint bays along the extent of the grid connection from a total of 35 to 45 joint bays • Grid connection to be operated at 38kV but installed to a 110kV underground cable design standards/infrastructure • Minor Adjustments to the route and red line boundary	Granted permission (amends application above)	17/01/2024	Within part of assessed grid route
20685	for a mixed-use development consisting of A/ the completion of the existing Togher Way residential development at Togher Way, Urlingford, Co Kilkenny to include for the provision of 23 new houses consisting of 3 no. single storey detached house 2-bed dwellings, 10 no. two storey semi-detached 3 bed dwellings, 3 no. two storey detached house 4-bed dwellings, 7 no. two storey and a half detached house 4-bed dwellings, open spaces and active recreational areas, playgrounds with associated fences and gates, carpark spaces, visitor carpark spaces (8), B/ the extension to Urlingford Business Park, Main Street, Urlingford, Co Kilkenny, with development to consist of 1 no. reception pavilion (51.8 sq.m), 3 no. two storey office buildings with own door office suites (266 sq.m each), 8 no. two storey light industrial warehousing units (493.6 sq.m. each), bicycle spaces (56) and car park spaces	Grant of Permission	08/12/2021	Adjacent to GC

Application Number	Development Description	Status	Grant Date	Distance to RLB
	(150), all with the provision of new roads and footpaths, public lighting, importation of fill material (circa 25k cu.m.) to facilitate adjustments to existing ground levels, boundary walls, gates, new site boundary fences and walls, fascia signage, 1 totem signage, 2 no. ESB substations, drainage, flood compensation area, 6 no. stormwater attenuation tanks with associated flow controls and separators, 1 no. Stormwater pump station, 1 no. foul pumping station compound and proposed rising mains at Togher Road, Urlingford, Co Kilkenny towards Urlingford Town Centre system, landscaping and all associated site and other works			
2460666	for an upgrade to the existing Togher Crescent Wastewater Pumping Station, comprising; a new 5.2m3 below-ground water storage tank (2.1m in diameter x 2.4m deep); construction of a new access road from Togher Crescent; new 100mm diameter rising main within the R639; replacement of existing kiosk with two new kiosks (Kiosk 01 = 3.6m x 0.8m, 1.8m in height, Kiosk 02 = 2m x 1.2m, 1.8m in height) each set on concrete plinths 0.15m above ground level; a ground mounted solar PV array (26m2 total); and associated ancillary works including new landscaping, all on a site of 0.8ha.	Grant of permission	25/03/2025	Adjacent to GC
2360132	The Project will consist of: - Demolition of boundary walls onto Lumper Lane and New Road - Provision of vehicular and pedestrian entrances onto Lumper Lane with associated upgrade works to include a new section of footpath, - Provision of 2 No. pedestrian entrances onto New Road with associated upgrade works to include a new section of footpath, pedestrian crossing, and car parking, - Construction of 4 No. two-storey terraced buildings comprising of 14 No. three bed houses and 05 No. two bed houses, - All associated site development works.	Grant of permission	20/12/2023	Adjacent to GC
2360102	for the provision of (i) a new junior playing field with associated drainage and goals and ball stop nets and car park (ii) single storey facilities building (24m2) including toilets and store (iii) septic tank and percolation area (iv) new boundary fences and (v) upgraded access along with all associated site development works	Grant of permission	10/07/2023	Proximate to GC
2170	is sought for the demolition of an existing 635 sqm steel clad building and the construction of a 1861 sqm portal frame steel clad storage & assembly	Grant permission	04/05/2021	Proximate to GC

Application Number	Development Description	Status	Grant Date	Distance to RLB
	building, new wastewater treatment system, percolation area and all associated siteworks			
2560236	for development to consist of a proposed new dwelling house, domestic garage, new site entrance, septic tank treatment system with percolation area, soakpit and all associated site works	Grant permission	02/01/2026	Proximate to GC and cable crossing
2460183	for a new residential housing development of 43 dwellings consisting of: 6 No. Type A/A1/A2 detached two storey four / five bedroom dwellings with direct access to Bohercrussia Street (L5000), 3 No. Type B two storey detached four bedroom dwellings, 4 No. Type C/D two storey semi-detached four bedroom dwellings with dual aspect, 22 No. Type E two storey semi-detached three bedroom dwellings, 8 No. type F/G two storey block of four two bedroom town houses with three bedroom end of terrace. Alterations to existing site entrance and approach route including a new section of public footpath along Bohercrussia Street (L5000). Plus all associated site works, landscaping, infrastructure and site enclosures at Bohercrussia Street (L5000) , Tobernapeastia, Freshford, Co Kilkenny	Grant permission	12/07/2024	Proximate to GC
2580	for the construction of a truck servicing and maintenance workshop building, to include parts store, parts and spare parts shop area, staff facilities and offices at ground floor level. Part first floor to comprise staff offices and staff facilities and mezzanine storage area over parts store. The structure will comprise a portal frame metal clad structure and including roof mounted PV solar cells. The development will include access through existing site entrance, the construction of concrete yards and parking areas, entrance signage, new wastewater treatment system and associated soil polishing filter system, and all associated site works	FI Requested 02/10/2026	FI Requested	Proximate to GC
2360318	for development. The development will consist of the extension of the operational lifespan of a solar farm permitted by Kilkenny County Council under Planning Ref. 17/669 from 25 years as permitted (by reason of Condition No. 4 of permission Ref.17/669) to 40 No. years	Grant permission	09/10/2023	Proximate to GC
22687 / APB-316132-23	for development. The Project will consist of: Construction of two anaerobic digesters, one equalization tank to include concrete base, earth embankment and associated works; construction of biogas storage dome with biogas flare,	Granted following 3rd party appeal	25/02/2025	Proximate to GC (HDD to Ballyragget)

Application Number	Development Description	Status	Grant Date	Distance to RLB
	desulfurization unit; construction of membrane and control building with yard slab and link road; construction of ferric chloride storage tank; installation of a new pipeline with underground and overground sections for the purpose of conveying renewable biogas to the Glanbia facility east of the N77 road; realignment of the existing internal road to facilitate vehicle movements; drainage works and all associated site works including landscaping. The dismantling and removal of an existing disused sludge mixing tank; dismantling and removal of an existing biotower. This facility holds an industrial emissions licence issued by the Environmental Protection Agency.			

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