GORTLOUGHRA WIND FARM LIMITED

GORTLOUGHRA WIND FARM

CO. CORK

VOLUME I

NON-TECHNICAL SUMMARY (NTS)

March 2025

Gortloughra Wind Farm Ltd.,
C/O Statkraft Ireland Ltd,
Cork Airport Business Park,
Cork,
Ireland.

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park,
Sligo.
Tel.: 071 9161416
Fax: 071 9161080
email: info@jodireland.com

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 9161416
Fax (071) 9161080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	Gortloughra Wind Farm	
CLIENT / JOB NO	Gortloughra Wind Farm Limited	6460
DOCUMENT TITLE	Non-Technical Summary	

	Prepared by	**Reviewed / Approved by**
Document **Draft Rev 0**	Name Shirley Holton	Name Andrew O'Grady
Date February 2025	Signature *Shirley Holton*	Signature Andrew O'Grady

	Prepared by	**Reviewed / Approved by**
Document **Final**	Name Shirley Holton	Name Andrew O'Grady David Kiely
Date March 2025	Signature *Shirley Holton*	Signature Andrew O'Grady David Kiely

6460/AOG

GORTLOUGHRA WIND FARM LIMITED

GORTLOUGHRA WIND FARM, CO. CORK

VOLUME I NON-TECHNICAL SUMMARY REPORT

CONTENTS

1 NTS 1 INTRODUCTION

This Non-Technical Summary (NTS) summarises the Environmental Impact Assessment Report (EIAR) which accompanies the application for planning permission for Gortloughra Wind Farm, which is situated in the townlands of an tSeithe Bheag (Shehy Beg) (Muscraí Gaeltacht), Gortloughra, Cloghboola and Inchinroe, Co. Cork. The Site is located 9.7 km north-west of Dunmanway, Co. Cork and 19 km south-east of the county boundary between Cork and Kerry. The Site is located on relatively high ground, at elevations ranging from 243 m AOD on the northern side of the Site at the entrance 326 m, to 510 m AOD towards the middle of the Site and 306 m AOD on the southern side of the Site. The location of the Proposed Development is shown in **Figure NTS-1**.

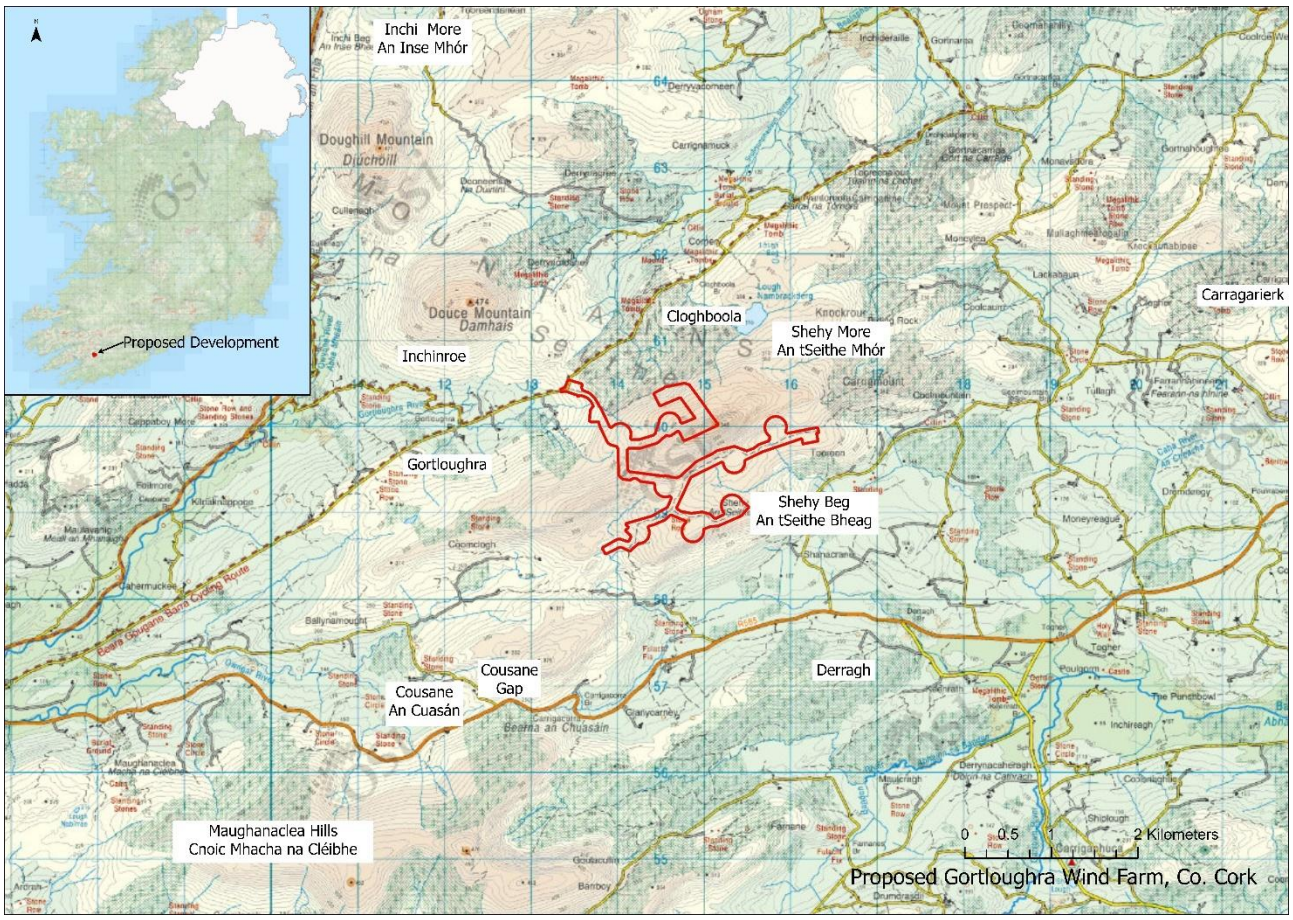

Figure NTS-1: Site Location

1.1 The Applicant

The Developer – Gortloughra Wind Farm Limited, is a subsidiary of Statkraft Ireland Ltd. Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, gas-fired power and supplies district heating. Statkraft is a global company in energy market operations. Statkraft has more than 6,000 employees in over 20 countries.

1.2 The Project to be Assessed

Planning Permission is being sought by the Developer for the construction of eight wind turbines, permanent Met Mast and all ancillary works.

The Proposed Development will comprise of the following main components:

- Erection of eight wind turbines with an overall ground to blade tip height of 175 m consisting of a rotor diameter of 150 m; and a hub height of 100 m.
- Construction of permanent Turbine Hardstands and Turbine Foundations.
- Construction of one Temporary Construction Compound with associated temporary site offices, parking areas and security fencing.
- Installation of a Meteorological Mast with a height of 100 m.
- Development of one on-site borrow pit.
- Construction of new permanent internal site access tracks and upgrade of existing internal site access tracks to include passing bays and all associated drainage infrastructure.
- Development of a permanent internal site drainage network and sediment control systems.
- All associated underground electrical power and communications cabling connecting the wind turbines to the on-site substation.
- Biodiversity enhancement measures.
- Recreational community improvements including the erection of 4 No. permanent information boards relating to cultural heritage and upgrades to amenity tracks across the site.
- All associated site development works.

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

This EIAR also assesses the construction of an on-site 110 kV substation and 2 no. GCR options along public roads:

- Option A: Dunmanway 110 kV substation; or
- Option B: Carrigdangan 110 kV substation.

While not part of the planning consent for this planning application, this EIA also assesses the works at 18 No. locations along the TDR from Port of Cork to Site and the underground

Grid Connection Route options from the Site to either the Dunmanway or Carrigdangan 110 kV Substations.

The 2006 Wind Energy Development Guidelines state that "*Planning Authorities may grant permission for a duration longer than 5 years if it is considered appropriate, for example, to ensure that the permission does not expire before a grid connection is granted*." It is, however, the responsibility of the applicants to request such longer durations in appropriate circumstances. This text is also repeated in the 2019 Draft Wind Energy Development Guidelines (2019) which have not yet been enforced. A 10-year planning permission and 40-year operational life from the date of commissioning of the entire wind farm is being sought.

The Proposed Development refers to all elements of the Gortloughra Wind Farm for which development consent is sought, the details of which are set out within **EIAR Chapter 2: Project Description**. These elements include the wind turbines site access tracks, Turbine Hardstands, Met Mast, Wind Farm Internal Cabling, borrow pit 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 Gortloughra Wind Farm Site Boundary identified in **Figure NTS-2**.

The 'Project' refers to the development works within the Redline Boundary in addition to the works on the Grid Connection Route Options, the Onsite Substation and Control Building; and lands along the Turbine Delivery Route which are outside the redline and landholding boundary.

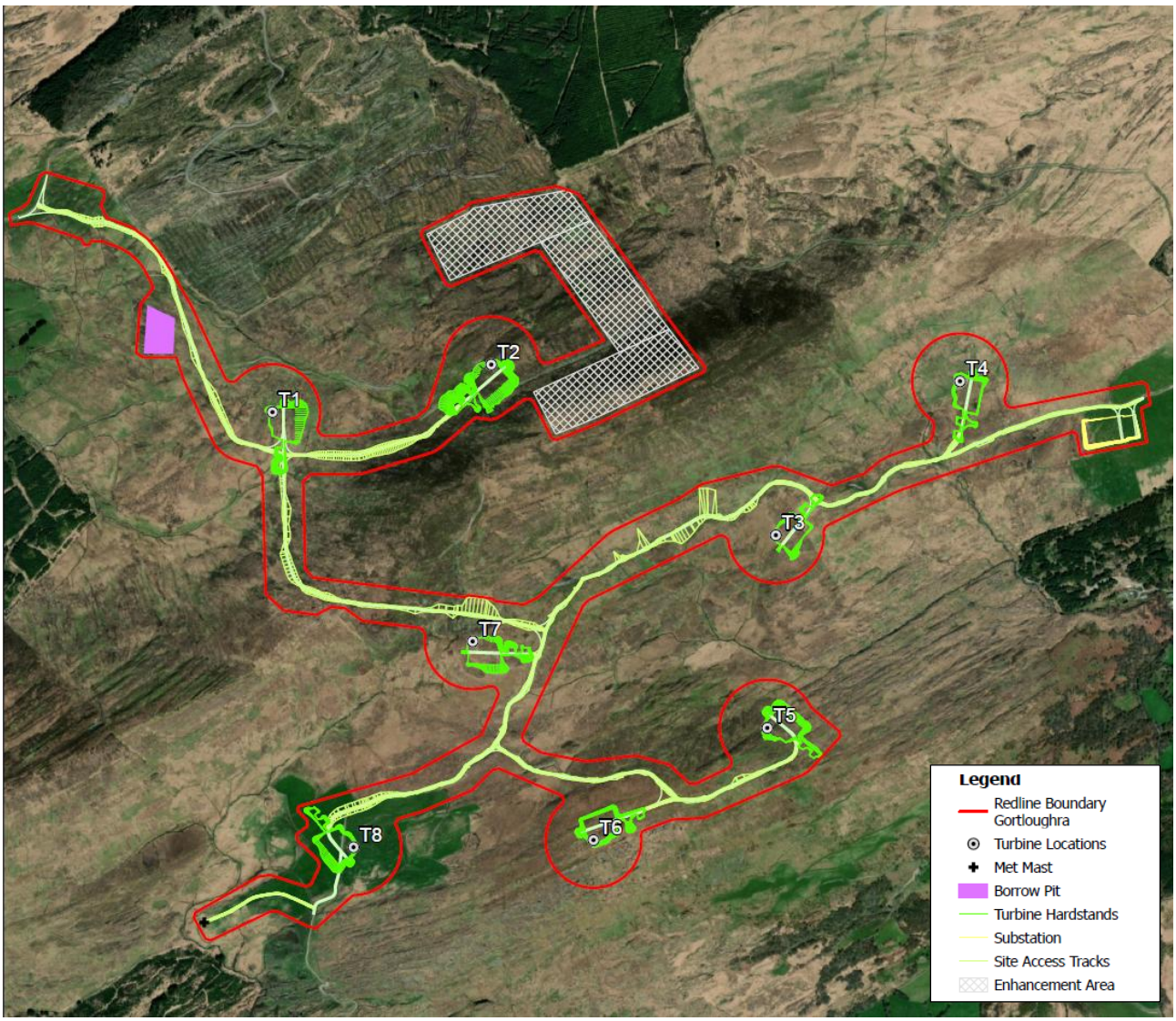

Figure NTS-2: Site Layout

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 (Volume II)
- Supporting Figures (Volume III)
- Supporting Technical Appendices (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 out[1].

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

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 September 2021 with a detailed Scoping Report being issued to consultees. Updates were issued in June 2023 and April 2024 to inform the consultees of updates to the Project. 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 IV**. 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 Appendix 1.2**) comprising webinars, in person events, newspaper advertising, door to door public engagement and brochures / leaflet distributions. Ample opportunity was given for questions and queries in an accessible way.

[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

Public consultation for the Gortloughra Wind Farm comprised of two phases, the first conducted by EMPower, the former Developer of the Project, beginning in May 2021 and concluding in January 2024 when the Project was acquired by Statkraft. The second phase was conducted by the Statkraft Community Engagement Team from January 2024 - Present. The Statkraft Community Engagement team will continue to be contactable by the local community throughout the lifetime of the Project.

Public consultation was generally supportive of the Project with the main concerns raised during consultation being the Project's impact on visuals, 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 2.4**.

3 NTS 3 PROPOSAL FOR THE GORTLOUGHRA WIND FARM

3.1 Wind Turbine Generator

The eight turbines will have a height from base to tip of 175 m consisting of a rotor diameter of 150 m and a hub height of 100 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.

The final choice of turbines will be guided by an assessment of the wind conditions and will take account of the available technology at the time of construction. The final choice of turbine model is unknown at this stage, but the identified candidate turbine model used for assessments at this stage is a Vestas V150 for the purposes of EIA and planning approval. This reflects a machine that would have the worst-case environmental effects, i.e. tallest/loudest (for that model)/longest blades etc. This precautionary approach provides that the effects are likely only to be as predicted or less.

Each turbine will have a generator with a maximum capacity of 6 MW giving an overall capacity of the wind farm of 48 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 L8544. 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 track will connect to the proposed new site access tracks, which will be retained throughout the operational life of the Proposed Development to enable maintenance of the turbines and replacement of any turbine components.

It is currently proposed that the 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, N22, R585, R587 and the L8544 to the upgraded site entrance. The proposed turbine component delivery route is shown in **Figure NTS-3**. The final delivery route for the turbines will be confirmed by the turbine supplier and subject to their detailed route assessments. The potential effects of transporting them and other materials is set out in section **NTS-14** and **EIAR Chapter 14: Traffic and Transport** of the EIAR. Works will be required at 18 no. locations along the haul route but will involve minor works such as temporary, surface level civil works to create load bearing surfaces.

Figure NTS-3: Proposed Turbine Delivery Route

3.3 Grid Connection

Connection will be sought from the grid system operators by a separate application to ESB Networks Limited. TLI assessed possible connection options for the Proposed Development. The Onsite Substation and Control Building will connect via underground 110 kV cable to either the Dunmanway (Option A) or Carrigdangan (Option B) ESB 110 kV substations. The overall length of Option A GCR between the Onsite Substation and Control Building and the existing Dunmanway 110 kV substation is approximately 28 km, of which, approximately 3.98 km is within the Site with the remainder located along the L8776 and the R587. The overall length of Option B between the substation and the existing Carrigdangan 110 kV substation is approximately 22 km, of which, approximately 3.98 km is within the Site with the remainder located along the L8776 and the L4607. The grid connection can be summarised as follows:

- **Option A - Underground Grid Connection to Dunmanway 110kV Substation** utilising sections of UGC in public road, primarily regional roads, and private lands. [28 km]
- **Option B - Underground Grid Connection to Carrigdangan 110kV Substation** utilising sections of UGC in public road, primarily regional roads, and private lands. [22 km]

The Grid Connection Route options can be seen in **Figure NTS-4**.

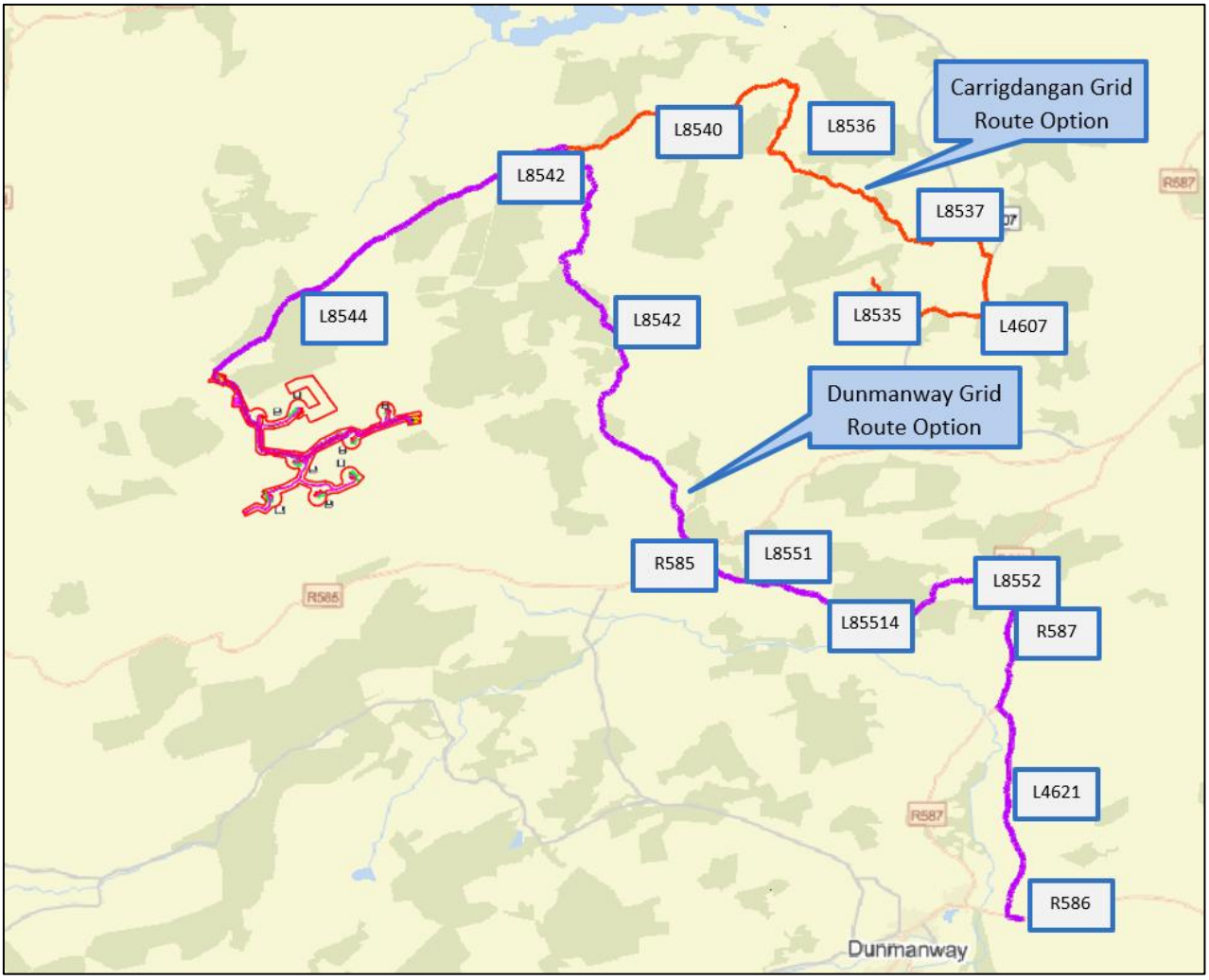

Figure NTS-4: Grid Connection Route Options

3.4 Construction Phase

The construction phase of the Project will take approximately 16-18 months in total. Working hours for construction activity will be from 07:00 to 19:00 throughout the week, with reduced working hours at weekends.

The turbines will be located across a wide area of hillside, however the land taken by the turbines and other infrastructure is a very small proportion of this, and efforts have been made to use existing infrastructure rather than using new land, thereby reducing the amount of new land take required for the Proposed Development. The Site extends to 117.21 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 area designated for enhancement extends to 20 ha.

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 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 Appendix 6.4** 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 site access track and Turbine Hardstand verges and the temporary decommissioning and construction compound to provide a natural ground profile. Restoration will be undertaken at the earliest opportunity to minimise storage of turf and other materials.

Figure NTS-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. Technical criteria such as wind speed, prevailing wind direction, existing infrastructure, 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 LEGAL AND POLICY FRAMEWORK

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).

Moreover, the EU Habitats[2] and Birds[3] Directives were considered for ensuring the highest standards for the protection of the Irish biodiversity.

The Climate Action Plan 2024 sets out ambitious and legally binding targets for Ireland. The goal is that Ireland will achieve net-zero greenhouse gas emissions no later than 2050 and a reduction of 51% by 2030. The Proposed Development will contribute towards meeting those targets also by following instructions provided by the draft 2019 Wind Energy Guidelines.

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.

[2] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
[3] DIRECTIVE 2009/147/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 November 2009 on the conservation of wild birds

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 Project and Environs (Electoral Divisions (EDs) Bealanageary, Douce and Garrown (153 km^2));
- Study Area 2: Cork County (7,316 km^2),
- Study Area 3: Southwest Region (12,120 km^2); and
- Study Area 4: Ireland (70,273 km^2).

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.

The majority of the Site is agricultural sheep grazing, farmland and open mountain heath and is in the ownership of private third-party landowners. 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** (Section 5.3.5 and 5.4.5), 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, slight, negative during the construction, operational and decommissioning phases.

EIAR Chapter 5: Population and Human Health addresses electromagnetic fields, shadow flicker, noise, air quality, water contamination, traffic and accidents/disasters however, more detailed assessments are included in **EIAR Chapter 16: Shadow Flicker Analysis**; **EIAR Chapter 10: Noise**; **EIAR Chapter 15: Air Quality**; **EIAR Chapter 9: Hydrology and Hydrogeology**; **EIAR Chapter 14: Traffic and Transport**; **EIAR Chapter 17: 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.

A Natura Impact Statement has been prepared for the Proposed Development (DEC, 2025) and accompanies this planning application. The NIS assesses if the integrity of European Sites will be adversely affected.

The European Sites occurring in the wider area surrounding the Site are listed in **NTS-Table 7.1**. Those European Sites that are hydrologically connected to the Site include the Bandon River Special Area of Conservation (SAC). There is a tenuous connection between the Proposed Development and The Gearagh SAC, owing to the location of the Turbine Delivery Route (TDR) widening locations and Grid Connection Route Option B being located within the Lee catchment. It is noted that a section of the Site falls into the Lee catchment, however no watercourses occur in the vicinity of this section of the Site and there are no hydrological pathways connecting the Site to watercourses of this catchment. The TDR widening locations and Grid Connection Route Option B are located at a remote distance upstream of the The Gearagh SAC, approximately 12 km, and is separated from this SAC by Lough Allua. Lough Allua, which is located downstream of the TDR widening locations and the proposed Grid Connection Route Option B is listed as a proposed Natural Heritage Area (pNHA), Lough Allua pNHA (Site Code: 001065).

NTS-Table 7.1: European Sites within the vicinity of the Project

SITE CODE	SITE_NAME	Distance	Nearest element of project	In/Out Further Examination
surface water catchment pathway				
2189	Farranamanagh Lough SAC	36km	wind farm	Out - no pathway
106	St. Gobnet's Wood SAC	11.3	haul route	Out - no pathway
		17.1	wind farm	
1371	Mucksna Wood SAC	24	wind farm	Out - no pathway
2280	Dunbeacon Shingle SAC	28	wind farm	Out - no pathway
2281	Reen Point Shingle SAC	31	wind farm	Out - no pathway
109	Three Castle Head to Mizen Head SAC	50	wind farm	Out - no pathway
1040	Barley Cove to Ballyrisode Point SAC	41	wind farm	Out - no pathway
1890	Mullaghanish Bog SAC	16	haul route	Out - no pathway
		22	wind farm	
90	Glengarriff Harbour and Woodland SAC	19	wind farm	Out - no pathway
108	The Gearagh SAC	6	haul route	Out - no pathway
		15	wind farm	
1043	Cleanderry Wood SAC	46	wind farm	Out - no pathway
1873	Derryclogher (Knockboy) Bog SAC	9	wind farm	Out - no pathway
1879	Glanmore Bog SAC	39	wind farm	Out - no pathway
1881	Maulagowna Bog SAC	25	wind farm	Out - no pathway
93	Caha Mountains SAC	21	wind farm	Out - no pathway
102	Sheep's Head SAC	29	wind farm	Out - no pathway
2171	Bandon River SAC	0	grid route	In - hydrological pathway; disturbance pathway
		8	wind farm	
1342	Cloonee and Inchiquin Loughs, Uragh Wood SAC	27	wind farm	Out - no pathway
2158	Kenmare River SAC	24	wind farm	Out - no pathway
SPAs				
surface water catchment pathway				
4109	The Gearagh SPA	8	haul route	Out - no special conservation interest species recorded
		17	wind farm	
4155	Beara Peninsula SPA	45	wind farm	Out - outside foraging range
4156	Sheep's Head to Toe Head SPA	39	wind farm	Out - outside foraging range
4162	Mullaghanish to Musheramore Mountains SPA	11	haul route	Out - outside foraging range
		18	wind farm	
4030	Cork Harbour SPA			in - Lesser Black-backed Gull foraging range
Foraging Range pathway				
4175	Deenish Island and Scariff Island SPA	66	wind farm	in - Lesser Black-backed Gull foraging range

SITE CODE	SITE_NAME	Distance	Nearest element of project	In/Out Further Examination
4030	Cork Harbour SPA	37	haul route	in - Lesser Black-backed Gull foraging range

Existing Ecological Baseline

The habitats identified as occurring within the Site and TDR are listed in **NTS-Table 7.2** and **NTS-Table 7.3**.

NTS-Table7.2: 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).
			EU Annex I habitats marked by an asterisk (*) are deemed to be priority habitats that are in danger of disappearing within the EU territory.
4030	Dry heath	Dry heath HH1	European dry heath
Annex 1 habitat Adjacent to the proposed development site			
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
8220	Siliceous Rocky Slopes	Siliceous rocky slopes with chasmophytic vegetation	Exposed siliceous rock

NTS-Table7.3: Primary Fossitt 2000 Habitat Communities recorded at the Site during surveys

Fossitt 2000 Code (s)	Name of Fossitt 2000 Habitat Communities	Brief Description* *The brief descriptions below, are based on the Site Habitat Surveys – refer to the Guide for Habitats in Ireland (Fossitt, 2000) for further information regarding these Habitat Classifications.
FW1	Eroding Watercourse	Eroding watercourses occur at the widening locations: • 12C (the Gortnalour Stream, EPA Code: 19G20); • 17A (the Lagneeve, EPA Code: 19GL08 • 18B (the Gortnarea Stream, EPA Code: 19G22); and • 21 (un-named and un-coded stream). The watercourse crossed at each of these locations are located within the Lee [Cork]_SC_010 sub-catchment. Bridge widening will be required at the widening location

Fossitt 2000 Code (s)	Name of Fossitt 2000 Habitat Communities	Brief Description* *The brief descriptions below, are based on the Site Habitat Surveys – refer to the Guide for Habitats in Ireland (Fossitt, 2000) for further information regarding these Habitat Classifications.
		12C, at the existing crossing of the Gortnalour Stream, approximately 2.5 km upstream of this stream's confluence with the River Lee.
GA1	Improved agricultural grassland	Improved agricultural grassland dominates the land cover at the TDR widening locations 7; 22; 29; 28. These species include an abundance of *Lolium perenne, Holcus lanatus, Alopecurus pratensis, Ranunculus repens, R. acris, Trifolium repens, Trifolium pratense, Cirsium arvense, Cirsium vulgare* and *Urtica dioica*.
GS2	Dry meadows and grassy verges	This habitat consists of roadside verges with a range of commonly occurring grasses and forbs occurring. This habitat is present at the TDR widening locations 18B; 19; 20A; 21; 21A; 22
GS4	Wet grassland	Wet grassland occurring within and surrounding the proposed development site is characterised by species-poor stands of *Juncus effusus*. This habitat is present at TDR 14.
WL1	Hedgerows	The hedgerows occurring at the TDR locations are dominated by Crataegus mongyna and Salix species. Hedgerows occur at the TDR locations 7; 12C; 14; 17a; 29.
WS1	Scrub	The scrub habitat occurring at the TDR locations is dominated by Crataegus mongyna, Salix species, Rubus fruticosus agg. with Ilex aquifolium and Pteridium aquilinum also prevalent. Scrub occurs at the TDR locations 12C; 14; 17C; 17D; 20; 20A
HH3	Wet heath	Wet heath vegetation occurs along the roadside verge at TDR 20B. The vegetation at this location consists of Calluna vulgaris, Erica tetralix and Molinia caerulea. Ulex europeaus is also occurring.
HD1	Dense bracken	Dense bracken occurs at TDR 14; 19A and 20. The dense bracken habitat is dominated by dense mono-specific stands of Pteridium aquilinum.
BL3	Buildings and artificial surfaces	The land cover within the TDR widening locations 12C; 14; 17a; 20; 21; 21A and 22 is dominated by buildings and artificial surfaces.

The entire stretch of Grid Connection Route Option A and Option B from the Site to the existing ESB substations at Dunmanway and Carrigdangan will be located within the footprint of existing public road corridors.

Horizontal directional drilling will be used to cross watercourses along the route. There are 22 crossings on Option A and 18 on Option B. At these bespoke locations, the electrical cable ducts will be drilled underground below the watercourses. The launch and receptor pits required for the horizontal directional drilling will be positioned within the existing road corridor.

The habitat occurring along the cable route is entirely comprised of road surface which is representative of buildings and artificial surfaces (BL3).

NTS-Table 7.4: Summary Results of the Aquatic Surveys that were undertaken at the Site (WQ1-WQ4) on 13th September 2022

Water Quality Site	WQ1	WQ2	WQ3	WQ4	WQ5
River/Stream Name	Gortloughra Stream	Shanacrane East Stream	Shanacrane East Stream	Shehy Beg Stream	Shehy Beg Stream
River Sub-basin	Coomhola sub-catchment	Bandon SC 010 sub-catchment	Bandon SC 010 sub-catchment	Bandon SC 010 sub-catchment	Bandon SC 010 sub-catchment
River/Stream Order	1st Order	2nd Order	2nd Order	2nd Order	2nd Order
Margaritifera sensitive area	Yes	Yes	Yes	Yes	Yes
EPA code	21I15	20S11	20S11	20S15	20S15
EPA Q-Value	Not assigned	Not assigned	Not assigned	Not assigned	Not assigned
Q-Value	Q4 – 5	Q4 – 5	Q4 – 5	Q4 – 5	Q4 – 5
WFD Class	A	A	A	A	A
WFD Status	Good	Good	Good	Good	Good
Salmonid Suitability	Marginal salmonid spawning and nursery habitat.	Important salmonid spawning and nursery channel.	Important salmonid spawning and nursery channel	Important salmonid spawning and nursery channel	Important salmonid spawning and nursery channel

The Site and the Grid Connection Route is located within the Lee, Cork Harbour and Youghal Bay Catchment Area, the Bandon-Illen Catchment Area and the Dunmanus-Bantry-Kenmare Catchment Area in Hydrometric Areas 19, 20 and 21 respectively. The Proposed Development and Grid Connection Route Options are located within three WFD sub-catchments. These include the Lee [Cork]_SC_010 sub-catchment, the Bandon_SC_010 sub-catchment and the Coomhola_SC_010 sub catchment. These three sub-catchments occur within catchment that are listed as a *Margaritifera* Sensitive Areas.

The Site is intersected by four EPA mapped rivers or small streams, with sixteen rivers or small streams being located either within or in relative proximity to the Redline Boundary. Many of these streams merge to form larger channels. These small channels have been numbered 1 – 16 for the purpose of ease of identification (and are shown on **Figure 9.3** and **Figure 9.4** in **Volume III**.). The Site also contains multiple unmapped small natural and artificial drainage channels. Eight EPA mapped channels located north of the summit of Shehy More (Streams 1 - 8), are tributaries of the Gortloughra River which in turn is a tributary of the Owvane River, which is also referred to as the "*Ouvane River*". The

Gortloughra River has the EPA name designation of "*Inchiroe*" and has a stream order of 3. The Gortloughra River flows for approximately 2 km west of the Site until it merges with the Owvane River. The Owvane River has the EPA name designation of "*Owvane (Cork)*" and has a stream order of 4. The Owvane River flows in a south-westerly direction to the north of Kealkill before ultimately draining into Bantry Bay at Ballylickey.

Eight small channels are located south of the summit of Shey More (Channels 9 – 16, inclusive), all of which are tributaries of the River Bandon. Six of these small channels have a stream order of 1 and are unnamed streams. Two of these channels have a stream order of 2 and have the EPA names of "*Shehy_Beg*" and "*Shanacrane_East*". Six channels located in the south-eastern area of the Site all merge into the "*Shehy_Beg*" River to the south-east of the Site in the townland of Tooreen. The Shehy Beg River ultimately merges with the Bandon River, approximately 4km to the south-east of the Redline Boundary. Two channels drain the south-west portion of the Site, namely the "*Shanacrane_East*" and a small unnamed stream. Both of these streams ultimately merge and continue as the EPA named "*Shanacrane_East*" which merges with the Bandon River approximately 3.8 km southwest of the Redline Boundary.

This figure also indicates the locations used for Aquatic Monitoring Points (WQ 1 – 4). The results of aquatic surveys are summarised in **NTS-Table 7.4**. Locations surveyed differed between small order streams to larger order rivers surrounding the Site.

Fauna

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

Bats

Desktop Study

The review of existing BCI records of bat species in the area of the Site indicates that at least six of the nine known Irish species of bat have been recorded within a 10 km radius of the Site. These bats include *Pipistrellus* sp. soprano pipistrelle, Leisler's, brown long-eared, Daubenton's, Myotis species (unidentified to species) and lesser horseshoe bat. Of these species, *Pipistrellus* sp., soprano pipistrelle, brown long-eared bat, Daubenton's bat and lesser horseshoe bat have been recorded roosting within a 10 km radius of the Site. Review of NBDC (10 km grid squares W15 and W16) indicates that soprano pipistrelle, unidentified *Pipistrellus* sp., Leisler's bat, Daubenton's bat, whiskered bat, and lesser horseshoe bat have previously been recorded within 10 km of the Site.

Review of the NPWS Lesser Horseshoe bat database indicates that there are no records of roosts within a 2.5 km buffer (Core Sustenance Zone (CSZ)) of the Redline Boundary (NPWS 2018).

The Cave Database for the Republic of Ireland does not hold any records of caves within a 4 km radius of the Redline Boundary.

Survey work undertaken for Carrigarierk Wind Farm, located c.5.5 km to the east of the proposed Gortloughra Wind Farm at its closest point, recorded common pipistrelle, soprano pipistrelle, Leisler's, whiskered/Brandt's, brown long-eared and lesser horseshoe bat.

Roost Survey

No dwellings or other buildings are present within the Site and its environs. Structures present within the Site are limited to five culverts over the small watercourses draining the Site. Three of the culverts did not support any features of potential use by roosting bats. Two of the culverts supported some crevices that would be of potential use by bats but neither culvert had any associated habitat features such as scrub or riparian woodland that would be favoured by roosting bats. No evidence of bats was observed at any culvert within the proposed site.

The cover of broadleaved trees at the Site is low; no large mature trees were recorded during the site surveys. No trees with suitability as roosting or resting places for bats were recorded at this site.

Transect Survey

Three species of bats were recorded during the bat transect surveys. These comprised Common pipistrelle, followed by Leisler's bat and Soprano pipistrelle. The most commonly recorded species was Common pipistrelle. Activity during transect surveys was low with the highest number of bat passes recorded during any night of transect survey amount to 9. No bat activity was recorded during any of the three no. transects completed at the Site during the 2021 bat survey season.

Static Survey

A total of nine species of bats were recorded during the static detector monitoring.

<u>Terrestrial Mammals – Badger and Otter</u>

The lower sections of the Shanacrane East, Gortloughra and Shehy Beg Streams downstream of the Site provide suitable foraging habitat for otters. The upper sections of

these streams, near their sources adjacent to and within the Site provide limited foraging habitat for otters owing to the spate 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 Shanacrane East, Gortloughra and Shehy Beg Streams downstream of the Site.

No badgers or their setts were observed during field surveys within the Site. The upland grassland and heath 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 at the Site. Kerry slug are known to occur in this area having previously been recorded in the neighbouring townland of Torreen to the southeast and during baseline ecological surveys for the Shehy More Wind Farm.

Protected Terrestrial Invertebrates

The food plant of the marsh fritillary larvae *Succisa pratensis* occurs rarely on Site and as such the 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 1 km to the southeast of the Site.

Fisheries

The three principal watercourses draining the Site are of a similar character and are representative of the Eroding Upland River (FL2) habitats. Each of the watercourses are representative of upland spate rivers characterised by fast water flow and incised banks. Each of the streams are subject to variable flow rates that are dependent on precipitation rates, with spate conditions occurring during periods of higher rainfall and ebb flows resulting during periods of low rainfall or dry conditions. During ebb flows much of the stream bed along these streams can be subject to drying out. The morphology of the Shanacrane East and Shehy Beg Stream at the Site is representative of high-gradient upland A/B-type zone (Rosgen, 1996) which are characterised by first order streams over high gradients, with steps and pools boulder strewn beds with cobbles and gravels and a straight profile. The Gortloughra Stream is located in an area of more gently sloping ground and is more representative of C-type zone (Rosgen, 1996). Shading occurs along the Shanacrane East and Shehy Beg Streams downstream of the Site caused by adjacent broad-leaved woodland.

The overall evaluation of these three watercourses for their potential to support salmonids and lamprey species is set out in **NTS-Table 7.5**.

NTS-Table 7.5: Summary of Salmonid & Lamprey Habitat downstream of the Site

Watercourse	Salmonid Habitat	Lamprey Habitat
Gortloughra Stream	Supports important salmonid spawning and nursery habitat downstream of Site. Marginal salmonid spawning and nursery channel upstream adjacent to Site	No lamprey species present in stream.
Shanacrane Stream	Upstream sections of stream within and near proposed wind farm site not used by salmonids. Supports important salmonid spawning and nursery habitat downstream of Site.	Lamprey species absent but suitable habitat occurs along this stream downstream of the Site.
Shehy Beg Stream	Upstream sections of stream within and near proposed wind farm site not used by salmonids. Supports important salmonid spawning and nursery habitat downstream of Site.	Lamprey species absent but suitable habitat occurs along this stream downstream of the Site.

As outlined in **NTS-Table 7.5**, the three primary streams draining the Site support conditions at the Site that are overall not representative of optimal spawning or nursery habitat for salmonids. These findings are supported by McGinnity et al. (2003) and Hendry et al. (2003) who note that salmonid watercourses are generally restricted to 2nd order and higher watercourses, whilst 1st order streams are unsuitable for spawning and the early life stage of salmonids. The 1st order nature of these streams within the Site, along with their propensity for variable flow rates and the drying out of sections of river bed during periods of drier weather conditions are identified as the principal factors reducing the potential to support salmonids.

All three streams draining the Site, downstream of the Site, are representative of salmonid watercourses and provides suitable spawning and nursery habitat for salmonids.

In addition to the fisheries surveys completed for the Project, Inland Fisheries Ireland (IFI) (Gordon et al., 2021) completed a catchment-wide survey of the Bandon River between August and September 2021. A total of 35 no. sites were surveyed as part of the catchment-wide survey. Of these survey sites 4, 5 and 6 occur in the vicinity of the Project. Survey sites 5 and 6 are located along the Shanacrane East Stream approximately 3.5 km and 5.5 km downstream of the Site. Survey site 4 is located along the Caha River at Coolmountain Bridge, which is crossed by the proposed Grid Connection Route Option A. Other survey sites occurring in the local catchment area upstream of the Project include survey site 2, 3, 9 and 10. Results for the 2021 survey are compared with results from a previous round of IFI survey completed during 2019.

The IFI have recorded a decline in fish ecological status at Site No. 4 and 3, no improvement from moderate status at Site No. 9 and 10; no change in Good status at Site No. 5; and an improvement in status at Site No. 5.

In terms of the wider all catchment-area survey Site No. 2, 3 and 4 were the only sites where a deterioration in fish ecological status was recorded. Of the 35 survey sites, 13 sites improved whilst 16 site remained unchanged in the wider catchment area survey.
The IFI offered likely causes for the deterioration at Site No. 2, 3 and 4 as being related to pressures caused by nutrient enrichment, habitat modification and fish passage issues.

Invasive Alien Species

No non-native invasive species were identified within the Site. *Rhododendron ponticum* and *Prunus laurocerasus* occur in the surrounding area and downstream of the Site.

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 7.6**.

NTS-Table 7.6: Assessment of Residual Effects

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
European Sites	Potential for the discharge of pollutants such as sediment or hydrocarbons downstream to the Bandon River SAC and pNHA which could affect qualifying habitat and species.	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 conservation objective targets of qualifying feature of interest will represent a significant effect.	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set out in Section 6.7, Chapter 8 & 9 and within the Natura Impact Statement (DEC, 2025). The implementation of mitigation measures will negate the potential for this impact to arise.	No residual adverse effects
NHAs	No impact. No NHAs within the zone of influence of the Development.	N/A	None	None Required	No residual impact
pNHAs	Potential for the discharge of pollutants such as sediment or hydrocarbons downstream to the Bandon River pNHA and Lough Allua pNHA which could affect	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	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set out in Section 6.7, Chapter	No residual adverse effects

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
	qualifying habitat and species.	feature of interest will represent a significant effect.		8 & 9 and within the Natura Impact Statement (DEC, 2025). The implementation of mitigation measures will negate the potential for this impact to arise.	
Wet heath	Loss of habitat to the footprint of the Proposed Development.	Permanent loss of EU Annex 1 wet heath habitats (see Table 6.13)	Certain	Mitigation measures for habitats are set out under Section 6.7.1. A Habitat Management Plan has been prepared. This includes for the restoration of approximately 20 Ha of wet heath within the Site. The extent of wet heath associated with this area will be greater than the c. 0.3 Ha that will be lost to the footprint of the Proposed Development.	Permanent loss of habitat to the footprint of the Proposed Development (see Table 6.13).
Wet grassland	Potential for loss of c. 0.58 Ha of species-poor wet grassland	Slight at the local scale	Certain	Mitigation measures for habitats are set out under Section 6.7.1.	Permanent loss of habitat to the footprint of the Proposed Development (see Table 6.13).

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
Acid grassland	Loss of habitat to the footprint of the Proposed Development.	Permanent loss of acid grassland habitat to the footprint of the Site (see Table 6.13).	Certain	Mitigation measures for habitats are set out under Section 6.7.1.	Permanent loss of habitat to the footprint of the Proposed Development (see Table 6.13).
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 Section 6.7, Chapter 8 & 9 and within the Natura Impact Statement (DEC, 2025). 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	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-	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set	Imperceptible

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
	fisheries and aquatic fauna.	term perturbations to the status of receiving aquatic habitats to support fisheries and aquatic fauna.		out in Section 6.7, Chapter 8 & 9 and within the Natura Impact Statement (DEC, 2025). The implementation of mitigation measures will negate the potential for this impact to arise.	
Otters	Potential for indirect impacts to otters as result of perturbations to aquatic habitats downstream that are relied upon by otter or provide suitable habitat for otters.	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 otters.	Likely	Minimise ground disturbance. Timing of works and implementation of surface water management and control measures. Implementation of all mitigation measures set out in Section 6.7, Chapter 8 & 9 and within the Natura Impact Statement (DEC, 2025). The implementation of mitigation measures will negate the potential for this impact to arise.	Imperceptible
Bats	Potential impacts during the operation phase associated with the risk of fatalities posed by operating wind turbines to high risk species that	Potential for impacts to the local population of Soprano pipistrelle and Common pipistrelle populations.	Possible	Implementation of mitigation measures set out in Section 6.7.3.1.2 and 6.7.3.2.1 and set out in further detail in Appendix 6.2.	The adjudged worst-case scenario is that, during operation, the turbines may possibly cause injury or death to a few individual

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
	comprise pipistrelle species and Leisler's bat.				specimens of Leisler's bat as it is a high-flying species (10 m to 70 m+). However, the amount of time spent hunting at the upper height limit cannot be assessed accurately due to the maximum distance (60 m to 80 m) of detection of this species by ultrasound detectors, but most activity and time can be expected to occur in the mid-region of the species hunting altitude i.e. 40 m. The resulting effect of the development on local bat populations, with implemented mitigation measures, is considered to be a Slight to Imperceptible Residual Negative Reversible Effect and in the Local Context with the favourable conservation status (FCS) of bat species

Biodiversity Receptor	Impact	Significance	Probability	Mitigation	Residual Impact
					being unaffected and all species confirmed or expected on or near the study areas are predicted to persist.
Herpetofauna	Mortality resulting from construction works. Loss of foraging habitat.	Potential for impacts to the local common frog populations.	Likely	Minimise ground disturbance. Timing of works. Habitat management measures as part of the Habitat Management Plan. Implementation of mitigation measures set out in Section 6.7.2.1.6.	Imperceptible
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

8 NTS 8 ORNITHOLOGY

EIAR Chapter 7: Ornithology assesses the potential effects of the development on ornithology. The construction, operational and decommissioning phases of the Project, have the potential to result in four main effects on birds:

- Habitat loss
- Collision with turbines
- Disturbance / Displacement
- Barrier effect

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. A part of this review, records available on the NPWS and the National Biodiversity Data Centre websites were reviewed, in addition to records of rare/sensitive species within the 10 km grid squares overlapping the Site.

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 Natura Impact Statement that accompanies this application.

Over 5 full years (including breeding, migration and winter seasons) of ornithology surveys were undertaken at the Site to establish the distribution, and abundance of bird populations around the Site, and the wider hinterland. These surveys followed recognised best practice guidance on bird survey methodology for wind farms and the timing of survey. The 5 years of surveys undertaken was significantly greater than the 2 years specified in industry standard guidance and provides a robust baseline to inform the assessment. This information was used to inform the design of the wind farm layout and the assessment of potential effects.

The following surveys were undertaken to inform the assessment:

- Vantage Point (VP) surveys were carried out at the Site monthly from April 2019 to September 2024 inclusive. The total survey effort over the 5-year survey period (5 x summer seasons, and 5 x winter seasons) was over 1,147 hours.
- 5 years of Breeding Bird Transects and Winter Bird Transects.
- A total of five years of monthly hinterland surveys were carried out between October 2019 and September 2024 (32 hinterland sites).
- Breeding wader walkover surveys (5 years 2020 to 2024)
- Merlin Survey

- Red Grouse Survey

NTS-Table 8.1 details the key bird species recorded over the 5 year period.

NTS-Table 8.1: Bird species record during the 5 year survey period.

Species	BoCCI	Details
Buzzard	Green	This species was recorded a total of 37 times across all breeding seasons and 6 times during three winter seasons over the five-year survey period. Records indicate the Site is used to commute over / through, and as occasional hunting grounds.
Chough	Amber	Chough were recorded across every season of the five-year survey period. Of the 51 records of Chough, only twelve occurred within the 500m buffer zone over five full years of surveys, and the remainder are predominantly concentrated to the north-west of the buffer zone. Although breeding was recorded during Hinterland surveys in Shanacrane c. 0.82km south-east of the Proposed Development, no breeding was recorded within the Site. All records within the flight activity survey area indicate Chough were flying through/over the Site.
Cormorant	Amber	There is only one record of Cormorant within the flight activity study area, and the remainder are located outside of the 500m buffer zone, near Lough Nambrackderg.
Dunlin	Red	Dunlin were recorded within the 500m buffer zone only once in five years. No breeding or roosting habitat available within the site.
Great Black-backed Gull	Green	This species was recorded twice within the 500m buffer zone. No breeding habitat available within the site.
Goldcrest	Amber	This species was observed during breeding bird transects and hinterland surveys.
Golden Plover	Red	41 records were made across the five years of surveys. A total of 25 occurred within or partially

Species	BoCCI	Details
		intersected the 500m buffer zone over the entire 5-year period, an average of 5 flights per year. The roosting or breeding occurs within the site.
Grey Heron	Green	Grey Heron were observed 13 times during flight activity surveys. A total of 11 of these records occurred outside of the 500m buffer zone, near Lough Nambrackderg, which is situated c. 1.08km from the Site. No breeding habitat available within the site.
Grey Wagtail	Red	This species was recorded during the breeding season walkover surveys. No breeding habitat available within the site.
Hen Harrier	Amber	There are six observations of Hen Harrier within the study area, comprising both adults and juveniles. Hen Harrier were recorded within the 500m buffer zone on a very infrequent basis consider the lack of sightings over five full years of surveys.
House Martin	Amber	House Martin were observed seven times during breeding season flight activity surveys as a secondary target species. No breeding habitat available within the site.
House Sparrow	Amber	Sparrows were recorded once during flight activity surveys during the 2020/21 non-breeding season. No breeding habitat available within the site.
Kestrel	Red	Kestrel have been recorded 69 times within the study area across the five-year flight activity survey period. Observations have confirmed Kestrel are regularly using the Site but no breeding habitat available.
Lesser Black-backed Gull	Amber	The vast majority of sightings occurs outside the site. With a very low number within 500 m of a turbine (NatureScot prescribed buffering distance) However, this species was recorded flying at rotor-swept height within the buffer zone on six occasions.
Linnet	Amber	Linnet were observed four times during breeding season flight activity surveys as a secondary target

Species	BoCCI	Details
		species. No woodland habitats within the site and scrub habitat is marginal.
Meadow Pipit	Red	Meadow Pipit were recorded across flight activity surveys, and winter and summer walkover surveys.
Peregrine	Green	Peregrine were recorded infrequently across the five-year survey period, the predominantly brief observations consisted of Peregrine (adults and juveniles) flying over and hunting within the 500m buffer zone. No breeding behaviour was observed within the Site over the five year period
Red Grouse	Red	Good-quality Red Grouse habitat is limited within the proposed site, there is suitable habitat on the north-western ridge of Shehy Mountain. This area of suitable habitat is located c. 200-250m from proposed turbines. Red Grouse occur in low densities on site, with a total of two birds flushed in 1km grid square W1459 and another two birds recorded in 1km grid square in W1359. There is a limited amount of intact heather moorland on site due to overgrazing.
Redwing	Red	Wintering species recorded occasionally (13 times) over the 5 winters season. While the habitat present would not be considered typically optimal for the species, it has been recorded traversing the site.
Sand Martin	Amber	Only two records of Sand Martin were made during breeding season flight activity surveys. This species nests in sand banks or crevices in walls and bridges. As such there is no potential for the Site to support breeding birds.
Skylark	Amber	Skylark typically use open habitats with some low-lying vegetative cover (typically grassland and heath) for breeding and foraging purposes. While overgrazing of these habitats within the site by sheep has greatly limited the amount of suitable habitat for Skylark, the species continues to forage and nest

Species	BoCCI	Details
		within the heath and grassland habitats within the Proposed Development and the greater area.
Snipe	Red	Snipe were observed primarily during the non-breeding season. However, the majority of records are located outside of the 500m buffer zone. Over the 5 years of breeding wader surveys the species was only recorded on one occasion.
Sparrowhawk	Green	Sparrowhawk were recorded 26 times over five years of flight activity surveys, where both adults and juveniles were observed on a very infrequent basis. No breeding or roosting was recorded.
Starling	Amber	No breeding was recorded onsite and records indicate this species was commuting through the Site.
Swallow	Amber	Flocks of up to 160 birds were observed 56 times during breeding season flight activity surveys. No breeding habitat is available within the site.
Swift	Red	A single observation in 5 years of surveys was recorded of this species in 2023, where two individuals were recorded hunting in the north-east of the study area.
Teal	Amber	Teal were observed within the 500m buffer zone on one occasion in five years. However, successful breeding of Teal has been confirmed in the surrounding environment outside the site.
Wheatear	Amber	Wheater were recorded breeding in the study area.
Whinchat	Red	This species was recorded once during winter walkovers, where one individual was observed flying during the 2023/24 non-breeding season.
Willow Warbler	Amber	Willow Warbler were observed on two occasions during breeding season walkovers.

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. It will result in a Moderate Reversible Residual Effect to Kestrel and Slight Reversible Residual Effect to Red Grouse due to disturbance/displacement during the operational phase. In relation to barrier effect a Long-term Slight to Moderate effect in the local context on Kestrel and Golden Plover is predicted. However, habituation over the lifetime of the wind farm is likely to reduce these effects. There are considered to be no significant cumulative operational effects on bird species as a result of the Proposed Development.

9 NTS 9 HYDROLOGY, GEOLOGY AND THE WATER ENVIRONMENT

Chapters 8: Soils and Geology and **Chapter 9: 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 desk study assessment included consultation with the following information sources via online map viewers websites and databases:

- Environmental Protection Agency (EPA)
- Geological Survey of Ireland (GSI)
- Ordnance Survey of Ireland (OSI)
- Met Éireann (MET)
- National Parks & Wildlife Services (NPWS)
- Office of Public Works (OPW)
- Water Framework Directive (WFD)
- Cork County Council
- The Local Authority Waters Programme (LAWPRO)
- Inland Fisheries Ireland (IFI)
- Teagasc (Agricultural Agriculture & Food Authority)
- Department of Housing, Planning and Local Government, National River Basin Management Plan 2018-2021
- Department of Housing, Local Government and Heritage, The Water Action Plan 2024: A River Basin Management Plan for Ireland
- Myplan.ie; National Planning Application Map Viewer
- Sustainable Energy Authority of Ireland (SEAI), Wind Atlas

- Planning Reference: PL04.243486 Shehy More Windfarm EIAR
- Planning Reference: 21/5372 Carrigarierk 2 Windfarm EIAR

At a regional scale, the Site, both Grid Connection Route options, and the TDR are located within three separate catchment areas, including the Lee, Cork Harbour and Youghal Bay Catchment Area, the Bandon-Illen Catchment Area and the Dunmanus-Bantry-Kenmare Catchment Area in Hydrometric Areas 19, 20 and 21 respectively.

The GSI maps and website for this area shows that the majority of the Site is underlain by Devonian age sedimentary "*Old Red Sandstone*" (Ardaturrish Member and Old Head Sandstone Formation). Outcrops of bedrock are present throughout the Site, particularly within the upland (central) parts of the Site around Shehy More. From information obtained from the GSI and EPA websites, the following soils are understood to exist on the Site:

- Shallow rock covers the majority of the Site with minor areas of blanket peat and glacial till (based on the GSI online mapping). Peat is absent from most of the Site and from the vast majority of the Grid Connection Route Options and Turbine Delivery Route;
- Glacial till derived from the underlying sandstone and shale covers approximately 10% or less of the main Site area and around 50% of the Grid Connection Route Options and Turbine Delivery Route; and,
- Approximately 50% or more of the main Site has very shallow/exposed bedrock and hence has little or no superficial geology cover.

There are statutory designated sites located downstream of the Study Area that are hydrologically connected to the Proposed Development, including Bandon River SAC. Furthermore, the WFD status of the surface water network associated with the Site ranges from Good to High and is considered highly sensitive in general.

A Flood Risk Assessment (Stage 1) was carried out and indicates that the estimated net increase of surface water runoff in a worst-case scenario wettest month of January (3.25% relative to the area of the Site), this is considered a slight, or not significant impact. The proposed drainage system at the Proposed Development will be designed with the capacity to accommodate the 1 in 100-year storm with a 6-hour duration.

There are no mapped wells, springs or boreholes within 2.4 km of the Site. It has been conservatively assumed that all dwellings located in close proximity to the Redline Boundary have the potential to maintain a groundwater well for abstraction However, the potential for

such wells to be impacted by the Proposed Development is low considering the groundwater aquifer in the region is classified as Poor, and productive only at a local scale.

Peat depths on site were measured by peat probing at a total of 354 locations and ranged in depth between 0.0 m and 3.8 m. Peat depth classification within the Study Area is predominantly Rock/Very Shallow Peat/Topsoil (0.0 m - 0.5 m).

A Slope Stability Risk Assessment was carried out by Garne Geotechnical Services which concluded that the risk of a significant movement of peat soils occurring within the footprint of the Proposed Development Infrastructure is Low to Negligible.

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 **Chapter 8: Lands, Soils and Geology – Section 8.5 Mitigation Measures and Residual Effects** and **Chapter 9: Hydrology and Hydrogeology – Section 9.5 Mitigation Measures and Residual Effects**.

With mitigation measures in place, the Proposed Development has been assessed as having the potential to result in effects of varying significance, however many are considered avoidable with the exception of the following unavoidable effects:

- There will be a change in ground conditions at the Site with the replacement of natural materials such as peat, subsoil and bedrock by concrete, subgrade and surfacing materials. This is a localised, imperceptible to slight, neutral, permanent impact during the operational phase.
- The potential loading of suspended solids in surface water runoff at the Site particularly in relation to excavation works during the construction phase of the Proposed Development. While the loading of suspended solids in runoff is unavoidable, if precautionary and mitigation measures, as described are implemented, concentrations of suspended solids can be reduced to acceptable levels prior to runoff being intercepted by the surface water network associated with the Site. Achieving this implies minimal effects on surface water features which conforms to baseline.
- There will be some local changes to how water flows at the Site, this is considered a likely, neutral to negative, slight to moderate significance, localised impact of the Proposed Development which conforms to baseline.

Other potential effects have the potential to be significantly adverse, for example, a significant fuel spill, however applying the precautionary principal, mitigation measures, and proper planning, the likelihood and significance of such potential effects can be dramatically reduced.

- A Water Framework Directive Compliance Assessment has also been prepared and is attached to Appendix 9.3 of the EIAR in Volume IV. With the implementation of the proposed mitigation measures, a deterioration in WFD status is not anticipated in any waterbody.

During the construction/Initial Decommissioning and operational phases of the Proposed Development, a number of established good practice measures will be put in place to minimise peat disturbance, peat stability, and loss and compaction of soils. With effective and well managed mitigation measures in place, no significant residual effects on geology and peat are predicted as a result of the Proposed Development.

10 NTS 10 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, Turbine Hardstands, Grid Connection Route Options, with lesser sources being site access tracks and construction of an Onsite Substation and Control Building. 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 480 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 a recent 2023 An Bord Pleanála decision (ABP-313750-22).

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 six residential locations in the vicinity of the Site during one continuous measurement period, firstly between 21st February and 21st March 2022. The background noise levels measured at these locations were deemed representative of the background noise levels in the vicinity of the site. The predicted noise levels at each dwelling in closest proximity to the Site were calculated in accordance with ISO9613-2:1996 under a range of operating wind speeds standardised to 10 m above ground level.

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. There were no exceedances of the 43 dB night-time limit at any receptors identified through operation of the Proposed Development.

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.

11 NTS 11 LANDSCAPE AND VISUAL

EIAR Chapter 11: 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 assessing effects of a development on the landscape as a resource in its own right and is concerned with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. Visual Impact Assessment (VIA) relates to assessing effects of a development on specific views and on the general visual amenity experienced by people. Cumulative landscape and visual impact assessment is concerned with additional changes to the landscape or visual amenity caused by the Proposed Development in conjunction with other developments.

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 (as agreed with consultees through the EIA Scoping process) including scenic amenity designations, centres of population, transport routes and local community views using 30 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.

This is a varied and dynamic landscape that comprises a multitude of landforms and landscape features. Indeed, much of the Study Area comprises elevated rolling hills, ridges and rocky outcrops, with the Site situated along an elevated ridge that extends in a general east–west direction southwest of the summit of Shehy More. Shehy More rises to a maximum elevation of c. 545.6 m AOD and is one of the most elevated parts of the Central Study Area, whilst the most elevated part of the Site rises to a height of c. 446 m AOD. In terms of watercourses, several small streams descend from the elevated lands that contain the Site in all directions. Several of these flow into the Ouvane River, which is the nearest notable watercourse to the Site and flows in the southwesterly direction some c. 3.5 km northwest of the Site. In terms of land use, the Central Study Area generally comprises extensive areas of mountain moorland and sizeable commercial conifer forests. Jagged

rocky outcrops and areas of scrubby vegetation are also typical in the most elevated upland parts of the study area, whilst the lower winding valleys are characterised by pastoral farmland and areas of transitional scrub. Due to the site's relatively remote location, there are no notable settlements within the Central Study Area. Nonetheless, the Wider Study Area comprises several notable settlements, including Bantry, Drimoleage and Dunmanway. The central and wider study also encompasses numerous existing wind farm developments, the nearest of which is Shehy More Wind Farm (c. 180 m northwest), which is situated immediately north of the Site and extends across the northern extents of Shehy More Mountain.

Due to the remote character of much of the Central Study Area, which comprises upland hills, ridges and mountaintop summits, there is a relatively modest rural population density. With regard to settlements, the only settlement within the Central Study Area is Togher Village, which is located c. 4.7 km southeast of the nearest turbine. Aside from this, the only other notable centres of population are small linear clusters of dwellings and cross-road settlements. Whilst the Wider Study Area shares similar characteristics to the Central Study Area, there is a more notable agglomeration of settlements. The most notable of these is the coastal town of Bantry, Ballingeary, Inchigeelagh, Kealkill, Dunmanway and Drimoleague. The most notable major transport route in relation to the Proposed Development is the R585 regional road, which traverses the Study Area in an east-west direction through the Cousane Gap and is located some c. 1.3 km south of the turbine array at its nearest point. The R584 is the only other major route within the Central Study Area, some 3.5km northwest of the Site. Aside from these routes, the Central Study Area also encompasses several local roads, the nearest of which is the L8776 local road, which traverses east-west through the Study Area and is some c. 750 m north of the Site.

Due to the varied nature of the landform in the study area, there are numerous amenity features including the Wild Atlantic Way tourist driving route, the Eurovelo Cycling route and several notable walking routes including the Slí Gaeltacht Mhuscrai, the Beara Way and the Sheep's Head Way national waymarked walking trail. The Gougane Barra complex itself is also a notable tourism and recreation receptor within the Study Area and St Finabarr's Church and notable heritage feature located along a small island on the lake. In addition to amenity features, the Study Area also encompasses an array of heritage features dotted throughout the 20 km extents.

With regard to landscape designations, the Proposed Development is situated entirely within the Landscape Character Type '15a Ridge and Peaked Upland', which is classified

with a; 'High' landscape sensitivity; 'High' Landscape Value; and 'Local' level Landscape Importance. The Central Study Area also encompasses two other contrasting LCTs and includes 'LCT 12b - Rolling Marginal and Forested Middleground' located immediately to the east of the Site and 'LCT 16b – Glaciated Cradle Valleys' located c. 2 km south of the nearest proposed turbine. LCT12b is classified with a 'Medium' landscape sensitivity; 'Medium' Landscape Value; and 'Local' level Landscape Importance, whilst LCT16b is classified with a 'Low' Landscape Sensitivity; 'Medium' Landscape Value; and 'Local' level Landscape Importance. Numerous other LCTs also occur throughout the wider study area. It should be noted that the Proposed Development is not located in an area recognised as High Value Landscape (HVL), however and the nearest HVL designation is located some 6.1 km northwest of the site.

In terms of visual designations, numerous scenic route designations outlined in the current Cork CDP are contained throughout the Study Area, with the nearest of these situated at the Cousane Gap to the south of the Site. All of the scenic routes and views in both Cork and Kerry that fall inside the ZTV pattern were investigated during fieldwork to determine whether actual views of the Proposed Development might be afforded. Where visibility may occur, a viewpoint has been selected for use in the visual impact appraisal.

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. In this instance, existing wind turbines are familiar features in the immediate and Central Study Area and are characteristic features of the landscape within the Wider Study Area. Indeed, the entire Study Area encompasses up to 80+ existing turbines. Thus, the overall effect therefore, is one of intensification and extension of an established land use. In terms of scale and function, the Proposed Development is well assimilated within the context of the Central Study Area. This is due to the broad scale of the landform, landscape elements and land use patterns. These attributes prevent the height and extent of the Proposed Development causing the type of scale conflict that can occur in more intricate landscape areas. The broad hills, ridges and mountaintop summits in the central surrounds of the Site comprise some utilitarian character due to the presence of working rural land uses such as agriculture and commercial scale forestry. Although the Proposed Development represents a stronger human presence and level of built development than currently exists on the Site, it will not detract significantly from the surrounding working upland landscape.

The visual impact assessments for each of the 30 selected viewpoint locations are contained in **EIAR Appendix 11.1** and are summarised within **EIAR Chapter 11** based on receptor type.

Due to the varied nature of the landform within the Study Area and due to the high number of designated scenic views located throughout the Study Area, up to 30 viewpoints were selected to represent visual receptors within the Study Area. Residual visual effects ranged between 'Substantial-moderate' to 'Imperceptible'. The majority of the most notable impacts relate to the nearest views of the Proposed Development, which principally represent scenic designations and local community receptors. Whilst the Proposed Development will have a dominant visual presence and will present at a considerable scale from some of the nearest views, the proposed turbines appear well accommodated in this upland landscape in terms of their scale and function. Although there will be some near significant impacts along the nearest scenic route designation (S29), the turbines typically present, offset from, or in the opposite direction from the main aspects of scenic amenity along this route. It is also important to note that the Proposed Development will not be visible from some of the more scenic sections of this route.

The surrounding landscape is already strongly influenced by existing wind energy developments, most notably the existing Shehy More Wind Farm immediately northeast of the proposed Gortloughra Wind Farm turbines. As such, the Proposed Development will likely be perceived as a logical and visually coherent extension of this already established wind energy development, particularly when viewed from receptors to the north of the Site, where the Shehy More turbines are already a prominent feature.

In terms of alignment with the landscape and visual objectives set out in the Cork County Development Plan, the Proposed Development has been carefully designed and sited in respect of these objectives. In particular, Objectives GI 14-12 to 14-14, which focus on preserving scenic amenity and the character of scenic route designations throughout the county, have been taken into account. A comprehensive assessment of scenic routes within the Study Area has been carried out as part of this LVIA. Based on this assessment, the Proposed Development will not significantly detract from the prevailing landscape character or visual amenity afforded along these routes. While the turbines will be visible from certain sections, they are generally viewed either offset from or in the opposite direction to the main aspects of scenic amenity, and will not block or heavily obstruct any sensitive viewing aspects. In this part of West Cork, where wind turbines are a familiar feature in similarly elevated upland settings, the proposed turbines are considered to be visually well

accommodated and will not appear incongruous, nor will they appear over-scaled in the context of the surrounding broad scale land uses and landscape features.

Overall, whilst some of the nearest surrounding receptors will experience visual impacts close to significant, it is not considered that the Proposed Development will result in significant visual impacts. Instead, the Proposed Development is a well-considered and appropriately scaled development that assimilates well within this robust upland context, and will, in many instances, be perceived as a natural extension of the neighbouring turbines.

In terms of the potential for cumulative impacts, the cumulative assessment was divided into the current cumulative scenario and the potential future cumulative scenario. The current cumulative scenario presents the potential cumulative effects of all existing and consented developments within the Study Area. In terms of the current cumulative scenario, the Proposed Development will form part of an existing and consented array of 22 wind farm developments within the Study Area. Nonetheless, it does not generate any notable cumulative visual effects, albeit it will result in a further sense of wind farm accumulation and dissemination within the Study Area. Nonetheless, any strong sense of wind farm proliferation is notably offset by the fact that only two other existing wind farm developments are contained within the Central Study Area, with the majority of existing and consented developments contained in the wider southern and northern half of the Study Area. On balance of the reasons above, it is not considered that the Proposed Development will contribute to a significant cumulative landscape and visual impact in respect of the current cumulative scenario. Despite the considerable number of existing wind farm developments within the Study Area, the Proposed Development is principally viewed distinctly separate to these and is most often viewed well-spaces along a broad rolling ridge in combination with the Shehy More Wind Farm turbines.

Whilst still currently in-planning, it is important to consider the potential cumulative effects of the Proposed Development in combination with proposed wind farm developments that are currently in the planning system. In this instance there are 4 other developments, all of which are contained within the Wider Study Area. As per the cumulative potential future baseline scenario Zone of Theoretic Visibility mapping, the potential for an additional degree of cumulative turbines visibility only increases by a very marginal degree. Overall, due to the distance of the four proposed and in-planning developments from the Proposed Development turbines, it is not considered that the cumulative impacts will notably differ from those potentially experienced in the current cumulative scenario.

12 NTS 12 MATERIAL ASSETS AND OTHER ISSUES

EIAR Chapter 12: 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.

12.1 Land Use

During the construction, operational and decommissioning phases, the total land-take of the Proposed Development, including the site access tracks, Turbine Hardstands, turning heads, Onsite Substation and Control Building, Temporary Construction Compound and Met Mast is approximately 5.3 ha. The Site has an area of 117.2 ha therefore the total land take is 4.5% of the Site. There will be 8 no. turbines located on or partly on agricultural lands. This will result in the change of use from agricultural use to windfarm use. This will have a long-term slight, negative impact on agricultural land use due to the land use change for the duration of the Project during construction and operation phases.

The Grid Connection Route Options will be mainly in or alongside the existing roads and will be reinstated upon installation of cables. This will not permanently change the use of the land. The Turbine Delivery Route will require some widening works which have identified in **EIAR Section 12.3.1**. The effects of these works will be negligible in terms of land use.

No significant negative impacts are predicted on land use.

12.2 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/EU[4]. 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

[4] 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

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 14: 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.

12.3 Electricity Networks

Wind Farm internal cabling and the GCR Options from the Onsite Substation and Control Buildings to Dunmanway/ Carrigdangan will be underground, there will be no impact on the overhead electricity network.

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

At the existing Dunmanway/ Carrigdangan 110 kV Substation, the cable will connect into existing infrastructure within the confines of the Onsite Substation and Control Building and its compound. There is the potential that EirGrid will consider future upgrades of the existing conductors associated with the 110 kV overhead lines leaving the Dunmanway/ Carriqdangan 110kV substation.

An upgrade of the existing transformer of the Dunmanway/ Carriqdangan Substation is likely to be required. Such upgrades will have a slight, positive short-term effect in terms of upgrading of critical infrastructure.

12.4 Air Navigation

Consultation with the Irish Aviation Authority and with Cork revealed that the Proposed Development is not predicted to have any effect on the operations of Cork as the Proposed Development is outside their associated 'Outer Horizontal Surface' (over 15 km away). The Proposed Development is over 45 km from Kerry Airport and over 55 km from Cork Airport.

No potential effects are predicted. The civil aviation guidelines for wind turbines covers a 30 km radius[5]. Therefore, no potential effects to air navigation were identified.

12.5 Waste Management

Waste will be generated onsite during the construction and decommissioning phases of the Project. All rubbish and waste/excess materials will be removed from Site to an appropriate licenced facility from where it will be reused/recycled, where possible, or disposed of accordingly.

The residual effects of waste produced as a result of the construction, operational and decommissioning phases are considered to be **not significant**.

12.6 Quarries

The construction of the Project will impact slightly on natural resources such as aggregates which will be sourced from the quarries in proximity to the Site (EIAR Section 12.9.1).

Materials will be primarily sourced from the on-site borrow pit and site excavations. However, where this material is classed as unsuitable, quarries will be used.

It is likely that a small amount of granular material may be required to maintain site access tracks during operation which could impact the source quarry. However, the decommissioning phase will have no impact on the source quarry.

The use of imported material will have a slight, permanent negative impact on non-renewable resources of the area. This impact is considered to be imperceptible in the long-term.

[5] CAA Policy and Guidelines on Wind Turbines, UK Civil Aviation Authority, 2016. https://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=detail&id=5609 [Accessed online: 18/05/2023]

13 NTS 13 CULTURAL HERITAGE

Chapter 13 of the EIAR presents an assessment of the cultural heritage effects of the Proposed Development. The assessment considers the construction, operation and decommissioning phases and is based on programmes of desktop research and site inspections carried out to identify and record any known or potential archaeological, architectural and other cultural heritage constraints which may be subject to effects arising from the Proposed Development.

The desktop research included consulting with a range of relevant sources, including the following:

- Record of Monuments and Places;
- Sites and Monuments Record;
- National Monuments in State Care;
- Preservation Orders;
- Database of Irish Excavation Reports;
- National Museum of Ireland Topographical Files
- Record of Protected Structures;
- National Inventory of Architectural Heritage;
- Local histories and other publications; and
- Historic Mapping and Aerial/Satellite/LiDAR imagery.

There are ten recorded archaeological sites located within the Redline Boundary and these comprise 1 no. standing stone pair (CO093-024----), 1 no. mass-rock (CO093-084----), 5 no. hut sites (CO093-078001-, CO093-078002-, CO093-078004-, CO093-085---- and CO093-086----), 2 no. enclosures (CO093-087---- and CO093-078003-) and 1 no. field boundary (CO093-114----). The chapter presents descriptions, photographs and location mapping for each of these archaeological sites. The Proposed Development has been designed to avoid their locations, and all examples will be preserved *in situ* within protective cordons that will be maintained for the duration of the construction phase.

The Proposed Development has the potential to contain unknown sub-surface archaeological remains and pre-construction archaeological test trenching and archaeological monitoring of ground works during the construction phase will, therefore, be carried out by a suitably qualified archaeologist under licence by the National Monuments Service. In the event that any sub-surface archaeological remains are identified during these site investigations they will be recorded and securely cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures,

which may include preservation in situ (by avoidance) or preservation by record (archaeological excavation).

There are an additional 88 recorded archaeological sites located within 2 km of the Redline Boundary, and these include a notable concentration of hut sites, enclosures and field boundaries located within the environs of the southern end of the Site. While the majority of these sites individually possess little surviving surface remains, as a combined group within a relatively undisturbed area they are considered to retain a high value as an archaeological landscape. The operational phase of the Proposed Development will result in a medium magnitude change to the setting of these archaeological sites as a combined group which will result in a long term (reversible), indirect, significant adverse effect.

An assessment of potential indirect visual effects on archaeological monuments with notable visual sensitivities within the wider landscape was also carried out and this included reviews of Zone of Theoretical Visibility mapping. There are five National Monuments in State Care and two archaeological sites subject to Preservation Orders (PO) located within 10 km of the Site and none of these are located within 5 km of the proposed turbine locations. An assessment of their locations in relation to the Proposed Development did not reveal any likely significant indirect effects on their wider settings. The recorded archaeological resource within lands extending for 5 km from the Proposed Development was also reviewed to determine if this area contains monument types with potentially visually sensitive ritual alignments. This revealed the presence of 2 no. stone circles. 6 no. wedge tombs, 4 no. stone rows and 4 no. standing stone pairs located in private landholdings within this area. A review of their recorded alignments in combination with their locations and distances in relation to the Proposed Development revealed that none of these monuments have recorded alignments that directly intersect with the proposed turbine locations. The operational phase will result in long term, indirect, not significant to moderate, adverse visual effects on the wider settings these monuments.

Given the nature of the wind farm turbines there are no mitigation measures that can address indirect, adverse visual effects on cultural heritage receptors within the wider landscape, but it is noted that these effects will be reversed following the Decommissioning phase.

The Proposed Development will entail the establishment of an amenity trail within the Site that will include information signage within the environs of archaeological sites located in proximity to site access tracks. This aspect of the Proposed Development will facilitate

public access to elements of cultural heritage resource within private lands which will result in a slight, permanent, indirect, positive effect.

14 NTS14 TRAFFIC AND TRANSPORT

EIAR Chapter 14: 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 Options for two separate options in the public road network between the Onsite Substation and Control Building and Dunmanway 110 kV Substation (Option A) or Carrigdangan 110 kV Substation (Option B). The Onsite Substation and Control Building and chosen Grid Connection Route Options will be subject to a separate planning application.
- 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-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 Options works. It is estimated that during the wind farm construction, an approximate total of 8,017 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 site access track construction, Turbine Hardstand construction and Turbine Foundation construction.

It is estimated that 55-60 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.

Construction HGV's, LGV's and private vehicles are subject to government HCV, LCV, ADR and NCT emissions tests. A full air quality assessment is included in **EIAR Chapter 15** and summarised in **NTS 15 Air and Climate**.

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 10 Noise**.

The Traffic and Transport Assessment (**EIAR Appendix 14.1**) gives details of traffic junctions in the vicinity of the Site and the Traffic Management Plan (**EIAR Appendix 14.2**) 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 Route Options works and increased vehicle movements during construction and delivery of turbine components. The construction of the Site entrance and modifications to the public road network at various locations along the Turbine Delivery Route 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.

The traffic analysis carried out in the Traffic and Transport Assessment in **EIAR Appendix 14.1** at the L4607 / L4608 junction shows that drivers will experience short delays due to increased traffic volumes during the wind farm construction and Decommissioning periods. In 2035 vehicles joining the L4607 from the L4608 will experience a delay of 7 seconds without development construction traffic and a delay of 11 seconds with the additional traffic generated by wind farm construction. In 2075 vehicles joining the L4607 from the L4608 will

experience a delay of 7 seconds without development decommissioning traffic and a delay of 12 seconds with the additional traffic generated by wind farm decommissioning. The effects of the additional traffic volumes are assessed as slight and temporary with a duration of 16 months.

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. Analysis carried out in the Traffic and Transport Assessment in **EIAR Appendix 14.1** shows that vehicles will experience delays of approximately 75 seconds when the lights are in place on the L4607 and the R585. 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 14.2**.

The delivery of turbine components will take place outside peak traffic periods to avoid disruption on the public road network. 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. There is potential for momentary delay to public road users in the urban areas surrounding the Port of Cork at the R585 transshipment areas, R585 / L4607 junction, L4607 / L4608 junction and on the local road network leading to the Site entrance. 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.

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 to Moderate** on the national and regional road network and **Moderate to Significant** on the local road network. The significant effects of construction works and increased traffic volumes at sensitive locations such as south of Inchigeelagh village and the local road network in the vicinity of the Proposed Development will occur for a short period of time during the construction and decommissioning periods. 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.

15 NTS 15 AIR AND CLIMATE

EIAR Chapter 15: 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 15: Air and Climate**.

The closest receptor (H67) is located 486 m from the nearest turbine (T7). This dwelling is financially involved in the Project. There are 67 houses within 2 km of the proposed turbines. There six receptors which fall outside the 2 km radius but were included in the assessment.

After mitigation, the residual effects were assessed as having the potential to result in a short-term imperceptible, negative impact on climate during construction. There will be long-term moderate, positive impact on climate as a result of reduced greenhouse gas emission during the operational phase.

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 48 MW of installed capacity. The calculation contained within **EIAR Chapter 15: Air and Climate** states that approximately 37,381 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.

16 NTS 16 SHADOW FLICKER

EIAR Chapter 16 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 software (WindPRO 4.0[6]) was used to calculate the occurrence of shadow flicker at relevant receptors to the Proposed Development. The Study Area is defined as 10 times the widest possible potential rotor diameter within the range (10 x 150 m = 1,500 m). This was increased to 2,000 m for the inclusion of dwellings impacted in the cumulative assessment with the neighbouring Shehy More Wind Farm. Six receptors outside of the 2,000 m Study Area were also included in the analysis.

This assessment has identified the potential for shadow flicker to affect 51 no. out of 73 no. receptors within the shadow flicker Study Area. In this instance, it is proposed that a shadow control system be installed to eliminate the potential for shadow flicker from the Proposed Development. A shadow control system stops the offending turbine when shadow flicker conditions are present and eliminates the effects on the vulnerable receptor.

Given that only effects of significant impact or greater are considered "significant" in terms of the EIA Directive the potential effects of the Proposed Development as a result of shadow flicker, when mitigated, are considered to be not significant. The Proposed Development has been assessed as having the potential to result in neutral, imperceptible, long-term effects overall with regards to shadow flicker.

[6] https://www.emd-international.com/windpro/

17 NTS 17 MAJOR ACCIDENTS AND NATURAL DISASTERS

Chapter 17 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 18** 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		Ornithology		Soils & Geology		Hydrology and Hydrogeology		Noise and Vibration		Landscape & Visual Amenity		Material Assets and Other Issues		Cultural Heritage		Traffic & Transportation		Air and Climate		Shadow Flicker		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	Const & Decom	Oper
Population & Human Health																										
Biodiversity																										
Ornithology																										
Soils & Geology																										
Hydrology and Hydrogeology																										
Noise & Vibration																										
Landscape & Visual Amenity																										
Material Assets																										
Archaeology and Cultural Heritage																										
Traffic & Transportation																										
Air and Climate																										
Shadow Flicker																										
Major Accidents & Natural Disasters																										

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

Interaction or inter-relationship

No interaction or inter-relationship