



Technical Appendix 3-3 Scoping Report

EIAR – Volume 3

Muingmore Wind Farm

SLR Project No.: 501.065301.00001

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Muingmore Wind Farm

EIA Scoping Report

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Basis of Report

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Appendices

A.1.1 Potential Sources of Impact





1.0 Introduction

This Preliminary EIA Scoping Report has been prepared by SLR Consulting ('SLR') to detail the inception, evolution and overall approach to the preparation of a planning application, and accompanying environmental impact assessment report, in support of a wind farm development, 'Muingmore Wind Farm', at Muingmore Co. Mayo.

The proposed project involves the establishment of a wind farm featuring 13 turbines, each reaching a tip height of between 179 meters to 180 meters with a rotor diameter of between 149 to 155 meters. The turbines will be arranged in two clusters separated by a public road.

1.1 Applicant

The Applicant is RWE Renewables Ireland Limited, one of the largest global players in power generation from renewable energies, has identified Ireland as a significant new market. The company is undertaking long-term investments into onshore wind, offshore wind, and new battery storage projects in Ireland, potentially amounting to billions of Euros in direct foreign investment. RWE's objective for Ireland is to grow an organic development business from greenfield sites, positioning itself as a long-term energy partner for Ireland during its energy transition to 2030 and beyond. As part of its growth ambitions, RWE is actively seeking new opportunities to further expand its portfolio in Ireland.

1.1.1 The Agent

SLR Consulting Ireland (SLR) have been commissioned by the Applicant to prepare a Planning Application and Environmental Impact Assessment Report (EIAR) for the Proposed Development and is the agent for this application. SLR provides a wide range of technical and professional services, including full life cycle support for projects from initial inception and feasibility through planning and on to construction. SLR is a registered Environmental Impact Assessor Member of the Institute of Environmental Management and Assessment (IEMA) and was also one of first consultancies to achieve the IEMA EIA Quality Mark.

1.2 Purpose of this report

This Preliminary EIA Scoping Report has been prepared to provide a high-level overview of the proposed development, to allow consultees inform themselves of the scope of the project and provide comments on information which should be included in the EIAR.



2.0 Environmental Impact Assessment (EIA)

EIA is a process required by the European Union (EU) Environmental Impact Assessment Directive 2011/92/EU, as amended by 2014/52/EU and transposed into Irish law by way of Part X of the Planning & Development Act 2000 (as amended).

EIA is carried out by the relevant competent authority to ensure that projects, where the likelihood of significant effects on the environment cannot be excluded, are subject to a comprehensive and independent examination, analysis and evaluation of their likely significant effects on the environment; including the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects; of both their construction and operational phases, prior to being granted planning permission.

2.1 EIA Screening

In accordance with the provisions of the Planning & Development Act 2000 (as amended) and the Planning and Development Regulations 2001 as amended, EIA is mandatory when certain classes of projects exceed specific sizes and thresholds. Planning applications for such projects must be accompanied by an Environmental Impact Assessment Report (EIAR).

In terms of the requirement for EIA, the proposed development falls under Part 2 of Schedule 5 of the Planning and Development Regulations 2001, which requires EIA for more than 5 turbines or having a total output greater than 5 megawatts.

Due to the scale of the project which meets the relevant threshold for Strategic Infrastructure Development as specified under Section 37A of the Planning and Development Act 2000, as amended, the project is the subject of a pre application consultation process with An Bord Pleanála.

Section 37E (1) of the Planning and Development Act, 2000 as amended also states that:

‘an application for permission for development in respect of which a notice has been served under section 37B(4)(a) shall be made to the Board and shall be accompanied by an environmental impact assessment report in respect of the Proposed Development’. (Emphasis added)

2.2 EIA Scoping

The purpose of the scoping for the Environmental Impact Assessment is to provide a framework for the approach to be taken for the individual specialists evaluations, to identify environmental topics for which potential significant environmental impacts may arise, to provide a framework for the consultation process to take place with prescribed Statutory Bodies as part of the environmental assessment work, and as such, a structure for the preparation of the Environmental Impact Assessment Report to be prepared and the information required to be included therein.

The European Commission’s, “Guidance on EIA Scoping” (EU 2001) notes the following in Part B of the guidance, as being the benefits of scoping:

- “It helps ensure that the environmental information used for decision making provides a comprehensive picture of the important effects of the project, including issues of particular concern to affected groups and individuals;
- It helps focus resources on the important issues for decision-making and avoids wasted effort on issues of little relevance;
- It helps ensure that the environmental information provides a balanced view and is not burdened with irrelevant information;



- It stimulates early consultation between the developer and the competent authority, and with environmental authorities, other interested parties and the public, about the project and its environmental impacts;
- It helps effective planning, management and resourcing of the environmental studies;
- It should identify alternatives to the proposed project and mitigating measures which ought to be considered by the developer;
- It can identify other legislation or regulatory controls which may be relevant to the project and provide opportunities for the necessary assessment work for different control systems to be undertaken in parallel, thereby avoiding duplication of effort and costs for all concerned;
- It reduces the risk of delays caused by requests for further information after submission of the development consent application and the environmental information; and
- It reduces the risk of disagreement about impact assessment methods (baseline surveys, predictive methods and evaluation criteria) after submission of the environmental information.

2.3 Environmental Impact Assessment Report (EIAR)

An EIAR is a written statement of the likely significant effects, if any, which the proposed development, if carried out, will have on the environment. The EIAR consists of a systematic analysis of the proposed development in relation to the existing environment. It is an iterative process carried out throughout the full lifecycle of the project design and consenting process to allow for preventative and ameliorative action to anticipate, avoid and mitigate any likely significant effects foreseen.

The EIAR is the principal document that informs the EIA process and provides integral information which consenting authorities can use, amongst other considerations, in independently undertaking EIA and informing a decision-making process.

The EIAR can also be used by third parties, including members of the public concerned, as part of the public participation process, to evaluate the proposed development and its likely significant environmental effects and to inform any submissions made to the planning application process.

The EIAR will be prepared in accordance with the provisions contained within Schedule 6 of the Planning and Development Regulations 2001, as amended, which sets out the information to be contained in an EIAR. In addition, the EIAR will take account of the contents of Directive 2014/52/EU (the 2014 EIA Directive), which was adopted in the EU on 16th April 2014, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The 2014 EIA Directive was transposed into Irish planning law from the 1st of September 2018 via the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

2.4 Content of the EIAR

The EPA guidelines include a 7 no. stage approach (sequence) in the production of the EIAR. This includes:

- Screening
- Scoping
- Consideration of Alternatives
- Project Description



- Baseline Description
- Assessment of Likely Significant Effects
- Mitigation/Monitoring

The guidelines outline that adherence to this sequence ensures an objective and systematic approach is achieved. Using this sequence, the environment is described using several specific headings and this provides for a separate section for each topic. The description of the existing environment, the likely significant effects (positive, negative, & cumulative), mitigation and monitoring measures and residual effects are then grouped together in each section, covering each topic. This format allows for ease of investigation into each topic and for specialist studies/input to be integrated seamlessly. The structure of this EIAR is set out below:

- Introduction
- Site Selection and Alternatives
- EIA Scoping, Consultation and Key Issues
- Planning Policy
- Description of the Proposed Development
- Population and Human Health
- Biodiversity
- Land, Soils & Geology
- Hydrology and Water
- Air Quality & Climate
- Noise & Vibration
- Landscape and Visual
- Shadow Flicker
- Archaeology, Architectural and Cultural Heritage
- Material Assets, including Telecommunications & Aviation
- Traffic and Transportation
- Major Accidents and Disasters
- Interactions of the Foregoing

Each chapter of the EIAR will be structured using the following format:

- Introduction
- Description of the Existing Environment
- Description of Likely Significant Effects
- Mitigation & Monitoring Measures
- Residual Effects
- Schedule of Mitigation Measures



3.0 Site Location & Proposed Development

3.1 Site Location

The subject site is situated within a coastal region of County Mayo. The application site itself occupies a relatively condensed area of around 3km in a northeast to southwest orientation, encompassing 2 cluster areas. The study area boundary is positioned approximately 0.5km from the village of Gweesala, the site is also in proximity to several smaller settlements within a 5km radius, with Bangor Eris located approximately 8km away (see Figure 1). The broader area in which the designated lands are located covers approximately 445 hectares, comprising both cultivated and uncultivated peat lands, as well as commercial plantations. This necessitated early surveys of woodland areas and identification of suitable lands for replanting.

The chosen site holds promise for substantial energy generation due to the prevalent high wind levels in this region of Ireland. However, the site is not without limitations, and these will present significant challenges to the project team, as elaborated in the subsequent sections.

Geographically, the site lies north of the intersection of roads L1205 and L1206. The L1206 skirts the southern edge of the site, while the L1205 runs westward and leads to the R313, located approximately 4km north of the site. The R313 provides connections to more extensive road networks, as indicated below.

The proposed site is traversed by a single-track road branching from the L1206 (see Figure 2). This road runs longitudinally through the site, spanning from northwest to southeast, connecting the L1205 and L1206. Notably straight and offering good lines of sight, this road could potentially serve as access points into the site, both north and south of the road. However, a comprehensive assessment of factors such as overhead/underground utilities, width, verges, and ditches is required to determine the suitability of this road and any proposed access points. It's important to mention the presence of an industrial facility situated in the center of the site, which is also accessible via this road.

While the selected location holds promise for favourable energy yields due to the prevailing high wind levels, there are indeed constraints within the site. These challenges necessitate careful consideration, mitigation strategies, and hence the proposal of an experienced project team well-equipped to maximize the potential for a successful project outcome.

3.2 The Proposed Development

The Proposed Development which consists of up to 13 no. turbine wind farm development and associated works on land within the townlands of Muingmore (An Mhoing Mhór) and Doolough (Dumha Locha), County Mayo. The study area is approximately 455 ha in size however the Proposed Development will encompass only a fraction of this area. The Proposed Development will consist of:

- 13 wind turbines, each with an overall blade tip height of between 179m to 180m, rotor diameter of between 149m to 155m, hub height of between 102.5m to 105m, all associated site infrastructure including;
- 13 no. wind turbines, each with an overall blade tip height of up to 180m, rotor diameter of up to 155m, hub height of between 102.5m and 105m, all associated site infrastructure including;
- 110 kV electricity substation and switch rooms;
- Battery energy storage and associated works including storage and parking;
- Equipment compound;
- Turbine foundations;



- Temporary construction compounds;
- Crane pad hardstand areas;
- 33kV collector cable circuit connecting the two clusters and the substation
- Site access tracks;
- Underground electricity and communications cabling;
- Site drainage works and sediment control;
- Site entrances;
- Works along the public roadways for a Turbine Delivery Route (TDR) to facilitate turbine and tower delivery;
- Works along public roadways to facilitate Grid Connection to Bellacorick, and
- Permanent meteorological mast.

The site layout is shown in Figure 2. The preliminary Grid Connection Route is shown in Figure 3, and the preliminary Turbine Delivery Route is shown in Figure 4.

The grid connection and substation form part of this application. A 10-year planning permission with an operational life of 35 years is sought.

The development description will be subject of revisions arising from feedback from the EIA assessment process and consultation with respective landowners and other statutory and non-statutory consultees.

3.2.1 Planning Application Documents

This planning application will be accompanied by an Environmental Impact Assessment Report (EIAR) which will include an assessment of the likely significant effects of the proposed development as a whole and in combination with the relevant off-site or secondary developments which will occur as a direct result of the proposed development, including connection to the national electricity grid.

The planning application will also be accompanied by a Natura Impact Statement (NIS).

The EIAR will also be accompanied by a comprehensive Construction and Environmental Management Plan (CEMP)

3.3 Design Change as part of the EIA Process

It is expected that as part of the EIA process, the proposed development will be subject of revisions arising from feedback from the impact assessment process and consultation with the local community and other statutory and non-statutory consultees. The EIA process is ongoing and as it progresses, feedback from the assessment is being incorporated into the project design.

With a total power output of between 65 to 91MW, this project is above the threshold for Strategic Infrastructure Development and a request for a pre-application consultation under section 37B (and section 182e) of the Planning and Development Act 2000 (as amended) has been submitted to An Bord Pleanála (October 2023). The proposed development as submitted to An Bord Pleanála is therefore undergoing a robust and iterative environmental assessment process taking into account environmental sensitivities across the site. This has resulted in some changes to the layout. To date they include:

1. Removal of 1 turbine due to presence of Annex 1 habitat on site.
2. Revised layout taking into consideration the setback distances from receptors.
3. A revised substation location.



4. A revised access arrangement and construction compound location for both clusters, to reduce the number of access points onto the road.

These changes are being highlighted to prescribed bodies and other interested parties as part of this Preliminary EIA Scoping Report. Together with the initial design, they will be the subject of ongoing consideration which will also be informed by any submissions made as a result of this consultation. The purpose of this consultation is to invite submissions with respect to the original layout Figure 2 together with proposed design changes listed above.

4.0 Scope of the EIAR

The EIAR will provide an assessment of the likely significant effects during the construction, operation and decommissioning of the proposed development for each the environmental factors described in this section.

This section provides a brief overview of the level of scoping which has taken place to date, as well as the potential effects which have been identified and the proposed methodology for further assessment in the EIAR.

4.1 Project Alternatives

It is a requirement of the EIA Regulations to include;

“A description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

This chapter of the EIAR will include an assessment of the site alternatives studied together with an assessment of the main reasons for selecting the chosen option. The principal alternatives studied with respect to the proposed development will be outlined under the following headings:

- Location – this section will discuss the overall site selection process for the proposed development on a national, regional and local scale. It will discuss the criteria used to determine site suitability for wind energy developments including:
 - Wind resource;
 - Proximity to residential dwellings;
 - Land zoning in County development plans;
 - Established in future land use;
 - Ecological conservation designations;
 - Landscape designations;
 - Ease of access.
- Access – details of the criteria used to select the network of access tracks that provide access from the public road network to the site and to each turbine within the sites in addition to those that provide internal connections as an alternative to using public roads between turbines will be discussed in this section. This will include information on the availability of existing track and suitable ground conditions, to rain, local road infrastructure and other considerations,



- Connection to the National Grid – details of the criteria used to select the proposed grid connection routes will be provided. It will also include a high-level assessment of alternative grid connection route options, and
- Turbine Location – further adjustments to turbine location according to the sites environmental sensitivity.

4.2 Population and Human Health

4.2.1 Introduction

This chapter will consider population, human health in the receiving environment and the likely significant effects associated with all stages of the Proposed Development. This includes consideration of impacts on land-use, population, socio-economic activity and employment, tourism, amenities and recreation, health and safety and human health.

4.2.2 Baseline

The Proposed Development site boundary is located approximately 0.5 kilometers from Gweesalia village, several smaller settlements lie within a 5-kilometer radius, while Bangor Eris is situated roughly 8 kilometers away.

Upon initial examination, it is observed that there are 31 residential receptors within 1km of the wind farm site. These are shown in Figure 5. In addition to this, there are no receptors within 500m of the substation and no receptors within 720m (x4 times tip height). The study area comprises of existing peatlands and commercial forestry.

An industrial facility located close to the proposed development site, accessible via this road. This is however not part of the proposed development site.

4.2.3 Scope of the Assessment

The Population and Human Health Chapter of the EIAR will assess the likely significant effects of the Proposed Development on Population and Human Health with a particular reference to the topics of population, human health, socio-economic activity, land-use, recreation, amenity and tourism. These are set out in Table 4-1

Table 4-1 Population, Human Health Scope of Assessment

Topics of Assessment	Scope
Population	The potential impacts of the proposed development on population trends and statistics on population (density, age) will be addressed in this chapter.
Human Health	The potential impacts on human health from the proposed development will be assessed.
Health and Safety	Details relating to health and safety arising from the proposed construction, operation and decommissioning of the proposed development will be assessed.
Socio-economic Activity	The potential impacts of the proposed development on employment and the main economic activities of the area will be addressed in this chapter.
Land Use	The assessment will address the potential impacts of the proposed development on land use.



Topics of Assessment	Scope
Recreation, amenity and tourism	The assessment will address the potential impacts of the proposed development on residential amenity, recreational facilities and tourism of the area.

4.2.4 Assessment Methodology

4.2.4.1 Population

With the purpose of analysing population trends and statistics on the proposed area, population data from the Central Statistics Office will be obtained for the study area defined by electoral divisions surrounding the site. The statistics at this level will be compared against county and state trends.

4.2.4.2 Human health

The assessment will contain a desk study review of the impacts of the operation of renewable energy developments on human health using published and verified sources of information.

4.2.4.3 Health and Safety

The assessment will contain a desk study review of the impacts of the operation of renewable energy developments on health and safety using published and verified sources of information.

4.2.4.4 Socio-economic activity

Data from the Central Statistics Office will be used to define the socio-economic baseline. The potential positive and negative impacts of the proposed development on population, employment and economic activity both directly and indirectly, will be assessed.

4.2.4.5 Land-use

The land uses in the area, which could potentially be affected by the proposed development, will be described using Corine 2018 land cover data and if necessary, this data will be verified by subsequent walkovers and drive-by surveys.

4.2.4.6 Recreation, Amenity and Tourism

All areas of scenic beauty in addition to heritage, culture and leisure facilities in the areas will be identified. A review of the main recreational activities in the area likely to be affected will be conducted. Residential amenities and recreational facilities, such as forestry in public ownership, walking paths and sports facilities will be recorded and potential impacts assessed.

An assessment will then be conducted for each element of the Proposed Development to ascertain any potential impacts that may arise which could directly or indirectly affect recreational activity or an amenity. This assessment will be prepared giving cognisance to other disciplines such as landscape and visual, cultural heritage and archaeology, hydrology and ecology.

A review will be conducted of a number of published studies and surveys which have been conducted both in Ireland by Fáilte Ireland and in the UK on the attitude of tourists to wind farms. A study of the potential impacts that the proposed development may have on the tourism of the region will be carried out by reviewing Fáilte Ireland surveys, appraising the existing patterns of the tourism within the county and appraising the impacts that wind farms have on tourism in other counties and countries.



4.2.5 Likely Significant Effects

4.2.5.1 Population

The potential impacts arising from the Proposed Development on population during construction are likely to be slightly positive, given the opportunities for enhanced employment opportunities associated with the proposed development. During the operational phase, these impacts would likely be reduced to imperceptible. The assessment will consider the potential impacts during all phases of the Proposed Development.

4.2.5.2 Human Health

The potential effects arising from the proposed development can impact human health during construction, operation and decommissioning will be considered in this chapter. The human health section of the EIAR chapter will utilise health-based information from CSO statistics, HSA data, air quality data, relevant guidelines and other relevant data pertaining to human health in order to assess the project.

4.2.5.3 Health and Safety

If not properly designed and constructed, there is the potential for construction and operational activities associated with the proposed development to impact on the health and safety of employees associated with the development as well as the public.

Best practice construction and environmental management measures will be employed to prevent the potential for accidents. The EIAR will be accompanied by a comprehensive CEMP which will include detailed health and safety requirements (including traffic Management) during the construction, operation and decommissioning of the Proposed Development. With the implementation of measures outlined in the EIAR and CEMP, it is anticipated that the proposed development is not likely to have a potentially significant impact on human health and safety.

4.2.5.4 Socio-Economics

The proposed development will have significant long- and short-term benefits for the local economy including job creation, landowner payments, local authority commercial rate payments and a Community Benefit Fund. These will be developed in full and considered in the EIAR.

4.2.5.5 Land Use

The proposed development will require land take for the access tracks, wind turbine bases and adjacent hard-standings and sub-station footprints. The current land uses, i.e. peatlands, forestry, and agriculture; will continue outside this land take.

4.2.5.6 Recreation, Amenity and Tourism

Potential construction impacts from the grid connection cables include full or partial closure of roads used within the area, while the cables are being installed. There may be disruption to access routes around the site. However, any disruption will be mitigated where possible by maintaining access for people throughout, and where this is not possible, in minimising the impact and clearly communicating the timing and scope of works to the local community, including operational stage impacts.

4.3 Biodiversity

An assessment of the potential effects of the Proposed Development on biodiversity and nature conservation will be included within the EIAR.



4.3.1 Baseline

4.3.1.1 Methodology

Desk Study

The following sources of information have been consulted:

- Satellite imagery¹;
- Environmental Protection Agency (EPA) maps²;
- Design drawings and the description of the Proposed Development;
- National Parks and Wildlife Service (NPWS) and the National Biodiversity Data Centre (NBDC) online resources³;
- NBDC protected flora and fauna;
- Environmental Sensitivity Mapper⁴; and
- Birdwatch Ireland website⁵.

Field Survey

The following surveys have currently been completed or are currently in process:

- **Habitats:** terrestrial habitat surveys have been conducted in July and August 2023 within (i) the main wind farm site, (ii) along the future cable corridor, and (iii) where accommodation works are required along the turbine delivery route. Aquatic habitat surveys will be undertaken in the same areas, although these will focus on the area 150 m either side of where any proposed infrastructure or works crosses a water course, as well as some sites downstream but within the wider catchment⁶. Habitats were mapped according to Fossitt (2000)⁷ and following best-practice guidance outlined in Smith et al. (2011)⁸. Habitats thought to share links with those listed under Annex I of the EU Habitats Directives were assessed against the European Commission's 'Interpretation Manual of European Union Habitats' (2013)⁹ and using Biodiversity Ireland's ERICA tool¹⁰, with survey methodology following the approaches outlined in the relevant NPWS manuals (where available).
- **Botanical:** protected (listed on flora Protection Order) and invasive (including those listed as Third Schedule species under Regulations 49 and 50 of the Birds and

¹ <https://www.google.ie/maps>. Accessed 18/04/2024

² <https://gis.epa.ie/EPAMaps/>. Accessed 18/04/2024

³ <https://maps.biodiversityireland.ie/Map>. Accessed 18/04/2024

⁴ <https://airomaps.geohive.ie/ESM/>. Accessed 18/04/2024

⁵ <https://birdwatchireland.ie/>. Accessed 18/04/2024

⁶ In general, a catchment-wide approach has been undertaken for aquatic surveys to ensure that any connectivity between the Proposed Development and in- and ex-situ populations of mobile qualifying interest (QI) species of any nearby Special Areas for Conservation (SACs) or Special Protection Areas (SPAs) is identified.

⁷ <https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf?msclkid=c28fe35dac5b11ec9ae3df85ef7e3838> Accessed 18/04/2024

⁸

https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf?msclkid=18a5c344 Accessed 18/04/2024

⁹ <https://eunis.eea.europa.eu/references/2435> Accessed 18/04/2024

¹⁰ <https://biodiversityireland.ie/projects/ivc-classification-explorer/?msclkid=e60a1699ac6011ecb2f2989ff162b89b> Accessed 18/04/2024



Natural Habitats Regulations 2011; and any non-native species) species were recorded as part of the terrestrial and aquatic habitat surveys and their locations mapped in July and August 2023.

- **Birds:** Vantage Point (VP), breeding wader surveys (modified Brown and Shepherd and dusk surveys), breeding raptor surveys, winter walkover surveys, wintering waterbird surveys and hen harrier *Circus cyaneus* roost searches were conducted from April 2021 to March 2023 (two breeding seasons and two non-breeding seasons). Survey methodology and study area in accordance with latest NatureScot (formerly SNH, 2017)¹¹ guidance. A third year of bird surveys has been commenced and is due to conclude presently. This will provide more than the required two years of bird survey data collected in the last five years.
- **Bats:** static detector, activity, roost (winter and summer) and emergence surveys are currently being conducted within the main wind farm site and within 300 m of the development footprint. Survey methodology and study area in accordance with latest NatureScot (SNH, 2021)¹² and Collins (2016)¹³ guidance. Roost surveys will be undertaken along the cable corridor and where accommodation works are required along the turbine delivery route. These surveys will be within the last two years in accordance with NatureScot (2021) requirements.
- **Mammals other than Bats:** terrestrial walkover surveys within the main wind farm site were undertaken in July 2023, focusing on areas within 150 m of any proposed infrastructure.
- **Invertebrates:** any rare or threatened species of terrestrial invertebrate were recorded if detected during other surveys. Surveys to assess habitat suitability for marsh fritillary butterfly *Euphydryas aurinia* and larval web surveys will be undertaken in August/September.
- **Amphibians:** any amphibians were recorded if detected during other surveys; eDNA analysis will also be undertaken at 6 pond sites in August 2023 during aquatic ecology surveys (see below).
- **Reptiles:** any amphibians were recorded if detected during other surveys.
- **Aquatic Ecology:** Electrofishing (under a DECC licence), aquatic habitat, biological water quality (Q-sampling), macro-invertebrate, white-clawed crayfish *Austropotamobius pallipes* and eDNA surveys were conducted at 54 sites in the vicinity of the Proposed Development (including main wind farm site, along cable corridor and along TDR) in September 2023. In addition, signs/sightings of otter *Lutra lutra* and common kingfisher *Alcedo atthis* were recorded during the above surveys. eDNA surveys were undertaken for freshwater pearl mussel *Margaritifera margaritifera*, white-clawed crayfish, crayfish plague, brown trout *Salmo trutta*, European eel *Anguilla anguilla* and common newt *Triturus vulgaris*.

¹¹ <https://www.nature.scot/sites/default/files/2018-06/Guidance%20Note%20-%20Recommended%20bird%20survey%20methods%20to%20inform%20impact%20assessment%20of%20onshore%20windfarms.pdf> Accessed 18/04/2024

¹² <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation> Accessed 18/04/2024

¹³

https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971&gl=1*1n7ohix*ga*MTQzNzY1NTY4NC4xNjMzOTU5ODIy*ga_G28378TB9V*MTY5MjA5MjA1OS4xMi4wLjE2OTIwOTIwNTkuMC4wLjA. Accessed 18/04/2024



4.3.1.2 Preliminary Results

Designated Sites

Internationally Designated Sites

There are 16 SACs and nine SPAs within 20 km of the main wind farm site.

The SACs and SPAs are listed in Table 4-2 below with information presented on their QIs, distance to the main wind farm site, and whether there is a potential ecological, hydrological or hydrogeological connection to the same. For brevity, we have mentioned where there are connections to the cable corridor in the same table. There are no SACs or SPAs that overlap with where accommodation works are due to take place along the TDR.

Of the European sites mentioned in Table 4-2, four SACs and four SPAs have some form of connectivity to either the main wind farm site or cable corridor.

There are also three Ramsar sites (Blacksod Bay and Broadhaven, Owenduff catchment and Knockmoyle/Sheskin) within 20 km of the main wind farm site.

There are two Important Bird Areas (IBAs) (Owenduff River catchment and Nephin Beg, and Broadhaven, Blacksod and Tullaghan Bays and parts of the Mullet peninsula) within 20 km of the main wind farm site.



Table 4-2: SACs and SPAs within 20 km

Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
SACs				
Mullet/Blacksod Bay Complex SAC	000470	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] <i>Salicornia</i> and other annuals colonising mud and sand [1310] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] Machairs (* in Ireland) [21A0] Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> - type vegetation [3150] Alkaline fens [7230]	0.02	<p>Hydrological – Y for main wind farm. Downstream connection via Doolough Stream (c. 1.1 km instream distance) and unnamed stream (no EPA code) (c. 370 m instream distance). N for cable corridor.</p> <p>Hydrogeological – Y for main wind farm. Shares same bedrock aquifer. Also, alkaline fen and machair QI habitats are groundwater dependent terrestrial ecosystems (GWDTEs). N for cable corridor as >2.5 km from SAC, so strong connection unlikely.</p> <p>Ecological – Y for main wind farm and cable corridor. The following QIs are mobile so there is a potential ecological connection: otter.</p>



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		<i>Lutra lutra</i> (Otter) [1355] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]		
Carrowmore Lake Complex SAC	000476	Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] <i>Saxifraga hirculus</i> (Marsh Saxifrage) [1528] <i>Hamatocaulis vernicosus</i> (Slender Green Feather-moss) [6216]	5.9	Hydrological – N for main wind farm and cable corridor. Hydrogeological – N for main wind farm, which shares the same bedrock aquifer with the SAC. However, SAC located >5 km from main wind farm, so strong connection unlikely. Y for cable corridor as shares same bedrock aquifer and directly adjacent to SAC. QI blanket bog can also be a GWDTE. Ecological – No. No mobile QIs.
Owenduff/Nephin Complex SAC	000534	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] Natural dystrophic lakes and ponds [3160] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	6.5	Hydrological – N for main wind farm. Y for cable corridor, with downstream connection to SAC (1.6 km instream distance). Hydrogeological – N for main wind farm, which shares the same bedrock aquifer with the SAC. However, SAC located >5 km from main wind farm, so strong connection unlikely. Y for cable corridor as shares same bedrock aquifer and directly adjacent to SAC. SAC also contains GWDTEs including wet heath, blanket bogs and transition mire. Ecological – N for main wind farm. The following QIs are mobile: salmon and otter. However, there are no hydrological connections for these species to travel along. Y for cable corridor due to presence of hydrological connections.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Alpine and Boreal heaths [4060] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355] <i>Saxifraga hirculus</i> (Marsh Saxifrage) [1528] <i>Hamatocaulis vernicosus</i> (Slender Green Feather-moss) [6216]		
Broadhaven Bay SAC	000472	Mudflats and sandflats not covered by seawater at low tide [1140] Large shallow inlets and bays [1160] Reefs [1170] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Submerged or partially submerged sea caves [8330]	6.6	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, which share the same bedrock aquifer with the SAC. However, SAC located >5 km from main wind farm and cable corridor, so strong connection unlikely. Ecological – N for both main wind farm and cable corridor. No mobile QI species.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
West Connaught Coast SAC	002998	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349]	8.0	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Marine SAC. Ecological – N for both main wind farm and cable corridor. While common bottlenose dolphin is mobile, it is exclusively marine.
Doogort Machair/Lough Doo SAC	001497	Machairs (* in Ireland) [21A0] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	11.0	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. No mobile QI species.
Slieve Fyagh Bog SAC	000542	Blanket bogs (* if active bog) [7130]	11.4	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, which share some of same bedrock aquifer as the SAC (but not all). However, SAC located 11.4 km and 3.5 km from main wind farm and cable corridor, respectively, so strong connection unlikely. Ecological – N. No mobile QI species.
Erris Head SAC	001501	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Alpine and Boreal heaths [4060]	13.3	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. SAC is effectively an island, as separated from mainland Ireland via a canal. Ecological – N for both main wind farm and cable corridor. No mobile QI species.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
Croaghaun/Slievemore SAC	001955	Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Blanket bogs (* if active bog) [7130] Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] Siliceous rocky slopes with chasmophytic vegetation [8220]	13.6	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. No mobile QI species.
Glenamoy Bog Complex SAC	000500	Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Machairs (* in Ireland) [21A0] Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Blanket bogs (* if active bog) [7130]	13.8	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, as share some of same bedrock aquifer as SAC (but not all). However, SAC located >5 km from main wind farm and cable corridor, so strong connection unlikely. Ecological – N. While salmon is a mobile QI species, it is an aquatic species and there are no hydrological connections.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Transition mires and quaking bogs [7140] Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] <i>Salmo salar</i> (Salmon) [1106] <i>Petazophyllum ralfsii</i> (Petalwort) [1395] <i>Saxifraga hirculus</i> (Marsh Saxifrage) [1528] <i>Hamatocaulis vernicosus</i> (Slender Green Feather-moss) [6216]		
Duvillaun Islands SAC	000495	<i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] <i>Halichoerus grypus</i> (Grey Seal) [1364]	15.0	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. The following QI species are mobile: common bottlenose dolphin and grey seal. However, they are exclusively marine.
Inishkea Islands SAC	000507	Machairs (* in Ireland) [21A0] <i>Halichoerus grypus</i> (Grey Seal) [1364] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	16.3	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. The following QI species are mobile: common



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
				bottlenose dolphin and grey seal. However, they are exclusively marine.
Keel Machair/Menaun Cliffs SAC	001513	Perennial vegetation of stony banks [1220] Machairs (* in Ireland) [21A0] Alpine and Boreal heaths [4060] <i>Petalophyllum ralfsii</i> (Petalwort) [1395]	17.1	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. Located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. No mobile QI species.
Bellacorick Bog Complex SAC	001922	Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the <i>Rhynchosporion</i> [7150] Alkaline fens [7230] <i>Vertigo geyeri</i> (Geyer's Whorl Snail) [1013] <i>Saxifraga hirculus</i> (Marsh Saxifrage) [1528]	18.1	Hydrological – N for main wind farm. Y for cable corridor, with downstream connection to SAC (35 m instream distance). Hydrogeological – N for main wind farm, which shares some of same bedrock aquifer as SAC (but not all). However, SAC located >5 km from main wind farm, so strong connection unlikely. Y for cable corridor, as shares some of same bedrock aquifer and is directly adjacent to SAC. QI wet heath, blanket bog and fen habitats are also GWDTEs. Ecological – N for both main wind farm and cable corridor. QI whorl snail species are restricted to fen habitats found within SAC. Unlikely to be found in roadside verge along cable corridor.
Lough Gall Bog SAC	000522	Blanket bogs (* if active bog) [7130]	19.1	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, as shares same bedrock aquifer. However,



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Depressions on peat substrates of the <i>Rhynchosporion</i> [7150]		SAC located >5 km from main wind farm and cable corridor, so strong connection unlikely. Ecological – N for both main wind farm and cable corridor. No mobile QI species.
Bellacragher Saltmarsh SAC	002005	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	19.8	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, which share the same bedrock aquifer. However, SAC located >5 km from main wind farm and cable corridor, so strong connection unlikely. Ecological – N for both main wind farm and cable corridor. No mobile QI species.
SPAs¹⁴				
Blacksod Bay/Broad Haven SPA	004037	Red-throated Diver (<i>Gavia stellata</i>) [A001] w Great Northern Diver (<i>Gavia immer</i>) [A003] w Slavonian Grebe (<i>Podiceps auritus</i>) [A007] w Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] w Common Scoter (<i>Melanitta nigra</i>) [A065] w	0.01	Hydrological – Y for main wind farm and cable connection. Main wind farm downstream connection via Doolough Stream (c. 1.1 km instream distance) and unnamed stream (no EPA code) (c. 370 m instream distance). Cable corridor c. 240 m instream distance. Hydrogeological – Y for both main wind farm and cable corridor. The SPA shares the same bedrock aquifer and is near the main wind farm and cable corridor, with wetland habitats listed as a QI.

¹⁴ Key to bird species populations: w = wintering, n = no information on standard data form, p = permanent, r = reproducing and c = concentration.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Red-breasted Merganser (<i>Mergus serrator</i>) [A069] w Ringed Plover (<i>Charadrius hiaticula</i>) [A137] w Sanderling (<i>Calidris alba</i>) [A144] w Dunlin (<i>Calidris alpina</i>) [A149] w Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] w Curlew (<i>Numenius arquata</i>) [A160] w Sandwich Tern (<i>Sterna sandvicensis</i>) [A191] r Dunlin (<i>Calidris alpina schinzii</i>) [A466] r Wetland and Waterbirds [A999]		Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the main wind farm during bird surveys to date.
Carrowmore Lake SPA	004052	Sandwich Tern (<i>Sterna sandvicensis</i>) [A191] r	5.9	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While the SPA shares the same bedrock aquifer as the main wind farm and cable corridor, it does not have any wetland habitat listed as a QI. Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the main wind farm or cable corridor during bird surveys.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
Owenduff/Nephin Complex SPA	004098	Merlin (<i>Falco columbarius</i>) [A098] p Golden Plover (<i>Pluvialis apricaria</i>) [A140] r	6.7	<p>Hydrological – N for main wind farm site. Y for cable corridor (1.6 km instream distance).</p> <p>Hydrogeological – N for main wind farm, which shares same bedrock aquifer as SPA. However, SPA located >5 km from main wind farm, so strong connection unlikely. Also, N for cable corridor, as even though shares same bedrock aquifer and is directly adjacent to SAC, no GWDTE QIs are present.</p> <p>Ecological – Y for main wind farm site. The following QI species have been recorded within or nearby during bird surveys: merlin. This species could be part of the SPA population due to the size of their core foraging ranges in relation to the proximity of the Proposed Development (5 km in breeding season but travels further afield in winter).</p>
Mullet Peninsula SPA	004227	Corncrake (<i>Crex crex</i>) [A122] r	9.6	<p>Hydrological – N for both main wind farm and cable corridor.</p> <p>Hydrogeological – N for both main wind farm and cable corridor, as although in same bedrock aquifer as SPA, >5 km from SPA and no GWDTE QI habitats present, so strong connection unlikely.</p> <p>Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the main wind farm or cable corridor during bird surveys.</p>



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
Doogort Machair SPA	004235	Dunlin (<i>Calidris alpina schinzii</i>) [A466] r	11.1	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor as SPA located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the Proposed Development during bird surveys.
Termoncarragh Lake and Annagh Machair SPA	004093	Whooper Swan (<i>Cygnus cygnus</i>) [A038] w Barnacle Goose (<i>Branta leucopsis</i>) [A045] w Corncrake (<i>Crex crex</i>) [A122] n Lapwing (<i>Vanellus vanellus</i>) [A142] r Chough (<i>Pyrhacorax pyrrhacorax</i>) [A346] n Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] w Dunlin (<i>Calidris alpina schinzii</i>) [A466] r Wetland and Waterbirds [A999]	13.1	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, as although located in same bedrock QI aquifer and despite the wetland QI being a GWDTE, the SPA is >5 km away and so there are unlikely to be any strong links. Ecological – N. The following QI species have been recorded within or nearby the main wind farm during bird surveys: whooper swan and Northern lapwing. Of these, neither are likely to be part of the SPA population due to the size of their core foraging ranges in relation to the proximity of the main wind farm site (5 km and 12 km, respectively).
Inishglora and Inishkeeragh SPA	004084	Storm Petrel (<i>Hydrobates pelagicus</i>) [A014] r Cormorant (<i>Phalacrocorax carbo</i>) [A017] r	14.4	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor as SPA located off mainland Ireland.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Shag (<i>Phalacrocorax aristotelis</i>) [A018] r Barnacle Goose (<i>Branta leucopsis</i>) [A045] w Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183] r Herring Gull (<i>Larus argentatus</i>) [A184] r Arctic Tern (<i>Sterna paradisaea</i>) [A194] r		Ecological – Y. The following QI species have been recorded within or nearby the main wind farm site during bird surveys: lesser black-backed gull and herring gull. Both species are likely to be part of the SPA population due to the size of their core foraging ranges in relation to the proximity of the main wind farm (71.9 km and 10.5 km, respectively; note herring gull included due to low confidence in core foraging range value).
Duvillaun Islands SPA	004111	Fulmar (<i>Fulmarus glacialis</i>) [A009] r Storm Petrel (<i>Hydrobates pelagicus</i>) [A014] r Barnacle Goose (<i>Branta leucopsis</i>) [A045] w	15.0	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, as SPA located off mainland Ireland. Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the main wind farm during bird surveys.
Inishkea Islands SPA	004004	Shag (<i>Phalacrocorax aristotelis</i>) [A018] p Barnacle Goose (<i>Branta leucopsis</i>) [A045] w Ringed Plover (<i>Charadrius hiaticula</i>) [A137] r, w Sanderling (<i>Calidris alba</i>) [A144] w Purple Sandpiper (<i>Calidris maritima</i>) [A148] w	16.3	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor, as SPA located off mainland Ireland. Ecological – Y. The following QI species have been recorded within or nearby the main wind farm during bird surveys: common gull and herring gull. Both species are likely to be part of the SPA population due to the size of their core foraging ranges in relation to the proximity of the main wind farm (25 km and 10.5 km, respectively; note,



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
		Turnstone (<i>Arenaria interpres</i>) [A169] w Common Gull (<i>Larus canus</i>) [A182] r Herring Gull (<i>Larus argentatus</i>) [A184] p Arctic Tern (<i>Sterna paradisaea</i>) [A194] r Little Tern (<i>Sterna albifrons</i>) [A195] r Dunlin (<i>Calidris alpina schinzii</i>) [A466] w, r		herring gull included due to low confidence in core foraging range value).



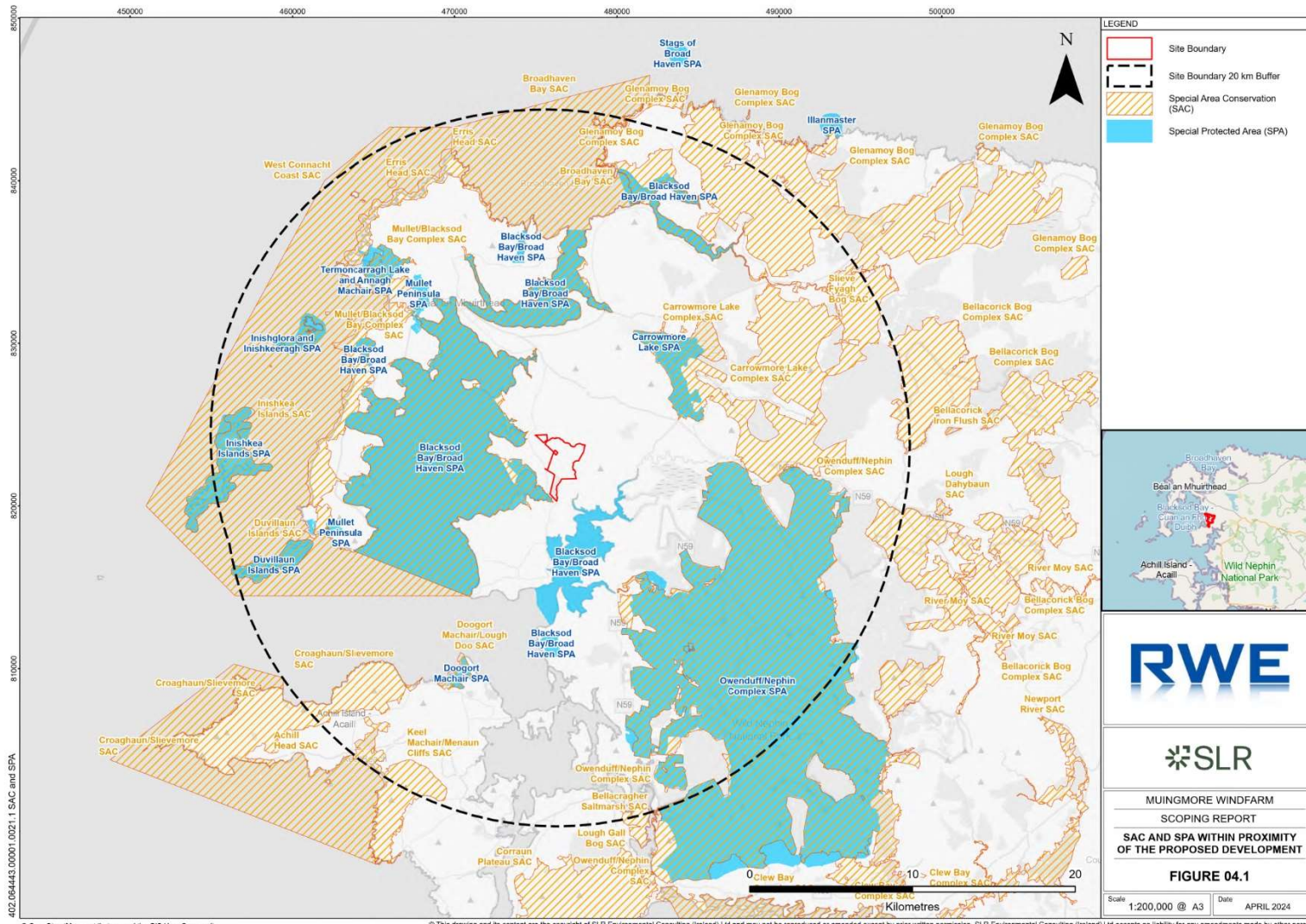


Figure 4-1 SPAs and SACs within 20KM of Study Area



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Nationally Designated Sites

There are seven NHAs and 18 pNHAs within 20 km of the main wind farm site.

Two NHAs have some form of connectivity with the main wind farm site or cable corridor. Seventeen pNHAs overlap with SACs or SPAs, whose designation supersedes that of the pNHAs. The only pNHA that does not overlap with any SAC or SPA lacks any form of connectivity to the main wind farm site and cable corridor.

The NHAs and pNHAs are listed in Table 4-3 below with information presented on their QIs, distance to the main wind farm site, and whether there is a potential ecological, hydrological or hydrogeological connection to the same. For brevity, we have mentioned where there are connections to the cable corridor in the same table.

One pNHA was recorded where accommodation works are due to take place: Lough Melvin pNHA (000428) at Tullaghan R267/N15 Roundabout along the Bundoran and Ballyshannon Bypass. No site synopsis for this pNHA is available.

There is also one nature reserve within 20 km of the main wind farm: Ballycroy National Park.



Table 4-3: NHAs and pNHAs within 20 km

Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
NHAs				
Tristia Bog NHA	001566	Peatlands [4]	0	Hydrological – N. NHA upstream of main wind farm and cable corridor. Hydrogeological – Y for both main wind farm and cable corridor. Both in same bedrock aquifer as NHA and in close proximity to NHA. Peatland habitats could be GWDTEs. Ecological – N. No mobile QIs.
Tullaghan Bay and Bog NHA	001567	Peatlands [4]	0.07	Hydrological – Y for both main wind farm and cable corridor (instream distance 703 m and 230 m, respectively). Hydrogeological – Y for both main wind farm and cable corridor. Both in same bedrock aquifer as NHA and in close proximity to NHA. Peatland habitats could be GWDTEs. Ecological – N. No mobile QIs.
Ederglen Bog NHA	002446	Peatlands [4]	4.2	Hydrological – N. NHA upstream of main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While in same bedrock aquifer as NHA, located 4.3 and 3.5 km away, respectively, so no strong connection likely. Ecological – N. No mobile QIs.
Bangor Erris Bog NHA	001473	Peatlands [4]	5.5	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While in same bedrock aquifer as NHA, located



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
				5.5 and 3.5 km away, respectively, so no strong connection likely. Ecological – N. No mobile QIs.
Pollatomish Bog NHA	001548	Peatlands [4]	9.5	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While in same bedrock aquifer as NHA, located 9.5 and 8.1 km away, respectively, so no strong connection likely. Ecological – N. No mobile QIs.
Glenturk More Bog NHA	002419	Peatlands [4]	10.3	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While in same bedrock aquifer as NHA, located 10.3 and 5.9 km away, respectively, so no strong connection likely. Ecological – N. No mobile QIs.
Doogort East Bog NHA	002381	Peatlands [4]	13.2	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. NHA located off mainland Ireland. Ecological – N. No mobile QIs.
pNHAs				
Mullet/Blacksod Bay Complex pNHA	000470	Overlaps with SAC, and part of Mullet Peninsula SPA and Blacksod Bay /Broad Haven SPA and Termoncarragh Lake and Annagh Machair SPA.	0.02	As for SAC of same name and part of Mullet Peninsula SPA and Blacksod Bay/Broad Haven SPA and Termoncarragh Lake and Annagh Machair SPA.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
Carrowmore Lake Complex pNHA	000476	Overlaps with SAC of same name and part of Carrowmore Lake SPA.	5.7	As for SAC of same name and part of Carrowmore Lake SPA.
Broadhaven Bay pNHA	000472	Overlaps with SAC of same name and part of Blacksod Bay/Broad Haven SPA.	6.6	As for SAC of same name and part of Blacksod Bay/Broad Haven SPA.
Owenduff/Nephin Complex pNHA	000534	Overlaps with SAC and SPA of same name.	6.7	As for SAC and SPA of same name.
Corraun Point Machair/Dooreel Creek pNHA	001488	Machair grassland, saltmarsh, shingle bars, sandy beaches, sea cliff and mudflat habitats. Feeding areas for seabirds including brent geese.	10.2	Hydrological – N for both main wind farm and cable corridor. Hydrogeological – N for both main wind farm and cable corridor. While in same bedrock aquifer as NHA, located 10.2 and 11.9 km away, respectively, so no strong connection likely. Ecological – N for both main wind farm and cable corridor. No QI species have been recorded within or nearby the main wind farm during bird surveys.
Doogort Machair/Lough Doo pNHA	001497	Overlaps with SAC of same name and Doogort Machair SPA.	11.0	As for SAC of same name and Doogort Machair SPA.
Slieve Fyagh Bog pNHA	000542	Overlaps with SAC of same name.	11.3	As for SAC of same name.
Erris Head pNHA	001501	Overlaps with SAC of same name and part of Termoncarragh Lake and Annagh Machair SPA.	13.4	As for SAC of same name and part of Termoncarragh Lake and Annagh Machair SPA.



Site Name	Site Code	Qualifying Interest(s)	Direct-line Distance to Main Wind Farm Site (km)	Potential Hydrological / Hydrogeological / Ecological Connectivity (Y/N)
Croaghaun/Slievemore pNHA	001955	Overlaps with SAC of same name.	13.6	As for SAC of same name.
Glenamoy Bog Complex pNHA	000500	Overlaps with SAC of same name and part of Blacksod Bay/Broad Haven SPA.	13.8	As for SAC of same name and part of Blacksod Bay/Broad Haven SPA.
Inishglora & Inishkeeragh pNHA	000506	Overlaps with West Connaught Coast SAC.	14.4	As for West Connaught Coast SAC.
Duvillaun Islands pNHA	000495	Overlaps with SAC and SPA of same name.	15.0	As for SAC and SPA of same name.
Inishkea Islands pNHA	000507	Overlaps with SAC and SPA of same name.	16.3	As for SAC and SPA of same name.
Keel Machair/Menaun Cliffs pNHA	001513	Overlaps with SAC of same name.	17.1	As for SAC of same name.
Eagle Island pNHA	001500	Overlaps with West Connaught Coast SAC. Breeding colonies of common gull, lesser black-backed gull, herring gull and fulmars.	17.6	As for West Connaught Coast SAC.
Bellacorick Bog Complex pNHA	001922	Overlaps with SAC of same name.	18.1	As for SAC of same name.
Lough Gall Bog pNHA	000522	Overlaps with SAC of same name.	19.1	As for SAC of same name.
Bellacragher Saltmarsh pNHA	002005	Overlaps with SAC of same name.	19.8	As for SAC of same name.



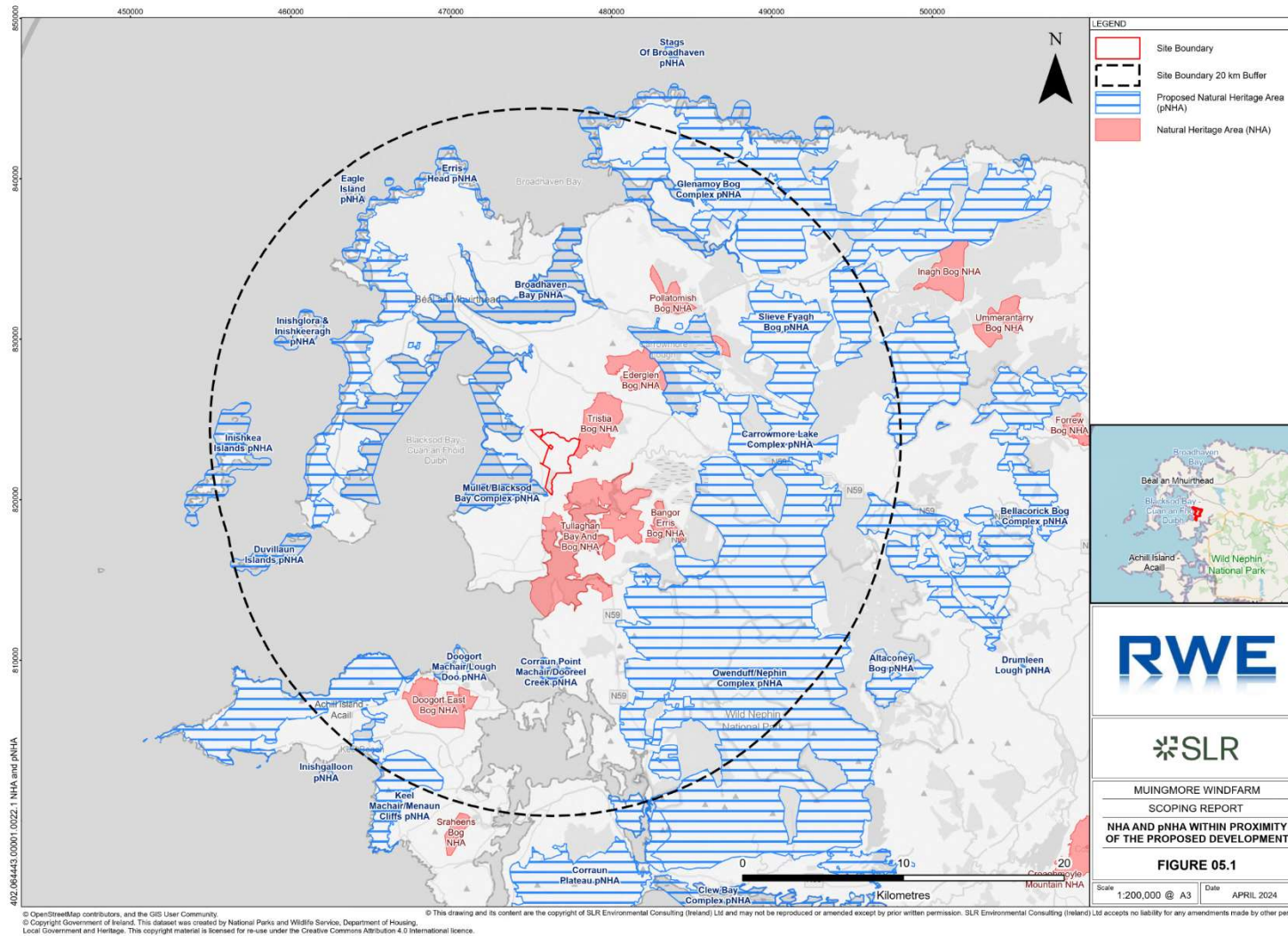


Figure 4-2 NHAs and pNHAs within 20KM of Study Area



Habitats

Habitats recorded within the main wind farm site include lowland blanket bog PB3, scrub WS1, conifer plantation WD4, transition mire and quaking bog PF3, dense bracken HD1, wet grassland GS4, other artificial lakes and ponds FL8, wet heath HH3, cutover bog PB4, eroding/upland rivers FW1, buildings and artificial surfaces BL3 and recolonising bare ground ED3.

Annex 1 active lowland blanket bog (7130*) was recorded in main wind farm site, within the same location as previously shown in the latest Article 17 report. This was also recorded in the south and southwest of the main wind farm site fringing forestry on the margins of the red-line boundary.

Annex 1 northern Atlantic wet heaths with *Erica tetralix* (4010) and European dry heaths (4030) were also recorded widely across the main wind farm site in areas of partially drained bog that previously was forested. Northern Atlantic wet heaths (4010) were also recorded near the active lowland blanket bog (7130*) area, near the Doolough stream.

Annex 1 transition mire (7140) was recorded in a few pools created to drain water from the surrounding bog. The streams within the site were largely of Annex 1 watercourses of plain to montane levels with the *Ranunculus fluitantis* and *Calliticho-Batrachion* vegetation 3260 type.

No previously mapped ancient woodland habitats are present.

Along the cable corridor, there are extensive areas of previously mapped Annex 1 habitats (blanket bogs 7130, dry heaths 4030 and wet heath 4010) near but these are almost entirely outside of the development footprint.

There is previously mapped Annex 1 blanket bog 7130 habitat at one location where accommodation works are due to take place along the TDR where the L1206 meets the L1205.

Ecological Networks

Most of the main wind farm site is assessed as not forming parting of an ecological network *sensu* Parker *et al.* (2016)¹⁵. Areas to the edge of the site are assessed as forming part of one ecological network only. Thus, the main wind farm site is not located in an area of key importance for maintaining connectivity between different ecological networks.

Plants

No rare or threatened plants were recorded during field surveys within the main wind farm site, along the cable corridor or TDR. Of most interest was bog sedge *Carex limosa*, which is rare in the west of Ireland. However, this species is not listed under the Flora Protection Order (FPO) or on any red-lists.

Desktop records of petalwort (Annex II, FPO) are present within the 10 km grid square which encompasses the main wind farm site; however, none were recorded during field surveys.

¹⁵ Parker, N., Naumann, E-K., Medcalf, K., Haines-Young, R., Potschin, M., Kretsch, C., Parker, J. & Burkhard, B. (2016) National ecosystem and ecosystem service mapping pilot for a suite of prioritised services. Irish Wildlife Manuals, No. 95. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Ireland.



Non-native rhododendron *Rhododendron ponticum*, giant rhubarb *Gunnera tinctoria*, bamboo (species unknown), montbretia *Crococsmia x crocosmiiflora* and prickly heath *Gaultheria mucronata* were recorded during surveys at the main wind farm site.

Desktop records also showed non-native Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica*, Japanese rose *Rosa rugosa* are present within the 10 km grid square which encompasses the main wind farm site.

Non-native rhododendron, giant rhubarb, montbretia and buddleja *Buddleja davidii* were recorded during surveys along the cable corridor.

Japanese knotweed *Fallopia japonica* and winter heliotrope *Petasites fragrans* were recorded near some parts of the turbine delivery route.

Birds

BirdWatch Ireland has created a sensitivity mapping tool, which assesses the sensitivity of at-risk bird populations to wind energy developments¹⁶. Most of the main wind farm site is mapped as having 'no data / unknown', with smaller parts of the site mapped as 'medium sensitivity' and 'high sensitivity'. i.e. there are some avian populations in the general area thought to be particularly sensitive to wind farms.

The full bird survey results are not yet known, and the following summarises the results shown in the interim results report for year 1 bird surveys.

Vantage point surveys have recorded the following target species likely to be susceptible to wind farm impacts: common gull, herring gull, common kestrel *Falco tinnunculus*, northern lapwing, lesser black-backed gull, merlin *Falco columbarius*, common snipe *Gallinago gallinago*, Eurasian teal *Anas crecca*, whooper swan and Eurasian woodcock *Scolopax rusticola*.

Breeding raptors confirmed breeding or probably breeding within or nearby to the main wind farm site include common kestrel, nesting within the existing buildings within the centre of the site.

Breeding wader surveys confirmed breeding or probably breeding within or nearby to the main wind farm site for the following: common snipe and mallard *Anas platyrhynchos*.

Red- or amber-listed passerines confirmed breeding or probably breeding include meadow pipit *Anthus pratensis*, willow warbler *Phylloscopus trochilus*, goldcrest *Regulus regulus* and Eurasian skylark *Alauda arvensis*.

Winter walkover surveys recorded the following species likely to be susceptible to wind farm impacts within the main wind farm site: common kestrel, common snipe, Eurasian woodcock and whooper swan.

Winter waterbird surveys recorded the following species likely to be susceptible to wind farm impacts within the 6 km search area: bar-tailed godwit, common scoter, Eurasian curlew, Eurasian dunlin, European golden plover, northern lapwing, Eurasian oystercatcher *Haematopus ostralegus*, common redshank *Tringa totanus*, common snipe, black guillemot *Cephus grylle*, brent goose, common gull, great cormorant, northern diver, herring gull, lesser black-backed gull, Mediterranean gull *Ichthyaetus melancephalus*, merlin, red-breasted merganser, common ringed plover, Eurasian teal, ruddy turnstone, whooper swan, Eurasian wigeon, little egret *Egretta garzetta* and peregrine falcon *Falco peregrinus*.

¹⁶ McGuinness S, Muldoon C, Tierney N, Cummins S, Murray A, Egan S, Crowe O (2015) Bird sensitivity mapping for wind energy developments and associated infrastructure in the Republic of Ireland. BirdWatch Ireland, Kilcoole, Wicklow



No hen harriers were recorded during dedicated roost surveys.

Bats

The full survey results are not yet known, and the following summarises the results shown in the scoping report.

The overall suitability for the two 5 km grid squares encompassing the main wind farm site is of moderate/low suitability for all bat species combined.

Common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were recorded most frequently during transect surveys, with evidence of soprano pipistrelle foraging along forest edges.

The only features suitable for roosting bats within 300 m of the main wind farm site were within the factory complex.

Mammals other than Bats

No mammal signs/sightings were detected during terrestrial walkover surveys.

Desktop records of European otter, European rabbit *Oryctolagus cuniculus* and Irish hare *Lepus timidus subsp. hibernicus* are present within the 10 km grid square which encompasses the main wind farm site.

The aquatic surveys will search for otter presence. It is also possible that red squirrel *Sciurus vulgaris* and pine marten *Martes martes* use the conifer plantation habitats present within the main wind farm site, lack of signs/sightings notwithstanding.

Terrestrial Invertebrates

Desktop records of marsh fritillary *Euphydryas aurina*, wall butterfly *Lasiommata megera*, great yellow bumble bee *Bombus distinguendus*, English chrysalis snail *Leiostryla anglica* and moss chrysalis snail *Pupilla muscorum* are present within the 10 km grid square which encompasses the main wind farm site.

Desktop records of invasive common garden snail *Cornu aspersum* and Jenkin's spire snail *Potamopyrgus antiopdarum* are present within the same grid square.

Amphibians

Common frog *Rana temporaria* was recorded spawning extensively throughout the site during a walkover. Desktop records of common newt are also present within the 10 km grid square which encompasses the main wind farm site.

Aquatic surveys will search for amphibians present in pools within the main wind farm site using eDNA sampling.

Reptiles

No desktop records of terrestrial reptiles are present within the 10 km grid square which encompasses the main wind farm site.

Aquatic Ecology

A fish species assemblage typical of Ireland's north-west – namely Atlantic salmon, brown trout, sea trout, European eel, lamprey (*Lampetra* sp.), three-spined-stickleback, minnow and flounder - were recorded during the electro-fishing survey. The Annex I habitat 'Water courses of plain to montane levels, with submerged or floating vegetation of the *Ranunculion fluitantis* and *Callitriche-Batrachion* (low water level during summer) or aquatic mosses [3260]' was recorded on the Ballisodare River and on the Carrowgobbadagh Stream



(adjacent to proposed TDR works). Three ponds sites in vicinity of the site boundary corresponded the Annex I habitat 'Natural dystrophic lakes and ponds [3160]'. No white-clawed crayfish were recorded through hand searching of instream refugia during the surveys, or via eDNA sampling, thus supporting the absence of historical and contemporary records. However, the invasive pathogen crayfish plague was detected via eDNA sampling in vicinity of the proposed wind farm site boundary despite the absence of crayfish. With regards to otter, although suitable foraging habitat was widespread, otter signs were only recorded at a single site on the Ballisodare River. No breeding (holt) or couch (resting) areas were identified. No rare or protected aquatic macro-invertebrate species (according to national red lists) were recorded.

4.3.2 Scope of Assessment

For the EIAR, an assessment will examine the likely significant effects (both unmitigated and mitigated) of the main wind farm site itself, the cable corridor and where any accommodation works for the turbine delivery route are required. This will be for all biodiversity receptors (designated sites, habitats and species) connected with the Proposed Development according to the Source-Pathway-Receptor model.

In addition to the Biodiversity Chapter of the EIAR, an AA Screening and Natura Impact Statement (NIS) will be produced to examine the effects of the Proposed Development on Natura 2000 sites.

4.3.3 Assessment Methodology

4.3.3.1 Environmental Impact Assessment

The EIAR will be primarily based upon the guidelines for ecological impact assessment produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and Environmental Protection Agency (EPA, 2022), as well as other relevant guidance specific to certain taxonomic groups e.g. NatureScot (2017) for birds and NatureScot (2021) for bats.

Baseline reports detailing the results of bird surveys, bat surveys and aquatic surveys will be used to inform the EIAR and will be included as Appendices. A collision risk model and report will also be included as an Appendix to provide a quantitative estimate of collision risk to bird species.

Mitigation measures will be recommended to reduce the effect of the potential impacts, with an assessment made of the residual impact of the Proposed Development to each biodiversity receptor. In addition, a Habitat and Species Management Plan will be created to restore and/or create natural and semi-natural habitats and thus, improve biodiversity at the Proposed Development site. This will also contain an Invasive Species Management Plan, which will help eradicate and prevent the spread of invasive and non-native species.

In addition to the Proposed Development, an overall 'do nothing' scenario will also be assessed.

4.3.3.2 Appropriate Assessment

Methodology will follow NPWS (2010) and EC (2021, 2018) guidance on the application of the Habitats Directive. The 2021 EC guidance describes a series of stages and steps which should be completed when carrying out the assessment and these will be followed. The assessment applies only to Natura 2000 sites (Special Protection Areas and Special Areas of Conservation). More specifically, it only applies to the qualifying interest features of such sites i.e. the features which are the reason that the site was designated. Both in-situ and ex-



situ effects will be considered, along with in-combination effects from other projects and plans. Mitigation measures will only be considered in the NIS and not in the AA screening.

4.3.4 Likely Significant Effects

4.3.4.1 Construction Stage

Designated Sites

No direct loss of habitats will occur as the Proposed Development is located outside any designated site. The most likely potential impacts include the release of suspended solids and pollutants, which may enter watercourses. These then have the potential to be transported downstream, negatively affecting either aquatic QI habitats or species within designated sites themselves, or outside the designated sites where mobile QI species are present. Designated sites most likely affected by such impacts include: Mullet/Blacksod Bay Complex SAC, Owenduff/Nephin Complex SAC, Bellacorick Bog Complex SAC, Blacksod Bay/Broad Haven SPA, Owenduff/Nephin Complex SPA, and Tullaghan Bay and Bog NHA.

Disturbance to mobile aquatic QI species may also occur where there is downstream connectivity to the project. The designated sites most likely to be affected by this include: the Mullet/Blacksod Bay Complex SAC and Owenduff/Nephin Complex SAC.

Other potential impacts include the spread of any invasive species located within the footprint of the Proposed Development, which may be spread via construction activities either directly or indirectly via watercourses to designated sites. These invasive species could undermine the conservation objectives for said designated sites. Of particular risk will be the spread of invasive species along the cable corridor within the existing road network.

The Mullet/Blacksod Bay Complex SAC, Carrowmore Lake Complex SAC, Owenduff/Nephin Complex SAC, Bellacorick Bog Complex SAC, Blacksod Bay/Broad Haven SPA, Tristia Bog NHA, and Tullaghan Bay and Bog NHA are hydro-geologically connected to the Proposed Development and are designated for *inter alia* GWDTEs that are susceptible to groundwater pollution, which could occur in the absence of mitigation.

Habitats

Permanent and temporary loss to habitats will occur during construction (infrastructure felling), although this is likely to be mainly for lower-value habitats such as commercial conifer plantation). It is likely that some commercial forestry will be lost during the construction stage (mostly Sitka spruce conifer plantation) and under the 2014 Forestry Act, the planting of alternative land(s) is stipulated, although this is for infrastructure felling (e.g. where trees are felled to make way for infrastructure associated with the Proposed Development such as turbine bases) and turbulence felling (e.g. where trees are felled to improve the operational efficiency of turbines) only.

The wind farm will be designed to avoid loss to terrestrial Annex 1 habitats.

Where possible, there is opportunity to replace felled conifer plantation with habitats that will have a more positive effect on biodiversity e.g. native broadleaved trees, which in turn will have a positive effect on species.

As for designated sites, riparian and other aquatic habitats could be impacted by the release of suspended solids and pollution.

Species

Potential impacts during construction include habitat loss and gain, which could affect flora, bats, non-volant mammals, birds, amphibians, reptiles and invertebrates. This includes



habitats used for breeding, foraging and resting. Woodland specialists may lose such habitats, but other species that prefer open habitats may find the Proposed Development site more favourable to them. The net effect on species could be neutral, positive or negative depending on the quality of the open habitats created vs. those woodland habitats lost.

Other impacts could include disturbance or displacement by construction works, especially for any of the previously mentioned taxonomic groups during sensitive stages of their life-cycle e.g. breeding.

As mentioned for designated sites above, pollution and suspended solids could enter watercourses, which could negatively impact aquatic species.

4.3.4.2 Operational Stage

Designated Sites

The most likely operational impact is collision with turbines for mobile QI bird or bat species (as the cable corridor will be underground no collision risk is possible for this component of the Proposed Development). Other sources of impacts for birds include barrier effects where turbines may cause the birds to alter their flight paths, thereby expending greater energy.

Disturbance and displacement caused by operational turbines is also a potential impact to birds and potentially bats. Bats may also suffer barotrauma caused by the changes in air pressure surrounding operational turbines. Effects on these two groups could also increase cumulatively due to other wind farms in the general area. Given the ecological connection between the Proposed Development and some SPAs (see Section 4.2.1.2) designated for birds, some impacts are likely.

Habitats

Impacts to habitats during operation are unlikely as there will be no land-take (apart from the maintenance of bat buffers surrounding turbines e.g. areas that are kept free of habitat features such as tree lines that can attract bats, thereby reducing the risk of collision with operational turbines) and there is a very low risk that any suspended solids or pollutants will enter watercourses, which could reduce effective habitat area or quality.

Species

The main potential impact during operation is collision with moving turbines for birds and bats (as outlined above). Other taxonomic groups are less likely to be impacted during operation as disturbance is much less likely owing to reduced human presence.

4.3.4.3 Decommissioning Stage

Designated Sites, Habitats and Species

Impacts from decommissioning are likely to be similar as for the construction stage, except they are likely to be lower in magnitude.



4.4 Land & Soil

4.4.1 Introduction

An assessment of the potential effects of the Proposed Development on Land Soil and Geology will be included within the EIAR within which the physical environment will be considered.

4.4.2 Baseline

The following key guidelines apply to the Land Soil and Geology assessment:

- Institute of Geologists of Ireland. Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements, April 2013;
- National Roads Authority, 2008. Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes; and
- EPA (May 2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

The following sources of information are/will be being consulted for the Land, Soil and Geology baseline:

- Information from site walkover survey(s);
- Site investigation surveys including peat depth and peat characterisation surveys;
- Geological Survey of Ireland (GSI) Data Viewer – subsoil geology, bedrock geology and geological heritage sites;
- Environmental Protection Agency soil maps;
- Irish Soils Information System – Teagasc;
- OSi Discovery Series mapping; and
- Environmental Protection Agency;

4.4.3 Scope of Assessment

The assessment will address the potential impacts on the Land, Soils and Geology aspects of the proposed development including peat soils. The aspects of the physical environment that could be affected by the activities associated with the proposed development will also be addressed. The scope of the assessment includes:

- An assessment of the existing Land, Soil and Geology features within approximately 2 km of the application area at the wind farm;
- An assessment of the potential impact of construction and operation of the proposed wind farm on Land, Soil and Geology including the peat soils; and
- Where necessary, recommendation(s) of mitigation measures to reduce or eliminate any potential impacts.
- An assessment of the potential impacts of the proposed grid connection route to Bellacorrick substation.



4.4.4 Assessment Methodology

A preliminary site visit has been undertaken in May 2023 to establish the constraints relating to the Land Soil and Geology and peat soils and also a preliminary round of peat depth probing was undertaken at the site.

A preliminary peat depth survey was undertaken at the site, this has been followed up by a Phase 2 assessment and Site Investigation works will also be undertaken. A Peat Landslide hazard Risk Assessment (PLHRA) report will be used to inform the scheme layout and design.

The assessment methodology to identify potential direct and indirect impacts to Land, Soils and Geology, associated with the proposed wind farm will be a qualitative risk assessment methodology in which the nature of the potential impacts will be described in terms of the character, magnitude, duration, probability and consequence of the impact and whether they are direct or indirect impacts.

The PLHRA report will be a quantitative assessment of the peat landslide risk at the site and the findings from the report will be used to inform the design and construction of the site including informing any mitigation measures around peat, if required.

The description of the potential impact will then be screened against the significance and sensitivity of the receiving environment to establish the overall significance of the potential impact (without mitigation). The classification of the impact significance will be determined using the matrix from the EPA Guidelines (2022).

The potential impacts will initially be assessed with no mitigation or design measures incorporated to reduce the risk, and any required mitigation measures will then be outlined.

4.4.5 Potential Impacts

The main potential impacts from the construction of the proposed Muingmore wind farm on Land, Soil and Geology will be around peat soils and their management during the construction process.

The PLHRA report will be used to inform the design of the proposed development and also inform any mitigation measures around peat stability and the management of peat during the construction phase. Measures will evolve over the design process in response to data and consultation. Measures adopted around peat are likely to include:

- Avoiding sensitive areas of peat soils;
- Manage peat excavations and the handling and storage of excavated peat material to ensure to mitigate any potential adverse impacts; and
- Development of a site peat management plan specifically for construction phase but also for the long term management of the peat during the life of the scheme.

Any changes in surface water runoff patterns could affect sensitive receptors such as peat. In conjunction with the hydro team, any assessment will seek to establish the current hydrology of any sensitive receptors and to develop design and mitigation measures.

4.4.6 Site Walkover and initial Investigation of Peat

Site walkover was carried out in February and May 2023 and an initial peat depth survey was undertaken also across the site. The initial survey identified areas of deep peat at the site in excess of 1.8m in thickness across the areas probed, and peat is present across the entire site.



4.4.7 Phase 2 Investigation of Peat Depth

Phase 2 peat investigation works were carried out in October 2023 and have confirmed peat depths across the site. An interpolation of the peat depth is shown in Figure 6.

4.4.8 Land

The land at the site is currently used for forestry. There is no record of peat extraction at the site, but it is possible that some may have taken place in the past.

The wind farm site development is in regional land area comprising blanket peat with some agriculture also. The land within site development boundary is encountered as mainly forest land on peat.

A small number of residential units are registered in closer surroundings, mainly along the local roads.

The ground elevation within the wind farm development site is ranging from circa 10 mAOD to 30 mAOD. Land is gently sloping gradually from the north east towards the south west and the sea.

4.4.9 Soils and Subsoils

The characteristic soils of County Mayo are described as peat. In addition, the soils within the whole subject site are encountered as peat.

The subsoils that are underlying the soils are massively encountered as Blanket Peat. There is no notable change in soils and subsoils, therefore, a significant thickness of peat, i.e. >1.8 m thickness was encountered at each prob location.

4.4.10 Geology

The local bedrock geology is characterised by metamorphic Annagh Division formation, underlying the wider surroundings from the development site. Annagh Division is described as foliated orthogneisses which is derived from granodioritic and granitic igneous precursors, all deformed into a variable degree, and metamorphosed and intruded by several ages.

Structural geology of the area indicates a single robust fold, i.e. an anticline. The anticlinal axis is intersecting the development site in north area and trending in NW to SE direction.

The closest geological fault is encountered approximately 4.3 km to the east from the centre of development site.

There are no GSI or County Geological Heritage Sites on or in the immediate vicinity of the site.

4.4.11 Likely Potential Impacts

The main potential impacts from the construction of the Muingmore wind farm have been identified as the following:

Impact on peat particularly during construction but also the long term management of excavated peat during the lifetime of the proposed development.

A number of designed-in measures will be considered to reduce the potential for impact on peat soils and subsoils. These will evolve over the design process in response to consultation. Measures adopted are likely to include:

- Avoiding sensitive areas of peat environment;
- Construction measures to minimise the impact on the peat environment;



- Minimising the amount of peat which requires excavation during construction;
- Peat Management Plan for the excavation, handling and storage of peat, including an emergency response plan.

Changes to the hydrology of the peat arising from construction.

The site is underlaid by peat. Assessment will seek to establish the current hydrology of this receptor and development of the wind farm will seek to maintain the existing hydrological regimes in order to mitigate any potential adverse impacts on peat.

4.5 Water

4.5.1 Introduction

An assessment of the potential effects of the Proposed Development on hydrology and hydrogeology will be included within the EIA within which the water environment will be considered.

4.5.2 Baseline

The following key guidelines apply to the hydrology and hydrogeology assessment:

- Institute of Geologists of Ireland. Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements, April 2013;
- National Roads Authority, 2008. Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;
- The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009): Office of Public Works and the Department of the Environment, Heritage and Local Government.; and
- EPA (May 2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

The following sources of information are being consulted for the Water baseline:

- Information from site walkover;
- Preliminary flood risk assessment (Stage 1 & 2) for the site and adjacent;
- GSI Groundwater Data Viewer - bedrock and gravel aquifers, vulnerability, water supplies, groundwater recharge;
- GSI Groundwater body description documents;
- Environmental Protection Agency water maps;
- Teagasc Irish Soils Information System mapping;
- Teagasc/GSI/EPA Subsoil Mapping;
- GSI Groundwater Data Viewer - Bedrock Geology;
- OSi Discovery Series mapping;
- Environmental Protection Agency Water Framework Directive data;
- Met Eireann; and



- Office of Public Works (OPW) Catchment Flood Risk Assessment Management (CFRAM) and National Indicative Fluvial Mapping (NIFM).

4.5.3 Scope of Assessment

The assessment will address impacts on hydrology and hydrogeology. The aspects of the water environment that could be affected by the activities associated with the proposed development will also be addressed. The scope of the assessment includes:

- An assessment of the existing water (hydrology and hydrogeology) at the site and within approximately 2 km of the application area;
- An assessment of the potential impact of construction and operation of the proposed wind farm on surface water and groundwater quality and quantity; and
- Where necessary, recommendation(s) for mitigation measures to avoid, reduce or eliminate any identified potential impacts on the water environment.

4.5.4 Assessment Methodology

A preliminary site visit has been undertaken in May 2023 to establish the constraints relating to the water environment and noting hydrological features. A preliminary flood risk assessment will be undertaken to assess the potential impact of flooding on the proposed development and the impact of the proposed development on downstream flooding in the catchment. The findings from the Flood Risk Assessment for the site will be used to inform the scheme layout and design.

The assessment methodology to identify potential direct and indirect impacts to surface water and groundwater associated with the proposed wind farm will be a qualitative risk assessment methodology in which the nature of the potential impacts will be described in terms of the character, magnitude, duration, probability and consequence of the impact, and whether they are direct or indirect impacts.

The description of the potential impact will then be screened against the significance and sensitivity of the receiving environment to establish the overall significance of the potential impact (without mitigation). The classification of the impact significance will be determined using the potential for significant effects matrix from the EPA Guidelines (2022).

The potential impacts will initially be assessed with no mitigation or design measures incorporated to reduce the risk, and any required mitigation measures will then be outlined.

4.5.5 Potential Impacts

The main potential impacts from the construction of the proposed Muingmore wind farm have been identified as the following:

- The generation of suspended solids in site runoff during construction that could enter the water environment;
- Pollution to local groundwater through turbine foundation construction.
- Storm water runoff management during the operation of the site;
- Change in flows at stream crossing points and potential bank erosion;
- Fuel handling and accidental spillages on site; and
- Waste water management at the site from offices and facilities during construction and operation.



A number of designed-in measures will be considered to reduce the potential for impact on sensitive receptors. These will evolve over the design process in response to consultation. Measures adopted are likely to include:

- Avoiding sensitive areas of soils and the water environment;
- Ensure essential infrastructure is located outside Flood Zones A and B at the site;
- Minimising the number of watercourse crossing points within the site;
- Plan for storage and handling of oils, fuel or any other potentially polluting substance; and
- An outline drainage plan.

Changes to surface water runoff patterns which could affect sensitive habitats such as peat. Assessment will seek to establish the current hydrology of any sensitive habitat and development of the wind farm will seek to maintain the existing hydrological regimes in order to safeguard any identified sensitive habitats.

There is the potential for local groundwater pollution through the turbine foundation construction. The baseline assessment will include a review of the underlying geology including groundwater and any local users of this resource or public supply source protection areas will be identified. Appropriate design will seek to safeguard groundwater quality through best practice measures to control any potential pollution vectors.

4.5.6 Site Walkover

Site walkover was carried out in May 2023 to establish the pattern of existing drainage and to record existing hydrology features of the wind farm site. The site walkover involved an initial review of available information gathered in the desk study. During the site visit, descriptions and photographs of hydrology features were recorded to develop a better understanding of hydrology and drainage process at the site.

4.5.7 Surface Water

The proposed Muingmore wind farm is located within Blacksod-Broadhaven catchment (ID 33). The An Mhoing Mhor and Doolough Stream form the northern boundary of the site. The streams run in the western direction where they ultimately discharge into the sea some 0.7km west of the site.

At the north-western part of the site there is a small unnamed stream running in the north-west direction which joins the Doolough Stream. At the central and southern part of the site there are five unnamed streams which run through the site and form the boundary.

The EPA database includes name and flow direction of all watercourses within Ireland. Small fields drains and handmade drains are not included in the database. During the site walkover it was noted that the peat bog drainage joins these streams.

The Doolough Stream drains into the Mullet/Blacksod Bay Complex SAC (ID 000470). The unnamed streams at the southern area of the site discharge into the Blacksod Bay/Broad Haven SPA (004037).

The EPA website contains information regarding water quality. There is one operational water quality monitoring station (RS33D020100) along the Doolough Stream located some 0.6 km downstream of the site. It is owned by Mayo County Council.

The receiving waters are classified as per Water Framework Directive (WFD). There are five categories of surface water status: 'High', 'Good', 'Moderate', 'Poor' and 'Bad'. In accordance with the Surface Water Regulations, water classified as 'High' or 'Good' must not be allowed to deteriorate. Water classified as less than good must be restored.



The river waterbodies risk is 'At Risk', and water quality status is 'Poor' for watercourses at the northern area of the site. The river waterbodies risk is 'Under Review', and water quality status is 'Good' for watercourses at the southern area of the site.

A 50 m standoff buffer should be applied to all surface water features, other than necessary stream/ / river / drain crossings. Any construction within this buffer will need to be assessed specifically in terms of potential impact on surface water.

Potential for habitat improvement is currently being examined.

4.5.8 Flooding

The Office of Public Works (OPW) is the government agency with statutory responsibility for flooding in Ireland. The National Indicative Fluvial Mapping (NIFM) is also shown on the OPW website, which shows high level (indicative) national flood mapping.

The definitions of Annual Exceedance Probability in The Planning Guidelines are as follows:

- Flood Zone A (<1% AEP 1:100yr);
- Flood Zone B (<0.1% AEP 1:1,000yr); and
- Flood Zone C (>0.1% AEP 1:1,000yr).

The OPW flood terminology and classification uses:

- High Probability (<10% AEP 1:10yr);
- Medium Probability (<1% AEP 1:100yr); and
- Low Probability (<0.1% AEP 1:1,000yr).

The NIFM identifies some minor flooding at the northern part of the site, close to the proposed turbines T1, T2 and T3. The proposed substations are located at the area identified as being at the low risk of flooding (Flood Zone C). According to the NIFM website, the north-western part of the site is in Flood Zone A and Flood Zone B.

According to the OPW historical flooding database, there are no recorded historical or recurring flood incidents within the site. The closest recorded historical flood incident is approximately 4.8 km north of the site..

4.5.9 Hydrogeology

The aquifer underlying the study area is classified by the GSI as Poor Aquifer (PI), which is bedrock which is generally unproductive except for local zones. This refers to the Annagh Divion (undifferentiated) bedrock of foliated orthogneisses.

The Groundwater Body (GWB) is the management unit under the Water Framework Directive (WFD). The study area is underlain by the Belmullet Groundwater Body

The subsoils are detailed in the Land, Soils and Geology section. Briefly, the GSI subsoils map shows the proposed site underlain by Blanket Peat.

4.5.10 Groundwater Vulnerability

The site is classified by the GSI as having a groundwater vulnerability of "Low" to "Moderate". All the proposed turbines, except turbine T1, are located at the area classified as "Moderate".



4.5.11 Groundwater Supply Wells

The GSI database does not have a record of groundwater supply wells in the area, there are also no group schemes and public supply source protection area in the wider area.

4.5.12 Likely Potential Impacts

The main potential impacts from the construction of the Muingmore wind farm have been identified above under Potential Impacts.

A number of designed-in measures will be considered to reduce the potential for impact on sensitive receptors. These will evolve over the design process in response to consultation. Measures adopted are likely to include:

- Avoiding sensitive areas of soils and the water environment;
- Minimising watercourse crossing points;
- Plan for storage and handling of oils, fuels or any other potentially polluting substances, including an emergency spill response plan; and
- Outline drainage plan.

Changes to surface water runoff patterns which could affect sensitive habitats such as peat.

The site is underlaid by peat. Assessment will seek to establish the current hydrology of any sensitive habitat and development of the wind farm will seek to maintain the existing hydrological regimes in and around the peat in order to safeguard these habitats and ecosystems..

Pollution to local groundwater through foundation development.

The baseline assessment will include a review of the underlying geology including groundwater and any local users of this resource or public supply source protection areas will be identified. Appropriate design will seek to safeguard groundwater quality through best practice measure to control any potential pollution vectors.

4.5.13 Water Framework Directive Assessment

A Water Framework Directive Assessment report will be required for the proposed development. The assessment will be a standalone report which will assess the baseline status and risks to the surface water and groundwater under the current WFD cycle and will assess the impact of the proposed development in relation to the objectives of the Directive.

4.6 Air Quality & Climate

An assessment of the potential effects of the Proposed Development on air quality will be included within the EIAR. The assessment will address the potential impacts on air quality arising from traffic and construction equipment during the construction phase. The potential impacts on air quality in the operational phase will also be addressed.

In terms of micro-climate, the proposed development is in a mainly rural area, corresponding to air quality Zone D, Rural Ireland, in the Air Quality Regulations (SI 180 of 2011), as amended. The air quality is expected to be good. The macro-climatic baseline is the future emission of CO₂ and other greenhouse gases, which would be produced by fossil fuel power generation in the country, in the absence of the proposed development. The potential impacts of the proposed development on microclimate and macro climate will be addressed.



4.6.1 Baseline

The location of the proposed development is within the air quality zone D within rural Ireland. The air quality is expected to be good. The proposed development site is partially located within an area of commercial forestry and predominately within commercial peat extraction area. The site has a number of access points onto the public road, however internal access to traffic is limited. The nearest air quality monitoring station in Zone D is located in Castlebar, Co. Mayo c. 50 km southeast of the Proposed Development.

4.6.1.1 Dust Impacts

The assessment of dust and PM₁₀ from construction activities will be carried out using a semi-qualitative methodology published by the Institute of Air Quality Management (IAQM). Where required, recommendations for mitigation measures to minimise dust and PM₁₀ impacts during construction of the facility will be included in the EIAR Chapter.

4.6.2 Scope of assessment

The assessment will address the potential impacts on air quality due to the construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The climate in the immediate local area of a proposed development is known as the micro-climate whereas the climate of a large geographical area (global) is the macro-climate. The potential impacts of the proposed development on micro-climate and macro-climate will be addressed.

The air quality assessment will include:

The following issues are addressed separately:

- Relevant legislation, standards and guidance.
- Baseline conditions pertaining to measured (or estimated) existing air quality levels around the proposed site footprint.
- Methodology used to assess the potential impacts of planned activities on air quality.
- Assessment of the impacts.
- Description of mitigation measures that are incorporated into the construction, design and operation of the proposed development to eliminate or reduce the potential for increased air quality impacts (if required).
- Summary of any residual impacts and reinstatement.
- Summary of cumulative impacts.

4.6.3 Assessment Methodology

Air quality monitoring conducted by the EPA at zone D locations in the vicinity of the site will be reviewed and levels compared with the air quality standards. To assess the impacts of construction dust emissions, the approach and assessment criteria outline in the Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (NRA, 2011) will be used.

For the purposes of assessing the impact on air quality of emissions generated by construction traffic, the methodology described in the Design Manual for Roads and Bridges 2007a (UK Highways Agency, May 2007) will be used. Parameters to be assessed will include oxides of nitrogen, particulates PM₁₀ and PM_{2.5}, carbon monoxide and benzene.

The potential micro-climatic impacts of the proposed development will be assessed in relation to the micro-climatic baseline, the scale of the elements of the project and the nature



of use of the surrounding environment. For the assessment of macro-climatic effects, the emissions of carbon dioxide (CO₂) and other greenhouse gases from fossil fuel power generation, which will not be required should the proposed development become operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

In terms of carbon losses and savings, the Scottish Windfarm Carbon Assessment Tool will be used to estimate carbon savings and life cycle assessment of the proposed construction and operation of the wind farm.

4.6.4 Likely Significant Effects

The assessment will address the likely potential impacts on air quality due to construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The construction phase of the proposed development has the potential to generate dust emissions, which could give rise to nuisance for residents.

To assess the impacts of construction dust emissions, the approach and assessment criteria outlined in the Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (National Roads Authority, 2011) will be used.

Construction plant, equipment and the traffic generated by the construction process, have the potential to give rise to emissions of oxides of nitrogen, benzene and particulates, which could impact on local air quality. The operation of the proposed development is not expected to have a negative impact on air quality.

The proposed development is expected to have a positive impact in terms of the net reduction in emissions of CO₂ and other greenhouse gases as a result of the proposed wind farm. For the assessment of macro-climatic effects, the reduction in emissions of CO₂ and other greenhouse gases from fossil fuel power generation when the proposed development is operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

4.7 Landscape

4.7.1 Introduction

The purpose of this section is to describe the scope of work and methods to be applied in the identification and assessment of landscape and visual impacts associated with the proposed Muingmore Wind Farm.

4.7.1.1 Plan Policy & Context

The European Landscape Convention promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. The Convention was adopted on the 20th October 2000 and came into force on the 1st March 2004. The Convention was ratified by Ireland in 2002. As one of the obligations under the convention, a draft National Landscape Strategy was issued for public consultation by the *Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs*, (formally the Department of Art, Heritage and the Gaeltacht in July 2014. Following consideration of submissions, The 'National Landscape Strategy for Ireland 2015-2025' was published in mid-2015 by the Department of Arts, Heritage and the Gaeltacht.

One of the key objectives of the National Landscape Strategy, and a requirement of the European Landscape Convention, is to prepare a National Landscape Character Assessment



(LCA). However, this is not likely to be prepared prior to the submission of the planning application. On this basis, county level Landscape Character Assessments for County Mayo (contained within the respective County Development Plan) will be a key consideration. In all cases, these Landscape Character Assessments have also been integral to the development of wind energy strategies / policy contained within the CDP.

Wind Energy Development within the Republic of Ireland is undertaken in accordance with the Department of the Environment, Heritage and Local Government *Wind Energy Development Guidelines for Planning Authorities* (2006/2019 revision). Recommendations on the siting and design of wind energy developments are provided in Chapter 6 of the current / draft revised Guidelines based on six potential landscape character types. The proposed development is considered to be most associated with the 'Transitional Marginal Landscapes' 'Mountain Moorland' landscape types, whilst elements of the 'Hilly and Flat Farmland' landscape type are also noted throughout the study area. This guidance will be a key consideration of the landscape and visual assessment.

The Landscape and Visual Assessment of Muingmore Wind Farm will be undertaken in strict accordance with the Landscape Institute and the Institute of Environmental Management and Assessment publication entitled '*Guidelines for Landscape and Visual Impact Assessment*' – Third Edition (2013). This is recognised as the principal best practice guidance for landscape and visual assessment of all forms of development in Ireland and the UK.

Regard will also be given to the overarching Environmental Impact Assessments guidelines and advice notes set out by the EPA:

- Environmental Protection Agency (EPA) Guidelines on the Information to be contained in the Environmental Impact Assessment Reports (2022)

Other relevant LVIA and wind energy specific guidance that will be considered includes;

- NatureScot Siting and Designing Wind Farms in the Landscape (version 3a – 2017)
- NatureScot Assessing the Cumulative Impact of Onshore Wind Energy Developments (2012).
- NatureScot Visual representation of wind farms: Best Practice Guidelines (version 2.2 - 2017).

The most relevant landscape and visual policies with regard to the proposed wind farm development are contained with the County Development Plan for County Mayo.

4.7.2 Study Area

The Wind Energy Development Guidelines published by the Department of the Environment, Heritage and Local Government (2006) specify different radii for examining the Zone of Theoretical Visibility of proposed wind farm projects ('ZTV'). The extent of this study area is influenced by turbine height as follows:

- 15 km radius for blade tips up to 100 m;
- 20 km radius for blade tips greater than 100 m; and
- 25 km in order to incorporate features of national or international renown.

In the case of this project, the blade tips will be over 100 high and, thus, the minimum ZTV radius required is 20 km from the outermost turbines of the proposed development. It is not considered that there are any features of 'national or international renown' between 20km and 25km of the site and thus, the study area will remain at a consistent 20km radius from the proposed turbines.



4.7.3 Sensitive Receptors

Sensitive landscape and visual receptors will be identified during baseline studies and fieldwork and will consist of both designated (highly sensitive landscape zoning / scenic views in the CDP) and non-designated receptors. Visual receptors will be selected from the following categories;

- Designated scenic routes / views (CDP)
- Local Community views (roads and residences within approximately 5km)
- Centres of Population
- Major Transport Routes
- Amenity, Heritage and Tourism locations

4.7.4 LVIA Assessment Methodology

4.7.4.1 Desk Study

The desktop study will comprise of the following:

- Review of a Zone of Theoretical Visibility (ZTV) map, which indicates areas from which the development is potentially visible in relation to terrain within the Study Area;
- Review of relevant County Development Plans, particularly with regard to sensitive landscape and scenic view/route designations;
- Online review of tourism, recreational and heritage features within the study area that may be potential visual receptors.
- Selection of potential Viewshed Reference Points (VRPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity;
- Preparation of an initial VRP selection report and associated map for consultation purposes (Planning Authorities).

4.7.4.2 Fieldwork

- Select a refined set of VRP's for assessment.
- Record a description of the landscape elements and characteristics within the Study Area generally and also within view from each VRP.
- Capture high quality base photography from which to prepare photomontages of the proposal.

4.7.4.3 Impact Assessment

The assessment of landscape effects involves establishing the landscape baseline. This includes consideration of the geographic location and landscape context of the proposed wind farm site as well as the essential landscape character and salient features of the wider Study Area and is discussed with respect to; landform and drainage and; vegetation and land use. The visual baseline is more population based, but still overlaps with elements of the landscape baseline. The visual baseline is discussed in relation to; centres of population and houses; transport routes and; public amenities and facilities. Once the baseline environment is established an assessment of the potential significant effects associated with the proposed development will be carried out. In accordance with the Guidelines for Landscape and Visual



Impact Assessment (2013), the method for estimating the significance of landscape impacts and visual impacts is very similar. This is summarised in the diagram below;

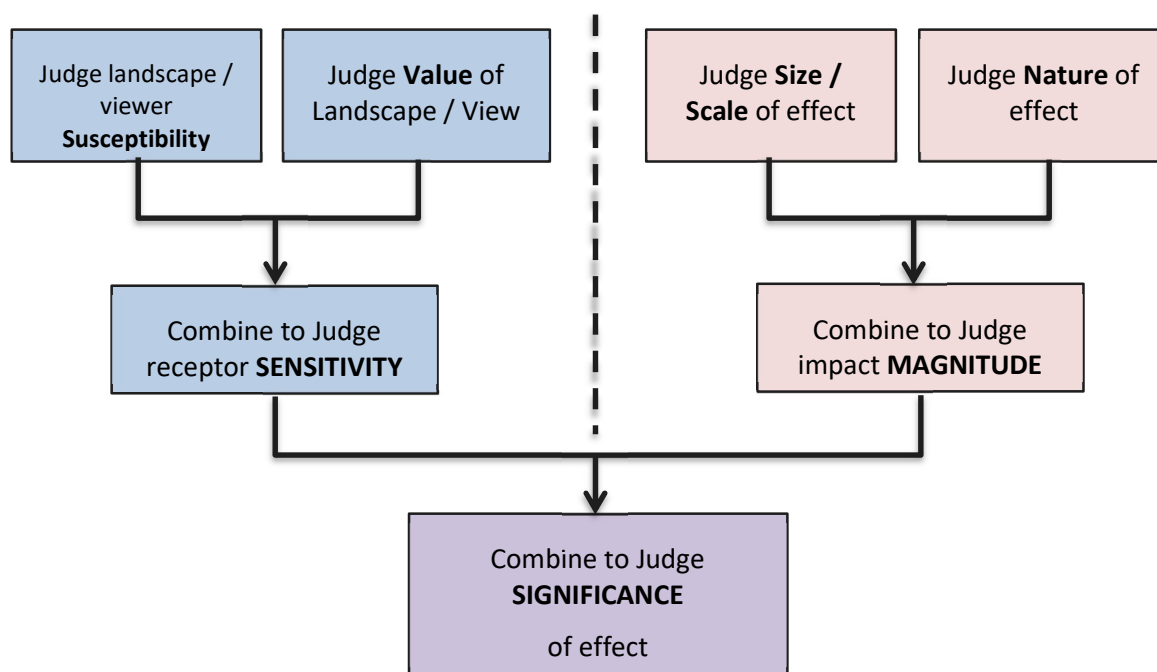


Figure 4-3 Method for assessing Landscape Impact significance and Visual Impact Significance (based on GLVIA – 2013)

LVIA Assessment tools / Techniques

Design Stage Wireframe Montages

Wireframe montages, which consist of spatially accurate but un-rendered (usually blue) turbines can be quickly prepared and used to examine visual impacts and particular the aesthetics of the turbine arrangement from key views. The layout can then be adjusted and re-examined in the same manner until an optimal design is achieved.

Photomontages

Photomontages are photo-realistic depictions of the proposed development superimposed on baseline photography at selected receptor/viewpoint locations. The photomontages will be fully compliant with the most recent NatureScot guidelines (2014).

In the case of the proposed Muingmore Wind Farm, it is anticipated that approximately 30 no. viewpoints will be required overall. It is imperative that base photography is captured in the clearest of viewing conditions.

4.7.5 Assessment of Potential Impacts

Overall, there is potential for short range (0-5km), mid-range (5-15km) and long range (15km+) views of the development, but with the highest potential for significant landscape and visual impacts to occur for short range views, where these might coincide with highly sensitive receptors such as the scenic routes to the west of the site, and in the immediate surrounds of the coastline. Views of the proposed development from beyond 20km, though feasible, could only occur from elevated vantage points and in very clear viewing conditions. At such



distances, any visual impacts from the proposed development are not considered to have potential for significant effects even at highly sensitive receptor locations.

Potential landscape and visual impacts could also occur in respect of ancillary development such as access roads, hard stands, and grid connection.

4.7.6 Cumulative Effects

Cumulative effects have the potential to be generated from a number of viewpoints in combination with other wind farms in the area. A Zone of Theoretical Visibility (ZTV) map will be produced for the EIAR showing the potential cumulative visibility of the Development together with the other wind farms in the area. Cumulative photomontages will be prepared from all viewpoints. The most notable cumulative development in relation to the proposed Muingmore Wind Farm is Bunnahowen Wind Farm three turbines and is located some c. 5km north of the site. A cluster of existing and consented turbines is also located in the wider northeast quadrant of the study area.

4.8 Cultural Heritage

4.8.1 Aspects to be Addressed

The assessment will address features and sites of archaeological, architectural and cultural heritage significance. The purpose of the study will be to assess the significance of the receiving cultural heritage environment and to identify and evaluate the significance of the impact of the proposed wind farm on the sensitivity of each cultural heritage feature within this environment and on the broader historic character of the landscape. Measures will be proposed to mitigate effects (where possible) so as to allow a fully informed decision to be made by the adjudicating authority.

4.8.2 Assessment Methodology

The assessment will comprise of a desk study. This will complement the results of an archaeological walkover that has already taken place and will be used to inform the study.

Desk Study

A review of the following information will be carried out to inform the cultural heritage assessment report:

- A review and collation of information obtained from public and statutory consultees, for example the Record of Monuments and Places (RMP) (Including National Monument in State Care, NIAH, and landscape characterisation).
- A review of the Record of Protected Structures and Architectural Conservation Areas (ACA's) in the Mayo County Development Plan.
- A review of the National Inventory of Architectural Heritage (NIAH) building survey sites, NIAH historic gardens and designed landscapes survey sites.
- A literature review of published and key references appropriate to the wind farm including material from local interest groups and historical and archaeological societies.
- Collation of information from similar or other infrastructure projects in proximity to the proposed wind farm, for example EISs, SEAs, conservation plans, archaeological test



assessments and excavations (including the Database of Irish Excavations) Cartographic sources.

- A review of place names and Gaeltacht areas.
- Other documentary sources.
- A review and interpretation of aerial photographs to be used in combination with historic mapping to map potential cultural heritage assets.
- A review of existing guidelines and best practice approach will be undertaken.

4.8.3 Impact Methodology

- *Assessment Of Heritage Significance*

Significance

To allow for a detailed, justifiable, and intelligible determination of cultural impact; it is necessary to establish a consistent terminology for discussing the importance of heritage assets. This is referred to variously across the heritage statute, policy, and guidance documentation, including 'importance', 'interest', 'significance', 'special interest' and 'character' amongst others. For the purposes of this assessment, the term 'significance' has been used consistently hereafter.

The Framework and Principles for the Protection of the Archaeological Heritage, which relates specifically to archaeology, provides the following:-

"Any material remains which can contribute to understanding past societies may be considered to have an element of archaeological significance... Archaeological significance or interest may also be seen in terms of the potential for sites, monuments or artefacts to enable people to experience directly the evidence for past societies and through this allow them to better understand and appreciate their own past."

A more detailed approach is provided within Architectural heritage protection: guidelines for planning authorities, which conceives of heritage significance as deriving from the following categories of 'special interest':-

- Architectural;
- Historical;
- Archaeological;
- Artistic;
- Cultural;
- Scientific;
- Technical; and
- Social.

This guidance, which derives principally from the terms of the Granada Convention, makes the further point that these categories are not mutually exclusive, such that an asset might derive its significance from one, multiple or all these interests.

In accordance with this guidance, the significance of the heritage assets to described within the assessment will be discussed in terms of these contributing interests, enabling consistent, detailed, justifiable, and intelligible determinations of heritage significance to be made.



Table 4-1 shows the potential levels of the heritage significance of an asset related to designation, status and grading, and where non-designated, to a scale of highest to negligible importance. This table acts as an aid to consistency in the exercise of professional judgement and provides a degree of transparency for others in evaluating the conclusions to be reached by the proposed assessment.

Table 4-4-4: Levels of Significance regarding Designated Heritage Assets

Heritage Significance	Explanation
Highest	Sites of international importance, including:- <ul style="list-style-type: none"> • World Heritage Sites;
High	Site of National importance, including:- <ul style="list-style-type: none"> • National Monuments, including those recorded on the Sites and Monuments Record (SMR) • Nationally Important assets recorded in the National Inventory of Architectural Heritage (NIAH)
Medium	Sites of Regional importance, including:- <ul style="list-style-type: none"> • Sites on the Record of Monuments and Places, found within the relevant County Development Plan • Regionally Important assets recorded in the National Inventory of Architectural Heritage (NIAH)
Low	Sites of minor importance or with little of the asset remaining to justify higher importance. Locally Important assets recorded in the National Inventory of Architectural Heritage (NIAH)
Negligible	Negligible or no heritage significance
Unknown	Further information is required to assess the significance of these assets.

Magnitude of Impact

Determining the magnitude of any likely impacts requires consideration of the nature of activities proposed during the period of continued operation of the wind farm.

The changes could include direct change (e.g., ground disturbance), and indirect change (e.g., visible change, noise, vibration, traffic movements affecting the setting of the asset). Impacts may be beneficial or adverse and may be short term, long term or permanent. The magnitude of impact will be assessed with reference to the criteria set out in Table 4-1. The magnitude of both beneficial and adverse impact will be assessed according to the scale of impact, from high to neutral/none.

Table 4-4-5: Magnitudes of Impacts upon Designated Heritage Assets

Magnitude of Impact	Explanatory criteria
High Beneficial	The proposed development would considerably enhance the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.



Magnitude of Impact	Explanatory criteria
Medium Beneficial	The proposed development would enhance to a clearly discernible extent the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The proposed development would enhance to a minor extent the heritage significance of the affected asset, or the ability understand, appreciate, and experience it.
Very Low Beneficial	The proposed development would enhance to a very minor extent the heritage significance of the affected asset, or the ability understand, appreciate, and experience it.
Neutral/None	The proposed development would not affect or would have harmful and enhancing effects of equal magnitude on the heritage significance of the affected asset, or the ability to understand, appreciate, and experience it.
Very Low Adverse	The proposed development would erode to a very minor extent the heritage significance of the affected asset, or the ability understand, appreciate, and experience it.
Low Adverse	The proposed development would erode to a minor extent the heritage significance of the affected asset, or the ability to understand, appreciate, and experience it.
Medium Adverse	The proposed development would erode to a clearly discernible extent the heritage significance of the affected asset, or the ability to understand, appreciate, and experience it.
High Adverse	The proposed development would considerably erode the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.

Significance of Impact

Table 4-4 provides a matrix that relates the heritage significance of the asset to the magnitude of impact on its significance to establish the likely overall significance of effect. This assessment is undertaken separately for direct effects and indirect effects, the latter being principally concerned with effects through development within the setting of heritage assets. Those assets which the matrix scores as Profound would be considered as receiving a significant effect.

Table 4-4-6: Significance of Effects

Significance	Description
Profound	The development would destroy all characteristics which are intrinsic to the asset.



Significance	Description
Very Significant	An effect which, by its character, magnitude, duration, or intensity significantly alters most of a sensitive aspect of the environment.
Significant	The development would create an effect on a designated asset which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment
Moderate	An effect which alters the character of the environment in a manner that is consistent with existing or emerging trends
Slight	The development would not have an effect that causes noticeable changes in the character of the environment but without affecting its sensitivities
Not Significant/ Imperceptible	The development would have no effect which causes noticeable changes in the character of the environment but without significant consequences

Table 4-4-7: Methodology to measure Significance of Effect

Magnitude of Impact	Heritage Significance (excluding negligible and unknown)			
	Highest	High	Medium	Low
High beneficial	Profound	Profound	Very Significant	Significant
Medium beneficial	Profound	Very Significant	Significant	Moderate
Low beneficial	Very Significant	Significant	Moderate	Moderate
Very low beneficial	Significant	Moderate	Slight	Slight
Neutral/None	Not Significant/ Imperceptible	Not Significant/ Imperceptible	Not Significant/ Imperceptible	Not Significant/ Imperceptible
Very low adverse	Significant	Moderate	Slight	Slight
Low adverse	Very Significant	Significant	Moderate	Moderate
Medium adverse	Profound	Very Significant	Significant	Moderate
High adverse	Profound	Profound	Very Significant	Significant

4.8.4 Zone of Theoretical Visibility (ZTV) Analysis

The assessment of visual impact will be assisted by a ZTV calculation, prepared principally for landscape and visual impact assessment. The ZTV maps predict the degree of visibility of the proposed development from points within a study area around the site, as would be seen from an observer's eye. The ZTV model will be used to inform the likely effects on the setting of cultural heritage assets within the study area. The study area is defined as 10km from the proposed development site boundary.

The ZTV is theoretical because it is based on landform only and does not take into account the screening or filtering effects of vegetation, buildings or other surface features, and in that respect is likely to provide an overestimate of the actual visibility.



Assets that fall outwith the ZTV are excluded from further assessment, except where a view is identified which includes the heritage asset and the wind turbines, and where that view may enable appreciation of the assets' heritage significance.

4.8.5 Cumulative Effects

Other wind energy developments within 10km of the Site affecting a common adversely effected heritage receptor will be considered. These will comprise foreseeable projects that have been given planning consent, have an active planning application or are undergoing a planning appeal. Cumulative effects will be assessed with regard to assets that have been assessed as receiving an adverse impact from the proposed Development. Operational wind farms are considered as part of the baseline assessment.

4.8.6 Mitigation

A statement of proposed mitigation of the identified impacts will follow the assessment. Embedded mitigation will be through design: avoidance of direct impacts on heritage assets, e.g., through micro-siting.

4.8.7 Residual Effects

A statement of the residual effects will be provided following consideration of any further site-specific mitigation measures such as archaeological watching briefs, where these have been identified.

4.8.8 Receiving Environment

An overview of available data accessed on the Historic Environment Viewer (Government of Ireland) has been undertaken, and walkover survey completed in April, 2023, in order to set out predicted impacts (Section 4.7.9) which would be further assessed within the Environmental Impact Assessment. The wider landscape in which the windfarm is located has a moderate level of prehistoric activity and onward. Mount Jubilee to the east of the Site has recorded prehistoric activity in the form of a megalithic tomb (MA026-002001), still extant within a pasture field.

Later activity recorded within the Site includes two recorded Crannogs, (MA025-004 and MA025-003) and a third outlying the Site boundary (MA025-005). These typically date between the 6th - 17th century.

The majority of other historic activity is primarily post-medieval agricultural and architecture.

Later activity continues to be rural in character with the primary land use as agricultural with small clusters of settlement. Saint Columkille's Catholic Church (Reg.No. 31302501, designated within the National Inventory of Architectural Heritage), located 0.7km to the south of the Site boundary in the small settlement of Gweesalia.

The landscape within the Site and within 1km is primarily drained lowland, comprising of regular drainage ditches through wet moorland, used for a mixture of livestock and plantations. The low-lying relatively flat land in which the Site is located is proximate to the coast to the west, and hills to the east and north. No other assets within the wider landscape is predicted to be susceptible to changes to their contributing aspects of setting, and therefore they have been excluded from further assessment.

4.8.9 Potential Impacts

Assets where key consideration will be given to the potential impact on the integrity of the monument are as follows:



- Direct and in-direct impacts - the recorded crannogs within the Site (MA025-004 and MA025-003) and further unknown potential archaeological remains of prehistoric to post medieval date which may be present within the boundary of the Site.
- In-direct impact- Megalithic Tomb (National Monument Number: MA026-002001), comprising a prehistoric burial feature, located c.1.3km to the east of the Site, upon the northwest slopes of Mount Jubilee, typically dating between 4000 and 3500 BC. Scoped in due to potential impacts upon its setting within views to the west.
- In-direct impact - Saint Columkille’s Catholic Church (Reg.No. 31302501, designated within the National Inventory of Architectural Heritage), an early 20th century church of architectural, artistic, historical, social and technical interests, located c.0.7km to the south of the Site.

4.8.10 Matters Scoped Out

On the basis of the work undertaken to date, the professional judgement of the cultural heritage team, and experience from other similar projects, it is considered that indirect and cumulative impacts of the proposed development on assets not listed in section 4.7.9 can be scoped out of further assessment.

It is also requested that assets that fall out the ZTV, and where the assets approach does not fall within the ZTV, scoped out of further assessment.

4.8.11 Questions for consultees:

- Do consultees agree with the methodology set out?
- Do consultees agree with assets and matters scoped out?
- Are there any assets, not specifically named in the section 4.7.9, that key consideration should be given to?
- Do consultees have any specifications on visualisations and their locations?

4.9 Noise & Vibration

An assessment of the potential effects arising from operational and construction noise impacts of the Proposed Development will be included in the EIAR.

4.9.1 Baseline

A baseline noise survey was carried out between 19 May 2023 and 16 June 2023 at a total of seven locations around the Proposed Development to inform the assessment. In line with current best practise, noise data measured at one location may be used as a proxy to be representative of other assessment locations. Figure 7 illustrates the Noise Measurement Locations (NML) and Table 4-8 provides details of the locations.

Table 4-8 Background Noise Survey Locations

ID	Eircode	X (ITM)	Y (ITM)
NML1	F26V2N7	479025	823003
NML2	F26K2R6	478224	822158
NML3	F26X397	477342	820971



ID	Eircode	X (ITM)	Y (ITM)
NML4	F26E1C7	475628	821141
NML5	F26H9Y3	475576	822370
NML6	F26TR74	474513	824180
NML7	F26YN24	474781	824594

Noise was logged every ten minutes together with the corresponding wind speed measured on site during the simultaneous period using a LiDAR unit. Wind speed data at the height of the hub of the proposed turbines will be standardised to a 10 m value using a reference ground roughness length of 0.05m, in accordance with current best practise.

Periods of rain and extraneous noise will be excluded, and remaining data will be sorted into quiet daytime and night-time (23:00 to 07:00) periods. Quiet daytime periods are weekdays between 18:00 and 23:00, Saturdays between 13:00 and 23:00 and all day on Sundays (07:00 to 23:00), as defined in ETSU-R-97 “The Assessment and Rating of Noise from Wind Farms”.

4.9.2 Scope of Assessment

The assessment will address the potential impacts on noise due to the construction and operational phases of the Proposed Development.

The noise assessment will include:

- an assessment of noise generated during onsite construction activity;
- an assessment of changes in road traffic noise as a result of construction vehicles; and
- an assessment of the overall operational noise level from the Proposed Development.

The following is proposed to be scoped out of the assessment:

- an assessment of cumulative noise impacts as the nearest large-scale turbines have been identified as those at Bunnahowen Wind Farm, situated over 4.5 km north of the Proposed Development. At such a distance there would be no likely significant noise effects;
- low frequency and infrasound, as is current best practice, no evidence of health effects as a result of these from wind turbines;
- amplitude modulation, including ‘excess amplitude modulation’ and ‘other amplitude modulation’, in line with the Institute of Acoustics Good Practice Guide, is not something that can be adequately assessed at the planning stage;
- noise associated with traffic during the operation of the proposed development, as this is likely to be low and not significant in the context of the existing road network; and
- vibration effects as a result of construction and operational activities and associated traffic, as is recognised that it is likely to be imperceptible at the typical separation distances.



4.9.3 Assessment Methodology

The measured baseline environment will be determined by plotting the background noise levels as a function of site wind speed at the nearest neighbours, (or at a representative sample of the nearest neighbours).

The ETSU-R-97 recommendations provide a robust basis for assessing the noise implications of an operational windfarm and have become the accepted standard for such developments within the ROI. This methodology will therefore be adopted for the assessment of operational noise impact. In summary, the assessment shall:

- determine the quiet daytime and night-time criterion curves from the measured background noise levels at the nearest neighbours;
- specify the type and noise emission characteristics of the wind turbines proposed for the site;
- calculate noise emission levels due to the operation of the wind turbines as a function of site wind speed at the nearest neighbours; and
- compare the calculated wind farm noise emission levels with the derived criterion curves and assess in the light of relevant planning requirements.

At present the current guidelines against which wind turbine noise should be assessed is the 2006 Wind Energy Development Guidelines. This will form the basis for the determination of appropriate noise limits. In addition, Draft Wind Energy Development Guidelines were published by the Department of Housing, Planning and Local Government (DoHPLG). These guidelines are currently under review and are yet to be adopted, with further revisions to the text, including noise guidance anticipated. Until such a time as these guidelines are re-published for public consultation, the 2006 guidelines remain in place. The lack of adoption and as the noise assessment section of the draft guidelines are not considered best practice, means that they will not be applied in this assessment.

In assessing the impact of construction noise and vibration, it is usual to accept that the associated works are of a temporary nature. The principal guidance on construction noise is contained in BS5288-1:2009+A1:2014 "Code of Practice for Noise and Vibration Control on Construction and Open Sites". Likely construction noise levels will be calculated in accordance with BS5228-1 and assessed against criteria developed from this standard.

4.9.4 Likely Significant Effects

During windfarm construction, noise can arise from both on-site activities such as the construction of access tracks, turbine foundations, substation buildings etc., and from the movement of construction related traffic both on-site and travelling on public roads to and from the site.

During their operation, windfarms have the potential to generate aerodynamic noise and mechanical noise. Aerodynamic noise is caused by the interaction of the turbine blades with the air. Mechanically generated noise is caused by the operation of internal components, such as the gearbox and generator, which are housed within the nacelle of the turbine. However, the level of mechanical noise radiated from current technology wind turbines is generally engineered to a low level.



4.10 Shadow Flicker

4.10.1 Introduction

Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate the shadow cast flicks on and off, with the resulting effect being known as 'shadow flicker'. In accordance with Irish Wind Energy Guidance, only properties at a distance of less than 10 rotor diameters from a turbine will be assessed for shadow flicker.

Where properties meet these criteria, and there is therefore a potential for a shadow flicker effect, the seasonal duration of the effect will be calculated from the geometry of the turbine, and the latitude of the site and this will be used to assess potential impacts on the amenity of local residents. The potential for shadow flicker effects to occur would be calculated using ReSoft WindFarm software. This software calculates times throughout a year when a turbine rotor viewed from the window of a house is in line with the sun and therefore the potential for shadow flicker exists, by modelling the location of the wind turbines and residential properties relative to the sun's position.

4.10.2 Baseline

The proposed development is located in a rural area and there are a number of properties within 10 rotor diameters of the proposed turbine locations. A full shadow flicker model and assessment will therefore be required.

4.10.3 Scope of Assessment

The effect known as "shadow flicker" occurs where the rotating blades of a wind turbine cast a moving shadow which, if it passes over a window in a nearby house or other property, results in a rapid change or flicker in the incoming sunlight. This effect will occur only for a short period during a given day and only under specific concurrent circumstances, namely when:

- The sun is shining relative to the position and distance of the receptor to the turbine and the size of the rotor.
- There is sufficient direct sunlight to cause shadows (cloud, mist, fog or air pollution could limit solar energy levels).
- A turbine is directly between the sun and the affected property and within a distance that the shadow has not diminished below perceptible levels.
- There is enough wind energy to ensure that the turbine blades are moving.

Generally only properties within 130 degrees either side of north, relative to the turbines, can be affected at these latitudes in Ireland - turbines do not cast long shadows on their southern side.

4.10.4 Assessment Methodology

A shadow flicker assessment will be carried out using ReSoft Windfarm software (version 5.0.1.2) to predict the time and duration of shadow flicker on windows of habitable or permitted houses within 10 rotor diameters from a proposed turbine, as informed by the house and planning surveys.



The methodology used for the shadow flicker assessment will be performed in consideration of the “Wind Energy Development Planning Guidelines” DoEHLG (2006)¹⁷ and the Irish Wind Energy Association (2012) “Best Practice Guidelines for the Irish Wind Energy Industry”.

This methodology includes:

- Calculation of sunshine factor based on the historical measurements from the closest Met Éireann meteorology station.
- Calculation of shadow flicker levels for the final turbine layout.
- Where exceedances are predicted, detailed mitigation measures, including an outline potential turbine shutdown will be proposed.

Cumulative impacts of the proposed development and other schemes will be assessed. IWEA Best Practice Guidelines (2012, Section 6.3.4) states that “any such wind farm developments within 2 km of the proposed development should be considered in a separate cumulative shadow flicker assessment”. There are no other known proposed, consented or existing wind farms within this distance of the proposed development and so it is proposed that cumulative shadow flicker be scoped out at this stage.

Based on latest draft guidelines, a demonstration of the potential for the development to comply with zero shadow flicker and a curtailment analysis to demonstrate potential downtime will also be provided.

4.10.5 Likely Significant Effects

For shadow flicker to occur, a number of conditions must be reached:

- That there is a sufficient level of sunlight relative to the position and distance of the receptor to the turbine and the size of the rotor.
- That the turbine is directly between the sun and the dwelling.
- That the blades are turning.

This assessment follows the Wind Energy Development Guidelines (2006). The guidelines state that:

‘It is recommended that shadow flicker at neighbouring offices and dwellings within 500 m should not exceed 30 hours per year or 30 minutes per day.’ Muingmore Wind Farm Limited will abide by this requirement.

4.11 Traffic

This section considers the scope of work required to assess the potential significant effects associated with traffic during the construction and operational phases of the Proposed Development.

The access route for abnormal loads has been considered in by Pell Frischmann, through a series of swept path analysis drawings dated July 2023. It is assumed that Pell Frischmann will use this information to prepare a Turbine Delivery Route (TDR) report. The report will be

¹⁷ It is acknowledged that the 2006 Wind Energy Development Guidelines are currently being revised. A draft version of the replacement Wind Energy Development Guidelines (WEDGs) was published in December 2019. The consultation period has now closed, and the final version is awaiting publication.



prepared to identify the potential issues associated with the transport of abnormal indivisible loads (AILs), identifying specific locations of concern and highlighting any remedial works required to facilitate AIL delivery. The route from the Port of Killybegs is assessed, to include the R263, N56, N15, N4, N59, R313 and L1206.

The swept path demonstrate that the turbine components can be transported to site with a series of accommodating works in various locations. There is also a blade transfer location close to the N4/N59 junction. The findings from the Route Survey Report will be referenced within the EIAR.

4.11.1 Environmental Baseline and Potential Sources of Impact

4.11.1.1 Scope of Study and Study Area

An assessment is required to evaluate the effects of the Proposed Development and to determine the scale of the impacts on the identified sensitive receptors. From a desktop study of the site access and the posed likely delivery route, the main receptors, sensitive to increased traffic levels, are anticipated to be located along the N59 where there are a number of small communities, such as Crossmolina and Bangor Erris. These communities include residential properties and non-residential properties such as public houses, businesses (butcher, café, village shops) and churches. There are also several individually placed dwellings, away from the villages, as well as farms along the delivery route.

It is anticipated that the largest items to be delivered to site would be the wind turbine components (WTC), along with any substation elements. A TDR report is to be prepared by Pell Frischmann and the findings from this will be referenced within the EIA Report. The EIA report will also consider the impacts associated with the transport of all other construction materials, structures and plant required during construction for each element of the Proposed Development.

It is anticipated that the traffic and transport assessment study area will focus on the L1205, L1206, the R313 and a section of the N59 from the junction with the R313. The route for abnormal loads will consist of the R263, N56, N15, N4, N59, R313 and L1206.

The assessment will focus on the delivery of construction materials, and it is anticipated that any further assessment of the route for Abnormal Indivisible Loads (AILs) will be completed separately, with the findings presented within the EIA Report Traffic and Transport Chapter.

4.11.1.2 Baseline Conditions including Field Studies

The Access, Traffic and Transport chapter of the EIA Report will include a detailed evaluation of the baseline conditions and will focus on assessing the potential impacts to arise during the construction phase and for each element of the Proposed Development.

This will include an abridged construction works programme, details of vehicle types and sizes to be used during the construction phase, and an estimate of the number of trips anticipated to be generated by Heavy Goods Vehicles (HGVs), Light Goods Vehicles (LGVs) and light vehicles. Mitigation measures to alleviate the known local traffic issues arising from the construction traffic will be identified, with the aim of reducing the effect of the vehicle movements identified.

4.11.1.3 Field Surveys

An inspection of the key TDR has been completed from Killybegs Port to the site access locations and involved a visual inspection of the route to identify any likely constraints or issues. In addition, each site access location has been considered as part of the site visit.



It would be common practice for traffic surveys to be commissioned in order to provide a baseline situation for traffic flows, movements and speeds. An Automatic Traffic Counter (ATC) on the L1206 would be commissioned to collect data for 24 hours a day across a seven-day continuous period; an additional survey would be commissioned for the L1205 north of the junction with the L1206.

The traffic data collected will provide classified and directional traffic flow data. Speeds would also be recorded in order to determine the 85th percentile speeds and would be used to determine whether the access junction has sufficient visibility splays. Should a traffic count be unable/ unacceptable for commissioning, Mayo County Council and Transport Infrastructure Ireland would be further consulted for existing traffic data along the delivery route. A quick search on the TII Website has confirmed that there is a traffic survey point on the N59 between Crossmolina and Bangor-Erris. There is no data available for the other roads within the study area. As such it will be important to commission traffic surveys.

Desk Study

The following data collection and analysis will be undertaken:

- a review of available nearby development application documents;
- a review of the TDR;
- analysis of traffic count data and accident data;
- identification of likely sensitive receptors within the study area;
- assessment of traffic impacts of previous and committed local developments to understand identified effects;
- compilation of data on the number of construction vehicles and staff numbers related to each phase of the construction likely to be present on the local road network during the construction phase;
- review of anticipated construction programme once available;
- a comparison between likely traffic flows on potentially affected roads against the baseline situation for a future year scenario with and without the Proposed Development, reported as percentage increases;
- a review of height and weight restrictions along the proposed construction transport routes; and
- identification of impacts.

A.1.1 Potential Sources of Impact

The potential sources of impact have been divided into two development phases: construction and operation. In summary, the main potential sources of impact are likely to relate to the impact of construction traffic on the residential areas along the network route.

The construction phase of the Proposed Development is likely to create the greatest environmental impacts. This is due to the number of HGVs and LGVs required to transport the materials onsite; as such there would be traffic impacts associated with the communities and roads along the delivery route and grid connection route.

Once the Proposed Development is operational, the wind farm would have negligible traffic/transport related impacts caused by intermittent maintenance vehicles travelling to the site.



Mitigation measures will be proposed following the completion of the impact assessments, as informed by the baseline. The purpose of these measures is to aim to remove, minimise, or compensate any significant effects. These mitigation measures will be agreed with the Council(s) and TII.

4.11.2 Method of Assessment and Reporting

The access, traffic and transport chapter of the EIA Report will include a detailed evaluation of the baseline conditions and will focus on assessing the potential impacts to arise during the construction phase. This will include an abridged construction works programme, details of vehicle types and sizes to be used during the construction phase, and an estimate of the number of trips anticipated to be generated by HGVs, LGVs and light vehicles. Specifically the assessment will include the following:

- a review of the construction programme to confirm the key traffic generating activities;
- compilation of data on the number of daily vehicle trips to be present on the roads within the study area, and identification of the likely maximum or worst case scenario;
- an assessment of the possible impacts associated with the transport of AILs;
- a comparison between likely traffic flows on potentially affected roads against the baseline situation for a future year scenario with and without the Proposed Development, reported as percentage increases; and
- identification of the impacts.

Mitigation measures to alleviate the known local traffic issues arising from the wind farm construction traffic will be identified, with the aim of reducing the effect of the construction vehicle movements identified.

4.11.2.1 Assessment

The Institute of Environmental Management and Assessment (IEMA) Guidelines (2023) would form the basis for which the effects of traffic during the construction phase would be assessed. Based on the IEMA guidance, the factors identified as being the most discernible potential environmental effects likely to arise from changes in traffic movements have been set out below and would be considered in the assessment as potential effects which may arise from changes in traffic flows from the Proposed Development.

- Noise and vibration – the potential effect caused by additional traffic on sensitive receptors, which in this case would relate primarily to properties in Bangor and some residences just off the L1205 and L1206.
- Driver severance and delay – the potential delays to existing drivers and their potential severance from other areas.
- Community severance and delay – the potential severance to communities and the delays to movements between communities.
- Vulnerable road users and road safety – the potential effect on vulnerable users of the road (i.e. pedestrians and cyclists).
- Hazardous and dangerous loads – the potential effect on road users and local residents caused by the movement of abnormal loads.
- Dust and dirt – the potential effect on dust, dirt and other detritus being brought onto the road.



The IEMA guidelines provide two thresholds when considering predicted increase in traffic, whereby a full assessment is required:

- where the total traffic would increase by 30% or more (10% in sensitive areas); and/or
- where the HGV traffic would increase by 30% or more (10% in sensitive areas).

The potential sensitivity of the receptors to changes in traffic levels would be determined by considering the study area and presence of receptors in relation to each potential impact. The receptors would be assessed individually to determine its sensitivity and the assessment criteria is set out in Table 4-9.

Table 4-9 Receptor Sensitivity

Impact	Low Sensitivity	Medium Sensitivity	High Sensitivity
Noise and Vibration	No sensitive receptors	Presence of sensitive receptors near to the road	Presence of sensitive receptors adjacent to the road
Driver Severance and Delay	Road network not affected	Road network not experiencing congestion at peak times	Road network experiencing congestion at peak times
Community Severance and Delay	No presence of existing communities severed by the road network	Presence of existing communities with a moderate level of existing severance (subjective assessment)	Presence of existing communities with low existing severance (subjective assessment)
Vulnerable Road Users and Road Safety	Highly sensitive receptor		
Hazardous and Dangerous Loads	No hazardous or dangerous loads on the road network	Some hazardous or dangerous loads on the road network	Abnormal and oversized loads to use road network
Dust and Dirt	Limited presence of sensitive receptors (subjective assessment)	Low to medium presence of sensitive receptors (subjective assessment)	High presence of sensitive receptors (subjective assessment)

The magnitude of impact or change has been considered according to the criteria defined in Table 4-10.



Table 4-10: Magnitude Criteria

Impact	Negligible	Minor	Moderate	Major
Noise and Vibration	<25% increase in traffic		>25% increase in traffic Quantitative assessment based on predicted increase in traffic against measured baseline	
Driver Severance and Delay	<10% increase in traffic		>10% increase in traffic Quantitative assessment of road capacity based on existing traffic flows and predicted future traffic levels	
Community Severance and Delay	<10% increase in traffic	<30% increase in traffic	<60% increase in traffic	>60% increase in traffic
Vulnerable Road Users	<10% increase in traffic		>10% increase in traffic Quantitative assessment of existing provision and future traffic levels	
Road Safety	<10% increase in traffic		>10% increase in traffic Quantitative assessment of existing accident records and predicted increases in traffic	
Hazardous and Dangerous Loads	0% increase in traffic	<30% increase in traffic	<60% increase in traffic	>60% increase in traffic
Dust and Dirt	<10% increase in traffic	<30% increase in traffic	<60% increase in traffic	>60% increase in traffic

The cumulative impacts from any other local permitted wind farm developments will be a key consideration for the assessment, particularly in relation to the control of construction traffic in the local area. The cumulative assessment would focus on the construction phase as this would be the most likely period to create significant effects should construction phases overlap or occur sequentially amongst permitted developments.

The traffic assessment and draft traffic management plans would be reviewed for the other developments identified to be of direct relevance and on a similar construction timeline to the Proposed Development. The proposed construction timescales for these developments would be carefully considered. Operational sites are unlikely to create significant traffic effects and will, therefore, not be considered within the cumulative assessment. The assessment would focus on consented developments at application stage within close proximity to the site. Such sites will be identified and discussed with MCC.

4.11.3 Consultation

The scope of the study and assessment for the Proposed Development in relation to traffic will seek to identify potential issues which may result from the construction of the Proposed Development. Consultation with stakeholders will be completed through the scoping process.

The Proposed Development will continue to be discussed with the following prescribed bodies and key stakeholders/ organisations:



- Mayo County Council – to discuss the potential impacts of the Proposed Development on the local roads and cumulative traffic effects; and
- Transport Infrastructure Ireland (TII) as the National roads authority.

4.11.4 Matters Scoped Out

Due to the negligible environmental effects which would occur during the operational and decommissioning phases of the Proposed Development, it is proposed that operational effects and decommissioning effects are scoped out of the access, traffic and transport assessment for the EIAR. AILs would be considered in more detail within a separately submitted TDR report; the findings and recommendations from the report will be discussed within this section of the EIA report with any impacts identified and assessed as required.

4.11.5 Questions for Consultees

- Confirmation that the proposed study area (the L1206 and L1205 leading to the Site access and the R313) is suitable;
- Confirmation that traffic surveys as discussed above would be appropriate; and
- Confirmation of any committed developments to be considered within the cumulative assessment.

4.11.6 References and Standard Guidance

- Transport Infrastructure Ireland and Mayo County Council design standards as required;
- Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement.
- Design Manual for Roads and Bridges, Highways Agency (1997), now Standards for Highways
- Environmental Protection Agency (EPA) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports', 2022
- Transport Infrastructure Ireland (TII), Traffic and Transportation Assessment Guidelines – PE-PDV-02045, May 2014
- Transport Infrastructure Ireland (TII) Rural Road Link Design – DN-GEO-03031, April 2017
- Government of Ireland Draft Wind Energy Development Guidelines 2006 and 2019 Draft Revised Wind Energy Guidelines

4.12 Material Assets

4.12.1 Introduction

Material Assets are defined in the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) as "*Material assets can now be taken to mean built services and infrastructure.*"

Traffic is generally included in the material assets chapter, however for the purposes of this assessment and given that the Turbine Delivery Route is an intrinsic part of the construction of the proposed development, traffic and transportation will be included in its own standalone



chapter. For more information on the impact upon transportation and roads, please see section 4.12 of this scoping report.

For mining and quarrying assets, please see section 4.4.

Telecommunications will be covered in a separate EIA chapter, but for the purposes of this scoping report, the known existing infrastructure is shown in Table 4-11.

Material Assets will consider the impact of the proposed development on physical infrastructure including renewable and non-renewable resources as well as utility infrastructure.

Table 3.1 in the ‘Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ (EPA, 2022) notes the following headings to be covered in a material assets chapter:

- **Roads and Traffic** – this will be a standalone chapter
- **Built Services** such as electricity, telecommunications, gas, water supply infrastructure and sewerage
- **Waste management**, including Construction and Operational waste.
- Telecommunications and Aviation

4.12.2 Baseline

In terms of existing built services and waste management in proximity to the site, a list of material assets is found in Table 4-11:

Table 4-11 Existing Material Assets

Heading	Topic	Existing Infrastructure
Traffic and Transport	Construction phase, Operational phase and unplanned events	See section 4.11. To be addressed in Traffic chapter
Built Services	Electricity ^{18 19}	<ul style="list-style-type: none"> • 110kV overhead line which crosses the site, adjacent to the local road serving the industrial premises to the front of the site. • 110kV overhead line adjacent to the site.
	Telecommunications ²⁰	Telecommunications masts at <ul style="list-style-type: none"> • Barnatra (Site ID MO_2692) <ul style="list-style-type: none"> • Bangor Erris (Site IDs MO009, MY0058, MO_4065) • Srahanmanragh (Site ID MO034, MO_2169) • Tirraun (Site ID MO062)
	Gas ²¹	No infrastructure identified

¹⁸ ESNB Network Capacity Map available at <https://www.esbnetworks.ie/network-capacity-map>

¹⁹ Transmission System Map, Eirgrid available at <https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Group-Transmission-Map-January-2020.pdf>

²⁰ ComReg site viewer available at: <https://siteviewer.comreg.ie/#explore>

²¹ Gas Networks Ireland Pipeline Map available at: <https://www.gasnetworks.ie/corporate/company/our-network/pipeline-map/>



Heading	Topic	Existing Infrastructure
	Water Supply Infrastructure ^{22 23}	Public Drinking Water Supply
	Sewerage ²⁴	No Infrastructure present.
Aviation	Aviation Assets	<ul style="list-style-type: none"> • Restricted fly zones. • Belmullet Aerodrom • Crossmolina Aerodrom
Waste Management	Construction Waste	To be addressed in CEMP
	Operational Waste	To be addressed in CEMP

4.12.3 Scope of the Assessment

The potential impact of the proposed development on physical infrastructure including renewable and non- renewable resources as well as utility infrastructure will be assessed.

4.12.4 Assessment Methodology

Information on the existing material assets within the receiving environment will be obtained and assessed in the context of the proposed development. The Proposed Development will also be considered under the material assets section in its own right as it will be classed as a renewable resource.

4.12.5 Likely Significant Effects

Utilities such as overhead power lines or telephone lines or underground services may require diversion or be temporarily disrupted during the construction of the wind farm or cable trench. This has the potential to impact on nearby dwellings and commercial / industrial activities. All potential impacts will be considered in full in this chapter.

4.12.6 Telecommunications and Aviation

The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically propagated signals. Such interference could, in theory, affect all forms of electromagnetic communications including:

- Satellite communications.
- RADAR.
- Cellular radio communications.
- Aircraft instrument landing systems.
- Air traffic control.
- Terrestrial microwave links.
- Television broadcasts.

²² Irish Water Supply Capacity Registers available at: <https://www.water.ie/connections/developer-services/capacity-registers/water-supply-capacity-register/westmeath/>

²³ Ballaney Public Drinking Water Supply, EPA, available at <https://www.epa.ie/publications/compliance--enforcement/drinking-water/audit-reports/westmeath/ballany-public-drinking-water-supply.php>

²⁴ Irish Water National Projects available at <https://www.water.ie/projects/national-projects/>



In addition, it is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception. The EIAR will include an assessment of any such potential impacts.

4.12.7 Baseline

In terms of the receiving environment, links will be identified within a suitable buffer distance of the turbines, following consultation with network providers.

4.12.8 Assessment Methodology

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible and thereby limiting any potential negative impacts on service providers in the area.

The proposed assessment methodology will include:

- Consultation with Irish Aviation Authority, Commission for the Regulation of Utilities, emergency services.
- Consultation with telecommunications operators to gather the necessary data.
- Preparation of constraint mapping.
- Analyses of the impact of the turbines on telecommunications operators' point-to-point microwave radio links and apply appropriate buffer distances around links and masts where required.
- Discussions with telecommunications operators identifying potential clashes. Operators to provide feedback on initial assessment and to provide information on the importance of the links identified.
- Further specialist investigations will be carried out if the telecommunications operators identify potential impacts.
- Where necessary, mitigation measures to be agreed with operators including:
 - Turbine relocation.
 - Telecommunications link relocation.
 - Underground fibre optic cables to replace microwave link.
 - Submission of final detailed layout to telecoms operators.
 - Agree any layout alterations following final detailed assessment by telecoms operators or agree suitable mitigation measures if necessary.

Impacts on aviation will be addressed following detailed discussions with the Irish Aviation Authority.

In relation to the grid connection, mapping of telecommunications cables, which could potentially be affected by the installation of the proposed grid connection, will be obtained and potential impacts assessed.



4.12.9 Likely Significant Effects

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible and thereby limiting any potential negative impacts on service providers in the area.

The Irish Wind Energy Association 2012 guidelines, "Best Practice Guidelines for the Irish Wind Energy Industry", indicate that wind turbines within "20 km of a radio navigation aid" have the potential to cause electro-magnetic interference with these signals. It is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception. In practice, such measures are not difficult to implement, are relatively inexpensive and if necessary, will be undertaken by the developer in conjunction with RTÉ.

4.13 Major Accidents and Disaster

4.13.1 Approach To Major Accidents And Disasters

Annex IV of the EIA Directive requires the EIAR to include a description of the expected significant adverse effects of The Project on the receiving environment deriving from the vulnerability of The Project to risks of major accidents and/or disasters which are relevant to The Project.

Two key areas need to be considered namely:

- The Project's potential to cause accidents and/or disasters;
- The vulnerability of The Project to potential disaster/accident, both natural and manmade.

In this chapter of the EIAR, The Project's vulnerability to major accidents and natural disasters and the potential adverse impacts on human health and the environment will be assessed.

This chapter of the EIAR will examine potential disaster situations including:

- Flooding;
- Fire;
- Extreme weather;
- Coastal erosion and sea level rise;
- Major incidents involving dangerous substances;
- Catastrophic events; and
- Landslides.

Specifically this assessment will draw on other chapters of the EIAR to identify, describe and evaluate, in an appropriate manner, the worst case potential direct and indirect effects of major accidents and natural disasters. The CEMP that will be submitted as part of the EIAR will include an emergency response plan which will be implemented for The Project in the event of emergency or disaster situations.



The CEMP will also outline the statutory obligations of the Developer, Designer and Contractor pursuant to the Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations 2013 with regard to safety management. The CEMP also sets out mitigation in the event of a catastrophic event associated with operational wind turbines.

5.0 Consultation

5.1 Scoping Consultation

A variety of statutory and non-statutory organisations are being consulted with during the EIA scoping process to gather their views on the likelihood of significant environmental effects arising from the proposed development.

5.2 Public Consultation

The first round of public consultation with residents, community groups and other interested stakeholders commenced in July 2023, with a second phase due to go public in quarter 1 of 2024. A dedicated project website is now live²⁵. Public consultation will be continued throughout the preparation of the EIAR as a means of providing information on the proposed development and inviting submissions from the local community and other interested parties.

5.3 Consultees:

As part of the scoping process, a number of consultees will receive a copy of this scoping report.

Consultees who are likely to be contacted and /or will be consulted with during the Scoping process have been included as Appendix 01 of this Scoping Report.

It is anticipated that An Bord Pleanála will invite a number of prescribed bodies to comment on the proposed scope and contents of the EIAR.

A copy of this scoping report will be provided to all Prescribed Bodies issued by An Bord Pleanála upon the determination of whether this project is Strategic Infrastructure Development. An SID pre-application consultation was undertaken with An Bord Pleanála on 25th January 2024 (ref. ABP-313372-23) and remains open for further consultation, if required.

²⁵ <https://ie.rwe.com/projects-and-locations/onshore-wind-farm-muingmore/>







Making Sustainability Happen

RWE Renewables Ireland Limited

Muingmore Wind Farm

SLR Project No.: 501.065301.00001

17 April 2024

RE: APPENDIX 1 TO EIA SCOPING REPORT

1.0 Bodies Consulted as Part of Scoping: Level 3 heading (style: Heading 3 No Number)

Name	Address
An Chomhairle Ealaíon (Arts Council)	The Arts Council, 70 Merrion Square, Dublin 2, D02 NY52
An Taisce	Tailors' Hall, Back Lane, Dublin, Ireland
Arra Communications	Boru House, Ballina, Tipperary
Bat Conservation Ireland	Bat Conservation Ireland, Carmichael House, 4-7, North Brunswick Street, Dublin 7 D07 RHA8
Birdwatch Ireland	Unit 20, Block D, Bullford Business Campus, Kilcoole, Greystones, Co. Wicklow, A63 RW83, Ireland
Broadcasting Authority of Ireland	Broadcasting Authority of Ireland, 2 - 5 Warrington Place, Dublin D02 XP29

Name	Address
BT Communications Ireland Ltd	BT Ireland 2 Grand Canal Plaza Upper Grand Canal Street Dublin 4
Commission for Communications Regulation	Commission for Communications Regulation, One Dockland Central, Guild Street, Dublin, D01 E4X0
Commission for Energy Regulation	Commission for Energy Regulation, The Grain House, The Exchange, Belgard Square North, Tallaght, Dublin 24, D24 PXW0
Department of Agriculture, Food and the Marine	Department of Agriculture, Food and the Marine, Agriculture House, Kildare Street, D02 WK12
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs – Development Applications Unit (Nature Conservation)	Nature Conservation, Department of Housing, Local Government and Heritage, Custom House, Dublin 1
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs – Development Applications Unit(National Monuments Service)	National Monuments Service, Department of Housing, Local Government and Heritage, Custom House, Dublin 1
Department of Communications, Climate Action and Environment	Department of the Environment, Climate and Communications, 29-31 Adelaide Road, Dublin 2, D02 X285
Department of Defence	Department of Defence, Head Office, Station Road, Newbridge , Co. Kildare , W12 AD93
Department of Housing, Planning, Community and Local Government	Department of Housing, Planning, Community and Local Government, Custom House, Dublin, D01 W6X0



Name	Address
Department of Transport, Tourism and Sport	Department of Transport, Tourism and Sport, 23 Kildare Street, Dublin 2, D02 TD30
Development Applications Unit, NPWS	Department of Housing, Local Government and Heritage Newtown Road Wexford Y35 AP90
Digiweb Dublin Offices and Data Centre	Digiweb Ltd, IDA Business & Technology Park, Dundalk, Co. Louth A91 KR80.
Dublin Airport Authority	DAA plc, Three, The Green, Dublin Airport Central, Dublin Airport, Swords, Co Dublin, K67 X4X5
Eastern and Midland Regional Assembly	Eastern and Midland Regional Assembly, 3rd Floor North, Ballymun Civic Centre, Main Street, Ballymun, Dublin 9, D09 C8P5
Echo IT Limited	Echo IT Limited, 29 - 30 Mitchel St, Nenagh South, Nenagh, Co. Tipperary, E45 W883
Eir	Eir, 2022 Bianconi Avenue, Citywest Business Campus, Dublin 24 D24 HX03.
Environment Department	Second Floor, Mayo County Council Áras an Chontae The Mall Castlebar
EPA	EPA, PO Box 3000, Johnstown Castle Estate, County Wexford, Y35 W821
ESB Telecoms	ESB Telecoms, 27 Fitzwilliam Street Lower, Dublin 2, D02 KT9



Name	Address
Fáilte Ireland	Fáilte Ireland, Áras Fáilte, 88-95 Amiens St, Dublin 1, D01 WR86
Gas Networks Ireland	Gas Networks Ireland Networks Services Centre , St. Margarets Road, Finglas, D11 Y895
Geological Survey of Ireland	Geological Survey Ireland, Dept. of the Environment, Climate and Communications, Block 1, Booterstown Hall, Booterstown, Blackrock, A94 N2R6
Health Service Executive Environmental Health Department Meath	Westport Road, Castlebar, Co. Mayo
The Heritage Council	The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny, R95 X264
Heritage Officer	Heritage Officer Mayo County Council Áras an Chontae Castlebar Phone: 094 9064092
Iarnroid Eireann	Iarnród Éireann HQ, Connolly Station, Amien Street, Dublin 1, D01 V6V6
Inland Fisheries Ireland	Inland Fisheries Ireland 3044 Lake Drive Citywest Business Campus Dublin D24 CK66
Irish Aviation Authority	Irish Aviation Authority, The Times Building, 11-12 D'Olier Street, Dublin 2



Name	Address
Irish Broadband/Imagine	Imagine Broadband, Unit 5/6 Sandyford, Business Centre, Blackthorn Road, Sandyford Industrial Estate, Dublin 18.
Irish Farmers Association	Irish Farmers Association, Irish Farm Centre, Bluebell, Dublin 12, Ireland, D12 YXW5
Irish Parachute Club	Irish Parachute Club, Clonbullogue Airfield, Edenderry, Co. Offaly
Irish Peatland Conservation Council	Irish Peatland Conservation Council, Bog of Allen Nature Centre, Lullymore, Rathangan, Co. Kildare, R51 V293
Irish Raptor Group	Irish Raptor Study Group c/o GET 12 Ely Place Dublin 2 D02 T651
Irish Red Grouse Association	Irish Red Grouse Association, Ballygarraun House, Craughwell, Co. Galway H91F8X6
Irish Sports Council	Irish Sports Council, The Courtyard, Sport Ireland Campus, Snugborough Road, Blanchardstown, Dublin 15
Irish Telecom (now viatel)	Viatel, Unit 403, Q House, Furze Rd, Sandyford, Dublin 18, Ireland
Irish Water	Colvill House, 24-26 Talbot Street, Dublin 1
Irish Wildlife Trust	The Irish Wildlife Trust, 8 Cabra Road, Dublin 7, D07T1W2
Magnet Networks	Magnet Networks, IDA Business & Technology Park, Clonshaugh, Dublin 17, D17 AK77



Name	Address
Minister for Housing, Local Government, Heritage	Minister for Housing, Local Government, Heritage, Newtown Rd, Carricklawn, Wexford, Y35 AP90
Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media	Minister for Culture, Heritage and the Gaeltacht, c/o The Manager, Development Applications Unit, Department of Culture, Heritage and the Gaeltacht, Newtown Road, Wexford, Y35 AP90
Minister for Rural and Community Development	Minister for Rural and Community Development, Agriculture House, Kildare St. Dublin 2. D02 WK12
Minister for Transport	Department of Transport, Tourism and Sport, Leeson Lane , Dublin 2 , D02 TR60
National Parks and Wildlife Service	National Parks & Wildlife Service 90 King Street North Dublin 7 D07 N7CV
National Trails Office (Now Sport Ireland Outdoors)	Sport Ireland, The Courtyard, Sport Ireland Campus, Snugborough Road, Blanchardstown, Dublin 15, D15PNON
Office of Public Works	Office of Public Works, Jonathan Swift Street , Trim , Meath , C15 NX36
Planning Department	Planning Section Mayo County Council Áras an Chontae The Mall, Castlebar County Mayo, Ireland
Premier Broadband	Premier Broadband, 8B, The National Enterprise Park, Dublin Rd, Knockmay, Portlaoise, Co. Laois
Ripplecom	Ripplecom, Houston Hall, Ballycummin Ave, Raheen Business Park, Limerick, V94 PKF1



Name	Address
Roads Department	Roads Section Second Floor Mayo County Council Áras an Chontae The Mall Castlebar
RTE	RTÉ, Donnybrook, Dublin 4.
Sustainable Energy Authority of Ireland	Sustainable Energy Authority of Ireland, 3 Park Place, Hatch Street Upper, Dublin 2, D02 FX65
Teagasc	Teagasc, Oak Park, Carlow R93 XE12
Telecommunications Section, An Garda Síochána	Telecommunications Section, An Garda Síochána, Office of the Executive Director ICT, Garda Headquarters, Phoenix Park, Dublin 8, D08 HN3X
TETRA Ireland Ltd.	TETRA Ireland Ltd., Block 43a, Second floor, Yeats Way, New Nangor Road, Park West Business Park, Dublin, 12
Three	Three, 28/29 Sir John Rogerson's Quay, Dublin 2,
TowerCom Ltd.	TowerCom Ltd., Usher House, Main Street, Dundrum, Dublin 14
Transport Infrastructure Ireland	Transport Infrastructure Ireland, Parkgate Business Centre, Parkgate Street, Dublin 8, D08 DK10.
TV3	TV3, Westgate Business Park, Ballymount, Dublin 24
Údarás na Gaeltachta	Údarás na Gaeltachta, Na Forbacha, Co. na Gaillimhe, H91 TY22
Vodafone	Vodafone, MountainView. Leopardstown Dublin 18



Name	Address
Waterways Ireland	Waterways Ireland, 2 Sligo Road, Enniskillen, Co. Fermanagh, BT74 7JY
Wireless Connect Ltd.	Wireless Connect Ltd. Unit 2, Park West Enterprise Centre, Lavery Ave, Park West Industrial Park, Dublin 12





Making Sustainability Happen

18 April 2024

An Taisce
5 Foster Place,
Dublin 2,
D02 V0P9

SLR Project No.: 501.065301.00001

RE: Proposed Wind Farm of up to 13 No. Turbines, Grid Connection, Turbine Delivery Route and 110kV Electricity Substation with Battery Energy Storage in County Mayo

Introduction

RWE Renewables (Ireland) Ltd, intends to apply for planning permission to construct a renewable energy development comprising of 13 no. wind turbines within the town lands of Muingmore (An Mhoing Mhór) and Doolough (Dumha Locha), County Mayo.

Muingmore Wind Farm represents an excellent opportunity to develop a medium-scale wind farm in an area of County Mayo.

Site location map showing the proposed outline development boundary area is shown in Figure 1. The outline development boundary has been identified by detailed desk-based planning and environmental constraints studies and a preliminary visual impact assessment which is included field surveys. The turbines will be arranged in two clusters separated by a public road.

It is anticipated that the proposed wind farm development will be connected to Bellacorrick 110 kV substation through the cable route shown in Figure 1.

The Applicant

The applicant for the proposed project will RWE Renewables Ireland Limited.

RWE's portfolio in Ireland is diverse, encompassing various types of renewable energy projects. This includes the 10 MW Dromadda Beg Onshore Wind Farm in County Kerry, which was their first onshore wind farm in Ireland. Additionally, RWE is working on developing solar, onshore wind, offshore wind, and battery storage projects across the country.

Existing Environment

The Proposed Development site itself is approximately 3km in span at its widest part, within 2 no. cluster areas. The site is located approximately 1.5km from the village of Gweesalia. A number of smaller settlements are located in within 5km of the site and Bangor Erris is located approximately 8Km from the site. The area in which the optioned lands exist has approximately 455 Ha of peat lands, and commercial forest plantation.

Proposed Development

The Proposed Development which consists of up to 13 no. turbine wind farm development and associated works on land. The site is approximately 455 ha in size however the Proposed Development will encompass only a fraction of this area. The Proposed Development will consist of:

- 13 no. wind turbines, each with an overall blade tip height of up to 180m, rotor diameter of up to 155m, hub height of between 102.5m and 105m, all associated site infrastructure including;
- 110 kV electricity substation and switch rooms;
- battery energy storage and associated works including storage and parking;
- equipment compound;
- turbine foundations;
- temporary construction compounds;
- crane pad hardstand areas;
- 33kV collector cable circuit connecting the two clusters and the substation
- site access tracks;
- underground electricity and communications cabling;
- site drainage works and sediment control;
- site entrances;
- works along the public roadways for a Turbine Delivery Route (TDR) to facilitate turbine and tower delivery;
- works along public roadways to facilitate Grid Connection to Bellacorick, and
- permanent meteorological mast.

Structure and Scope

The planning application of this development will be accompanied by an environmental impact assessment report (EIAR). The contents of an EIAR will be prepared in accordance with Schedule 6 of the planning and development regulations 2001 (as amended) and the assessment of the effects will be carried out in accordance with EU Directive 2014/52/EU. The EIAR will identify describe and assess the direct and indirect significant effects of the project including the associated grid connection on the following factors:

- a. population and human health
- b. biodiversity with particular attention paid to protected species and habitats
- c. land, soil, water, air and climate
- d. material assets, cultural Heritage and the landscape
- e. interaction between the factors referred to in points A to D



Closure

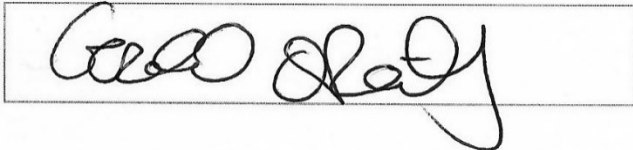
This letter has been issued to you as part of the consultation process for the EIAR. As part of the consultation process, we would be interested in receiving any comments you may have on the proposed development, relative to your area of expertise, before **16th May 2024** in writing or email to goreilly@slrconsulting.com.

It is intended that a secondary round of statutory consultation will be carried out later in the year with a more developed site layout which will show internal infrastructure and general arrangements. The general arrangement of the site will be developed using feedback from this round of statutory consultation and community engagement which is currently ongoing.

If you have no comments to make on this proposed development, I will be very grateful if you could please acknowledge receipt of this letter and provide any queries to the undersigned.

Regards,

SLR Environmental Consulting (Ireland) Ltd



Gerald O'Reilly

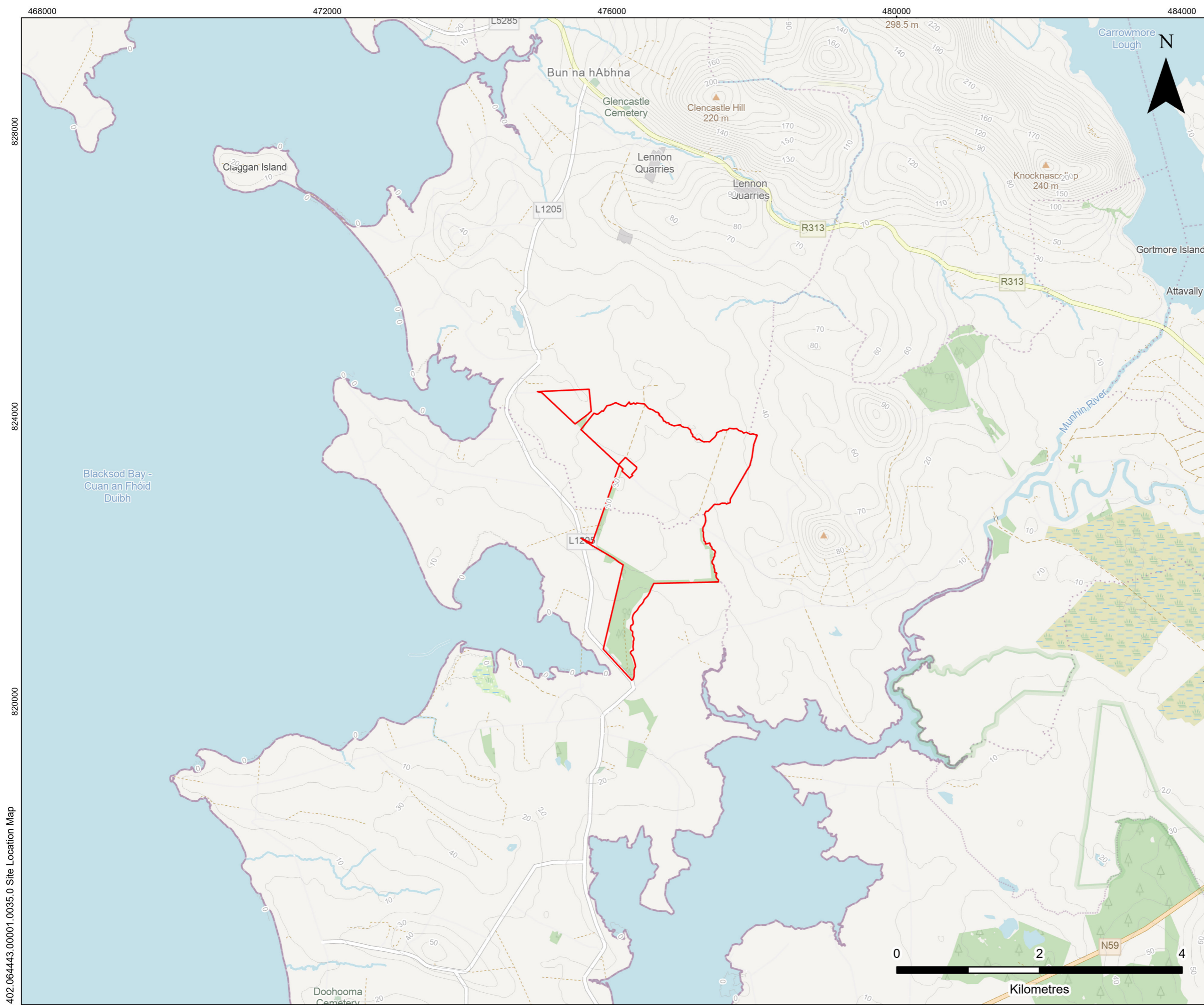
Associate Planner

Email: goreilly@slrconsulting.com


cc Sean Galvin, Principal Manager, RWE

Attachments EIA Scoping Report






LEGEND

 Study Area

N




MUINGMORE WINDFARM
 SCOPING REPORT
 SITE LOCATION MAP

FIGURE 1

Scale 1:50,000 @ A3 Date MARCH 2024



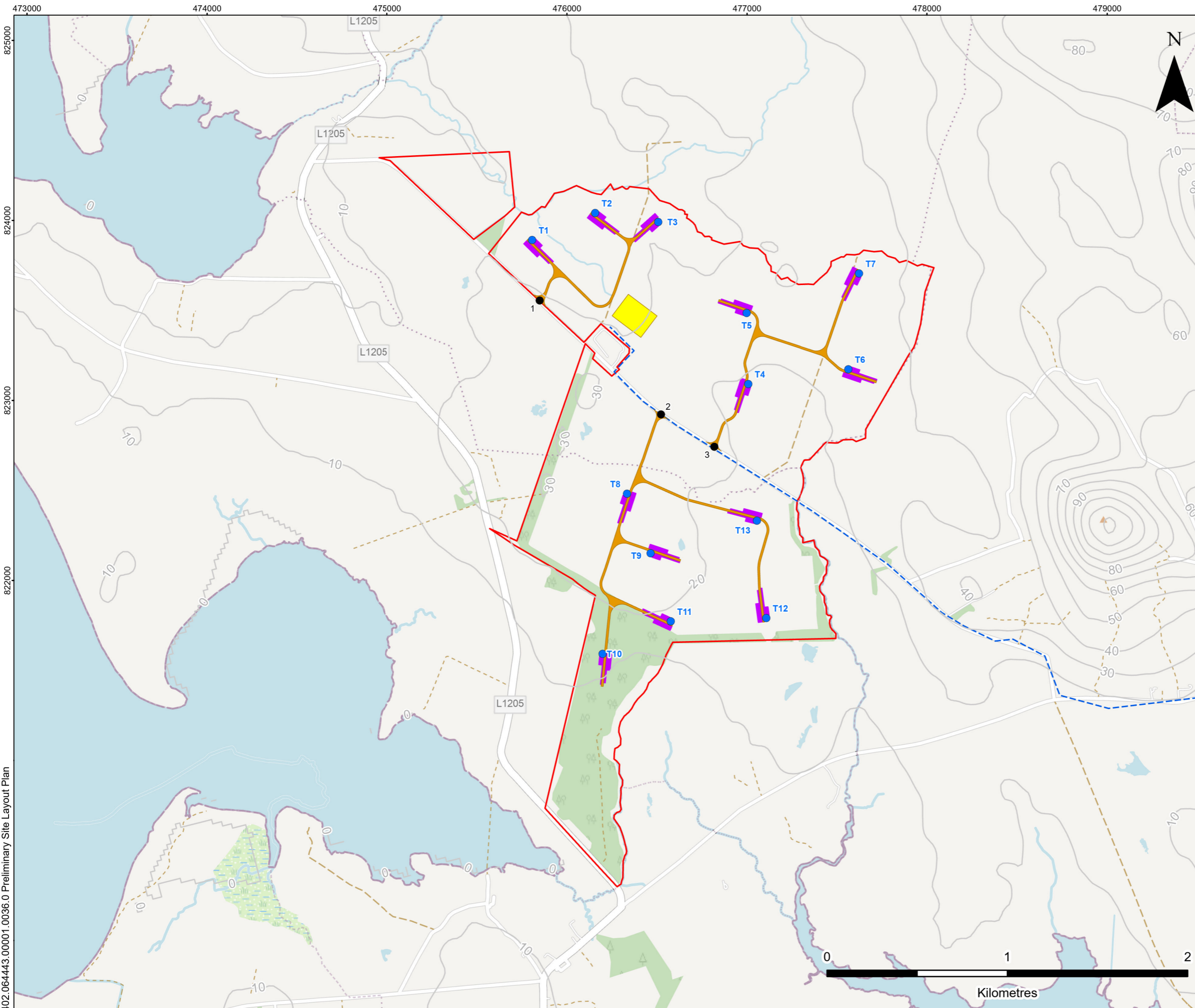
468000 472000 476000 480000 484000

828000

824000

820000

402.064443.00001.0035.0 Site Location Map



LEGEND

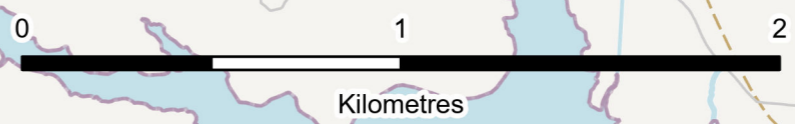
- Study Area
- Proposed Turbine Location
- Access Point Location
- Proposed Grid Connection Route
- Proposed Substation and BESS Location
- Proposed Access Track
- Proposed Crane Pad



MUINGMORE WINDFARM
SCOPING REPORT
PRELIMINARY SITE LAYOUT PLAN

FIGURE 2

Scale 1:20,000 @ A3	Date MARCH 2024
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402.064443.00001.0036.0 Preliminary Site Layout Plan

473000 474000 475000 476000 477000 478000 479000

825000
824000
823000
822000

475000

480000

485000

490000

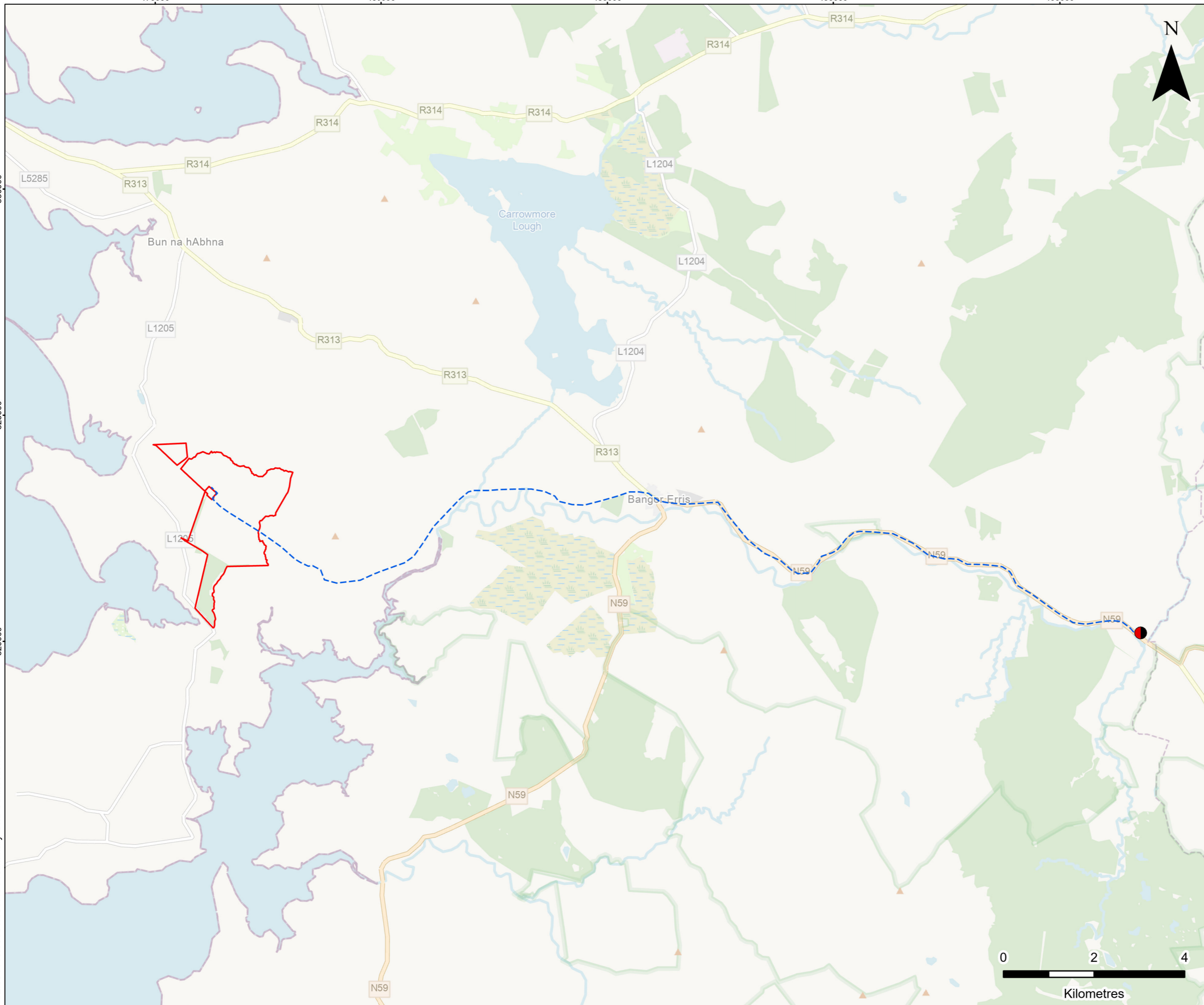
495000

830000

825000

820000

402.064443.00001.0037.0 Preliminary Grid Connection Route



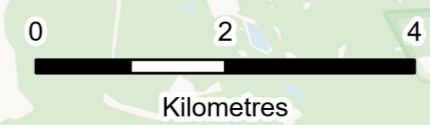
LEGEND

- Study Area
- Bellacorick 110kV Substation Location
- Proposed Grid Connection Route

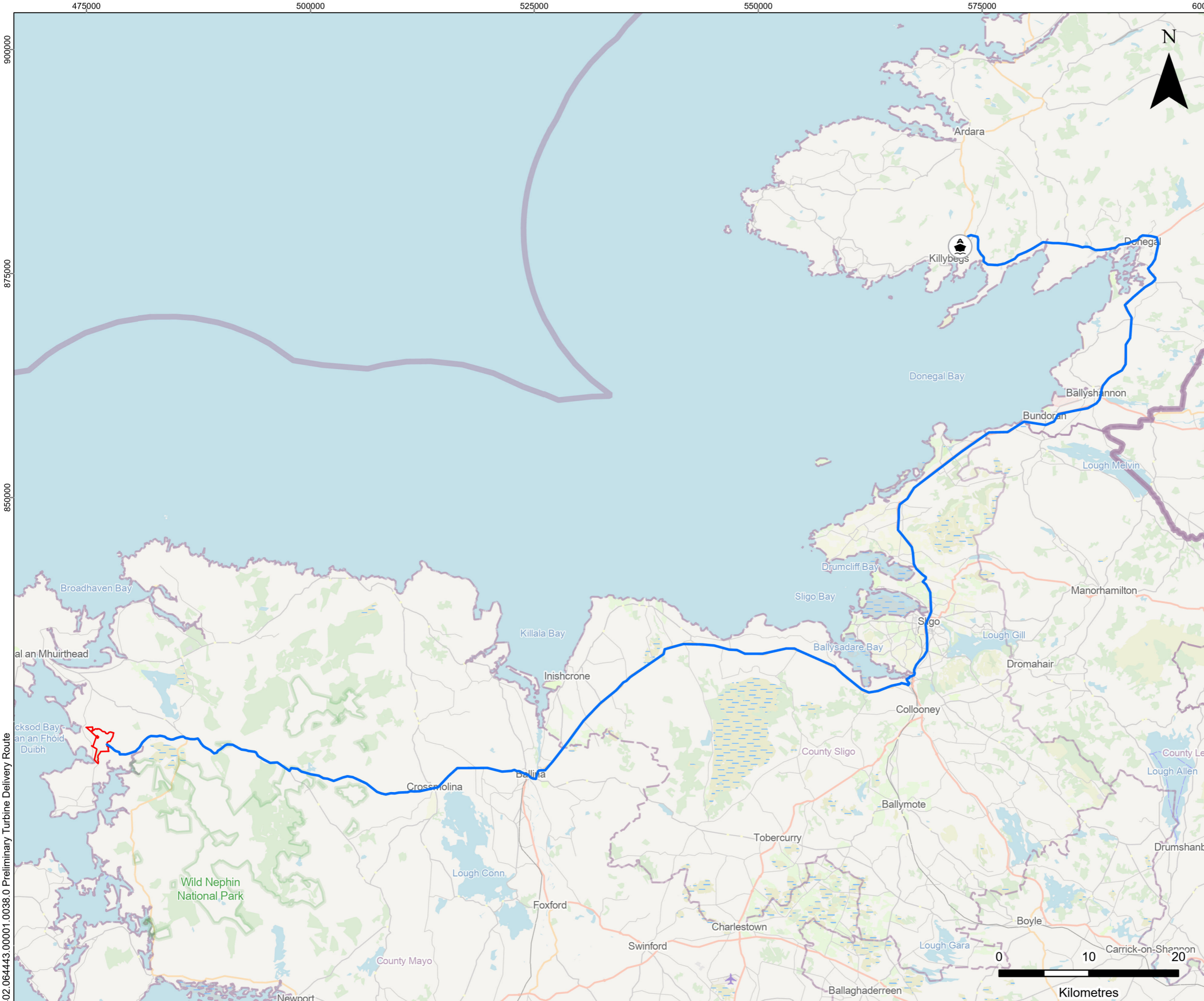


MUINGMORE WINDFARM
 SCOPING REPORT
 PRELIMINARY GRID
 CONNECTION ROUTE

FIGURE 3



Scale 1:80,000 @ A3 Date MARCH 2024



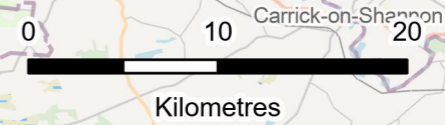
LEGEND

- Study Area
- Proposed Turbine Delivery Route
- Harbour



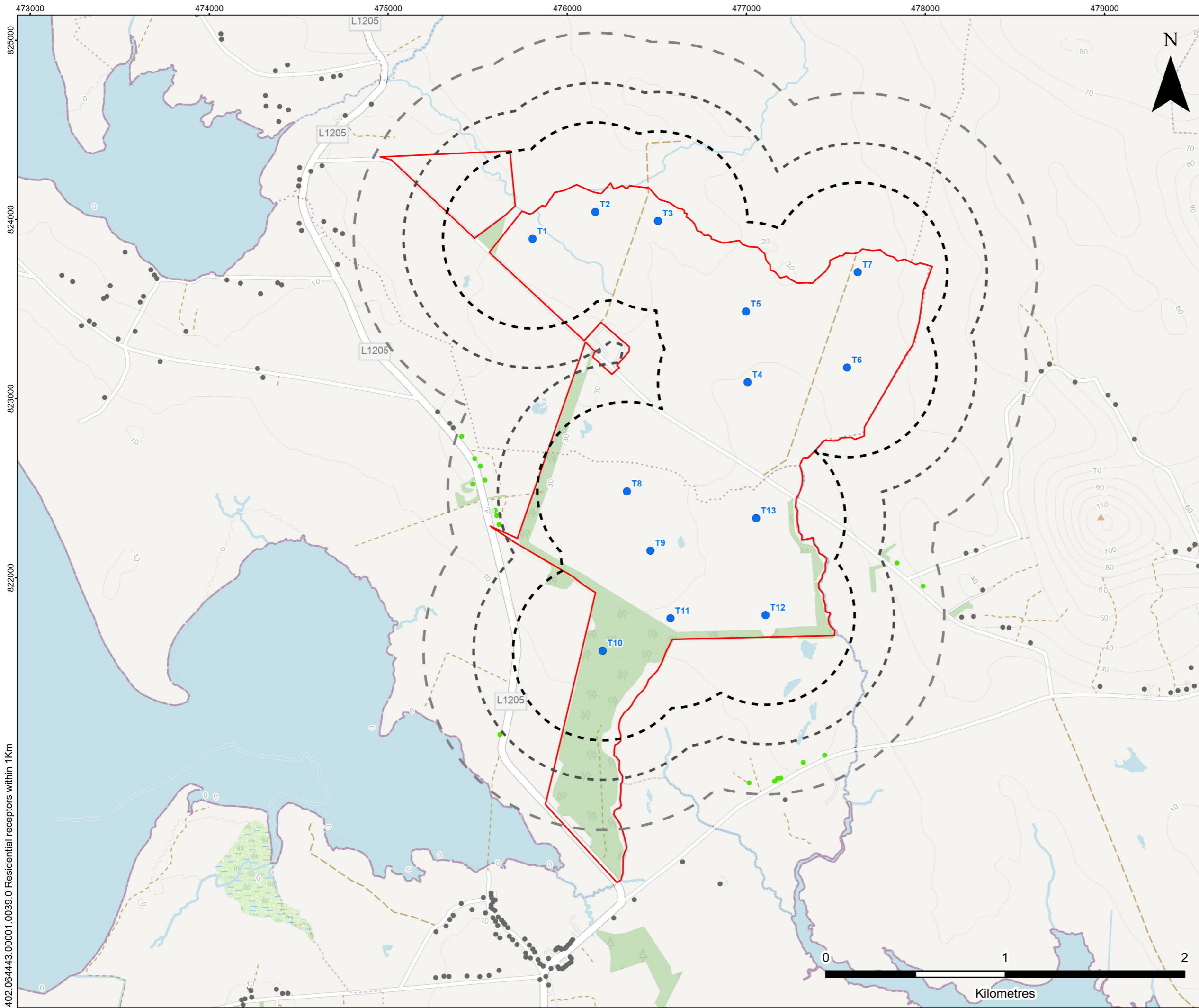
MUINGMORE WINDFARM
 SCOPING REPORT
PRELIMINARY TURBINE DELIVERY ROUTE

FIGURE 4



Scale 1:400,000 @ A3 Date MARCH 2024

402.064443.00001.0038.0 Preliminary Turbine Delivery Route



LEGEND

- Study Area
- Proposed Turbine Location
- Proposed Turbines 500 m Buffer
- Proposed Turbines 720 m Buffer
- Proposed Turbines 1 km Buffer
- Residential Receptor

NOTES
Industrial units not shown as receptors



MUINGMORE WINDFARM
SCOPING REPORT
RESIDENTIAL RECEPTORS WITHIN 1KM OF THE PROPOSED TURBINES

FIGURE 5

Scale: 1:20,000 @ A3 Date: MARCH 2024

402.064443.00001.00399.0 Residential receptors within 1Km

473000 474000 475000 476000 477000 478000 479000

825000
824000
823000
822000

474000

475000

476000

477000

478000

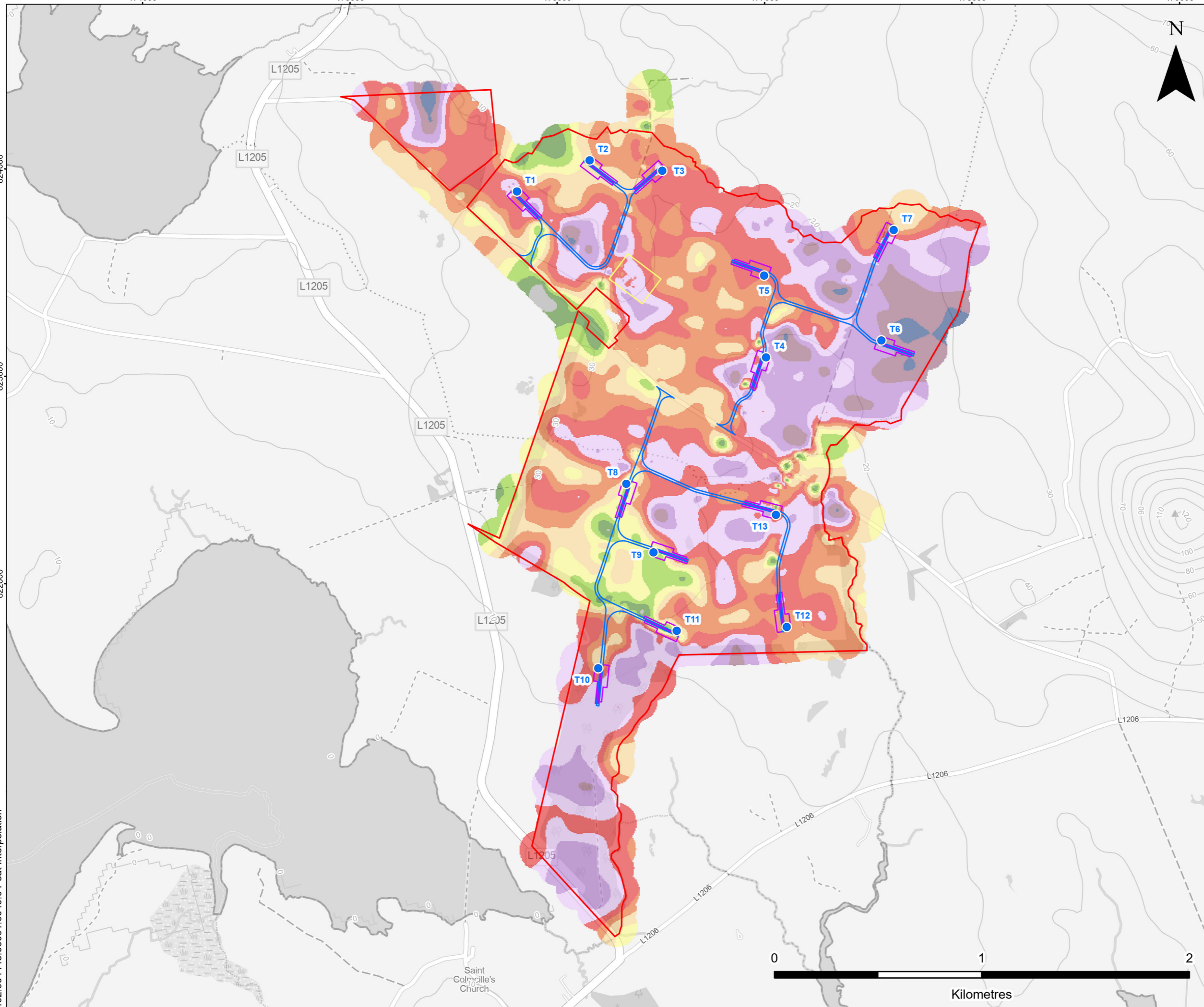
479000

824000

823000

822000

402.064443.00001.0040.0 Peat Interpolation



LEGEND

- Study Area
- Proposed Turbine Location
- Proposed Access Track
- Proposed Crane Pad
- Proposed Substation and BESS Location

Peat Depth (m)

- <0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5
- 4.5 - 5
- >5



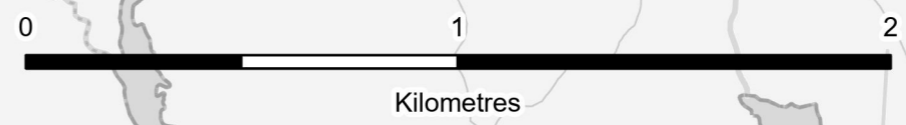
MUINGMORE WINDFARM

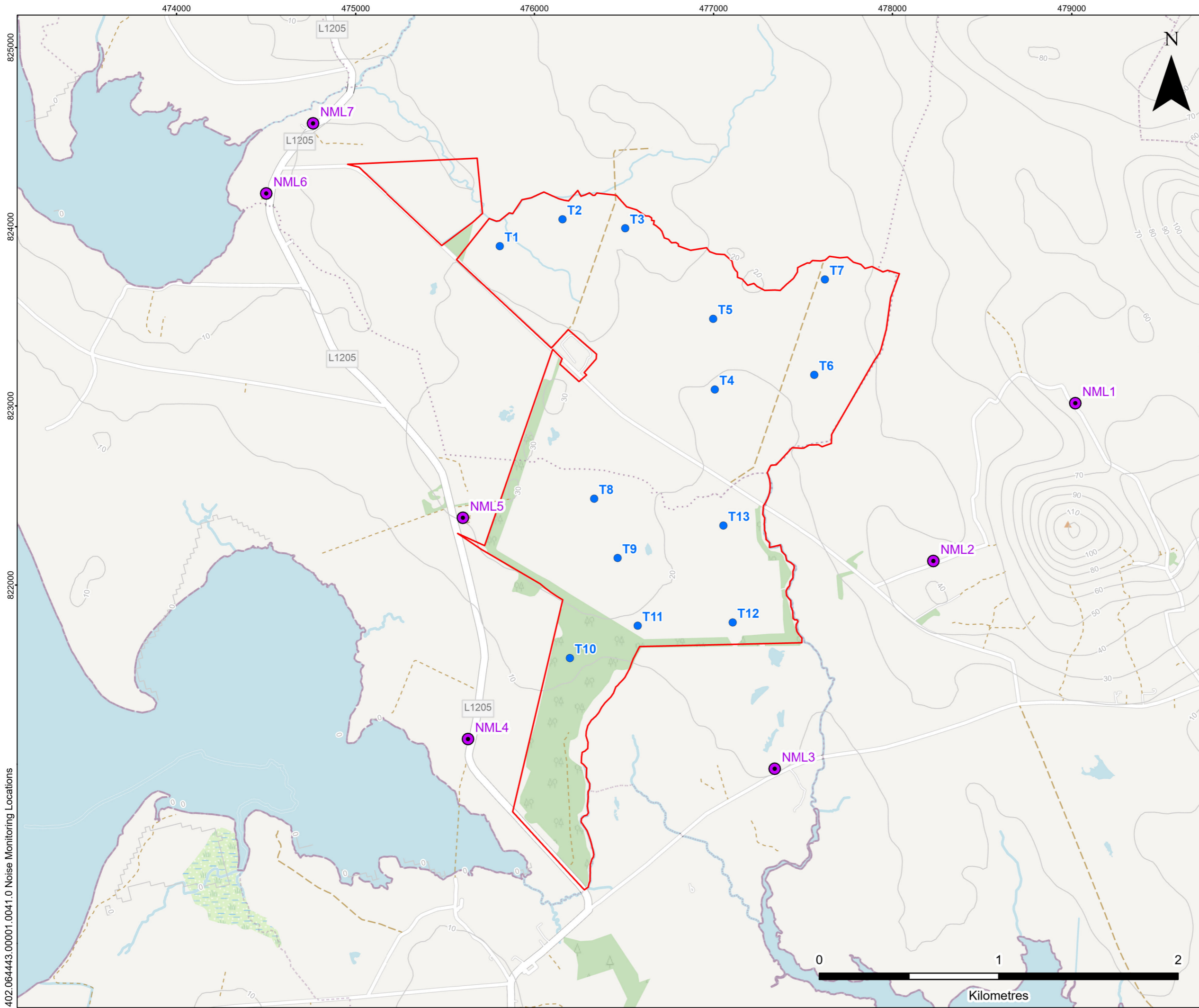
SCOPING REPORT

PEAT DEPTH

FIGURE 6

Scale 1:17,500 @ A3 Date MARCH 2024





LEGEND

- Study Area
- Proposed Turbine Location
- Noise Monitoring Location



MUINGMORE WINDFARM
SCOPING REPORT
NOISE MONITORING LOCATIONS

FIGURE 7

Scale 1:20,000 @ A3	Date MARCH 2024
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402.064443.00001.0041.0 Noise Monitoring Locations