
DREENACREENIG WEST WIND FARM LIMITED

DERREENACRINNIG WEST WIND FARM CO. CORK

VOLUME I NON-TECHNICAL SUMMARY (NTS)

August 2025

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Farm Ltd.,**
Derreenacrinnig West,
Drimoleague,
Cork,
Ireland.



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CLIENT / JOB NO	Dreenacrinnig West Wind Farm Limited	4636
DOCUMENT TITLE	Non-Technical Summary	

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DREENACREENIG WEST WIND FARM LIMITED
DERREENACRINNIG WEST WIND FARM, CO. CORK

VOLUME I
NON-TECHNICAL SUMMARY REPORT

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1 NTS 1 INTRODUCTION

This Non-Technical Summary (NTS) summarises the Environmental Impact Assessment Report (EIAR) which accompanies the application for planning permission for Derreenacrinnig West Wind Farm, with the wind farm situated in the townland of Derreenacrinnig West, works along the TDR route situated in Derreenacrinnig West, Derreenacrinnig East and Castledonovan, and the Grid Connection situated in Derreenacrinnig West, Barnagowlane West, Glanareagh, Gortnacowly, Ards Beg, Ardrah, Laharanshermeen, Maulraha, Maulikeeve, Derryarkane, Cappanaboul, Skahanagh, Gortroe, Shandrum Beg, Shandrum More, Dromloughlin, Ballylicky, and Crossoge Co. Cork. The nearest settlement is the village of Drimoleague which is situated 5.1 km to the southeast of the Site. The Site is located 10.5 km north-east of Bantry, Co. Cork and 10.9 km west of Dunmanway. The Site is 14.2 km south-east the county boundary between Cork and Kerry and is 59 km west of Cork City. The total Wind Farm site area is approximately 82 hectares and ranges in elevation from 200 m to 402 m OD (Malin Head). The Site can be located on Discovery Series Map No. 85 at the approximate grid co-ordinates E 111,310 N 52,180. The location of the Proposed Development is shown in **Figure NTS-1.1**.

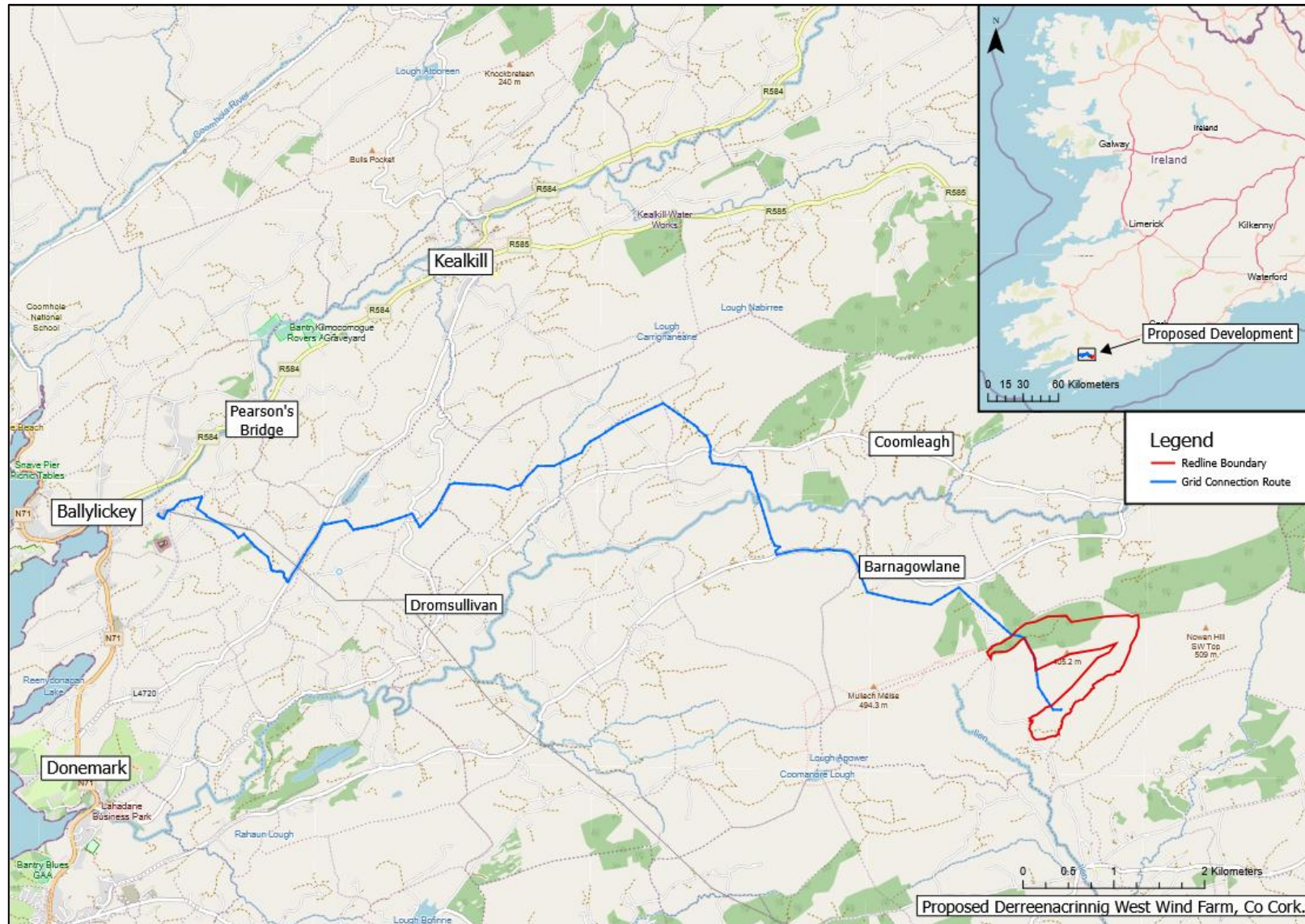


Figure NTS-1: Site Location

1.1 The Applicant

The Applicant seeking planning permission is Dreenacreenig West Wind Farm Limited. The Applicant is an Irish owned renewable energy company.

1.2 The Project

Planning Permission is being sought by the Developer for the construction of 3 No. Wind Turbines, an on-site substation, and all ancillary works (Derreenacrinnig West), works along the Turbine Delivery Route (Derreenacrinnig West, Derreenacrinnig East and Castledonovan), and the construction of a Grid Connection between the consented Derreenacrinnig West Wind Farm substation and the 110kV substation in Ballylicky, (Derreenacrinnig West, Barnagowlane West, Glanareagh, Gortnacowly, Ards Beg, Ardrah, Laharanshermeen, Maulraha, Maulikeeve, Derryarkane, Capanaboul, Skahanagh, Gortroe, Shandrum Beg, Shandrum More, Dromloughlin, Ballylicky, Crossoge).

The Proposed Development will consist of the following main components:

- Construction of 3 No. wind turbines with an overall ground to blade tip height of 119.3 m with a rotor diameter of 82 m and a hub height of 78.3 m.
- Construction of 1 no. permanent 20kV electrical, all associated electrical plant and equipment, all associated underground cabling, and all ancillary structures and works.
- Construction of one Temporary Construction Compound with associated temporary site offices, parking areas and security fencing.
- Upgrade and reuse of existing hardstands.
- Upgrade and reuse of existing internal site access roads.
- Provision of Biodiversity Enhancement Area
- All associated underground electrical and communications cabling connecting the wind turbines to the wind farm substation.
- Construction of approximately 10.75 km of 20 kV overhead line (OHL) along the Grid Connection route, the OHL to be constructed consists of c. 157 wood poles (ranging from 9 m to 15 m above ground) supporting electrical conductor lines and ancillary structures and equipment.
- Installation of approximately 3.3 km of underground cable ducting and associated electrical cabling, and all other ancillary works including joint bays, culverts, marker posts and all associated developments.
- Construction Haul Route works along the L-8767, L-4711, and L-8765.

A 10-year planning permission and 40-year operational life from the date of commissioning of the entire wind farm is being sought.

However, part of the Electrical Substation and all of the Grid Connection will be handed over to ESB networks to own and operate. As part of the national grid infrastructure, their life can extend beyond the life of the wind farm. Accordingly, permission is sought for the Grid Connection and Electrical Substation in perpetuity.

The Proposed Development refers to all elements of the Derreenacrinnig West Wind Farm for which development consent is sought, the details of which are set out within **EIAR Chapter 2: Project Description - EIAR**. These elements include the additional wind turbines site access tracks, additional Turbine Hardstand areas, Wind Farm Internal Cabling, and Temporary Construction Compound. The entire Proposed Development is located within the county of Cork and will have an installed capacity of 48 MW.

The 'Site' refers to all land that falls within the Proposed Derreenacrinnig West Wind Farm Site Boundary identified in **Figure NTS-1.2**.

The 'Project' refers to the development works within the Redline Boundary in addition to the works on the Grid Connection route, the Onsite Substation and Control Building; and the Turbine Delivery Route.

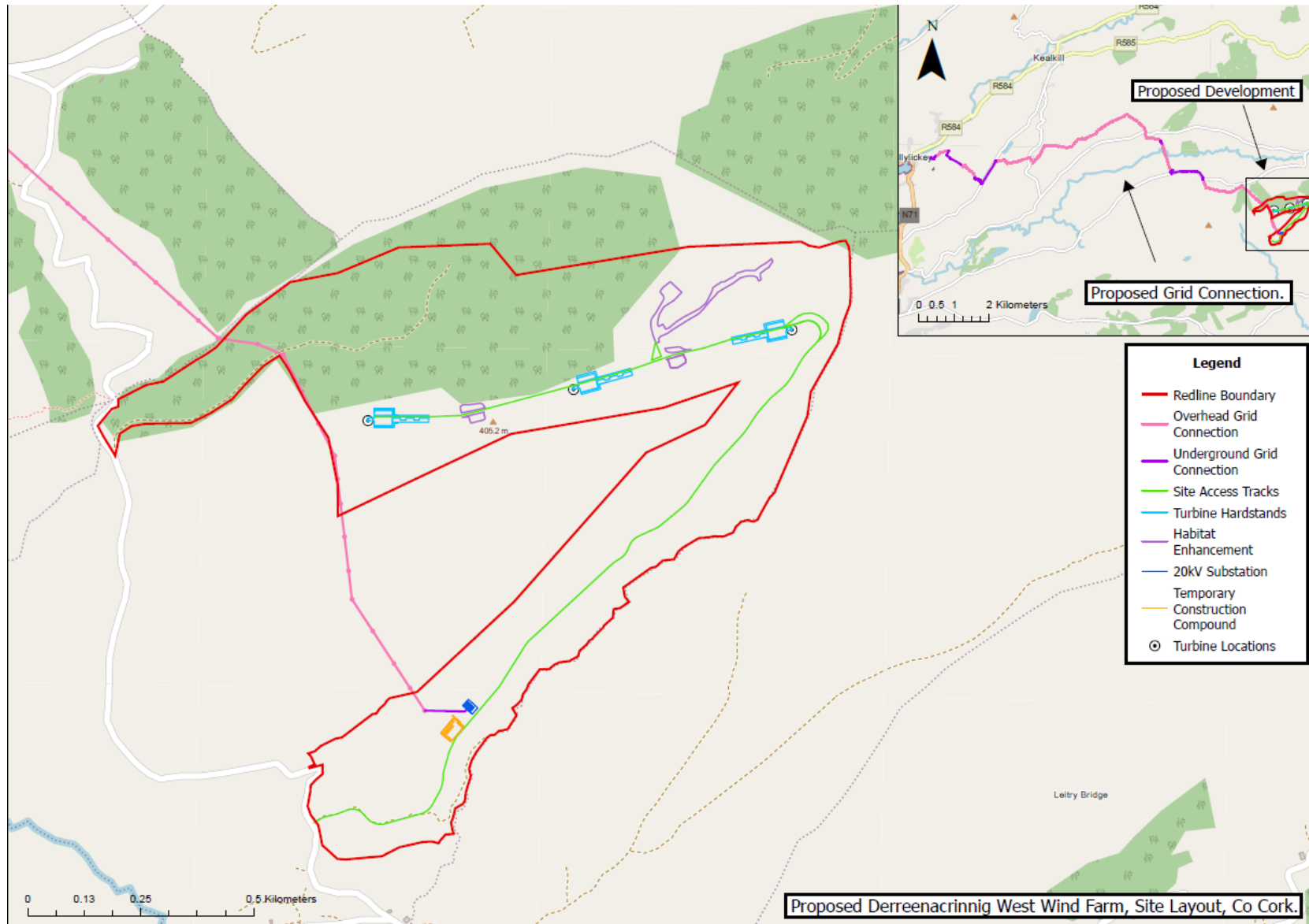


Figure NTS-1.2: Site Layout

The EIAR presents information on the identification and assessment of the potential significant environmental effects of the Project and reports the findings of the Environmental Impact Assessment (EIA) which has been undertaken in accordance with the Planning and Development Act 2000, as amended and the Planning and Development Regulations 2001, as amended.

The EIAR comprises the following documents:

- This Non-Technical Summary (Volume I)
- The Environmental Impact Assessment Report and Figures (Volume II)
- Technical Appendices (Volume III)
- Landscape and Visual Booklet (Volume IV)

These documents inform readers of the nature of the Project, likely environmental effects and measures proposed to protect the environment during the construction, operational and decommissioning phases of the Project.

2 NTS 2 ENVIRONMENTAL IMPACT ASSESSMENT

An EIA is required where there are likely to be significant effects on the environment due to the nature, size or location of a new development. Windfarms of the scale of the Proposed Development legally require an EIA to be carried out¹.

This EIAR has been prepared following a systematic approach to an EIA and project design, with knowledge of the potential effects being used to change the design so as to reduce those effects. The main EIA stages are:

- Scoping consultation (process of asking relevant organisations what they think should be included in the EIA) and how these topics are addressed
- Technical environmental assessments - baseline studies (understanding what the existing environmental conditions are), asking what potential significant environmental effects might occur, informing the design evolution and identification of measures to reduce undesirable effects
- Writing up the findings to include in the EIAR
- Submission of the planning application and EIAR

¹ Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

2.1 Scoping

Scoping and pre-application consultation is important to the development of a comprehensive and balanced EIAR. Requests for Scoping Opinions were submitted to the prescribed bodies and key consultees in December 2024. The requests were accompanied by a Description of the Project, a Site Location Map, an Overall Masterplan Drawing and a Scoping Letter. Scoping Opinions received are included as **EIAR Appendix 1.3** of **Volume III**. This includes agreement on excluding from the EIAR, assessment of effects on certain receptors or features and where it was agreed there was no potential for significant effects.

2.2 Public Consultation

A multistage approach was given to public consultation (**EIAR, Volume III Appendix 1.2**) comprising Public Information Day, newspaper advertising, and brochures / leaflet distributions.

Public consultation was generally supportive of the Project with the main concerns raised during the consultation centred on the visual impact of the development, water quality and biodiversity.

Environmental effects have been assessed throughout the EIAR, broadly with one chapter per technical discipline, generally representing a type of receptor of potential effects (e.g., birds). The assessments in each chapter follow a similar, systematic approach, to identify any effects that may be significant in the context of the EIA Regulations. The approach includes establishing the "Baseline", this being the current state of the environment, to which the Project will be added. This identifies the key receptors, including how sensitive they are to the sort of change that might be caused by the Project. The potential size (or magnitude) of change caused by the Project is then assessed, and the sensitivity and magnitude are considered together to form a conclusion on significance. Effects can be desirable (or "positive", or "beneficial"), or undesirable (or "negative", or "adverse"). Mitigation is proposed where possible to prevent significant undesirable effects. The final proposed effects are those after mitigation has been applied and are the "residual effects".

In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. These are effects that result from cumulative changes caused by past, present or reasonably foreseeable actions together with the Proposed Development. A list of projects that were assessed for cumulative effects are included in **EIAR Appendix 2.2**.

3 NTS 3 PROJECT DESCRIPTION

3.1 Wind Turbine Generator

The three turbines will have a height from base to tip of 119.3 m consisting of a rotor diameter of 82 m and a hub height of 78.3 m. The turbines will be of a typical modern, three blade, horizontal axis design, light grey in colour and the finish of the tower and blades will be semi-gloss and semi-matt respectively.

Each turbine will have a generator with a maximum capacity of 2.3 MW giving an overall capacity of the wind farm of 6.9 MW. The turbines may be direct drive machines or may contain a gearbox. The final turbine will be chosen in a competitive tendering process as part of the Project financing process, after all necessary consents have been secured.

3.2 Access to the Proposed Development

The Proposed Development will be accessed via the existing site access track which adjoins the Site to the L-8767. Where possible, the existing site access track will be kept, utilised and upgraded as necessary to access the proposed turbine locations. The existing site access tracks will be retained throughout the operational life of the Proposed Development to enable maintenance of the turbines and replacement of any turbine components.

The proposed turbine nacelles, tower hubs and rotor blades will be landed at the Port of Cork. From there, they will be transported to the Site via the N28, N40, N25, N71, R586, L4614, L4711 and the L8767 to the upgraded site entrance. The proposed turbine component delivery route is shown in **NTS-Figure 3.1**. The potential effects of transporting them and other materials is set out in **EIAR Chapter 11: Traffic and Transport**. Works will be required at 10 no. locations along the haul route (from Castledonovan to the Site entrance) but will involve minor works such as temporary, surface level civil works to create load bearing surfaces.

using new land, thereby reducing the amount of new land take required for the Proposed Development. The Site extends to 104 ha. The lands are under the ownership of third parties and the principal land use in the general area is comprised of agricultural sheep grazing, farmland and open mountain heath.

The Applicant will appoint a Civil Contractor who will have overall responsibility for management, including environmental management on the construction site. The Civil Contractor will ensure that construction activities are carried out in accordance with the mitigation measures outlined in the EIAR and as required by the planning permission, such as the Construction Environmental Management Plan (CEMP) included in **EIAR Volume III Appendix 2.1**. The services of specialist advisors will be retained as appropriate, such as an archaeologist and ecologist, to be called on as required to advise on specific environmental issues.

3.5 Site Restoration

A Habitat Management Plan, included as **EIAR Volume III Appendix 6.2** has been prepared to mitigate for the ecological effect of habitat loss as a result of the Project. The plan sets out measures for peat management and restoration. Site restoration will involve the restoration of approximately 0.85 Ha of site access tracks and Turbine Hardstands to a mix of heath and acid grassland habitat.

Figure NTS-1.2 shows the areas designated for habitat enhancement.

3.6 Operational Phase

The operational lifespan for the Proposed Development is 40-years. During the operational phase, turbine and infrastructure maintenance will be ongoing and regular. This is expected to continue to employ approximately 1 or 2 people on a permanent basis for regular operational and maintenance activities.

4 NTS 4 SITE SELECTION AND DESIGN

The layout design has evolved through a series of iterations, to avoid or minimise potential effects, including effects on views, hydrology, peat, ecology and fisheries, ornithology and noise, and also to use existing infrastructure onsite (Turbine Hardstands, site tracks, etc.). Technical criteria such as wind speed, prevailing wind direction, topography and ground conditions were considered during the design process, in response to guidance documents, survey findings and responses from consultees. Overall, it is considered that the proposal represents an optimum fit within the technical and environmental parameters of the Project.

5 **NTS 5 PLANNING POLICY CONTEXT**

EIAR Chapter 4: Planning Policy Context sets out the relevant planning policy and legislative background to the planning application. The Proposed Development has had regard to The National Planning Framework, The Regional Spatial and Economic Strategy (RSES) for The Southern Regional Assembly Area and the Cork County Development Plan 2022-2028. These documents are relevant to the determination of the planning application by the planning authority (Cork County Council).

The Proposed Development will help to meet the objectives of the Climate Action Plan 2025 (CAP2025) and the Climate Action Low Carbon Development (Amendment) Act 2021. Dereenacrinnig West Wind Farm will make an important contribution to Ireland's renewable energy targets. The Proposed Development will have a generating capacity of Approx. 6.9 MW and will be of economic and social importance to both the region and the state.

In summary the Proposed Development would:

- Contribute to the 45% overall renewable energy target for the EU introduced by the REPowerEU Plan in light of the war in Ukraine.
- Contribute to assisting Ireland to increase from 42% electricity produced by renewable sources in 2020 to 80% by 2030 to meet the national target.
- Contribute to the National Development Plan 2021-2030's National Strategic Outcome number 13 to diversify away from fossil fuels to green energy which includes wind.
- Contributes towards climate change mitigation as specified in the National Planning Framework's National Policy Objective 69.
- Contribute toward renewable energy use and generation as specified in the National Planning Framework's National Policy Objective 70.
- Contribute 6.9 MW of renewable wind energy to the national CAP2025 target of 9 GW by 2030, helping to reduce the current 4.2 GW shortfall.
- Comply with the Regional Spatial and Economic Strategy for the Southern region's goal of producing renewable energy to tackle climate change, meet predicted growth in demand and provide energy security.
- Support the local Cork County Development Plan Objective to reduce greenhouse gas emissions by promoting energy efficiency and the development of renewable energy sources utilising the natural resources of County Cork in an environmentally sustainable manner consistent with best practice and planning principles.
- Contribute to rural economic development in line with the Cork County Development Plans and of the RSES.

The Proposed Development will contribute to the generation of renewable energy in Ireland, fulfilling the requirement set by international policies, National Planning Policy, Regional Planning Policy and the Cork Development Plan policies and objectives.

6 NTS 6 POPULATION AND HUMAN HEALTH

A desk-based collection of data and consultation with local stakeholders was carried out to identify the potential effects of the construction, operational and Decommissioning phases of the Project. Population, settlement patterns, economic activity, employment, land use and topography, tourism, human health and property value are assessed in **EIAR Chapter 5: Population and Human Health**. Four geographical Study Areas were outlined for this assessment, namely, the area of:

- Study Area 1: The Site and Environs – District Electoral Divisions (DEDs) Dromdaleague North, Mealagh and Bantry Rural (90.4 km²).
- Study Area 2: Cork County (7,316 km²),
- Study Area 3: Southwest Region (12,120 km²); and
- Study Area 4: Ireland (70,273 km²).

In terms of population, the impact of the construction and Decommissioning phases on Study Area 1 is predicted to be slight positive and short-term in nature should workers relocate to the area. The potential effects on population during the operational phase will be imperceptible. The potential effects on population during the construction, operational and Decommissioning phases on the remaining Study Areas will also be imperceptible.

The potential effects on settlement patterns on Study Area 1 is predicted to be slight positive where increased local business is attracted to the area during the construction, operational and decommissioning phases. The potential effects on settlement patterns on the remaining study areas will be imperceptible.

Employees involved in the construction of the Project will most likely use local shops, restaurants and hotels/accommodation. Therefore, there will be a slight, positive impact on employment and economic activity in the Region during the construction and Decommissioning phases. There will be imperceptible effects during the operational phases in all Study Areas.

It is not expected that there will be any significant impacts associated with the Proposed Development during the construction, operational or Decommissioning phases of the Project. There will be no significant effects in study areas 2 to 4 during construction, operational or Decommissioning phases in relation to land-use and topography.

Based on the findings of the collective assessments in **EIAR Chapter 5: Population and Human Health**, it was considered that the Project will not give rise to any significant effects. Overall effects of the Project with regards to tourism are considered to be, short-term, slight, negative during the construction and Decommissioning phases. There will be a long-term, slight positive impact during operation due to improved tracks, information boards and waymarking.

EIAR Chapter 5: Population and Human Health addresses shadow flicker, noise, air quality, water contamination, traffic and accidents/disasters assessments are included in **EIAR Chapter 15: Shadow Flicker Analysis; EIAR Chapter 10: Noise; EIAR Chapter 9: Air and Climate; EIAR Chapter 8: Hydrology and Hydrogeology; EIAR Chapter 11: Traffic and Transport; EIAR Chapter 16: Major Accidents and Natural Disasters**. These chapters conclude that the effects on human health, once mitigation measures are implemented, is not significant.

The operation of a wind farm at the Site would not significantly impact on property values in the area. The Proposed Development will have a long-term imperceptible impact on property values in Study Area 1 and will have no impact in the surrounding Study Areas.

7 NTS 7 BIODIVERSITY

A desktop assessment was carried out to collate available information on the ecological baseline of the proposed land-holding and surrounding area. Consultation was undertaken with current landowners as well as relevant statutory and non-statutory agencies. In addition to the above the following research was also undertaken:

- A review of the National Biodiversity Database Centre (NBDC) to identify the presence or otherwise of protected species occurring within close proximity to the proposed site;
- A review of the NPWS online database to identify the presence or otherwise of designated conservation areas (i.e. SPAs, SACs, NHAs etc.);
- A review of Site-specific Conservation Objectives (SSCO) mapping, published by the NPWS, for SACs and SPAs;
- A review of EPA water quality data, on-line mapping and catchment information;
- A review of relevant Inland Fisheries Ireland (IFI) reports;
- A review of the online Bat Conservation Ireland Batlas;
- A review of the New Atlas of the British and Irish Flora (Preston et al., 2002);
- Review of aerial photography, satellite imagery and historical mapping for the proposed site.

An AA Screening has been prepared for the Proposed Development (DEC, 2025) and accompanies this planning application. The AA Screening assesses if the integrity of European Sites will be adversely affected.

The European Sites within the wider region surrounding the Proposed Development and examines which, if any, of these designated sites are located within the Zone of Influence of the Proposed Development are outlined in **NTS-Table 7.1** below.

NTS-Table 7.1: European Sites, NHAs & pNHAs

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
Bandon River SAC	Wet broadleaved semi-natural woodland is found in an undisturbed area of braided river channels and islands below Dunmanway. The river channels are well defined, and the islands appear solid. Canopy dominants are Hazel (<i>Corylus avellana</i>) and Sessile Oak (<i>Quercus petraea</i>), with scattered Downy Birch (<i>Betula pubescens</i>), Ash (<i>Fraxinus excelsior</i>), Rusty Willow (<i>Salix cinerea</i> subsp. <i>oleifolia</i>) and Alder (<i>Alnus glutinosa</i>). There is a very sparse understorey composed of Hawthorn (<i>Crataegus monogyna</i>), Holly (<i>Ilex aquifolium</i>)	[3260] Floating River Vegetation [91E0] Alluvial Forests* [1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1096] Brook Lamprey (<i>Lampetra planeri</i>)	12 km from the proposed wind farm and Grid Connection route	This SAC is located within a separate surface water catchment to the Project. There are no pathways connecting the wind farm to this SAC and its qualifying interests. This SAC is not located within the zone of influence of the Derreenacrinnig West Wind Farm. It is further noted that this SAC is not designated for terrestrial mobile species and no terrestrial mobile species (i.e. lesser horseshoe bats, marsh fritillary) pathway connects

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>and saplings of Hazel and Sessile Oak. Epiphytes are abundant on trees, including species such as Ivy (<i>Hedera helix</i>), Honeysuckle (<i>Lonicera periclymenum</i>) and bryophytes such as <i>Isothecium myosuroides</i>. The ground flora is dominated by Ramsons (<i>Allium ursinum</i>), Wood Anemone (<i>Anemone nemorosa</i>) and Ivy, along with Lesser Celandine (<i>Ranunculus ficaria</i>) and Irish Spurge (<i>Euphorbia hyberna</i>). Goldilocks Buttercup (<i>Ranunculus auricomus</i>), a very rare plant in Co. Cork, has been recorded from this woodland.</p> <p>Floating river vegetation is found along the length of the river and is dominated by water-crowfoots (<i>Ranunculus</i> spp). Other aquatic plants found include Alternate Water-milfoil</p>			<p>the wind farm site to this SAC.</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>(Myriophyllum alterniflorum), Broad-leaved Pondweed (Potamogeton natans) and at least four water-starwort species (Callitriche spp.). Mosses present on rocks and attached to tree roots include Fontinalis antipyretica in slack flow areas, and Fontinalis squamosa, Rhynchostegium riparioides and Amblystegium riparium in moderate flows. The landward fringe of deep pools supports Yellow Water-lily (Nuphar lutea), Bogbean (Menyanthes trifoliata), Marsh-marigold (Caltha palustris), Water Mint (Mentha aquatica) and Fool's Water-cress (Apium nodiflorum). Shoreweed (Littorella uniflora) and Six-stamened Waterwort (Elatine hexandra) are two species of local importance which are found in the river. In moderate current flow</p>			

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>below the Long Bridge, the larger stones are covered by the moss <i>Brachythecium rivulare</i> and the liverwort <i>Chiloscyphus polyanthos</i> var. <i>polyanthos</i>. Boulders covered in <i>Nostoc</i> algae are probably of local occurrence in Ireland. The liverwort <i>Riccardia chamaedryfolia</i> and the moss <i>Fissidens crassipes</i> found under the Long Bridge are considered to be rare in Ireland.</p>			
<p>Barley Cove to Ballyrisode Point SAC</p>	<p>This site is situated on the Mizen Head peninsula in the extreme south-west of Co. Cork. While rocky heath is the dominant habitat, the Site is most important for the sand dunes and related habitats which occur at Barley Cove. The dune system is of moderate size and relatively intact. The rare bryophyte <i>Petalwort</i></p>	<p>[1140] Tidal Mudflats and Sandflats [1220] Perennial Vegetation of Stony Banks [1310] <i>Salicornia</i> Mud [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [2120] Marram Dunes (White Dunes) [2130] Fixed Dunes</p>	<p>33 km from the proposed wind farm and Grid Connection route.</p>	<p>This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>(<i>Petalophyllum ralfsii</i>) has been recorded in this dune system. The dunes merge with a substantial area of saltmarsh which displays characters of both Atlantic and Mediterranean salt meadows. A fringe of glasswort (<i>Salicornia</i> spp.) occurs at the lowermost part of the saltmarsh and above the tidal rive</p>	<p>(Grey Dunes)* [4030] Dry Heath [1395] Petalwort (<i>Petalophyllum ralfsii</i>).</p>		<p>draining to the Meelagh River are connected to this SAC. As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.</p>
<p>Caha Mountains SAC</p>	<p>The Caha Mountains consist of Old Red Sandstone and form part of the dramatic backbone of the Beara Peninsula, between Turner's Rock (on the Glengarriff/Kenmare Road) and the Healy Pass. The best examples of blanket bog in the Site occur on the Glenlough plateau and in the saddle to the east of Knockastumpa. Wet heath is frequent at the Site and occurs as a mosaic, often in association with blanket</p>	<p>3110] Oligotrophic Waters containing very few minerals [3160] Dystrophic Lakes [4010] Wet Heath [4030] Dry Heath [4060] Alpine and Subalpine Heaths [6230] Species-rich Nardus Grassland* [7130] Blanket Bogs (Active)* [8110] Siliceous Scree [8210] Calcareous</p>	<p>18 km from the proposed wind farm; 8 km from the proposed Grid Connection route.</p>	<p>This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC.</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>bog and upland grassland, whilst alpine occupies the summits of the SAC. Lakes, the majority of which are dystrophic lakes, are frequent throughout the Site and especially on the Glenlough Mountain plateau. The Site contains Killarney Fern (<i>Trichomanes speciosum</i>).</p>	<p>Rocky Slopes [8220] Siliceous Rocky Slopes [1024] Kerry Slug (<i>Geomalacus maculosus</i>) [1421] Killarney Fern (<i>Trichomanes speciosum</i>)</p>		<p>As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.</p>
<p>Cloonee and Inchiquin Loughs, Uragh Wood SAC</p>	<p>Cloonee and Inchiquin Loughs, Uragh Wood SAC is located in a large U-shaped glacial valley on the northern side of the Caha Mountain range, to the west of Kenmare, Co. Kerry. The Site is a Special Area of Conservation (SAC) selected for the following habitats and/or species: The water of the lakes at this site is acidic and support Slender Naiad (<i>Najas flexilis</i>). Uragh Wood is a fine example of an oceanic, semi-natural oak woodland.</p>	<p>[3110] Oligotrophic Waters containing very few minerals [4010] Wet Heath [4030] Dry Heath [8220] Siliceous Rocky Slopes [91A0] Old Oak Woodlands [1024] Kerry Slug (<i>Geomalacus maculosus</i>) [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1421] Killarney Fern (<i>Trichomanes speciosum</i>)</p>	<p>27 km from the proposed wind farm; 17 km from the proposed Grid Connection route.</p>	<p>This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC. As such there is no hydrological</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
		[1833] Slender Naiad (Najas flexilis)		pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.
Derryclogher (Knockboy) Bog SAC	<p>Derryclogher (Knockboy) Bog SAC is situated under the summit of Knockboy Mountain (707 m) in Co. Cork.</p> <p>The areas of active mountain blanket bog occur as a complex mosaic with other upland habitats, namely grassland, heath, stream flushes and exposed rock. The bogs are mostly small (1-2 ha) but they occur with regularity on a series of gently sloping shelves across the mountainside.</p>	[7130] Blanket Bogs (Active)*	13 km from the proposed wind farm; 5.5 km from the proposed Grid Connection route.	<p>This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC.</p> <p>As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
				zone of influence of the Project.
Glanmore Bog SAC	Glanmore Bog is situated 3 km north-west of Hungry Hill, Co. Cork and 8 km southwest of the village of Lauragh, Co. Kerry.	[3110] Oligotrophic Waters containing very few minerals [3260] Floating River Vegetation [4010] Wet Heath [6230] Species-rich Nardus Grassland* [7130] Blanket Bogs (Active)* [1029] Freshwater Pearl Mussel (Margaritifera margaritifera) [1421] Killarney Fern (Trichomanes speciosum)	36 km from the proposed wind farm; 36 km from the proposed Grid Connection route.	This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC. As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.
Glengarriff Harbour and	Located to the south and north-west of Glengarriff Village in	[91A0] Old Oak Woodlands [91E0] Alluvial	16 km from the proposed	This SAC is located within the Owvane-Mealagh-

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
Woodland SAC	<p>west Cork, this site consists of a glacial valley opening out into a sheltered bay with rocky islets. The Site is a Special Area of Conservation (SAC) selected for the following habitats and/or species:</p> <p>Glengarriff woodland consists of a sizeable area of broadleaved semi-natural woodland whilst wet woodland occurs along parts of the Canrooska and Glengarriff rivers. In addition to the woodlands, the harbour is of great interest.</p>	<p>Forests* [1024] Kerry Slug (Geomalacus maculosus) [1303] Lesser Horseshoe Bat (Rhinolophus hipposideros) [1355] Otter (Lutra lutra) [1365] Common (Harbour) Seal (Phoca vitulina</p>	wind farm; 6 km from the proposed Grid Connection route.	<p>Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC.</p> <p>As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.</p>
Lough Hyne Nature Reserve And Environs	<p>This is a large coastal site (>400 ha) situated just east of Roaringwater Bay. It includes Lough Hyne Nature Reserve on its western end, Ballyally Lough, the adjacent marshland area along</p>	<p>Large shallow inlets and bays [1160] Reefs [1170] European dry heaths [4030] Submerged or partially</p>	20 km from the proposed wind farm and Grid Connection route.	<p>This SAC is located within a separate surface water catchment to the Project. There are no pathways connecting the wind farm to this SAC and its qualifying</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	the Bealariree Stream and the coastline eastwards to Gokane Point, including Tragumna Bay. The Site therefore encompasses a range of both marine and terrestrial habitats.	submerged sea caves [8330] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0]		interests. This SAC is not located within the zone of influence of the Derreenacrinnig West Wind Farm. It is further noted that this SAC is not designated for mobile species and no mobile species pathway connects the wind farm site to this SAC.
Maulagowna Bog SAC	Maulagowna Bog is located in Co. Kerry on the north-western slopes of the Caha Mountains, overlooking the Kenmare River inlet. The blanket bog is largely intact.	[7130] Blanket Bogs (Active)*	26 km from the proposed wind farm; 16 km from the proposed Grid Connection route.	This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC.

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
				As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.
Roaring water Bay And Islands	Roaringwater Bay, Co. Cork, is a wide, shallow bay located on the south-west coast of Ireland. The SAC includes the immediate coastline on the mainland from Long Island to Baltimore, together with the whole bay and most of the islands. Some of the larger islands included are Sherkin Island, Cape Clear Island, Heir Island, Horse Island, Castle Island and Long Island. These reefs emerge to form the islands on the south side of the bay and within the bay. Generally, the coast is low-lying but the southern edge rises, in line with the hills behind	Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] Phocoena phocoena (Harbour Porpoise) [1351] Lutra lutra (Otter) [1355] Halichoerus grypus (Grey Seal) [1364]	17 km from the wind farm and Grid Connection route.	The Ilen River, to which there is a hydrological pathway from the Project site, discharges to the Ilen Estuary which is not designated as part of this SAC. The nearest point of this SAC to the mouth of the Ilen River is approximately 3 km. In view of the significant distance separating the mouth of the Ilen River to the coastal waters in which this SAC is situated, this SAC is not located within the zone of influence of the Project.

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	Baltimore, to culminate in a summit of 160 m on Cape Clear.			<p>It is also noted that this SAC is not designated for terrestrial mobile species and no terrestrial mobile species (i.e. lesser horseshoe bats, marsh fritillary) pathway connects the wind farm site to this SAC.</p> <p>In view of the above no hydrological pathway or mobile species pathway (with respect to otters and indeed coastal seal populations) is identified as connecting the wind farm to this SAC and its qualifying interests. This SAC is not located within the zone of influence of the Derreenacrinnig West Wind Farm.</p>
Sheep's Head SAC	Sheep's Head in Co. Cork is a narrow peninsula with a north-east to south-west orientation, bounded on	[4010] Wet Heath [4030] Dry Heath [1024] Kerry Slug (Geomalacus maculosus).	23 km from the proposed wind farm; 14 km from	This SAC is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>the northern side by Bantry Bay and on the southern side by Dunmanus Bay.</p> <p>he rocky parts of the peninsula are covered by dry heath. Where water accumulates, especially in the depressions between the ridges of sandstone, peat develops more thickly and here wet heath or even small pockets of blanket bog are found.</p> <p>The Site is of note for holding a population of Kerry Slug.</p>		<p>the proposed Grid Connection route.</p>	<p>Meelagh River, the highest order watercourse connected to the Project within this catchment is not connected to this SAC. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SAC.</p> <p>As such there is no hydrological pathway connecting the Project to this SAC and this SAC does not occur within the zone of influence of the Project.</p>
<p>Beara Peninsula SPA</p>	<p>The Beara Peninsula SPA is a coastal site situated on the west coast of Co. Cork, south-west of the town of Kenmare. The Site supports an internationally important population of breeding Chough: 58 breeding pairs were</p>	<p>Chough Fulmar</p>	<p>40 km from the proposed wind farm; 30 km from the proposed Grid Connection route.</p>	<p>This SPA is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order watercourse connected to the Project within this catchment is not</p>

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>recorded within the Site in the 1992 survey and 54 in the 2002/03 survey. The Site also holds a nationally important population of Fulmar (575 pairs), and populations of other breeding seabirds including: Shag (12 pairs), Herring Gull (20 pairs), Lesser Black-backed Gull (4 pairs), Razorbill (5 pairs) and Black Guillemot (87 individuals in 1999) – all seabird data from 2000. The Site is also used by Peregrine (4 pairs in 2002).</p> <p>The Beara Peninsula SPA is one of the most important sites in the country for Chough, with a breeding population of international importance occurring.</p>			<p>connected to this SPA. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SPA.</p> <p>As such there is no hydrological pathway connecting the Project to this SPA and this SPA does not occur within the zone of influence of the Project.</p>
Sheep's Head to Toe Head SPA	<p>The Sheep's Head to Toe Head SPA is large site situated on the south-west coast of Co. Cork. It encompasses the high coast and sea cliffs from Sheep's</p>	Peregrine Chough	21 km from the proposed wind farm and Grid Connection route.	This SPA is located within the Owvane-Mealagh-Glengarriff-Coastal catchment. The Meelagh River, the highest order

Designated Site	Brief Description	Qualifying interests (Qis)	Distance (Km)	Zone of influence
	<p>Head to Mizen Head, Brow Head and Crookhaven in the west and from Baltimore to Tragumna Bay, Gokane Point and the Toe Head peninsula in the east. The Site supports an internationally important population of breeding Chough: 82 breeding pairs were recorded from the Site in the 1992 survey and 73 in the 2002/03 survey. The Mizen Head cliffs hold some of the highest concentrations of breeding pairs in Ireland. The Site supports a nationally important Peregrine population (7 pairs in 2002)</p>			<p>watercourse connected to the Project within this catchment is not connected to this SPA. No other watercourses draining the Project site and eventually draining to the Meelagh River are connected to this SPA. As such there is no hydrological pathway connecting the Project to this SPA and this SPA does not occur within the zone of influence of the Project.</p>

Existing Ecological Baseline

The habitats identified as occurring within the Site and TDR are listed in **NTS-Table 7.2**.

NTS-Table 7.2: Primary Associated EU Annex I Habitat Types

Annex I Code	Annex I Short Name in this report	Corresponding Level 3 Fossitt Habitat	Annex I Full Title Interpretations of these Annex I habitats in a European context are available from European Commission 2013 (EUR28).
			<i>EU Annex I habitats marked by an asterisk (*) are deemed to be priority habitats that are in danger of disappearing within the EU territory.</i>
4030	Dry heath	Dry heath HH1	European dry heath
4010	Wet heath	Wet heath HH3	North Atlantic Wet heath with Erica Tetralix
4060	Alpine and Sub-Alpine heath	Montane heath HH4	Alpine and Boreal heaths

The Site consists predominantly of exposed or thinly covered bedrock and a mosaic of wet heath/upland blanket bog. Areas of dry heath are found on elevated areas with exposed rock. A large conifer plantation occurs in the northern part of the Site. An elevated ridge runs across the centre of the Site in a north-east to south-west direction. Below this ridge the Site slopes off steeply to the south with more shallow peat soil. Vegetation along this slope indicates that there is a calcareous influence mostly likely due to the presence of glacial deposits. Peat depth across the majority of the Site is >0.5 m deep in particular on the southern slope. Blanket bog only occurs where the peat is >0.5 m. This mostly confined to the northern half of the Site where deep peat is found in pockets.

Wet heath HH3

The majority of the Site is characterised by wet heath habitat. Purple moor-grass (*Molinia caerulea*) is the dominant species with abundant Cotton grass (*Eriophorum vaginatum*.) also present. Stands of low-growing Western gorse (*Ulex gallii*), cross-leaved heather (*Erica tetralix*) and Ling (*Calluna vulgaris*) are also abundant in places. Moss cover is high in places and includes *Polytricum commune*, *Aulacomnium palustre* and *Sphagnum* species. Sedges including *Carex nigra* and *C. flacca* are also present. Other species include marsh lousewort (*Pedicularis palustris*), milkwort (*Polygala vulgaris*). Stands of rushes (*Juncus effuses*) are also abundant throughout this habitat. On the southern slope black bog rush (*schoenus nigrans*) is abundant in places, indicating a calcareous influence. At the bottom of the slopes some localised areas of flush occur in wetter areas.

In parts of the Site where peat depth is greater than 0.5 m, wet heath grades into small pockets of habitat more characteristic of upland blanket bog (PB2). Vegetation is dominated

by hares tail cotton grass, deergrass (*Scirpus cespitosus*) and ling. Cover of sphagnum mosses including *Sphagnum papillosum* and *S. capillifolium* is high in patches, particularly in a wet area. Such patches occur as discrete units within the overall wet heath habitat that dominates the land cover within the wind farm site not under the footprint of the existing wind farm infrastructure.

Dry siliceous heath (HH1)

Wet heath grades to dry siliceous heath habitat on elevated parts of the Site where exposed rock is present and peat soil is more free draining. The vegetation is dominated by ling (*Calluna vulgaris*) and bell heather (*Erica cinerea*) and grasses such as mat grass (*Nardus stricta*), sweet vernal (*Anthoxanthum odoratum*), couch grass (*Elymus sp.*) and meadow foxtail (*Alopecurus pratensis*), such patches occur as discrete units within the overall wet heath habitat that dominates the land cover within the wind farm site not under the footprint of the existing wind farm infrastructure.

Conifer plantation (WD4)

A large conifer plantation occurs in the northern part of the Site. It is a commercial forest consisting mostly of mature Sitka spruce (*Picea sitchensis*).

Upland rivers (FW1)

Two upland streams (FW1) drain the Site to the north and south. Both streams are characteristic of an upland eroding river channel with a substrate of bedrock and very little aquatic vegetation.

Buildings and artificial surfaces (BL3)

Buildings and artificial surfaces occur within the wind farm site and comprises of the existing wind farm access track and hardstand areas. The existing wind farm infrastructure on site was constructed during 2017 and 2018 as part of the consented wind farm development at the time. This habitat is artificial in nature and is generally devoid of vegetation.

The habitats occurring along the Grid Connection route are outlined in greater detail in **EIAR Chapter 6 – Section 6.5.2.1.2.**

A summary of results of the Aquatic Surveys that were undertaken at the Site are outlined in **NTS-Table 7.3** below.

NTS-Table 7.3: Summary Results of the Aquatic Surveys that were undertaken at the Site (WQ1-WQ2)

Water Quality Site	WQ1	WQ2
River/Stream Name	<i>Derreenacrinnig West Stream</i>	<i>Un-named Stream</i>
River Sub-basin	<i>Ilenn sub-catchment</i>	<i>Meelagh sub-catchment</i>
River/Stream Order	<i>1st Order</i>	<i>1st Order</i>
Margaritifera sensitive area	<i>Yes</i>	<i>Yes</i>
EPA code	<i>None Provided</i>	<i>20D25</i>
EPA Q-Value	<i>Not assigned</i>	<i>Not assigned</i>
Q-Value	<i>Q4 – 5</i>	<i>Q4 – 5</i>
WFD Class	<i>A</i>	<i>A</i>
WFD Status	<i>Good</i>	<i>Good</i>
Salmonid Suitability	<i>Marginal salmonid spawning and nursery habitat.</i>	<i>Important salmonid spawning and nursery channel.</i>

The two principal watercourses draining the Project site, the Derreenacrinnig East Stream and the un-named first order tributary draining the northern section of the wind farm site to the Meelagh catchment, are of a similar character and are first order streams that are representative of the Eroding Upland River (FL2) habitats. Both of the watercourses are representative of upland spate streams characterised by fast water flow and incised banks. The morphology of the streams are representative of high-gradient upland B-type zones (Rosgen, 1996) which are characterised by high gradients, boulder strewn beds with cobbles and gravels and a straight profile. The streams are generally free of macrophyte growth with the principal species recorded instream being *Fontinalis antipyretica*. Instream conditions are similar throughout with boulders, cobbles and gravels occurring throughout. Stream width is generally 1 m or less. High levels of shading occur along sections of the northern un-named stream as it flows through conifer plantation. The Derreenacrinnig East Stream flows through open land cover, albeit shading occurs in place where dense and tufted *Molinia caerulea* fringing the stream bankside.

Water quality in each of the streams is unpolluted. The macroinvertebrate assemblages recorded at each of the sampling points along the two streams was indicative of Q4-5/Q5 conditions.

The habitat rating of each of the four watercourses is provided in **NTS-Table 7.4**. This rating has been undertaken in line with the guidance outlined in Department of Agriculture's (Northern Ireland) Fisheries Division Advisory Leaflet "*The Evaluation of Habitat for Salmon and Trout*".

NTS-Table 7.4: Assessment of Fishery Habitat

Habitat	Parameter	Derreenacrinnig East Stream	Un-Named Stream
Spawning	Flow 300 – 600 mm ³ /s	Flows recorded at 600 l/s (significantly in excess of this guideline.	
	Water Depth 150 – 700 mm	Depths variable to <150 mm and between 150 and 700 mm.	Depths variable to <150 mm and between 150 and 700 mm.
	70% substrate 30 – 80 mm diameter	Substrate generally greater than this range.	Substrate generally greater than this range.
	Gravel depth 50 – 500 mm	Gravel depths <50 mm.	Gravel depths <50 mm.
	Grade	4	4
Nursery	20 – 250 mm depth	Depths variable and subject to frequent change	Depths variable and subject to frequent change
	0.5 – 8% Gradient	Gradient > than this range.	Gradient > than this range.
	Stable cobble/ boulder substrate >70%	Substrate unstable and subject to erosion during spate flows.	Substrate unstable and subject to erosion during spate flows.
	Adequate cover provided	Limited cover provided.	Limited cover provided.
	Grade	4	4
Holding	Minimum depth – 1 m	Absent	Absent

Habitat	Parameter	Derreenacrinnig East Stream	Un-Named Stream
	Stable bankside and substrate	Absent	Absent
	Grade	4	4

Fauna

Bats, Birds, Terrestrial Mammals, Herpetofauna, Kerry Slug, Protected Terrestrial Invertebrates, Fisheries and Invasive Alien Species were all assessed as part of the EIAR.

Potential Direct Effects on Bats During the Construction and Decommissioning Phase

Typical potential direct effects on bats during the construction and Decommissioning Phase relate to the direct loss of or disturbance to roost sites supports by buildings and other structures or trees. Given that no roost sites within the Proposed Development site there will be no potential for the construction and Decommissioning Phase to result in direct effects to bats.

Roost Survey

No structures occur within the Proposed Development boundary or within 200 m of the boundary. As such no roost surveys of structures were required or completed for the Project. No mature trees with potential for support roosting bats occur within the Proposed Development site. Trees occurring within the vicinity of the Project site are thin stemmed Sitka Spruce plantation trees to the north which do not support preferred roost features and are no suitable for supporting roosting bats.

Potential Direct Effects on Bats During the Construction and Decommissioning Phase

The potential direct effects on bats during the operational phase of the Project relates to the potential for collision with bats that use the proposed wind farm site. The proposed wind farm site has been identified as a site of low risk to bats, based on the size of the proposed wind farm and the habitats occurring within and adjacent to it.

The results of the bat monitoring on site and subsequent analysis using Kepel (2011) indicate that activity by Leisler's bat, Common pipistrelle, Soprano pipistrelle, Myotis species, brown long-eared bat and Nathusius pipistrelle within and adjacent to the proposed wind farm site is overall Low throughout the Site and throughout the bat activity season.

Myotis species and brown long-eared bats are considered to be at low risk of collision with operating turbines (NatureScot (2021)) and given the low levels of activity recorded for these species during monitoring, the proposed wind farm is predicted to present a low risk of collision to these species. These risks are assessed further in **Chapter 6-Section 6.6.4.6**.

Terrestrial Mammals – Badger and Otter

The lower sections of the Derreenacrinnig East Stream and the un-named stream downstream of the Site provide suitable foraging habitat for otters. The upper sections of these streams, near their sources adjacent to and within the wind farm site provide limited foraging habitat for otters owing to the silt conditions and variable flow rates in these upper sections, with limited fisheries resource.

No evidence indicating the presence of otters, their holts or couches were observed along the stretch of the Derreenacrinnig East Stream and un-named stream downstream of the wind farm site.

No badgers or their setts were observed during field surveys within the Site. The upland habitat on thin layers of soil and peat with rock at or close to the surface limits the suitability of the Site to support badgers and their setts.

No evidence of other mammal species such as fox, pine marten, Irish stoat, red squirrel, hedgehog and pygmy shrew were recorded during surveys. However, these species are likely to occur in the surrounding area.

Herpetofauna

Common frog (*Rana temporaria*) was frequently recorded within the Site. This species was recorded breeding in pooling water in depressions and in flushed habitat. Common lizard or smooth newt were not recorded during field surveys. However, the upland habitat with exposed rock within the Site provides suitable habitat for both these species and they are likely to occur within and surrounding the Site.

Kerry Slug

Kerry Slug occur within the landholding having been recorded on exposed siliceous rock habitat during torch light searches of suitable habitat along transects perpendicular to the proposed Grid Connection route. Aside from the recording of this species in the vicinity of the proposed wind farm site, no specimens were recorded during the nighttime torch surveys at other areas of suitable habitat along the proposed Grid Connection route.

Protected Terrestrial Invertebrates

The food plant of the marsh fritillary larvae *Succisa pratensis* occurs rarely at the proposed wind farm site and as such the proposed wind farm site does not offer suitable habitat for supporting this species.

Marsh fritillary has been recorded in the wider surrounding area with records for this species held of the townland of Torreen, approximately 9 km to the northeast of the proposed wind farm.

Fisheries

The upper sections of the Derreenacrinnig East Stream and the un-named stream draining the proposed wind farm site are of low fisheries potential owing to their upland 1st-order character with variable flow rates, subject to both flood and drying out. Downstream of the wind farm site, both streams provide suitable spawning habitat for salmonids and lamprey habitat.

The Ilen, Mealagh and Owvane Rivers downstream of the proposed wind farm site and crossed by the overhead line sections of the proposed Grid Connection route are important salmon rivers providing suitable habitat for all age classes of Atlantic salmon. Suitable lamprey habitat is also available throughout these watercourses.

Freshwater Pearl Mussel

The Proposed Development and Grid Connection route options are located within three WFD sub-catchments. These include the Ilen_010 sub-catchment, the Mealgh_SC_010 & Mealagh_020 sub-catchment, and Owvane (Cork)_030 sub-catchment and the Coomhola_SC_010 sub catchment. These sub-catchments occur within catchments that are listed as a *Margaritifera* Sensitive Areas. Freshwater pearl mussel are known to occur downstream of the proposed wind farm site and the proposed Grid Connection route along higher order watercourses of the catchment. No freshwater pearl mussel were recorded within the first order streams draining the Project site and conditions along these streams at the wind farm site are unsuitable for freshwater pearl mussel.

Invasive Alien Species

No non-native invasive species were identified within the Proposed Development site. *Rhododendron ponticum* occurs in the surrounding area. There are records for the presence of *Impatiens glandulifera*, *Fallopia japonica* and *Hyacinthoides hispanica* in the surrounding area.

Records for the following non-native fauna have been recorded within the 2 km buffer zone of the Project site: Mink, Bank Vole, Rabbit and Jenkin's Spire Snail.

Potential Effects

A full assessment of potential effects is included in **EIAR Chapter 6**. Where negative potential effects are predicted, measures are included to mitigate these effects. Once all mitigation measures are implemented the residual effects are Not Significant. The potential effects, mitigating measures and residual effects are summarised in **NTS-Table 7.5**.

NTS-Table 7.5: Assessment of Residual Effects

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
European Sites	No European Sites are located within the zone of influence of the Project.	No significant effects to European Sites are identified	Unlikely	No mitigation measures specific to the protection of European Sites are required given the absence of likely significant effects to European Sites.	No residual adverse effects
NHAs	No NHAs are located within the zone of influence of the Project.	No significant effects to NHAs are identified	Unlikely	No mitigation measures specific to the protection of NHAs are required given the absence of likely significant effects to NHAs.	No residual adverse effects
pNHAs	No pNHAs are located within the zone of influence of the Project.	No significant effects to pNHAs are identified	Unlikely	No mitigation measures specific to the protection of pNHAs are required given the absence of likely significant effects to pNHAs.	No residual adverse effects
Wet heath, wet grassland, hedgerow & scrub	Minor temporary disturbance to habitats during the installation of the underground electrical cable. Minor disturbance to habitat during the installation of polesets.	Temporary, reversible, imperceptible to slight negative impacts for the installation of the underground electrical cable. Permanent, imperceptible to slight negative impact for the installation of polesets.	Certain	Reinstatement of wet heath, wet grassland, hedgerow and scrub habitat temporarily disturbed during the installation of the underground electrical cable.	No long-term to permanent residual impact associated with the underground electrical cable installation. Permanent, imperceptible to slight impact associated with the overground electrical cable.

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
Aquatic Habitats	Potential for the discharge of pollutants such as sediment or hydrocarbons downstream to aquatic habitats.	The significance of impact will depend upon the magnitude of the pollution event (i.e. the levels of pollution released). Any pollution event with the potential to result in short to long-term perturbations to the status of receiving aquatic habitats.	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set out in Chapter 7 & 8. The implementation of mitigation measures will negate the potential for this impact to arise.	Imperceptible
Fisheries and Aquatic Fauna	Potential for the discharge of pollutants such as sediment or hydrocarbons downstream to aquatic habitats that support fisheries and aquatic fauna.	The significance of impact will depend upon the magnitude of the pollution event (i.e. the levels of pollution released). Any pollution event with the potential to result in short to long-term perturbations to the status of receiving aquatic habitats to support fisheries and aquatic fauna.	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set out in Chapter 6, 7 & 8. The implementation of mitigation measures will negate the potential for this impact to arise.	Imperceptible
Otters	Potential for indirect impacts to otters as result of perturbations to aquatic habitats	The significance of impact will depend upon the magnitude of the pollution event (i.e. the levels of pollution released).	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control	Imperceptible

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
	downstream that are relied upon by otter or provide suitable habitat for otters.	Any pollution event with the potential to result in short to long-term perturbations to the status of receiving aquatic habitats to support otters.		measures. Implementation of all mitigation measures set out in Chapter 6, 7 & 8 . The implementation of mitigation measures will negate the potential for this impact to arise.	
Bats	Low risk of potential impacts during the operation phase to bat species	Potential for imperceptible to slight negative impacts to the local population of Soprano pipistrelle and Common pipistrelle populations.	Possible	Implementation of mitigation measures set out in Chapter 6 - Section 6.7 of the EIAR .	The adjudged worst-case scenario is that, during operation, the turbines may possibly cause injury or death to a few individual specimens of bats such as Leisler's bat as it is a high-flying species (10 m to 70 m+). However, the results of Baseline monitoring indicates that Leisler's bat and other bat species do not rely on the surrounding area for foraging and that the risk of collision will be low. Operation phase monitoring will provide further evidence to confirm the low risk of collision to bats, and in the

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
					<p>unlikely event that operation phase monitoring identifies a higher than low risk to bats, measures can be implemented to reduce this risk through amendment to the operating regime of turbines during periods of higher than low risk levels.</p> <p>The resulting effect of the Proposed Development on local bat populations, with implemented mitigation measures, is considered to be a imperceptible to slight residual negative reversible effect and in the local context with the favourable conservation status (FCS) of bat species being unaffected and all species confirmed or expected on or near the study areas are predicted to persist.</p>

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
Birds	Risks of impact to bird receptors have been identified to be very low to low.	Very low to low impact to bats as per the Percival assessment method cross tabulates to an impact of imperceptible to slight significance.	Likely	Mitigation measures have been set out to minimise impacts to birds during the construction phase and to monitoring the operation phase to confirm no changes in bird activity in the vicinity of the wind farm and or changes to the potential impact posed by the wind farm to birds informed by the Baseline conditions.	The adjudged worst-case scenario is that, during operation, the turbines may possibly cause injury or death to a few individual specimens of birds. However, the results of Baseline monitoring indicates that sensitive bird species do not rely on the wind farm site for nesting, roosting or foraging and that the risk of collision will be low. Operation phase monitoring will provide further evidence to confirm the low risk of collision to birds, and in the unlikely event that operation phase monitoring identifies a higher than low risk to birds, measures can be implemented to reduce this risk through amendment to the operating regime of

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
					<p>turbines during periods of higher than low risk levels. The resulting effect of the Proposed Development on local bird populations, with implemented mitigation measures, is considered to be a imperceptible to slight residual negative reversible effect and in the local context with the favourable conservation status (FCS) of bird species being unaffected and all species confirmed or expected on or near the study areas are predicted to persist.</p>
Herpetofauna	Mortality resulting from construction works. Loss of foraging habitat.	Potential for impacts to the local common frog populations.	Likely	<p>Minimise ground disturbance. Timing of works. Habitat management measures as part of the Habitat Management Plan. Implementation of mitigation measures set out in EIAR Chapter 6 - Section 6.7.</p>	Imperceptible

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
Terrestrial Invertebrates	Loss of habitat.	Potential for impacts to the local terrestrial fauna populations.	Likely	Minimise ground disturbance. Timing of works. Habitat management measures as part of the Habitat Management Plan.	Imperceptible

A desk study and consultation were carried out to collate and review available information, datasets and documentation sources pertaining to the Site's natural environment.

The main sources of general information relating to bird that were used as part of the desktop study comprise:

- The journal, Irish Birds, published by BirdWatch Ireland
- Records from the NPWS website (www.npws.ie)
- Records from the National Biodiversity Data Centre website (www.biodiversityireland.ie)
- The Atlas of Breeding Birds in Britain and Ireland (Sharrock, 1976)
- The Atlas of Wintering Birds in Britain and Ireland (Lack, 1986)
- The New Atlas of Breeding Birds in Britain and Ireland 1988-1991 (Gibbons *et al.* 1993)
- Bird Atlas 2007-2011. The breeding and wintering birds of Britain and Ireland (Balmer *et al.* 2013)

In addition to the above, a thorough review of the findings of bird surveys for other wind farm projects occurring in the wider surrounding area was also undertaken. Of particular relevance in this regard are the findings of Baseline bird surveys completed for the Gortloughra Wind Farm, located approximately 6 km to the northwest.

The Project is not located within any European site or nationally designated site for conservation. The potential for effects on designated sites is fully described in the AA Screening that accompanies this application.

Vantage Point Survey

The primary objective of the bird surveys completed for the proposed wind farm is to:

- Establish the presence and behaviour of raptors (and in particular hen harrier and merlin) over the wind farm site;
- Obtain data on the movements of target species (hen harrier and merlin) which would facilitate an analysis of foraging activity and collision risk;
- Identify any nest sites or winter roost sites used by hen harriers or other raptors;
- Identify any flight paths used by non-breeding waterfowl.

The bird surveys involved vantage point surveys of the proposed turbine locations and existing operational wind turbines. The methodology adopted for the vantage point surveys was derived from the Scottish Natural Heritage (SNH) *Recommended bird survey methods to inform impact assessment of onshore wind farms* (2017). SNH guidance for surveys at

wind farms recommend that field surveys focus on those species of high nature conservation value for which there is potential for impacts to occur. These target species in Ireland are derived from the following sources:

- Bird species listed on Annex 1 of the EC Birds Directive;
- Special conservation interest bird species of the SPAs that occur within the zone of influence of a project; and
- those species that are of medium (amber) and high (red) conservation concern (i.e. Red Listed species).

The list of target species applicable to the Derreenacrinnig West Wind Farm has been refined following the results of the Baseline field surveys and the species, falling into the above listed sources, that were recorded during surveys and identified as key ornithological receptors for the Derreenacrinnig West Wind Farm.

Where species that are listed under the above listed sources were recorded during Vantage Point surveys the following information was to be recorded:

- The number of individuals of each target species in flight;
- The length of time the target species was viewed in flight;
- The estimated flight height of each target species recorded during Vantage Point surveys. The flight height is estimated by placing the flight into one of three height bands: >125 m; 35 m to 130 m; and <35 m²; and
- The behaviour of the target species.

NTS-Table 7.6 details the key bird species that are Protected and/or of conservation concern occurring within a 2 km distance of the Project.

NTS-Table 7.6: Bird species that are Protected and/or of conservation concern occurring within a 2 km distance of the Project

Common Name	Latin Name	Date of Record	Conservation Status	Legal Status
Barn Owl	Tyto alba	08/02/2018	Red	Wildlife Act
Barn Swallow	Hirundo rustica	31/12/2011	Amber	Wildlife Act

² The flight bands are based on the minimum and maximum height (i.e. 35 m and 125 m respectively) of the rotor blade sweep of typical commercial wind turbines.

Common Name	Latin Name	Date of Record	Conservation Status	Legal Status
Black-headed Gull	Larus ridibundus	31/12/2011		Wildlife Act
Common Grasshopper Warbler	Locustella naevia	31/12/2011	Amber	Wildlife Act
Common Greenshank	Tringa nebularia	31/12/2011	Amber	Wildlife Act
Common Kestrel	Falco tinnunculus	31/12/2011	Amber	Wildlife Act
Common Kingfisher	Alcedo atthis	31/12/2011	Amber	Annex 1; Wildlife Act
Common Linnet	Carduelis cannabina	31/12/2011	Amber	Wildlife Act
Common Redshank	Tringa totanus	31/12/2011	Red	Wildlife Act
Common Snipe	Gallinago gallinago	31/12/2011	Amber	Wildlife Act
Common Starling	Sturnus vulgaris	31/12/2011	Amber	Wildlife Act
Common Wood Pigeon	Columba palumbus	31/12/2011		Wildlife Act
Eurasian Curlew	Numenius arquata	24/12/2024	Red	Wildlife Act
Eurasian Oystercatcher	Haematopus ostralegus	31/12/2011	Amber	Wildlife Act
Eurasian Wigeon	Anas penelope	31/12/2011	Amber	Wildlife Act
Eurasian Woodcock	Scolopax rusticola	31/12/2019	Amber	Wildlife Act
Goosander	Mergus merganser	31/12/2011	Amber	Wildlife Act
Great Black-backed Gull	Larus marinus	31/12/2011	Amber	Wildlife Act

Common Name	Latin Name	Date of Record	Conservation Status	Legal Status
Great Cormorant	Phalacrocorax carbo	31/12/2011	Amber	Wildlife Act
Great Northern Diver	Gavia immer	14/11/2021	Amber	Annex 1; Wildlife Act
Herring Gull	Larus argentatus	31/12/2011	Amber	Wildlife Act
House Martin	Delichon urbicum	31/12/2011	Amber	Wildlife Act
House Sparrow	Passer domesticus	31/12/2011	Amber	Wildlife Act
Little Egret	Egretta garzetta	20/11/2021		Annex 1; Wildlife Act
Mallard	Anas platyrhynchos	31/12/2011	Amber	Wildlife Act
Mute Swan	Cygnus olor	31/12/2011	Amber	Wildlife Act
Northern Wheatear	Oenanthe oenanthe	21/05/2016	Amber	Wildlife Act
Red Grouse	Lagopus lagopus	05/03/2023	Red	Wildlife Act
Red-billed Chough	Pyrhcorax pyrrhcorax	20/05/2016	Amber	Annex 1; Wildlife Act
Red-breasted Merganser	Mergus serrator	31/12/2011	Amber	Wildlife Act
Ringed Plover	Charadrius hiaticula	31/12/2011	Amber	Wildlife Act
Sand Martin	Riparia riparia	31/12/2011	Amber	Wildlife Act
Short-eared Owl	Asio flammeus	20/08/2018	Amber	Annex 1; Wildlife Act
Sky Lark	Alauda arvensis	11/05/2019	Amber	Wildlife Act
Spotted Flycatcher	Muscicapa striata	31/12/2011	Amber	Wildlife Act
White-tailed Eagle	Haliaeetus albicilla	21/05/2016	Red	Annex 1; Wildlife Act

Common Name	Latin Name	Date of Record	Conservation Status	Legal Status
Yellowhammer	Emberiza citrinella	31/12/2011	Red	Wildlife Act

Potential Direct Effects on Birds During the Construction and Decommissioning Phase

Wind farm site

The construction phase of the wind farm will not result in the loss of any habitat for bird species.

Overground Electrical Cable

The minor nature of the works associated with the installation of polesets and the avoidance of any loss of hedgerow and broadleaved woodland habitat during poleset installation will minimise impacts to birds during the construction phase. Species occurring at and in the vicinity of poleset locations comprise commonly occurring ground dwelling birds such as meadow pipit and skylark of low to medium sensitivity. The installation works will have the potential to result in an impact of brief, very low to low significance to bird species.

Underground Electrical Cable

The underground cable will result in the temporary disturbance to discrete areas of hedgerow and scrub habitat during the construction phase. Minor areas of wet heath also occur along two no. section of the underground electrical cable route. The overall extent of hedgerow, scrub and wet heath habitat loss will be imperceptible in the context of the prevalence of these habitats in the surrounding area. The construction impact will also be temporary with hedgerow, scrub and wet heath to be reinstated over the underground electrical cable sections upon installation and backfilling. In view of the above the installation of the underground electrical cable is not predicted to have the potential to result in significant effects to the status of the local breeding bird population, which are considered to be of low to medium sensitivity. As per **EIAR Chapter 6 - Table 6.7**, a negligible/imperceptible effect to species of low to medium sensitivity will represent an impact of short-term very low significance.

Turbine Delivery Works (TDR)

The TDR works will result in the temporary disturbance to discrete areas of hedgerow and scrub habitat during the construction phase. The overall extent of hedgerow and scrub habitat loss will be imperceptible in the context of the prevalence of these habitats in the surrounding area. The construction impact will also be temporary with hedgerow and scrub

to be reinstated upon completion of turbine delivery. In view of the above, the temporary removal of hedgerow and scrub habitat at the TDR widening locations is not predicted to have the potential to result in significant effects to the status of the local breeding bird population, which are considered to be of low to medium sensitivity.

With the implementation of mitigation measures as presented in this report, the Decommissioning/Construction Environmental Management Plan and a Habitat Management Plan the potential impacts are reduced to the level of not significant, while providing wide ranging benefits to species found on the Site. The ornithological assessment is based upon the observed field data and findings, published information and research and best practice guidance. Overall, it is considered that with the implementation of mitigation, the Proposed Development will have an Imperceptible to Slight Reversible Residual Effect and in the local context on birds.

7.1 Potential Direct Effects on Birds during the Operation phase

Collision can result in the direct mortality or lethal injury of birds and can result not only from collisions with wind turbine blades but also with other structures associated within wind turbines such as towers, nacelles etc. Collision risk can be influenced by topography and weather, particularly during periods of poor visibility i.e. fog. Other factors influencing collision risk include species-specific flight behaviour and morphology (de Lucas *et al*, 2008).

Collision Risk to Buzzard

Based on the absence of any evidence of breeding in the vicinity of the proposed wind farm and the low level of flight activity recorded within the flight Survey Area or within the rotor sweep area of the turbines the risk of collision to buzzards is assessed as being a low magnitude impact. A low magnitude impact to this species of low sensitivity, will represent an impact of very low significance. Even assuming a worst-case scenario of a medium magnitude impact to this species of low sensitivity, the significance of the effect will still be very low.

Collision Risk to Hen Harrier

It is noted that hen harrier may be at greater risk during display flights and during fledgling flights. However, no evidence of breeding hen harrier was recorded during monitoring and this species is not considered to breed within the flight Survey Area or wider surrounding area. As such, based on the results of Baseline surveys, the potential for collision between hen harriers during display flights and the proposed turbines will not arise.

In light of the above evidence, it is considered that potential for collision with hen harrier will be negligible representing an effect or risk of negligible magnitude. A negligible magnitude effect to this species of high sensitivity will represent an impact of very low significance.

Collision Risk to Chough

Chough were identified breeding in the wider region surrounding the wind farm site. At least 2 no. nest sites are located within a c. 1.5 km distance of the nearest proposed turbine. A total number of 27 chough flights were observed during bird surveys. None of the flights were recorded within the FSA or the rotor swept area of the wind farm. The habitats occurring within the wind farm site and the vicinity of the proposed turbines does not provide suitable foraging, breeding, roosting conditions for chough. In view of the above the potential for turbine collision with chough will be negligible, representing an effect or risk of negligible magnitude. A negligible magnitude effect to this species of high sensitivity will represent an impact of very low significance.

Collision Risk to Kestrel

A total of 26 kestrel flights, amounting to 1,800 seconds, were recorded during bird surveys. None of the observations for this species were indicative of breeding within or in the vicinity of the proposed wind farm. Of the 1,800 seconds of flight observation, 975 seconds were observed within the FSA, amounting to c. 0.08% of the total survey time. Kestrel was not observed flying within the rotor swept area during the bird surveys.

Based on the absence of any evidence of breeding in the vicinity of the proposed wind farm and the overall low level of flight activity recorded within the flight Survey Area and within the rotor sweep area in the vicinity of the proposed turbines, the potential for collision is assessed as being a negligible magnitude impact. A negligible magnitude impact (which assumes a loss of <1% of the kestrel population over the lifetime of the wind farm) to this receptor of medium sensitivity will represent an impact of very low significance.

Further collision risks of birds with the proposed wind farm site and Grid Connection development are assessed in **Chapter 6 – Section 6.6.4.7.1** of the EIAR.

8 NTS 8 LAND AND SOILS

Chapter 7: Land and Soils, of the EIAR evaluates the effects of the Project arising from the construction/decommissioning and operational phases on the land, soils and geology within and surrounding the red line boundary. The assessment is based on desk studies and Site surveys.

The wind farm site is located on undulating mountainous terrain which forms part of upland ridges extending from Dunmanway to Sheep's Head. The terrain is controlled by the underlying bedrock geology, which has been folded to form southwest-northeast orientated ridges. Bedrock outcrop is frequent across the Site, generally with a thin veneer of peat developed; thicker peat deposits are developed locally in small basins, confined by bedrock ridges. The landholding extends to approximately 144 hectares (ha) and ranges in elevation from approximately 200 m to 402 mOD (Malin Head). Turbines are proposed between elevations of approximately 357 mOD and 398 mOD. Site location map is provided as **Chapter 2 - Figure 2.2 of the EIAR.**

The Site is currently used for rough grazing of sheep and commercial forestry. The commercial forestry is located on the northern side of the landholding. The Site is serviced by the wind farm access road which was constructed in 2018 as permitted by planning permission 10/857 / PL 88.239767. This road joins with forestry roads on the northern side of the Site, which extend to the rock borrow pit and also to the public road (L-8767-0).

Landslide susceptibility mapping has been carried out by GSI (refer to GSI online web-mapping), based on slope and soil cover. Eight classifications for landslide susceptibility are mapped, ranging from Low to High. The Derreenacrinnig West Wind Farm site ranges from 'low' to 'high', with most of the Site mapped as 'moderately high' or 'high'. The southern section of the Grid Connection is also in areas mapped as having 'moderately high' or 'high' landslide susceptibility. Most of the remainder of the route is mapped as having 'low' to 'moderately low' landslide susceptibility. Most of the delivery route upgrade is mapped as having 'low' landslide susceptibility, with the central part of the route mapped as having 'moderately high' to 'high' landslide susceptibility.

The ground conditions of the Site consist of a thin peat cover on steep slopes with slightly thicker peat deposits on shallower slopes. The Wind Farm Planning Guidelines (Appendix 4 – Best Practice for Wind Energy Development in Peatlands) requires that a geotechnical and landslide risk assessment '*is be carried out where depth of peat is in excess of 50cm*'. As the Site is largely developed and no works are required in areas with peat, a peat landslide risk assessment is therefore not required. One was completed by MEL for the original EIA. It concluded that there was low risk of peat instability during the construction phase and so, adopting the precautionary principle, site-specific mitigation measures were proposed. Mitigation by design (i.e., the avoidance of areas with steep gradient and deeper peat) was used to minimise risk of peat landslide. The construction of the wind farm roads

and Turbine Hardstands was largely completed in 2017 / 2018 with no incidents of peat / soil / rock landslide.

For the Grid Connection, most of the trenching for the underground sections are along public roads, with some offroad sections which are underlain by tills or rock near surface. The extent of trenching within peat is at the southern end of the Grid Connection at the approach to the on-site Electrical Substation. As the peat there is shallow overlying bedrock, peat landslide risk is negligible. Some of the OHL sections are in areas with steep topography and blanket peat. The poles for these OHL sections were installed previously without any peat stability issues. Also, as noted safe ingress / egress routes to and from pole positions have been established.

The Project is considered to be of 'Low Risk' to landslide susceptibility.

The likely significant effects on land, soils and geology arising during the construction phase as a product of the Project are identified as follows:

- Peat Stability
- Peat Landslide Risk Assessment
- Rock Stability
- Geological Heritage
- Road, Hardstand and Foundation Construction
- Road, Hardstand and Foundation Restoration
- Electrical Substation Construction
- Grid Connection
- TDR upgrade
- Internal Cabling
- Soil Contamination
- Demand on Quarries
- Land Use Change

There are no likely significant potential impacts on land, soils and geology during the operational phase of the wind farm and Grid Connection. No works on the TDR upgrade is envisaged during the operational phase of the Project. Some traffic will be associated with the maintenance of turbines and these maintenance vehicles and activities could result in minor accidental leaks or spills of fuel/oil. Unmitigated this would be a localised, imperceptible, temporary negative effect on soil quality.

Maintenance of access roads will also require the occasional use of plant or machinery which could result in minor contamination as a result of leaks or spills due to an accident, breakdown or poor maintenance. Unmitigated this would be a localised, imperceptible, temporary negative effect on soil quality.

It is possible that during the lifespan of the Grid Connection, faults in the cable would necessitate repair or replacement of sections of the cable, but this would likely be done at the jointing bay locations. The fault location would be identified using non-intrusive techniques and the cable section replaced by accessing it at the two jointing bays either side. There would be a temporary localised imperceptible neutral impact on soils / geology as the materials excavated would be reused as backfill. No significant impact on soils / geology is envisaged for repair works on the OHL sections of the Grid Connection, if for example a pole needed to be replaced.

The impacts on land use will have already been realised with the construction of the wind farm. The operation of the wind farm will represent a diversification of land use, a long-term positive effect. The other uses (farming and forestry) can continue on the lands.

The potential impacts associated with Decommissioning will be similar to those associated with construction but of reduced magnitude.

During Decommissioning, it may be possible to reverse or at least reduce some of the impacts caused during construction by rehabilitating some construction areas. This will be done by covering developed areas with locally sourced tills and peat to encourage vegetation growth. Other impacts such as possible soil compaction and contamination by fuel leaks will remain during site restoration but will be of reduced magnitude.

Planning documentation for wind farm developments close to Derreenacrinnig West Wind Farm were reviewed as part of the cumulative impact assessment. With the separation distances involved, the mitigation measures employed during their construction, or that proposed, no significant cumulative impacts are likely in relation to land, soils and geology.

The mitigation measures to be employed during the completion of the Project to avoid, reduce and minimise the potential impacts on land, soil and geology are set out below. These measures cover the three main components of the Project (wind farm, Grid Connection and TDR upgrade). Measures specific to each component are provided below.

1. A CEMP has been prepared for the Proposed Development. This will be updated and finalised prior to remobilising to site to complete construction. The CEMP will reflect the mitigation measures detailed in this EIAR.
2. A Construction Manager will be appointed to oversee construction. The Construction Manager will have overall responsibility to ensure the environmental protection measures and commitments given in the CEMP / EIAR are implemented
3. The Developer will appoint an Environmental/Ecological clerk of works (ECoW) for the duration of the construction project. The ECoW will have an ecological and environmental management background with practical experience of wind farm construction projects. The ECoW will monitor the environmental aspects of construction (soil storage, stability, day-to-day excavation works, etc.). The ECoW will have the authority to instruct the contractor to implement additional mitigation measures, if deemed appropriate. The ECoW will maintain a written record of all environmental issues on site, including incidents and monitoring results. This file will be made available to the relevant Authorities upon request. The ECoW will be responsible for notifying the relevant Authorities of any environmental incident.
4. In addition to the day-to-day monitoring of excavation works by the ECoW, inspections of the excavation works (rock cuts, soil storage, etc) will be carried out by suitably qualified and experienced geotechnical personnel.
5. To minimise soil erosion, earthworks will be suspended during extreme weather conditions. An extreme rainfall event will be classified as an event that corresponds to the Met Éireann Orange – Weather Alert for rainfall. The ECoW will monitor the weather forecast to make preparations ahead of adverse weather conditions.

NTS-Table 8.1: Met Éireann Orange – Weather Alert for rainfall

Met Eireann Orange – Weather Alert for Rainfall
50 mm – 80 mm in 24 hrs
40 mm – 60 mm in 12 hrs or less
30 mm – 50 mm in 6 hrs or less

6. Concrete, concrete products and aggregates needed for the construction will only be sourced from authorised quarries, at which appropriate environmental controls are implemented per planning conditions.
7. Rock imported into site will be sourced from a quarry with similar geochemistry to the bedrock on site, i.e., siliceous rocks - limestone quarries will not be used.

8. Surface water management infrastructure will be installed as detailed in **Chapter 8: Hydrology and Hydrogeology**, which will avoid / reduce soil erosion.
9. Hydrocarbons (oils, diesel and chemicals) will be stored and managed in an appropriate manner to ensure no negative impacts on land, soils, and geology. Specific measures will include:
 - a. Toolbox talks on storage and management of hydrocarbon and refuelling of vehicles will be given to delivery drivers in addition to plant operatives.
 - b. Any storage of oils and diesel will be in steel or plastic tanks of good integrity and bunded to 110% of tank capacity. All fuel and hydraulic fluids will be stored in the Site COSHH store located in the Temporary Construction Compound.
 - c. Refuelling will be at discrete 'fuel stations', to be designated for the purpose of safe fuel storage and fuel transfer to vehicles.
 - d. Refuelling may be carried out directly from delivery vehicles or from bunded fuel bowzers. Refuelling of mobile plant will not take place within 50 m of any sensitive receptor, such as a drinking water supply well or watercourse.
 - e. The plant used during construction will be regularly inspected for leaks and fitness for purpose.
 - f. Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice.
 - g. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the Site and properly disposed of.
 - h. Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or re-cycling.
 - i. Appropriate spill control equipment, such as oil soakage pads, will be kept in the Site plant to deal with any accidental spillage. Spare spill kits will be kept at the Temporary Construction Compound. Spill kits will be at hand during refuelling of vehicles.
 - j. Only emergency repairs to machinery will be permitted on site. Machinery requiring maintenance will be taken back to a garage or contractor's yard.

Mitigation measures outlined in **Chapter 7** are embedded into the CEMP which will be updated by the civil engineering contractor and agreed with relevant statutory agencies, prior to any works commencing on Site.

The residual effects on the land will be the permanent loss of low intensity grazing land. This is an imperceptible negative effect on a regional scale for this land use type. It is balanced by the positive effects of the restoration of the already (partially) developed areas of the Site and by the diversification of land use by the renewable energy project.

The residual effects on soils and geology during the construction phase are:

1. The completion of excavations (mostly rock) for Turbine Foundations and Turbine Hardstands, which cannot be avoided. The Proposed Development will utilise already constructed roads and hardstand as far as possible, as well as the use of already partially excavated Turbine Foundations. The remaining excavation works will have imperceptible effects on a local scale.
2. The use of concrete and aggregate from local quarries. This is unavoidable. The quantities are not significant, but using unauthorised quarries has a positive imperceptible effect.

No significant impacts are identified for the operational phase of the Proposed Development, so no residual effects are predicted on soils and geology.

No significant impacts are identified for the Decommissioning of the Grid Connection, so no residual effects are predicted on soils and geology.

9 NTS 9 HYDROLOGY AND HYDROGEOLOGY

Chapter 8: Hydrology and Hydrogeology of the EIAR evaluates the effects of the Proposed Development arising from the construction/decommissioning and operational phases on the soils and geology and hydrology, hydrogeology resource within and surrounding the Site. Both assessments for the Project were based on desk studies and site surveys. The main sources of baseline data and information relating to the water environments include:

1. Surface water data including catchments, flows, surface water quality etc - EPA www.epa.ie, www.catchments.ie and <http://www.wfdireland.ie/maps.html> . For the purposes of this assessment, watercourses shown on the EPA web-mapping are defined as streams / rivers and watercourses not shown are referred to as drains (these are generally man-made drains).
2. Historical flood information and flood risk maps - OPW www.opw.ie , www.cframes.ie and www.floodmaps.ie
3. Rainfall data - Met Eireann www.met.ie

4. Designated sites – National Parks & Wildlife Service www.npws.ie .
5. Peatland hydrology – Geomorphology of Upland Peat, Evans and Warburton, 2010.

The Site straddles two WFD catchments / hydrometric areas; No. 20 (Bandon-Ilen) and No. 21 (Dunmanus-Bantry-Kenmare). Hydrometric area No. 20 includes the surface catchment drained by the rivers Bandon and Ilen and all streams entering tidal water between Templebreedy Battery and Mizen Head, County Cork. Hydrometric area No. 21 includes the surface catchment drained by all streams entering tidal water in Dunmanus, Bantry and Kenmare Bays between Mizen Head and Glanearagh Head, County Kerry.

The likely significant effects on hydrology and hydrogeology arising during the construction phase as a product of the Project are identified as follows;

- Surface Water Quality
- Surface Water Runoff – Volumes & Rates
- Groundwater
- Wetlands

The likely significant effects on hydrology and hydrogeology arising during the operational phase as a product of the Project are identified as follows;

- Surface Water Quality
- Surface Water Runoff – Volumes & Rates
- Groundwater

The potential impacts associated with Decommissioning will be similar to those associated with construction but of reduced magnitude.

During Decommissioning, it may be possible to reverse or at least reduce some of the impacts caused during construction by rehabilitating some construction areas. This will be done by covering developed areas with locally sourced peat to encourage vegetation growth. Other impacts such as possible soil compaction and contamination by fuel leaks will remain during site restoration but will be of reduced magnitude.

A Flood Risk Assessment (Stage 1) was carried out and indicates that the Site has never flooded, and based on several sources, it is not identified as being in a flood zone extent. Having confirmed that the Project site is not within the potential flood extents and that the completion of the construction works will not change the current hydrology of the Project site, the assessment need not progress to Stage 2.

Standard, good-practice measures will be implemented to minimise the potential for effects such as pollution, erosion or changes to groundwater and surface water flows at the Proposed Development to occur. These established and effective measures are described in **EIAR Chapter 8: Hydrology and Hydrogeology – Section 8.5.**

The mitigation measures to be employed during the completion of the Project to avoid, reduce and minimise the potential impacts on the water environments are set out below. These measures cover the three main components of the Project (wind farm, Grid Connection and TDR upgrade). Measures specific to each component are provided below.

1. A CEMP has been prepared for the development. This will be updated and finalised prior to remobilising to site to complete construction. The CEMP will reflect the mitigation measures detailed in this EIAR.
2. A Construction Manager will be appointed to oversee construction. The Construction Manager will have overall responsibility to ensure the environmental protection measures and commitments given in the CEMP / EIAR are implemented.
3. The Developer will appoint an Environmental / Ecological Clerk of Works (ECoW) for the duration of the construction project. The ECoW will have an ecological and environmental management background with practical experience of wind farm construction projects. The ECoW will monitor the environmental aspects of construction (water quality, performance of surface water management infrastructure, etc.). The ECoW will have the authority to instruct the contractor to implement additional mitigation measures, if deemed appropriate. The ECoW will maintain a written record of all environmental issues on site, including incidents, corrective actions and monitoring results. This file will be made available to the relevant Authorities upon request. The ECoW will be responsible for notifying the relevant Authorities of any environmental incident.
4. To minimise soil erosion, earthworks will be suspended during extreme weather conditions. An extreme rainfall event will be classified as an event that corresponds to the Met Éireann Orange – Weather Alert for rainfall. The ECoW will monitor the weather forecast to make preparations ahead of adverse weather conditions.
5. Following mobilisation to site, surface water management infrastructure will be the first works carried out. Additional controls will be installed as needed as construction progresses and/or as identified during site inspections of surface water management infrastructure. Measures to be employed for all elements of the project include:
 - a. Clean surface water runoff will be diverted around earthworks area to minimise the volume of silted water generated. To achieve this, shallow cut-off drains / barriers will be installed.

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- b. Check dams will be installed along the alignment of drains to slow flows and remove silt. These will be constructed using clean stone and geotextile spanning across the drainage channel. Alternatively, straw bales and / or sandbags will be used, which may be more efficient for works along the Grid Connection.
 - c. The public roads serving the Project site will be kept clean of mud and debris so that silt is not washed to downstream watercourses. If mud or debris is tracked onto the public roads from vehicles leaving the work areas, the road will be swept.
 6. The release of cement to water courses will be prohibited. Concrete pours will occur in contained areas using shuttering. Rinsing down of concrete trucks will be done at a dedicated location on site – adjacent to the Temporary Construction Compound, or at a suitable alternative location, a minimum distance of 50 m from any watercourse. The rinse down area will consist of a settlement pond (3 m wide, 4 m long and 1.2 m deep – minimum dimensions), lined with terram and stone filter. This will have the capacity to hold enough water for the rinse down of 70 trucks using 150 litres per truck. Water will be able to percolate through the stone filter and terram while removing cement fines. This settlement pond will not receive surface water runoff so capacity to receive rinse down water is always available. Discharge from the rinse down pond will be permitted once the pH neutralises, as confirmed by the ECoW. Signage will be erected at each concrete pour location directing drivers to the rinse down area. This rinse down area will be removed at the end of the construction phase.
 7. Hydrocarbons (oils, diesel and chemicals) will be stored and managed in an appropriate manner to ensure no negative impacts on land, soils, and geology. Specific measures will include:
 - a. Toolbox talks on storage and management of hydrocarbon and refuelling of vehicles will be given to delivery drivers in addition to plant operatives.
 - b. Any storage of oils and diesel will be in steel or plastic tanks of good integrity and bunded to 110% of tank capacity. All fuel and hydraulic fluids will be stored in the site COSHH store located in the Temporary Construction Compound.
 - c. Refuelling will be at discrete 'fuel stations', to be designated for the purpose of safe fuel storage and fuel transfer to vehicles.
 - d. Refuelling may be carried out directly from delivery vehicles or from bunded fuel bowzers. Refuelling of mobile plant will not take place within 50 m of any sensitive receptor, such as a drinking water supply well or watercourse.
 - e. The plant used during construction will be regularly inspected for leaks and fitness for purpose.
 - f. Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised

- access or vandalism, and provided with spill containment according to best codes of practice.
- g. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the site and properly disposed of.
 - h. Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.
 - i. Appropriate spill control equipment, such as oil soakage pads, will be kept in the site plant to deal with any accidental spillage. Spare spill kits will be kept at the Temporary Construction Compound. Spill kits will be at hand during refuelling of vehicles.
 - j. Only emergency repairs to machinery will be permitted on site. Machinery requiring maintenance will be taken back to a garage or contractor's yard.

Further mitigation measures are outlined in **Chapter 8 - Section 8.5** of the EIAR.

Cumulative impacts were assessed as part of the Project. The wind farm straddles two sub-catchments of the Ilen and Mealagh rivers. There are several operational wind farms located within the Ilen River catchment, including Ballybane, Milane Hill, Lahanaght Hill, and Killaveenoge wind farms. Monitoring of surface water quality in the Ilen River tributaries during their construction indicated no adverse impact on water quality. Discharge from roads and hardstand to overland flow and forestry drains has mimicked greenfield runoff conditions at those sites. Of these wind farms, the only one that is connected to the Ballylickey 110 kV substation is the Ballybane Wind Farm, which uses an underground grid connection along public roads. This cable route approaches the Ballylickey substation along the N71. As such, no significant cumulative impacts are predicted with the proposed Derreenacrinnig West Wind Farm on either the surface or ground water environments for the wind farm, TDR works or Grid Connection.

The hydrology of the wind farm site and TDR upgrade is typical of an upland area. The Grid Connection passes through a mosaic of water environments and associated habitats. The impacts on hydrology, surface water and groundwater have been identified and assessed. Where impacts have been identified, mitigation measures will be implemented to avoid or reduce the risk of impacts occurring. On balance, the wind farm and Grid Connection can be constructed and operated with no significant impact of the surface water or groundwater environments.

10 **NTS 10 AIR AND CLIMATE**

EIAR Chapter 9: Air and Climate assesses the effect of the Project on air quality, given the potential for dust emissions, and the likely carbon dioxide reduction effects of the Project in operation. Mitigation measures for the reduction of dust are outlined in the **EIAR Chapter 9: Air and Climate**.

The closest receptor (H1) is located 983 m from the nearest turbine (T3). There are 63 houses within 2 km of the proposed turbines.

After mitigation, the assessment has identified no potentially significant effects, given the mitigation measures embedded in the design which will be implemented in the Project.

The layout of the Proposed Development has been designed to minimise the potential environmental effects of the wind farm while utilising the maximum energy yield from the Site's wind resource. The selection of breaking new ground and impacting on natural habitat has been kept to a minimum.

The Proposed Development does not contain any element, which will produce Greenhouse Gas emissions or odorous emissions in operation. Indeed, the Proposed Development will contribute to a net national reduction in the emissions of greenhouse and other gases resulting from the combustion of fossil fuels.

Savings of carbon dioxide arise principally from the generation of electricity from the Proposed Development, such that generation from other sources (which emit carbon dioxide) are offset.

Ireland has set a target to achieve a 51% reduction in overall greenhouse gas emissions by 2030, setting a path to reach net-zero emissions by no later than 2050. The target for 2030 is to generate 80% of the country's electricity from renewable sources. The Proposed Development will contribute 6.9 MW of installed capacity. The calculation contained within **EIAR Chapter 9: Air and Climate** states that approximately 5,966 tonnes of carbon dioxide will be displaced per annum from the largely carbon-based traditional energy mix by the Proposed Development. The cumulative effect with other Irish renewable generation is considered to be a fundamental change in the climate effects of Ireland's energy supply, which is a major, positive effect, that is significant under the EIA Regulations and will contribute to Ireland's binding emission reduction targets.

In isolation, the Proposed Development will have a significant positive effect on carbon savings and cumulatively, it will have a significant positive effect when considered with Ireland's renewable energy deployment.

11 **NTS 11 NOISE**

EIAR Chapter 10 has assessed the significance of the potential effects of the Project during operation, construction, and decommissioning of the Project.

Noise will be emitted temporarily by plant and equipment and vehicles used during the construction phase. The main noise sources will be associated with the construction of the Turbine Foundations, additional Turbine Hardstands, Grid Connection route options, with lesser sources being additional site access tracks and construction of an Onsite Substation. Decommissioning noise levels are assumed to be in the same order as construction levels and will be of temporary duration. Construction and Decommissioning works will typically be more than 983 m from the nearest property (noise receptor), making the potential for noise and vibration impacts considered to be not significant.

The effects of noise from the operation of the Proposed Development have been assessed using 2006 Guidelines with the methodology described in ETSU-R-97 and the Institute of Acoustics (IOA) Good Practice Guide. Noise levels during operation of the Proposed Development have been predicted using the best practice of calculation technique and they have been compared with the noise limits in the WEDG06, and the ACP-314120-22 decision on noise limits.

The main sound heard from wind turbines is the 'swish' from the movement of the blades through the air. Modern turbines are designed to minimise noise and planning conditions are used to ensure compliance with specified noise limits. The assessment of operational noise has been undertaken in accordance with best practice and following the latest guidelines. It has been shown that noise due to the Proposed Development, including cumulative effects with operational and consented wind farms will meet all current guidelines at all local properties.

For this assessment background noise levels were carried out at five residential locations in the vicinity of the Site during one continuous measurement period, firstly between the 1st and 29th March 2022. The background noise levels measured at these locations were deemed representative of the background noise levels in the vicinity of the Site. Noise

measurements were recorded at a height of 1.2-1.5 m above ground level and more than 5 m from any reflective surface other than the porous ground.

The predicted noise levels have been compared with the appropriate noise limits based on the 2006 Guidelines and taking into consideration the recent 2023 An Bord Pleanála decision. The predicted noise levels are well within the lower 40 dBA at wind speeds below 5 m/s and well within 43 dBA all other wind speeds.

The noise levels predicted at the nearest receptors are orders of magnitude below the level at which risk of hearing damage, or indeed negative health effects are possible. Noise during construction of the Proposed Development and Decommissioning will be managed to comply with best practice, legislation and guidelines current at that time so that effects are not significant.

12 **NTS 12 TRAFFIC AND TRANSPORT**

EIAR Chapter 11: Traffic and Transport out the effects on traffic as a result of the Project.

The assessment considers the potential effects of traffic generated by the Project during the following phases:

- Construction of the Project.
- Construction of proposed Grid Connection route.
- Transportation of turbine components on the public road network between the Port of Cork and the Proposed Development. The Turbine Delivery Route (TDR) works will be subject to a separate planning application.
- Operation and maintenance of the Proposed Development.
- Decommissioning of the Proposed Development.

The potential effects identified in the chapter include wind farm traffic generation, magnitude and significance of effects, air quality, noise and vibration, pedestrians and vulnerable road users and driver delay.

Figure NTS-1.3 shows the proposed Turbine Delivery Route for the Project.

The estimated timescale for the completion of the construction phase is 16 to 18 months, inclusive of all works to access tracks, access routes, Onsite Substation and Control Building and erection and commissioning of turbines and Grid Connection route works. It is estimated that during the Proposed Development construction, an approximate total of 540

loads of material and building supplies will be delivered and removed from the Site. The majority of HGV movements to and from Site will occur during the first ten months of the construction period and will be associated with Turbine Foundation construction.

It is estimated that 25 staff light goods vehicles (LGV) will visit the Site daily during the peak construction period. Parking for staff will be provided within the Temporary Construction Compound and within the works area during Grid Connection route Options and TDR enabling works. No parking will be allowed for construction workers on the public road network in the vicinity of the Site.

There is likely to be some noise and vibration due to the predicted short-term increase in HGV movements along the Construction Haul Routes to the Proposed Development. The increased traffic volumes may cause disturbance to residents living along the local road network on the Project Construction Haul Route, Turbine Delivery Route and Grid Connection route options. Due to the relatively low number of trips generated per day in relation to existing traffic volumes on the national and regional road network, the restrictions on working hours and the short-term nature of the construction and Decommissioning phases, the effects of noise and vibration are not predicted to be significant. Construction HGV's, LGV's and private vehicles are subject to government HCV, LCV and NCT noise and suspension tests. A full noise and vibration assessment is included in **EIAR Chapter 10** and summarised in **NTS 11 Noise**.

The Traffic Management Plan (**EIAR Appendix 11.1**) gives details of works duration, traffic management, road closures and diversions.

Pedestrian and other vulnerable road users may be affected by the works at the Proposed Development entrance, Construction Haul Routes, Turbine Delivery Route enabling works, Grid Connection works and increased vehicle movements during construction and delivery of turbine components. The modifications to the public road network at various locations along the Turbine Delivery Route and Grid Connection will be carried out under a road opening licence and traffic management plan which will accommodate pedestrians at the works locations. The effect of the works on pedestrian safety is therefore assessed to be medium sensitivity for a short-term duration. Pedestrian facilities may be altered for short periods during the transportation of turbine components. During these periods alternative arrangements will be put in place for pedestrians.

Enabling works on the public road network will be carried out using traffic management and temporary traffic signals at locations where it is not possible to maintain two-way traffic. The effects of the additional traffic volumes are assessed as slight and short term. The location and duration of works requiring temporary traffic lights is detailed in the traffic management Plan in **EIAR Appendix 11.1**.

The delivery of turbine components will take place outside peak traffic periods to avoid disruption on the public road network, and at Castledonovan National School. The TDR for the transportation of turbine components consisting of dual carriageway will have unrestricted passing opportunities and no delays to public road users are expected. Following assessment, it is concluded that delays to traffic due to turbine delivery will be imperceptible and momentary in duration.

The construction of Grid Connection route options works on public roads will require road closures on local roads where the road width is too narrow to support traffic flows. The road closures will result in delays to public road users and increased journey times. Following assessment, it is concluded that these effects will be slight / moderate and short term. The closures and subsequent traffic diversions are assessed in **Appendix A of the Traffic Management Plan in EIAR**.

This assessment has identified that the potential effects of the Proposed Development on traffic and transport during the construction and decommissioning periods are considered to be, **Not Significant**. During the construction and decommissioning periods, general and specific mitigation measures will be put in place to minimise disruption. The potential effects of the Proposed Development on traffic and transport during the operation of the Proposed Development are considered to be **Not Significant** on the public road network.

13 NTS 13 LANDSCAPE AND VISUAL

EIAR Chapter 12: Landscape and Visual Amenity describes the landscape context of the Proposed Development and assesses the likely landscape and visual impacts of the scheme on the receiving environment. Although closely linked, landscape and visual impacts are assessed separately. Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the Proposed Development, which may alter its character, and how this is experienced. This requires a detailed analysis of the individual elements and characteristics of a landscape that go together to make up the overall landscape character of that area. By understanding the aspects that contribute to landscape character, it is possible to make judgements in relation to its quality (integrity) and to identify

key sensitivities. This, in turn, provides a measure of the ability of the landscape in question to accommodate the type and scale of change associated with the Proposed Development without causing unacceptable adverse changes to its character. Visual Impact Assessment (VIA) relates to assessing effects on specific views and the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from visual obstruction (blocking of a view, be it full, partial or intermittent) or Visual Intrusion (interruption of a view without blocking).

In accordance with relevant guidelines, the Study Area used for the LVIA is 20 km. Production of the Landscape and Visual Impact Assessment involved baseline work in the form of desktop studies and fieldwork followed by professional evaluation by qualified and experienced Landscape Architects. The landscape assessment considers potential effects on the receiving and surrounding landscape with reference to a range of landscape character areas (LCAs) and criteria published in various technical documents. The visual assessment considers effects upon visual receptors including scenic amenity designations, centres of population, transport routes and local community views using 21 viewpoints from representative / sensitive visual receptor locations. Photomontages have been prepared for the viewpoints and the figures also include a wireline of the Proposed Development on its own and a wireline with all other cumulative developments.

On a broader scale, the wider study area depicts a varied and dynamic landscape made up of a range of landforms and landscape features. The wider study area can best be described in a series of thirds characterised by the prevailing landform. The immediate vicinity, as well as much of the north and northwest, is dominated by rugged uplands and mountainous terrain with rocky outcrops, characteristic of the Shehy Mountain Range. Numerous other elevated hills, upland ridges and mountaintop summits occur throughout the Wider Study Area, most notably along the Kerry – Cork County border. The landscape to the south and eastern portion of the study area, comprises of rolling hills and lowlands. The western and parts of the southern periphery consist of a highly dynamic and varied coastal landscape. It features a combination of steep, rugged cliffs, rolling hills, and sheltered bays, interspersed with numerous small peninsulas and inlets. The coastline is punctuated by prominent headlands and rocky outcrops. Other notable waterbodies within the study area include the River Bandon, which flows through the northern and eastern parts, and Lough Allua, located approximately 14 km northeast of the nearest turbine. In terms of other notable landforms,

the Gougane Barra complex, is a distinctive glacial landform with a broad lake enclosed by steep escarpments and surrounding ridges, located some c.14 km north of the Site.

The Central Study Area is a dynamic landscape comprising of varying landscape features and elements that are characterised by a blend of natural and anthropogenic influences. It is predominantly defined by mountainous terrain, with elevated ridgelines, expansive areas of mountain moorland, and scattered rocky outcrops, creating a sense of remoteness and a naturalistic character. However, the Central Study Area also contains numerous anthropogenic features, including extensive commercial coniferous forest plantations that cover a considerable portion of the upland areas. The winding valleys and lower slopes have a strong agricultural influence and are primarily veiled with pastoral farmland and enclosed by hedgerows. There is a notable rural / residential population in these lowland valleys, particularly along the Mealagh Valley. These contrasting features contribute to the Central Study Area's complex character, blending natural and human-made elements.

In terms of scenic designations, there are two designated Scenic Routes within the Central Study Area. Scenic Route 30 (SR30) runs east to west through the southern part of the area, passing within 2.3 km to the south of the Proposed Development at its closest point. SR30 provides views of the surrounding rugged mountains and also passes the ruins of Castledonovan. Similarly, Scenic Route 29, located approximately 4 km to the north at its nearest point, passes through sensitive landscape features such as Cousane Gap. As noted in **EIAR Chapter 12: Section 12.3.4.4**, there is no potential for visibility of the proposed turbines from this scenic route, but does provide an indication of general scenic amenity relating to the landscape in this area.

In terms of landscape designations the Proposed Development is partially located within LCT 9 – Broad Marginal Middleground and Lowland Basin, which is classified with a 'Low' landscape value, 'Medium' landscape sensitivity and a 'Local' landscape importance. The other turbine is located within LCT 15a – Ridged and Peaked Upland which is classified with a 'High' landscape value, 'High' landscape sensitivity and a 'County' landscape importance. The Central Study Area also encompasses three other LCT's including LCT 16b 'Glaciated Cradle Valleys' to the northeast of site which is designated a 'Low' landscape value, 'Medium' landscape sensitivity and 'Local' landscape importance. To the southeast, LCT 6a 'Broad Fertile Lowland Valleys' has a 'High' landscape value, 'High' landscape sensitivity and 'County' landscape importance whereas the western side of the Central Study Area includes LCT 4, 'Rugged Ridge Peninsulas' which extends all the way out to the coast and is designated a 'Very High' landscape value, 'Very High' landscape sensitivity

and 'National' landscape importance. It is important to note that although LCT4 is designated a 'National' landscape importance, the most sensitive features of the LCT are located along the west coast as opposed to the landscape in the Central Study Area. In terms of High Value Landscape (HVL) the same area that encompasses LCT4 has a further designation as a HVL.

With regard to landscape impact, for most commercial wind energy developments, the greatest potential for landscape impacts to occur is as a result of the change in character of the immediate area due to the introduction of tall structures with moving components. Thus, wind turbines that may not have been a characteristic feature of the area become a new defining element of that landscape character. The Central Study Area is a dynamic landscape featuring a mix of distinct landforms and landscape elements. While the area includes some scenic and sensitive features, much of the surrounding landscape is defined by its robust working upland character, which is further reinforced by the presence of extensive commercial coniferous forest plantations and large areas of agricultural farmland. Furthermore, the proposed site has been previously consented for wind energy where construction had begun. The landscape values in the Central Study Area are more closely associated with the functioning rural economy than with highly sensitive or naturalistic qualities. However, the Central Study Area does include designated scenic routes, which are confined to specific road corridors that pass through the more rugged terrain. These scenic routes contribute to the area's landscape value, particularly where they offer expansive views of the surrounding rugged uplands. On the balance of these factors, is considered that the landscape in the immediate context of the Proposed Development site is of a **Medium** landscape sensitivity albeit with localised intricate areas of **High** and **Very High** sensitivity, some of these relate to heritage features and other landscape features.

The visual impact assessments for each of the 21 selected viewpoint locations are contained in **EIAR Appendix 12.1** and are summarised within **EIAR Chapter 12** based on receptor type.

The cumulative ZTV map (**Chapter 12 – Figure 12.10**) shows the potential cumulative visibility between the proposed turbines and all other existing and consented developments within the 20 km study area. At present, there are 14 existing (operational) wind farms and 6 consented wind farm developments. The nearest existing wind farm to the Proposed Development is the existing Millane Hill development comprising of 9 turbines dispersed along an upland ridge located 5.2 km to the southeast of site. Whilst wind energy development is a familiar feature that can be viewed from the central study area, it is

important to note that the majority of existing and consented developments within the study area are located outside the Central Study Area predominately in the upland areas of the northern and eastern portions of the Study Area. Indeed, not including the previously consented Derreenacrinnig turbines in the same location as the Proposed Development there are no other wind farms within the Central Study Area.

All of the existing and consented development are located outside of the Central Study Area with a notable offset from the Proposed Development, the most notable potential for cumulative visual effects relates Millane Hill c.5.2 km to the southeast. Furthermore a notable cluster of existing and consented wind farms are located within immediate surrounds of Millane Hill which contribute to additional cumulative effects. However not all of these turbines have the potential to be viewed in combination with the Proposed Development at Derreenacrinnig West.

14 NTS 14 MATERIAL ASSETS AND OTHER ISSUES

EIAR Chapter 13: Material Assets considers a number of other issues associated with the Proposed Development, including potential effects on Land Use, Telecommunications and Electromagnetic Interference, Grid Connection and Grid Network, Air Navigation and Waste Management.

14.1 Land Use

The total land-take of the Proposed Development, including the Site Access Roads, Turbine Hardstands, Turbine Foundations, Grid Connection route, Turbine Delivery Route nodes and sub-station is 0.9041 hectares. There are 123.2 hectares within the Redline Boundary therefore the total land take is 0.87% of the Site. The proposed Site Access Roads and upgrade to existing roads will improve access for surrounding agricultural use.

The construction, operational and Decommissioning phase of the Project will result in a change of 0.9041 hectares of exposed bedrock and upland blanket peat where new Site Access Roads, wind turbine bases, hardstanding areas, the Onsite Substation and Control Building and associated drainage infrastructure will be located.

The construction of the Grid Connection route and Turbine Delivery Route will only require relatively localised excavation works within and adjoining the public roads, with some works in private lands and the Site Boundary and will be reinstated upon installation of cables.

No significant negative impacts are predicted on land use.

14.2 Telecommunications

During the construction phase, there are likely to be several sources of temporary electromagnetic emissions. Chief among these will be the brief use of electrical power tools and the use of electrical generators which may be brought onsite before mains electricity is provided. These devices are required by Irish and European law to comply with the EMC Directive 2014/30/EU³. Compliance with this Directive will mean that the electromagnetic emissions from these devices will not cause interference to other equipment and therefore no significant effects are likely.

Other potential effects during the construction phase are likely to be as a result of tall cranes used for constructing the turbines. These cranes will be beside the proposed turbines on the Turbine Hardstands. There are no telecommunication towers within the proximity of the Proposed Development, thus the effect can be classed as not significant.

A number of telegraph poles will likely need to be temporarily removed along local and regional roads to facilitate the transport of turbine components to the Site. This will have temporary, short-term effects on telecommunications in the locality which can be described as not significant and is further discussed in **EIAR Chapter 11: Traffic and Transport**.

No telecommunication links have been identified during the scoping and consultation process. All responses received from telecommunications consultees have stated that the Proposed Development will have no effect on their telecommunications services.

No significant effects are likely during the Decommissioning phase.

14.3 Electricity Networks

All on-site Wind Farm Internal Cabling will be installed underground. Additionally, approximately 3.3 km of the Grid Connection route between the wind farm and the existing Ballylickey 110kV electrical substation will also be underground. The remaining section of the Grid Connection, approximately 10.75 km, will be via an overhead line (OHL). A temporary outage will be required during the connection to the OHL.

The Proposed Development will contribute directly and in the long term to the electricity network by strengthening it through additional renewable energy generation.

³ DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

At the existing Ballylickey 110kV electrical substation, the cable will connect into existing infrastructure within the confines of the Electrical Substation and its compound, and thus will have a slight, brief effect on the electrical network during the construction phase.

There will no effect on the electrical network during the operational phase or the Decommissioning phase.

14.4 Air Navigation

The Proposed Development is approximately 53 km South of Kerry Airport and 57 km West of Cork Airport. Enniskeane Airstrip is 29 km to the east. Bantry Aerodrome is 17 km to the south-west of the Proposed Development. Therefore, no potential effects to air navigation were identified.

14.5 Quarries

The residual effect on quarry resources during construction is likely to have a short-term, slight, negative effect but will not be significant. There will be residual effects on quarries from the Proposed Development during the operational phase. There will be no residual effect on quarry resources during the Decommissioning phase.

All existing, approved and proposed projects in **Chapter 2 - Appendix 2.2** have been considered. The very nature of a quarry is that it will be subjected to cumulative effects as it is the source of stone for almost all developments in the area.

Therefore, there will be cumulative impacts relating to the Project and smaller projects in the surrounds, such as one-off houses, extension to houses and housing development relation to quarries during the construction phase. The cumulative effect on quarry resources during construction is likely to have a short-term, moderate, negative effect. There will be no cumulative effect on quarry resources during the operational phase of the Proposed Development. There will be no cumulative effect on quarry resources during the Decommissioning phase.

14.6 Utilities

There are no gas mains located within the Site Boundary. There is therefore no potential for impact. Gas Networks Ireland responded to a consultation request confirming no existing services along the Grid Connection route or Turbine Delivery Route and there does not appear to be any visible gas infrastructure along the route.

Given that no detailed information has been provided by Uisce Éireann or Cork County Council in relation to water services within the Site Boundary, it is reasonable to conclude that there is no potential for interference with local water services during the construction phase of the Proposed Development. Based on this information, the risk of encountering existing water infrastructure is considered imperceptible.

Potential impacts arising from the Proposed Development relating to existing water services have been assessed and are detailed in **Chapter 8: Hydrology and Hydrogeology** and referred to in **Chapter 5: Population and Human Health** with accompanying mitigation measures.

15 NTS 15 CULTURAL HERITAGE

The assessment presents the results of a desktop study of relevant published sources and datasets undertaken in order to identify all recorded and potential archaeological, architectural and other cultural heritage sites/features/areas within the study areas of the Proposed Development, Grid Connection route and Turbine Delivery Route work areas. The principal sources reviewed for the assessment of the recorded archaeological resource were the SMR and RMP. The current RPS for County Cork and the NIAH building and garden surveys were consulted for assessing the designated architectural heritage resource.

Other sources consulted as part of the assessment included the following:

- Archaeological Inventory of County Cork Volumes 1 and 5;
- Heritage Council of Ireland Map Viewer;
- Database of Irish Excavation Reports;
- Literary Sources;
- Cartographic Sources;
- Aerial and Satellite imagery;
- Irish National Folklore Collection;
- UNESCO designated World Heritage Sites and Tentative List;

These are assessed in greater detail in **EIAR Chapter 14 – Section 14.2.5**.

There are no recorded archaeological sites within the Proposed Development, and nothing of archaeological significance was identified during archaeological monitoring of the construction of the existing access tracks, hardstands and other associated infrastructure.

There are no designated architectural heritage structures located within the Proposed Development or within the surrounding 2 km study area and there are also no undesignated structures of potential vernacular significance located within its boundary.

There are a number of recorded archaeological sites located within 2 km of the proposed turbine locations (**NTS-Table 15.1** below), which are of Bronze, or potentially Iron Age, date and these comprise 8 no. standing stones, 1 no. stone row, 1 no. wedge tomb and 1 no. fulacht fiadh. The wedge tomb and standing stone monuments within the study area are associated with Bronze Age ritual activities while fulachta fia comprise burnt mounds or spreads that are typically interpreted as the remains of cooking sites. The presence of these monuments within the environs of the Proposed Development indicates the presence of settlement and ritual activities in the general area during late prehistory.

NTS-Table 15.1: Recorded Archaeological Sites within 2 km of the Proposed Development

Monument no.	Class	Condition*	Townland	Approx. distance from nearest turbine
CO106-034----	Wedge tomb	Extant in forestry	BARNAGOWLANE WEST	1,960 m northwest
CO106-036----	Standing stone	Extant	COOMLEAGH EAST	1,790 m north
CO106-037----	Standing stone	Extant	COOMLEAGH EAST	1,690 m north
CO106-038----	Standing stone	Extant	COOMLEAGH EAST	1,670 m north
CO106-039----	Stone row	Extant	COOMLEAGH EAST	1,670 m north
CO106-054----	Enclosure	Partially extant	LEITRY UPPER	1,910 m southeast
CO106-058----	Standing stone	Extant	GARRANES NORTH	1,710 m southeast
CO106-059----	Standing stone	Extant	LEITRY UPPER	1,800 m southeast
CO106-060----	Standing stone	Extant in forestry	LEITRY UPPER	1,780 m southeast
CO106-065----	Standing stone	Extant	DERREENACRINNIG EAST	870 m south
CO106-066----	Enclosure	Partially extant	DERREENACRINNIG EAST	775 m south
CO106-066001-	Hut site	Low wall remains	DERREENACRINNIG EAST	775 m south
CO106-066002-	Hut site	Low wall remains	DERREENACRINNIG EAST	775 m south
CO106-067001-	Enclosure	Collapsed walling	DERREENACRINNIG EAST	1,010 m south

Monument no.	Class	Condition*	Townland	Approx. distance from nearest turbine
CO106-067002-	Hut site	Low wall remains	DERREENACRINNIG EAST	1,050 m south
CO106-067003-	Hut site	Collapsed walling	DERREENACRINNIG EAST	1,070 m south
CO106-067004-	Enclosure	Collapsed walling	DERREENACRINNIG EAST	1,090 m south
CO106-067005-	Hut site	Collapsed walling	DERREENACRINNIG EAST	1,130 m south
CO106-067006-	Hut site	Low wall remains	DERREENACRINNIG EAST	1,170 m south
CO106-067007-	Hut site	Low wall remains	DERREENACRINNIG EAST	1,050 m south
CO106-067008-	Hut site	Low wall remains	DERREENACRINNIG EAST	1,050 m south
CO106-068----	Enclosure	Low wall remains	DERREENACRINNIG EAST	1,200 m south
CO106-068001-	Enclosure	Low wall remains	DERREENACRINNIG EAST	1,200 m south
CO106-069----	Enclosure	Extant	DERREENACRINNIG EAST	1,300 m south
CO106-070----	Vernacular house	No inventory entry	GARRANES NORTH	1,500 m south
CO106-070001-	Field boundary	Low wall remains	GARRANES NORTH	1,500 m south
CO106-071----	Redundant record	Field clearance	GARRANES NORTH	1,570 m to south
CO106-072----	Hut site	Low wall remains	MULLAGHMESHA	1,680 m southwest
CO106-073----	Hut site	Low wall remains	MULLAGHMESHA	1,530 m southwest
CO106-073001-	Hut site	Low wall remains	MULLAGHMESHA	1,530 m southwest
CO106-073002-	Hut site	Low wall remains	MULLAGHMESHA	1,530 m southwest

Monument no.	Class	Condition*	Townland	Approx. distance from nearest turbine
CO106-090----	Road/trackway	No inventory entry	BARNAGOWLANE EAST	1,890 m northeast
CO106-091----	Hut site	Low wall remains	BARNAGOWLANE EAST	1,530 m northeast
CO106-091001-	Enclosure	Low wall remains	BARNAGOWLANE EAST	1,530 m northeast
CO106-091002-	Hut site	Collapsed walling	BARNAGOWLANE EAST	1,530 m northeast
CO106-092----	Standing stone	Extant	BARNAGOWLANE EAST	800 m to north
CO106-093----	Fulacht fia	No surface trace	BARNAGOWLANE WEST	1,400 m northwest
CO106-094----	Well	No inventory entry	BARNAGOWLANE WEST	1,730 m northwest
CO106-103----	Hut site	Partially intact	MULLAGHMESHA	1,700 m southwest
CO106-103001-	Hut site	Low wall remains	MULLAGHMESHA	1,700 m southwest
CO106-107----	Hut site	Low wall remains	DERREENACRINNIG WEST	480 m south
CO106-108001-	Hut site	Collapsed walling	GARRANES NORTH	900 m south
CO106-108002-	Hut site	Collapsed walling	GARRANES NORTH	900 m south
CO106-108003-	Hut site	Collapsed walling	GARRANES NORTH	900 m south
CO106-108004-	Hut site	Collapsed walling	GARRANES NORTH	900 m south
CO106-108005-	Hut site	Low wall remains	GARRANES NORTH	900 m south
CO106-108006-	Hut site	Low wall remains	GARRANES NORTH	900 m south
CO106-109----	Hut site	Low wall remains	GARRANES NORTH	1,560 m to south

A review of the landscape extending for 10 km from the Proposed Development also revealed the presence of various extant prehistoric monuments of probable Bronze Age date which may possess ritual alignments across the wider landscape. These comprise 13 no. stone circles, 14 no. standing stone pairs, 12 no. wedge tombs and 10 no stone rows. For the general reader, details on these Bronze Age monument types with a particular reference to their context in County Cork can be found in *Iverni: A Prehistory of Cork* (O'Brien 2012)⁴ which notes that such monuments were often aligned towards the general direction of the setting sun in the southwest quadrant during the darker months of the year.

recorded archaeological and architectural heritage resource within a 200 m wide study area (**NTS-Table 15.2** below) corridor centred on the Grid Connection route. There are 18 archaeological sites located within the reviewed study area, and these include a National Monument in State Care which comprises a five stone circle (CO106-019---) and a nearby standing stone (CO106-057----) (National Monument No. 600) in Derryarkane townland. The majority (10 no.) of the recorded archaeological sites within the study area date to the late prehistoric period.

NTS-Table 15.2: Recorded Archaeological Sites within 200 m wide study area

Monument No.	Classification	Townland	Approx. distance from route
CO105-023----	Wedge tomb	Crossoge	95 m to SW
CO105-058----	Radial-stone cairn	Shandrum Beg	30 m to E
CO105-026----	Ringfort	Shandrum Beg	5 m to W
CO105-071----	Standing stone	Shandrum Beg	100 m to S
CO105-075----	Hut site	Shandrum Beg	70 m to S
CO106-077002-	Standing stone	Derryarkane	20 m to S
CO106-077001-	Fulacht fia	Derryarkane	50 m to N
CO106-079----	Fulacht fia	Derryarkane	40 m to S
CO106-022----	Enclosure	Maulikeeve	80 m to S
CO106-057----	Standing stone	Derryarkane	55 m to NW
CO106-019----	Stone circle	Derryarkane	85 m to NW
CO106-021----	Standing stone	Maulikeeve	20 m to S
CO106-056----	Souterrain	Maulikeeve	70 m to N

⁴ O'Brien, W. (2012) *Iverni: A prehistory of Cork*. The Collins Press.

Monument No.	Classification	Townland	Approx. distance from route
CO106-020002-	Standing stone	Maulikeeve	70 m to N
CO106-020001-	Ringfort	Maulikeeve	55 m to N
CO106-114----	Standing stone	Maularaha	15 m to NW
CO106-009----	Ringfort	Ardrah	80 m to NE
CO106-083----	Mass rock	Ardrah	95 m to E

Based on the review of the Baseline environment detailed in **EIAR Chapter 14 - Section 14.3.3**, there will be no direct adverse effects on any recorded archaeological sites, designated architectural heritage structures or undesignated cultural heritage features

For the construction, operational, and decommissioning phase of the Proposed Development, there are no recorded archaeological sites, architectural heritage structures or other cultural heritage assets located within the Proposed Development or adjacent to its boundary and the construction phase will, therefore, result in no predicted indirect impacts on any element of the known cultural heritage resource.

The Project will not result in any predicted direct negative impacts on any known archaeological monuments or architectural heritage structures. The Project will result in a range of slight to moderate, indirect adverse visual effects on the settings of archaeological monuments located within surrounding lands during the operational phase. These indirect effects will be long term in duration but will be reversed following the Decommissioning phase.

16 NTS 16 SHADOW FLICKER

EIAR Chapter 15 contains a detailed analysis on shadow flicker, the effect caused by the sun shining behind the rotating blades of a turbine relative to a nearby sensitive receptor. This has the potential to cause a momentary shadow on a window of the sensitive receptor. This shadow can appear as a flickering of sun light due to the rotating blades. Therefore, shadow flicker will only occur during the operational phase of the Proposed Development.

A shadow flicker computer model (WindPRO 4.0) was used to calculate the occurrence of shadow flicker at relevant receptors to the Project. The sensitive receptors were identified using a combination of Ordnance Survey of Ireland (OSI) Maps, AutoCAD drawings and from internet mapping resources including Eircode Finder, Google Street View, Google Earth, Bing Maps and a planning permission search using the CCC web resource. A ground

truth survey of all online sources was undertaken with a visit to the Study Area. The desktop sensitive receptor search was originally completed in April 2025 with regular rechecks completed to ensure no new receptors are identified within the Study Area. The output from the calculations is analysed to identify and assess potential shadow flicker effects. Wind turbines, like other tall structures, can cast long shadows when the sun is low in the sky. A minimum separation distance of 500 m from all occupied sensitive receptors has been incorporated into the Project design, in line with the 2019 Guidelines. There are 21 No. receptors within 1.5 km of any proposed wind turbine location. The closest house to a turbine that is to be assessed as part of this EIAR, is H1. This is located 983 m from T3.

Maps were examined to identify sensitive receptors in the local area within a Study Area, a distance ten times the proposed rotor diameter of the proposed turbines ($10 \times 82 \text{ m} = 820 \text{ m}$), which was increased to 1.5 km for completeness. There are 21 receptors within the shadow flicker Study Area radius. The coordinates of each sensitive receptor and its distance to the closest proposed turbine are listed in **NTS-Table 16.1**.

NTS-Table 16.1: Sensitive receptors within the shadow flicker study area

House ID	Easting ITM	Northing ITM	Closest Turbine	Closest Distance to Turbine (m)
H1	511995	553023	T3	983
H2	510767	550866	T1	994
H3	511608	553060	T3	1039
H4	510962	550767	T1	1083
H5	510807	550763	T1	1091
H6	511001	550749	T1	1103
H7	510756	550731	T1	1129
H8	510943	550719	T1	1130
H9	511031	553032	T2	1164
H10	511293	550692	T1	1217
H11	510707	553049	T1	1218
H12	511892	553350	T3	1301
H13	509928	552697	T1	1301
H14	510958	553161	T2	1310
H15	509876	552698	T1	1342
H16	509742	552619	T1	1403

House ID	Easting ITM	Northing ITM	Closest Turbine	Closest Distance to Turbine (m)
H17	509670	552559	T1	1433
H18	509695	552618	T1	1442
H19	512328	550677	T3	1453
H20	511801	553526	T3	1477
H21	512392	550659	T3	1492

There will be 10 receptors out of 21 that will experience some degree of shadow flicker and 11 receptors that will experience no shadow flicker. H3 is expected to experience 2 hours 53 minutes of shadow flicker in a year, which is the worst affected occupied receptor. One sensitive receptor, H3, exceeded the 2006 Guidelines of a maximum 30 minutes of shadow flicker per day. The closest receptor, H1, is within 983 m of the closest turbine (T3). This receptor has 2 hours 15 minutes of expected shadow flicker per year, and a maximum of 27 minutes of shadow flicker per day.

None of the receptors are expected to exceed the 2006 Wind Energy Guidelines recommended threshold of 30 hours or more of shadow flicker per year.

Cumulative shadow flicker effects could arise if sensitive receptors are at risk from potential shadow flicker effects as a result of more than one wind farm. While separate wind farms are not likely to cause effects simultaneously, they could increase the cumulative total hours where a receptor is affected. In this instance, there are no proposed or operational wind farms within a 2 km range of the turbines that may cause cumulative effects.

17 NTS 17 MAJOR ACCIDENTS AND NATURAL DISASTERS

Chapter 16 of the EIAR describes the major accidents or natural disasters, the hazards which have the potential to affect the Project and consequently have potential impacts on the environment. These include accidents during construction and operation caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disaster considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e., population and human health, biodiversity, land, soil (peat stability), water, air and climate and material assets, cultural heritage and the landscape.

A desk-study has been completed to establish the Baseline environment for which the proposed risk assessment is being carried out. This will influence both the likelihood and

the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

The scenario with the highest risk score in terms of the occurrence of major accident and/or disaster was identified as 'Contamination' of the Project and risk of 'Industrial Accident Fire/Gas Explosion' during the construction, operation and decommissioning phases. The Project has been designed and built in accordance with the best practice measures set out in this EIAR and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design.

The risk of a major accident and/or disaster during the construction of the Project is considered 'low' in accordance with the 'Guide to Risk Assessment in Major Emergency Management' (DoEHLG, 2010).

18 NTS 18 INTERACTIONS OF THE FOREGOING

Any potential impact on one element of the environment as a result of the Project may also impact on another. **Chapter 17** of the EIAR provides a summary of the interactions and interrelationships between environmental aspects of the Project. This includes significant effects from each EIAR chapter and also summarises the mitigation measures proposed to reduce either the likelihood or magnitude of these effects to an acceptable level.

NTS Table 18.1 outlines the different environmental aspects which have potential to interact because of the Project. Interactions have been clearly identified in the early stages of the Project and where the potential exists for interaction between environmental impacts, the EIAR specialists have taken the interactions into account when making their assessment. Potential interactions (both positive and negative) have been considered for the construction, operational and decommissioning phases of each of the different environmental aspects of the Project.


All environmental factors are interrelated to some extent. Having studied the interaction of potential impacts during the construction, operational and decommissioning phases of the Project, it has been determined that no amplification effect is anticipated. The Project will have some positive impacts on an international, national, regional and local level. It is important to note that the landscape and visual impacts are almost entirely reversible upon Decommissioning of the Proposed Development.

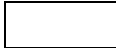
NTS-Table 18.1: Summary matrix of Interactions of Impacts during Construction, Operational and Decommissioning Phases (Source: Adapted from EIAR Guidelines, 2022)

	Population & Human Health		Biodiversity		Soils & Geology		Hydrology and Hydrogeology		Noise		Landscape & Visual		Material Assets		Cultural Heritage		Traffic & Transportation		Shadow Flicker		Air and Climate		Major Accidents and Natural Disasters	
	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper
Population & Human Health	Black	Black					Light Blue		Light Blue		Light Blue	Light Blue					Light Blue			Light Blue			Light Blue	Light Blue
Biodiversity			Black	Black	Light Blue		Light Blue	Light Blue									Light Blue			Light Blue			Light Blue	Light Blue
Soils & Geology					Black	Black	Light Blue	Light Blue	Light Blue							Light Blue	Light Blue			Light Blue			Light Blue	Light Blue
Hydrology and Hydrogeology							Black	Black	Black								Light Blue						Light Blue	Light Blue
Noise									Black	Black							Light Blue							
Landscape & Visual											Black	Black				Light Blue	Light Blue							
Material Assets													Black	Black									Light Blue	Light Blue
Archaeology and Cultural Heritage															Black	Black								
Traffic & Transportation																	Black	Black			Light Blue	Light Blue	Light Blue	Light Blue
Shadow Flicker																		Black	Black					
Air and Climate																				Black	Black	Black	Light Blue	Light Blue

	Population & Human Health		Biodiversity		Soils & Geology		Hydrology and Hydrogeology		Noise		Landscape & Visual		Material Assets		Cultural Heritage		Traffic & Transportation		Shadow Flicker		Air and Climate		Major Accidents and Natural Disasters		
	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	Const & Decom	Oper	
Major Accidents & Natural Disasters																									

Note: Const. = Construction phase; Oper = Operational phase Decom. = Decommissioning

 Interaction or inter-relationship

 No interaction or inter-relationship