INCHAMORE WIND DAC

INCHAMORE WIND FARM

CO. CORK

VOLUME I

NON-TECHNICAL SUMMARY (NTS)

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INCHAMORE WIND FARM, CO. CORK.

NON-TECHNICAL SUMMARY

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 Inchamore Wind Farm (The Project) which is situated approximately 6 km to the west of the village of Ballyvourney in the Múscraí Gaeltacht, Co. Cork. The site is located 5.9 km west of Ballyvourney, Co. Cork and borders the county boundary between Cork and Kerry. It is 54 km west of Cork City, and 23 km north-east of Kenmare, Co. Kerry.

The applicant seeking planning permission is Inchamore Wind DAC, a joint venture between FuturEnergy Ireland and SSE Renewables.

FuturEnergy Ireland (FEI) is the recently launched joint venture company owned on a 50:50 basis by Coillte and ESB. This new business combines the State's strongest assets and expertise in onshore renewable energy development on behalf of the people of Ireland. They are one of the largest dedicated developers of onshore wind in Ireland and their mission is to maximise the potential of our national resources and accelerate Ireland's transformation to a low carbon energy economy.

The aim of FuturEnergy Ireland is to help materially the country deliver on its green energy targets, achieving net zero emissions by 2050, as set out in the Government's Climate Action Plan and legislated for under the Climate Action Act. In this regard, FuturEnergy Ireland is looking to actively drive Ireland's transition to a low carbon economy by developing 1 GW of wind energy projects by 2030.

FuturEnergy Ireland is dedicated to developing best-in-class, commercially successful wind farms while maximising the support from local communities. Its wind farm projects have the potential to play a fundamental role in a green economy by creating jobs in rural areas and growing a green industrial sector, while also funding local development for host communities.

SSE Renewables is a leading developer, owner and operator of renewable energy in Ireland. The company's onshore portfolio in Ireland comprises 29 wind farms producing nearly 700 MW of renewable generation, including Ireland's largest wind farm the 174 MW Galway Wind Park.

Permission is being sought by the applicant for the construction of five (5 No.) wind turbines, a meteorological mast and an on-site substation and all ancillary works including a turning point on the N22, north of the site entrance.

The Environmental Impact Assessment Report (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 Main EIAR Report (Volume II)
- Supporting Figures (Volume III)
- Supporting Appendices (Volume IV)

These documents inform the readers of the nature of the Project, likely environmental effects and measures proposed to protect the environment during each phase of the development.

The Project will comprise the following phases:

- Construction of the Project
- Operation of the Project
- Decommissioning of the Project

2 NTS.2 ENVIRONMENTAL IMPACT ASSESSMENT

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. Wind farms of the scale of the Project typically legally require an EIA to be carried out.

The 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

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 from November 2020 to March 2023. The requests were accompanied by a Scoping Report which described the Project, the proposed EIA methodology and the key areas to be 'scoped in' or 'scoped out' of any further assessment. Scoping Opinions received are included as **EIAR Appendix 1.1**. This included agreement on excluding from the EIAR, assessment of effects on certain receptors or features, where it was agreed there was no potential for significant effects.

The project Community Liaison Officer's initial engagement commenced in August 2020 which included direct engagement by calling to all the houses within 2 km of the study area and providing information on the Project. In 2021 and 2022, newsletters were distributed to the local community to provide an update on Project progress and explain how local people would be consulted going forward. In early 2023, the community were invited to engage with the Virtual Tour and Public Consultation Process. The Project held a Public Information Event including on-site clinic open days on 20th and 21st April 2023 in Coolea Village Hall, Coolea, Co. Cork.

Environmental effects have been assessed in chapters of 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 Development 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 considered 'cumulative effects'. These are effects that result from cumulative changes caused by past, present or reasonably foreseeable actions together with the Project.

3 NTS.3 PROPOSAL FOR THE INSE MHÓR WIND FARM

The layout of the Project is shown on **Figure NTS-1**. The Project will consist of the following:

- A wind farm with an operational lifespan of 35 years (from the date of commissioning of the development).
- The construction of five turbines with an overall ground to blade tip height ranging from 177 m to 185 m inclusive; a rotor diameter ranging from 149 m to 155 m inclusive; and a hub height ranging from 102.5 m to 110.5 m inclusive.
- 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 (35-year life cycle) meteorological mast with a height of 110 m and a 4 m lightning pole on top, such that the overall structure height will be 114 m.
- Development of one on-site borrow pit.
- Construction of new permanent internal site access roads and upgrade of existing internal site access roads to include passing bays and all associated drainage infrastructure.
- Development of a permanent internal site drainage network and sediment control systems.
- Construction of a permanent 38 kV electrical substation including a control building with welfare facilities, all associated electrical plant and equipment, parking, security fencing and gates, all associated underground cabling, wastewater holding tank, and all ancillary structures and works.
- All associated underground electrical and communications cabling connecting the wind turbines to the on-site wind farm substation.
- Ancillary forestry felling to facilitate construction of the Development.
- All associated site development works including berms, landscaping, and soil excavation.
- Upgrade of existing forest access roads to include passing bays and all associated drainage infrastructure.
- Upgrade works on the Turbine Delivery Route to include the following:
    - Works at an entrance to an existing forest road accessed off the N22 to include localised widening of the forest road and creation of a splayed entrance, removal of existing vegetation for visibility splays and removal of street furniture to facilitate

construction traffic including the delivery of abnormal loads and turbine component deliveries.

A 10-year planning permission and 35-year operational life for the wind turbines and met mast, from the date of commissioning of the entire wind farm is being sought. This reflects the lifespan of modern-day turbines.

A permanent planning permission is being sought for the substation and all associated electrical plant, equipment cabling security fencing and gates, wastewater holding tank, and all ancillary structures and works as these will become an asset of the national grid under the management of ESB & EirGrid and will remain in place upon decommissioning of the wind farm.

The Grid Connection consists of one 38 kV substation (to include one control building with welfare facilities, all associated electrical plant and equipment, security fencing and gates, all associated underground cabling, wastewater holding tank, and all ancillary structures and works) and a 38 kV cable to connect to Ballyvouskill 220 kV Substation.

A temporary access road off the N22 in the townland of Cummeenavrick will facilitate the safe turning of vehicles leaving the Site.

Permission is not being sought for a Grid Connection Route or the turning area in Cummeenavrick, however the below is assessed as part of the Project in the EIAR:

- All works associated with the permanent connection of the wind farm to the national electricity grid comprising a 38 kV underground cable in permanent cable ducts from the proposed, permanent, on-site substation, in the townland of Inchamore and onto the townlands of Inchamore, Derreenaling, Derryreag, Cummeenavrick, Glashacormick, Clydaghroe and Cummeennabuddoge to the existing Ballyvouskill 220 kV Substation in the townland of Caherdowney.
- The construction of a temporary access road off the N22 in the townland of Cummeenavrick to facilitate a 180 degrees turning manoeuvre by construction vehicles and reinstatement at the end of the construction period.

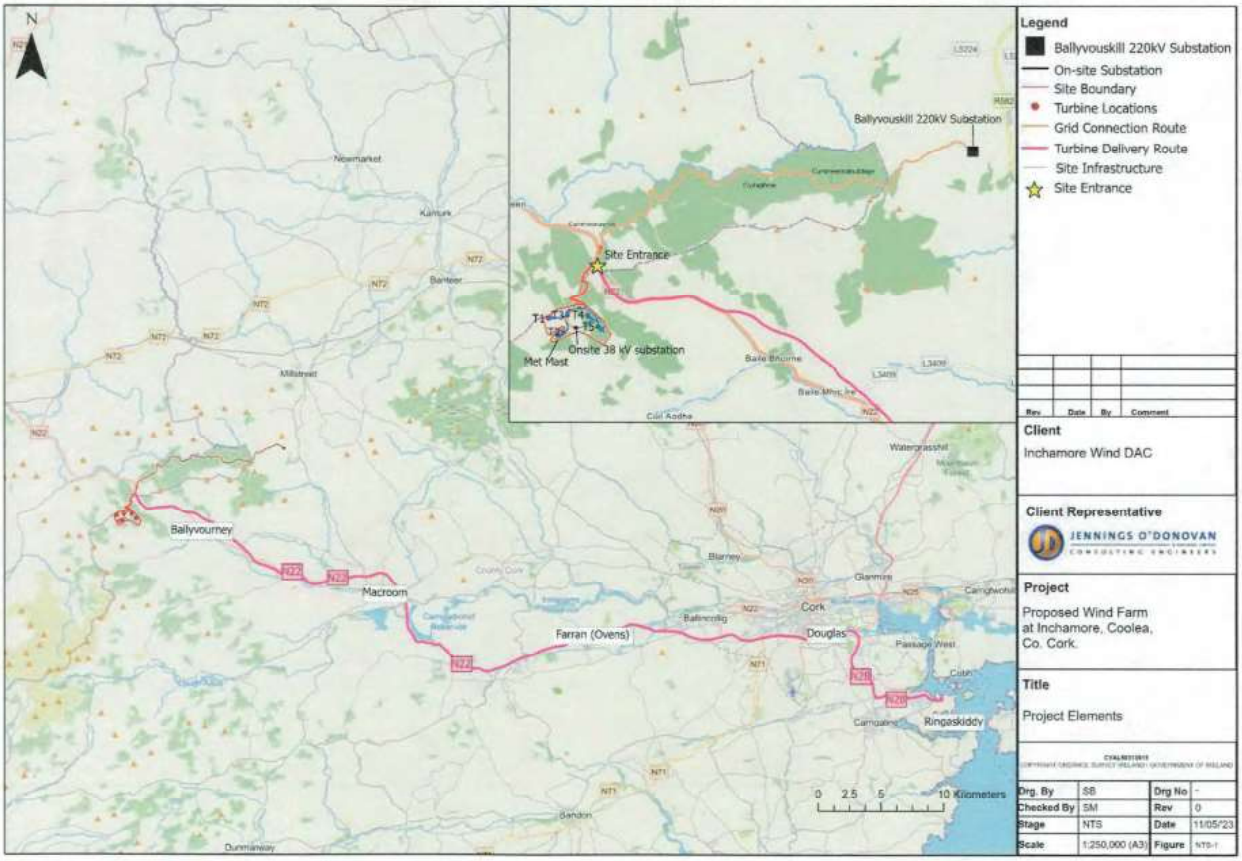

Figure NTS-1: Project Elements

3.1 Wind Turbines

The five (5 No.) turbines will have a height from base to tip ranging from 177 m to 185 m inclusive, but the specific make and model is not yet fixed. The turbines will be of a typical modern, three blade, horizontal axis design, white or 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. It is likely that turbines with 5.6 to 6.6 MW capacity may be available at the size proposed. For the purposes of the assessments, a range of turbine parameters has been assessed as can be seen in **Table 1 below**.

Table 1: Turbine Parameters Assessed

Turbine Parameter	Assessment Envelope
Turbine Blade Tip Height	177 m to 185 m
Rotor Diameter	149 m to 155 m
Hub Height	102.5 m to 110.5 m
Output	5.6 to 6.6 MW

Turbines are typically of a variable speed type, so that turbine rotor speed will vary according to the energy available in the wind. Turbines of the size proposed typically have a rotational speed of between 11.2 and 12.6 times per minute, depending on variations in wind speed, generating power for all wind speeds between c. 4 metres per second (m/s) (approximately 8 miles per hour) and c. 25 m/s (approximately 50 miles per hour). At wind speeds greater than c. 25 m/s, which are very unusual, the turbines will temporarily turn off to prevent any damage occurring.

The turbines are computer controlled to ensure that at all times, the turbine faces directly into the wind to ensure optimum efficiency. The rotors of all turbines will rotate in the same direction relative to the wind direction.

Each wind turbine needs an area of compacted stone adjacent to the turbine base, known as a hardstanding. This is used principally by the crane when erecting the turbine.

3.2 Access to the Development

The proposed site entrance is located to the north of the Site on the N22. The Turbine Delivery and Construction Haul Route will utilise this site entrance. The site entrances are shown on **Figure NTS-1**.

It is proposed that the turbine nacelles, tower hubs and rotor blades will be landed at Ringaskiddy Port, County Cork. From there they will be transported to the N22 and on to the access track on private lands and on to the Site as shown on **Figure NTS-1**.

The existing Site Access Roads in the forestry will be kept, utilised and upgraded as necessary to access the proposed turbine locations. There will be 3.6 km of new site access roads required to allow access within the site. These site access roads will be retained throughout the operational life of the Project to enable maintenance of the turbines and replacement of any turbine components.

3.3 Grid Connection

Underground cabling will link the turbine transformers to the proposed onsite substation. This will provide a connection point between the wind farm and the grid connection point at the existing Ballyvouskill Substation. The overall length of the underground grid connection between the onsite substation and the existing Ballyvouskill substation is 19.9 km, of which 1.3 km is within the Site. The remaining 18.6 km is located off-road and in third-party lands. The grid connection route can be seen in **Figure NTS-1**.

3.4 Construction Phase

The construction phase of the Project will take approximately 21 months in total. In general, 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 substantial efforts have been made to re-use existing infrastructure rather than using new land. During the construction phase, the total land-take required for the Project will be 19.6 ha within the larger site area of 170 ha.

The Project 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 Habitat Restoration

A Habitat Enhancement Plan, included as **EIAR Appendix 5.5**, has been prepared to mitigate for the potential ecological effect of habitat loss as a result of the Project. The Plan is focused on the restoration of blanket bog and heath in an are subject to upland grazing and turbary pressures (see **Figure NTS-2**). Restoration will be undertaken at the earliest opportunity to minimise storage of turf and other materials.

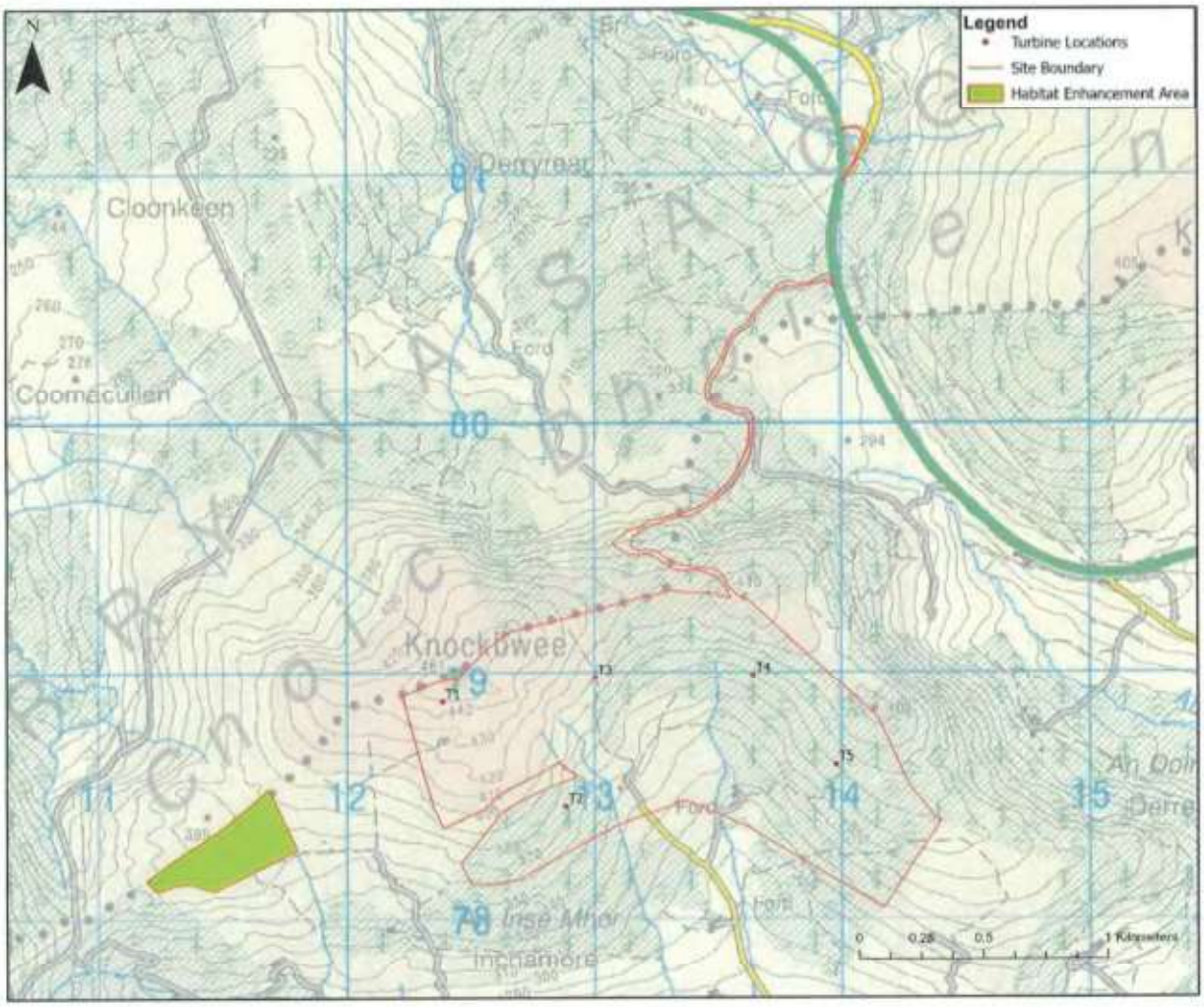

Figure NTS-2: Habitat Enhancement Area

3.6 Operational Phase

The operational lifespan for the Project is 35-years. During the operational phase, turbine and infrastructure maintenance will be ongoing and regular. This is expected to continue to employ approximately two (2 No.) people on a permanent basis for regular operational and maintenance activities. In addition to this, employment will be created in the areas of finance, ongoing compliance with permissions and permits, safety, security, community relations and benefits and land-owner agreements.

4 NTS.4 SITE SELECTION AND DESIGN

The site layout design has evolved through a series of changes, to avoid or minimise potential effects, including effects on views, hydrology, peat, ecology, fisheries, ornithology, noise and archaeological features. Technical criteria such as wind speed, prevailing wind direction, existing infrastructure, topography and ground conditions were considered during the design process, in addition to relevant guidance documents, survey findings and responses from consultees. Overall, it is considered that the Project represents an optimum fit within the technical and environmental parameters of the Site.

5 NTS.5 LEGAL AND POLICY FRAMEWORK

The Project has had regard to the National Planning Framework, the Regional Spatial and Economic Strategy (RSES) for the Southern Region and the Cork County Development Plan 2022-2028. These documents are relevant to the determination of the planning application by Cork County Council. A detailed assessment of the Planning Policy and Legislative Framework is provided in the **Planning Statement** which accompanies the planning application.

The Climate Action Plan 2023 set outs 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 CAP23 aims to facilitate up to 9 GW of onshore wind energy. The Project will contribute towards meeting those targets.

6 NTS.6 POPULATION AND HUMAN HEALTH

The potential effects of the construction and operation phases of the Project on socioeconomics, tourism and recreation and land use were identified and assessed in **EIAR Chapter 4: Population and Human Health** following desk-based collection of data and consultation with local stakeholders. Three (3 No.) geographical Study Areas were outlined for this assessment, namely:

- Study Area 1: The Site and Environs [District Electoral Divisions (DEDs) – An Sliabh Riabhach]
- Study Area 2: Cork County

- Study Area 3: Kerry County

Overall effects of the Project with regards to tourism are considered to be short-term, slight, negative during both construction and decommissioning phases. There will be a long-term, slight positive impact during operation due to improved tracks, information boards and waymarking.

The majority of existing land use is agriculture and/or commercial forestry. This will not be altered significantly by the construction, operation and decommissioning of the Project as these activities can continue alongside the Development.

In advance of the construction phase, the applicant will hold a series of 'Meet the developer / Contractor' events as early as possible, allowing local contractors to learn about opportunities to bid for contracts, time to upskill, and time to prepare prior to bidding. The applicant has significant experience in organising these events.

Effects on the economy during both the construction phase and the operational phase would be minor, both direct and indirect, and positive, due to the creation of job opportunities and subsequent spending of income in the local area and within Ireland as a whole. It is estimated that turnover generated by the operation and maintenance of the Project could directly support two (2 No.) jobs in County Cork. The overall impact is predicted to be a moderate, positive, short-term impact during the construction and decommissioning phases and moderate, positive and long-term during the operational phase.

Cumulatively, together with other proposed wind farm developments in the region, if these are progressed, the effects would be positive and of minor significance. There is predicted to be a short-term, positive impact in terms of employment from the Project, if construction periods overlap.

6.1 Shadow Flicker

EIAR Chapter 4: Population and Human Health contains a Shadow Flicker analysis. Shadow flicker is the flickering effect caused when rotating wind turbine blades periodically cast shadows through constrained openings such as the windows of neighbouring properties. Industry standard software was used to model the potential for shadow flicker to occur, based on the proposed turbine locations and dimensions and the locations of residential properties. The defined study area was based on the 2006 Wind Energy Development Guidelines which is for properties within 10 rotor diameters (assumed at 1,550 metres as a worst-case scenario and 2,000 metres for completeness).

The adopted 2006 DoEHLG guidelines are currently under review. The assessment is based on compliance with the current DoEHLG Guidelines limit (30 hours per year or 30 minutes per day). The revised draft of the Wind Energy Development Guidelines 2019 provides for zero shadow flicker. However, it should also be noted the Project can be brought in line with the requirements of the 2019 draft guidelines, should they be adopted while this application is in the planning system.

A significant minimum separation distance from all occupied dwellings of 740 m has been achieved with the project design. This assessment has identified the potential for shadow flicker to affect between 17 No. and 20 No. out of 39 No. receptors within the shadow flicker study area.

Where significant shadow flicker effects are predicted to affect a sensitive receptor, these can be mitigated by adapting turbine control systems to stop the offending turbine when shadow flicker conditions are present. In this instance, it is proposed that a shadow control system be installed to eliminate the potential for shadow flicker from the Project.

The installation of a blade shadow control system on all wind turbines will eliminate shadow flicker impacts from the Development, therefore, removing cumulative shadow flicker impacts.

The assessment has not identified any likely significant effects from the Project on population and human health.

7 NTS.7 BIODIVERSITY

EIAR Chapters 5, 6 and **7** assesses the potential impact of the Project on terrestrial ecology, aquatic ecology and ornithology; respectively. Surveys were undertaken within and adjacent to areas to the proposed development, in order to ascertain the status of ecological features, including habitats, terrestrial mammals, bats, fish and aquatic invertebrates (notably freshwater pearl mussel). The nearest designated Natural Heritage Area to the Inse Mhór wind site is Sillahertane Bog NHA, which is approximately 5.5 km to the southwest. The development is also proximal to European Sites, the nearest of these sites, Killarney National park, Macgillycuddy's Reeks & Caragh River Catchment SAC is approximately 3 km south from the project site.

The main potential impacts of the construction, and operational phases of the Project on ecology are considered to be:

- Direct loss of habitat;
- Degradation of terrestrial habitat;

- Degradation of aquatic habitat (watercourses) and potential downstream ecological impacts;
- Disturbance of protected species, and
- Bat collision with turbines or barotrauma.

Habitat surveys included general mapping and quadrat surveys, aimed at identifying important habitat types, including EU Habitats Directive Annex I habitats, either likely to fall under the footprint of the Project or with potential to be affected by it. The results of the survey highlighted that Annex I habitats occurred close to, or immediately adjacent to the proposed infrastructure (Northern Atlantic wet heaths, European dry heaths with *Erica tetralix*, Blanket bog, European dry heaths and Siliceous rocky slopes with chasmophytic vegetation). Loss of Annex I habitats is therefore unavoidable.

The proposed windfarm site lies entirely within the Inchamore Stream sub-catchment where five tributaries flow into the Bardinch River which then joins the Sullane River, a tributary of the Lee. The Sullane River supports good populations of brown trout (*Salmo trutta*). The watercourses within the site itself are however, small 1st order tributaries which have high gradients and do not provide suitable habitat for fish or larger aquatic organisms. Electro-fishing surveys were undertaken (under licence from the Department of Communications, Climate Action and Environment) at six No. locations on watercourses downstream of the Site.

The catchment of the windfarm site is listed as supporting extant populations of Freshwater Pearl Mussel (FPM) (*Margaritifera margaritifera*). The nearest records of FPM to the Project are on the River Sullane at Coolea approximately 6 km downstream of the site. A freshwater pearl mussel survey was undertaken (under licence from the NPWS) along watercourses downstream of the Project. No populations of freshwater pearl mussel were recorded at the time of surveying.

FPM also occur on the River Flesk (the lower reaches of the Clydagh River) and are a qualifying interest for the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC which extends to include the Clydagh River. The construction of the Grid Connection Route parallels the Clydagh River where it runs along an existing forestry track. There are numerous feeder tributaries of the Clydagh River crossed by existing culverts along the forestry track, the majority of which have sufficient depth of over-lying material to accommodate the burying of the grid connection across the culvert. There are three watercourses which do not have culverts and these will be directionally drilled thereby minimising risks of silt or other pollutants entering the watercourse.

There are three minor watercourses within the site that will be crossed by the proposed road network within the site, all of which will entail clear-span structures avoiding any direct impacts on watercourses. An extensive suite of mitigation measures, as described in this chapter and within the Construction Environmental Management Plan and Water Quality Management Plan, is required through all phases of the Project to prevent deterioration of surface waters within and downstream of the Site. Subject to their successful implementation, there is considered to be no significant risk of a deterioration in water quality associated with the proposed development.

Bat surveys were completed in 2019, 2020 and 2022/23. Bat activity was recorded using a Anabat Walkabout Full Spectrum Bat Detector, a Petersson D200 Heterodyne Bat Detector & Bat Logger M2 Full Spectrum Bat Detector and a Petersson D200 Heterodyne Bat Detector. Transects were undertaken once a month between May to September 2019. Results showed that the site is used by bats, but that bat collision or barotrauma risk is not significant at the site.

A 1 km and 10 km radius search was requested from the Bat Conservation Ireland Database for the Irish Grid Reference W1403878722 in February 2023. There were no records on the database for the 1 km search, however there were records for a 10 km search.

Surveys for protected mammals found that whilst no signs of badger presence were found on site during the baseline surveys in 2021, their presence within the afforested areas of the site is possible. Otters are not expected to occur on site but are present within the Sullane River system downstream of the site. Sightings of reptiles, namely the common lizard, were also noted during the surveys.

The occurrence of the site for the proposed wind farm within the known range of Kerry Slug (Geomalacus maculosus) together with the presence of suitable habitat throughout the site suggested the likely presence of the species. The Project could potentially impact on the local population of Kerry Slug due to loss and disturbance of suitable habitat. Based on the likely extent of habitat loss throughout the wind farm site, this impact is likely to be minor and localised as only a small proportion of suitable Kerry Slug habitat (primarily the mosaic of heath and outcropping rock) within the site will be impacted.

A number of mitigation measures are proposed that include minimisation of the works footprint, measures to time specific works to avoid disturbance or potential direct mortality of species (such as common lizard), measures to avoid downstream pollution, as well as habitat restoration and enhancement measures. Important documents in the delivery of these are a

Construction Environmental Management Plan (which sets out work approaches and requirements during construction to avoid downstream water quality impacts). A Surface Water Management Plan is also required in order to ensure no long-term impacts on water quality within the freshwater pearl mussel catchment.

The majority of the affected habitat, approximately 26.13 ha, is conifer plantation. As conifer plantation is a non-native habitat that is not classed as a key ecological receptor, the permanent loss of this habitat is rated as Not Significant.

The construction of turbine T1 will result in the permanent loss of 2.32 ha of wet heath and wet heath/blanket bog mosaic. A small area of wet heath (0.2 ha) will be lost as a result of the T2 construction. The total loss of wet heath and wet heath/blanket bog mosaic is approximately 2.5 ha. The peatland habitat within the site is part of a larger complex of heath/bog habitats, which is rated as of County Importance. The loss of 2.5 ha of Annex I listed habitats, which have good representation and conservation status and functionality, is rated as a Significant Adverse effect of Permanent duration. Mitigation for loss of heath and bog habitats will be provided through a Habitat Enhancement Plan. The primary objective of this is to rehabilitate and manage an area of blanket bog (10.5 ha total), part of which is heavily eroded due to over-grazing, to compensate for the stated habitat loss.

8 NTS.8 ORNITHOLOGY

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

- Habitat loss;
- Collision with turbines, and
- Displacement

Bird surveys were carried out between 2017 and 2022 to establish the site baseline, distribution, and abundance of bird populations around the site, including a review of any surrounding designated sites for the wider hinterland up to 10 km. The Site is not located within a protected area for birds (Special Protection Area (SPA)).

These surveys followed widely recognised best practice guidance on the methods, timings and species that are recorded. This information was used to inform the design of the wind farm layout and the assessment of potential effects. This design is predicted to limit the potential for direct effects for most bird species from habitat loss and collision.

Whilst loss of peatland habitat will reduce the area of suitable breeding habitat available for Red Grouse, Snipe and Meadow Pipit (species of high conservation importance), as well as Merlin, it is not expected that this will have an adverse residual effect as the loss is a relatively small amount of the available peatland habitat on site. Also, the Habitat Enhancement Plan will provide additional peatland habitats. Similarly, the relatively small amount of habitat loss as a result of the Project is not expected to have any residual impact on species which use the site for feeding and/or roosting, including Hen Harrier and Kestrel. Habitat disturbance is also a potential effect for Red Grouse for which construction phase mitigation measures will be implemented.

During the operational phase of the Project, birds will be at some risk of collision with turbines. With mitigation in place, the significance of residual effects will range from Slight (for Kestrel, Merlin, Chough) to Moderate (Golden Plover).

With mitigation measures as presented in this EIAR implemented in full, and specifically construction phase mitigation for breeding birds of peatland habitats, as well as measures for White-tailed Eagle and Kestrel (as required) during operation phase, it is considered that the significance of the predicted effect on birds as a result of the Project will be slight.

The implementation of a Construction Environmental Management Plan is considered sufficient to reduce the level of any potential effects to levels that are considered to be not significant, while providing wide ranging benefits to species found on the site. There are considered to be no specific cumulative operational effects on individual species or territories as a result of the Project. 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 the significance of the predicted effects on birds as a result of the Project will range from Slight to Moderate.

9 NTS.9 HYDROLOGY, GEOLOGY AND THE WATER ENVIRONMENT

Chapters 8 and **9** of the EIAR evaluates the effects of the Project arising from the construction, operational and decommissioning phases on the hydrology, hydrogeology and geology resource within and surrounding the site. The hydrological, hydrogeological and geological assessment for the Project was based on desk studies and site surveys.

The desk study assessment included consultation with the following organisations via online map viewers and databases:

- Environmental Protection Agency (EPA) (Republic of Ireland);
- Geological Survey of Ireland (GSI);

- Met Éireann (MET);
- National Parks & Wildlife Services (NPWS);
- Office of Public Works (OPW);
- The National Biodiversity Data Centre (NBDC), and
- Water Framework Directive (WFD).

The Site and Turbine Delivery Route are not positioned within or directly adjacent to or immediately upstream of any designated or protected area (Special Protection Area (SPA), Special Area of Conservation (SAC), Natural Heritage Area (NHA)). The nearest downstream designated area is St. Gobnet's Wood SAC and proposed Natural Heritage Area (pNHA) (EPA Site Code: 000106) which boarders the Sullane_010 approximately 9.5 km southeast of the Site.

All receptors associated with the Project i.e., groundwater, streams and rivers, are considered highly sensitive receptors when considering:

- Water Framework Directive (WFD) status (2016-2021) "Good". The principal objective of the WFD is to achieve good status or higher in all waters and to ensure that status does not deteriorate in any waters.
- The down-stream designations (sensitive protected areas e.g., SAC, SPA) associated with the catchment and the sensitive habitats and species associated with same (i.e., Freshwater Pearl Mussel (FWPM)).
- The designation of all waterbodies within the boundary of the Site and downstream surface water bodies and all groundwater bodies as sources of drinking water.

A Site Flood Risk Assessment (SFRA) Stages 1 & 2 for the Wind Farm Site is presented in **Appendix 9.1 – Inchamore Wind Farm Site Specific Flood Risk Assessment**. The Site is not within a probable flood zone, nor has it experienced any historical flooding.

The Project will lead to a net increase in runoff equating to 0.253 m^3/s or 2.06% relative to the Site area. This is considered an adverse but imperceptible impact of the Project. The associated drainage will be attenuated for greenfield run-off and the Project will not increase the risk of flooding elsewhere in the catchment.

Consultation with OPW Flood Maps indicates that:

- No Arterial Drainage Schemes (ADS) have been implemented.
- The Catchment Flood Risk Management Plan (CFRAM) programme did not indicate any flood extents within the proposed Site boundaries, nor its immediate surrounding vicinity.

- There has been only one recorded localised flood event between the Site and the CFRAM mapped probable flood areas. This event 'Flooding at Coolea, Milleeny and Derreenaling' took place on 11th September 2015.

The closest mapped probable flood areas are associated with:

- The Sullane (030) river approximately 4 km north-east of the Site near Ballymakeery town.

There are no mapped wells, springs or boreholes within the site boundary. The groundwater aquifer underlying the Inchamore Windfarm Site is classified as a Locally Important Aquifer (Ll) – Bedrock which is Moderately Productive only in Local Zones.

Peat depth was measured at a total of 150 No. locations during soil surveys, which indicated that peat within the study area is generally shallow. Isolated minor areas of moderately deep peat were observed at some locations, particularly in the northwest corner of the site near the proposed location of T1, however the proposed development avoids such areas.

A Slope Stability Risk Assessment was carried out and indicates that the risk of significant mass movement of soils or landslides occurring is Low to Moderately High within the footprint of the Project.

The risk of significant peat landslide events occurring at the Site is low given the depth of peat there. However, the Site also possesses a degree of elevated risk in terms of subsoil stability. Subsoil, or till landslide events are generally characterised as relatively isolated in comparison to the fluid nature of peat landslides. The proposed works of the off-site upgrade nodes, involving approximately 1,870 m^2 of upgrading off the N22, is mapped over areas of 'Moderately High' and 'Moderately Low' Landslide susceptibility.

The Risk Ranking at peat probe locations is generally Very Low to Low with the exception of Moderate or High-risk point locations associated with deeper peat and/or steeper inclines and/or close proximity (within a receptor buffer zone) to sensitive receptors.

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 Development to occur. These established and effective measures will be included in detail in the Construction Environmental Management Plan which the applicant will be committed to undertake through conditions of the planning consent.

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.

None of the proposed Turbines or Turbine Hardstand areas fall within a buffer zone associated with a mapped stream / river. Given the extensive drainage network existing at the Site the construction activities associated with the Project will invariably be in close proximity to surface water / drainage features, including within the buffer zones such that there will be a requirement for further mitigation measures. Special attention and planning are required for construction activities within surface water buffer zones. Procedures in relation to mitigating against adverse impacts in areas in close proximity to surface water / drainage or within buffer zones are detailed in a Surface Water Management Plan SWMP

During the construction, operational and decommissioning phases of the Project, 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 hydrology are predicted as a result of the Project.

10 NTS.10 AIR AND CLIMATE

This section assessed the effect of the Project on air quality, given the potential for dust emissions, and the likely carbon dioxide reduction effects of the Development in operation. Mitigation measures for the reduction of dust are outlined in the **EIAR Chapter 10: Air and Climate** Sections 10.2.8 and 10.3.7. All turbines are situated greater than 740 m away from inhabited dwelling houses.

The use of plant and machinery during the construction/decommissioning phases is not likely to have a significant impact on air quality in the area, both in terms of dust generation and exhaust emissions. Overall, with mitigation in place this impact is assessed as slight/imperceptible, negative, direct and temporary/short-term in nature.

During the operational phase of the Project exhaust emissions will arise from occasional machinery use and Light-Good Vehicles (LGV) that will be required for occasional onsite maintenance works. The impact will be a Long-term imperceptible negative. However, the wind energy created by the Project will avoid the production of electricity from coal, oil or gas-fired power stations resulting in emission savings of carbon dioxide (CO_2), nitrogen oxides (NO_x), and sulphur dioxide (SO_2). This will lead to a Long-term Significant Positive Impact on air quality.

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 Project 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 Project does not contain any element, which will produce GHG emissions or odorous emissions in operation and 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 Project such that generation from other sources (which emit carbon dioxide) are offset. The estimated savings depend on the assumption of which source of electricity is displaced and the savings range from 72,597 to 80,580 tonnes of carbon dioxide per annum.

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 Project will contribute between 28 MW and 33 MW of installed capacity. 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. The Project has been assessed as having a slight, positive, long-term effect in terms of helping Ireland meet its international obligations to reduce GHG emissions.

11 NTS.10 NOISE

Chapter 11 of the EIAR presents an assessment of the noise effects of the Project.

Noise will be emitted temporarily by 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, processing in the borrow pit locations, with lesser sources being site access roads and construction of a 38 kV substation. Decommissioning noise levels are assumed to be in the same order as construction levels and will be of temporary duration. Construction and decommissioning works will typically be more

than 740 m from the nearest property (noise receptor), making the potential for noise and vibration impacts considered to be not significant.

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 Project, including cumulative effects with operational and consented wind farms will meet all current guidelines at all local properties.

12 NTS.11 LANDSCAPE AND VISUAL

Chapter 12 of the EIAR presents a Landscape and Visual Impact Assessment for the Project. This has been carried out by a qualified and experienced landscape architect to identify significant effects predicted to arise as a result of the Project. It considers separately the effects on landscape and visual receptors, as well as cumulative effects t in combination with other wind farm developments.

The Site is located within an agricultural and forested landscape. Landform within the site is notably upland and sloping, with considerable variance in elevation. The Derrynasaggart (Doire na Sagart) ridgeline marks the site's northern/ north-western boundary, peaking at 460 m AOD with the lowest terrain of the site dropping to approx. 270 m AOD. In the east of the site, two small streams flow north-south to drain a bowl-like, upland tributary valley, while in the west of the site are a further three streams. All five of these streams feed into the Inchamore Stream, which in turn flows into the Bardinch and Sullane Rivers flowing east towards Ballyvourney.

The Study Area for the Development covers a radius of 20 km in accordance with the Wind Energy Development Guidelines (2006). The landscape assessment considers potential effects on the receiving and surrounding landscape with reference to a range of landscape character areas (LCAs) and criteria published in various technical documents. The visual assessment considers effects upon visual receptors including scenic amenity designations, centres of population, transport routes and local community views using 24 viewpoints from representative / sensitive visual receptor locations. Photomontages have been prepared for the viewpoints and the figures also include a wireline of the Project on its own and a wireline with all other cumulative developments.

In respect of landscape sensitivity designations, the site and most of the central study area (within County Cork) is contained in LCT15b 'Ridged and Peaked Upland'. Also within the

southeast portion of the central study area is the LCT12a 'Rolling Marginal and Forested Middleground. Both of the identified landscape character types are classified as having 'Medium' value and 'Medium' sensitivity. LCT15b has a 'County' level of importance whereas LCT12a Rolling Marginal and Forested Middleground' has a 'Local' importance.

It should be noted that the site is not situated in an area recognised as a 'High Value Landscape' (HVL) and the nearest HVL designation relates to the area within and surrounding Gougane Barra, which is located more than 12 km southwest of the site.

In terms of landscape effects, there will be physical impacts on the land cover of this already modified (by commercial forestry plantations) Site during the construction stage, but many of these will be reversible upon decommissioning of the site. The main landscape impacts relate to changes in landscape character during the operational stage principally from the presence of the proposed turbines. In terms of scale and function, the proposed wind farm 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 wind farm causing the type of scale conflict that can occur in more intricate landscape areas. The rugged hills and ridges in the immediate surrounds of the Site have a notable utilitarian character due to the presence of the existing wind energy developments, in addition to extensive tracts of commercial conifer plantation. Although the Project represents a stronger human presence and level of built development than currently exists on the Site, it will not detract significantly from its productive upland rural character, which wind turbines are already a key component of.

For the visual impact assessment, the 24 viewpoints are grouped and summarised in **Chapter 12** in terms of receptor type. The representative viewpoints are seen in **Table 2** below and in **Figure NTS-3**.

Table 2: Representative viewpoints

VP No.	Location
VP1	Local Road at Gortnagross
VP2	Local Road at Coolea Village
VP3	Local road west of Coolea
VP4	Local road at Lumnagh
VP5	Local road at Inchamore

VP No.	Location
VP6	Local road at Laharan East
VP7	Local road at Caraghnacaha
VP8	Local road at Milleeny
VP9	Local road at Bardinch
VP10	Summit of Crohane Mountain
VP11	N22 at Derrynasaggart
VP12	Local road at Coomnagire
VP13	Western Summit of 'the Paps of Anu'
VP14	Summit of Mangerton Mountain
VP15	N72
VP16	Local road at Coumaclovane
VP17	Local road at Gortnahoughtee
VP18	Local road at Kilbarry
VP19	N22 at Ballymakeery
VP20	N22 at Inchinlinane
VP21	Local road near Kilnamartyra
VP22	R582 at Gortavranner
VP23	Local road at Dangansallagh
VP24	Local road at Reananerree

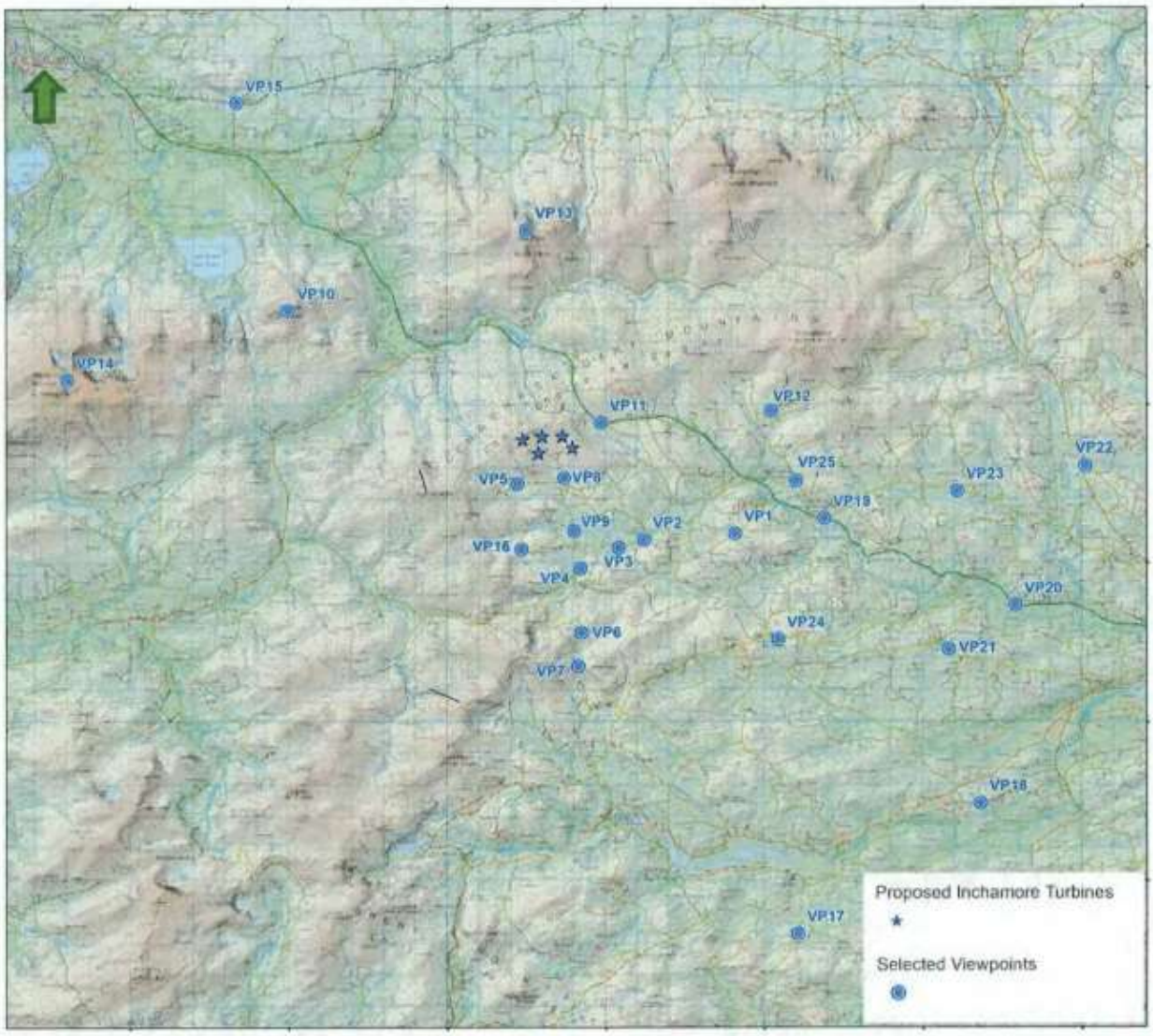

Figure NTS-3: Viewpoint Map

The proposed wind farm will give rise to a range of effects when considered in relation to different receptor types. There are very few notable impacts at centres of population and along major routes, which are the receptor types that usually harbour the greatest numbers of receptors (people). Compared to many other wind energy developments, the effects on local community views, one of the more susceptible receptor types and closest to the Development, are generally in the mid-range (Moderate and Moderate-slight) rather than higher end of the spectrum. This is less to do with the low population density and more to do with the enclosed nature of the rugged landscape in the central study area. Also, when broad elevated views are presented (VP11, VP12) they tend to be oriented away from high ground towards lower lying areas with the wind farm peripheral or even behind the viewer.

The most impacted receptor types were designated scenic routes as there is a high density of them within the central and wider study area and they often represented Local Community views as well (those within 5 km). On the basis that the scheme is of a modest overall scale

and extent and is viewed within designated scenes that include broad scale forestry farming and wind energy developments, it appears well assimilated in terms of both scale and function in such views.

There are occasions where the five turbines appear somewhat cluttered with several instances of turbine overlap. However, these are at least matched by occasions when the layout is exemplary in terms of the relevant siting and design guidance from the Wind Energy Development Guidelines with an even spacing and gently undulating ridgetop profile that matches the underlying terrain. Such instances tend to occur to the south of the array and include VP1, VP4 and VP6.

Based on the landscape, visual and cumulative assessment detailed within chapter, it is considered that there will not be any significant effects arising from the proposed Inchamore Wind Farm.

13 NTS.13 MATERIAL ASSETS AND OTHER ISSUES

Chapter 13 of the EIAR considers a number of other issues associated with the wind farm development, including potential effects on land use, forestry, telecommunications, electricity networks, aviation and utilities.

13.1 Land Use

The site is characterised as being generally commercial forestry and rural, agricultural land, and is predominantly utilised for sheep and cattle grazing. There will be one turbine located on agricultural lands. This will result in the change of use from agricultural pastureland to wind farm use. This will have a long-term slight, negative impact on agricultural land use due to the removal of grazing lands for the duration of the Project.

Four (4 No.) turbines (and associated infrastructure i.e., roads, Turbine Hardstands, etc.) are located within forestry. This will result in the change of use from forestry to wind farm use. This will have a long-term slight, negative impact on forestry due to the removal of lands for the duration of the Project.

However, no significant impacts are predicted on agricultural or forestry land use.

13.2 Telecommunications

Operators of microwave communication links were contacted during the EIA. Mitigation measures were adopted during the layout design to avoid impacting communication links.

Disruption to television reception is considered unlikely following the switchover to digital broadcasting, as the signals are less susceptible to interference from turbines.

The implementation of mitigation measures will ensure no interference with communication links. Therefore, no significant effects are predicted on telecommunications or radio reception as a result of the Project.

13.3 Electricity Networks

This section describes the transmission network and the anticipated connection option. It is not proposed to utilise any elements of the distribution network.

The nationwide electricity transmission system allows for the transport of large volumes of electricity from generation stations, including wind farms, to bulk supply points near the main population centres where it interconnects with the distribution system.

The Grid Connection will be 19.9 km in length and will be along public roads, private roads and forestry roads.

Connection will be sought from the grid system operator by application to EirGrid. The substation will connect via underground 38 kV cables. At the existing Ballyvouskill 220 kV substation, the cable will connect into existing infrastructure within the confines of the substation and its compound. The Grid Connection will be constructed to the requirements and specifications (CDS-GFS-00-001-R1) of EirGrid.

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

13.4 Air Navigation

Operating wind farms have the potential to cause a variety of effects on aviation. Rotating wind turbine blades may impact on radar operations, although it is not likely at Inchamore. The physical height of turbines can cause obstruction to aviation and the overall performance of communications, navigation and surveillance equipment. All structures over 150 m in height are required to have lighting to warn aviation traffic.

Consultation with aviation operators was undertaken, with the Irish Aviation Authority requesting an obstacle warning light system for the Project, the provision of coordinates of each turbine and tip height, and to notify them 30 days prior to any crane operations commencing.

The turbine locations will be added to aviation maps prior to construction, and all requests from the Aviation Authority carried out to ensure aviation safety protocols are followed. Therefore, effects on aviation as a result of the Project will be negligible.

14 NTS.14 CULTURAL HERITAGE

Chapter 14 of the EIAR presents a baseline study of and impact assessment on, the cultural heritage of the Site and surrounding region. Site visits and desk studies were undertaken to identify and record any archaeological, architectural and other cultural heritage assets which may be affected by the Project. The significance of effect on cultural heritage assets is considered by establishing the asset's value/sensitivity, and how that may be impacted based on the proposed design of the Project.

There are two recorded archaeological sites within the Site, and these comprise a field boundary (CO057-006----) and a small, stone-built enclosure (CO057-007----). Both of these archaeological sites been avoided by the Project design and will be cordoned off for the duration of the Construction phase. There are no known archaeological, architectural or cultural heritage remains within the footprint of the Development, and as such there will be no direct physical effects on any known archaeological or architectural heritage features during any phase of the Development.

The Site has the potential for the presence of unknown sub-surface archaeological remains. Should the presence of archaeological remains be revealed during the construction phase, they would be likely to suffer high magnitude impact. As such, the mitigation for potential slight/moderate effects on unknown archaeological remains will entail archaeological monitoring of topsoil stripping during the construction phase under licence by the National Monuments Service and this will be carried out by a suitably qualified archaeologist. In the event that any sub-surface archaeological features are identified during monitoring they will be recorded and then 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).

The operational phase will result in a range of long term, indirect negative impacts of a visual nature on the wider settings of archaeological sites within the environs of the Site which will range from not significant to moderate in significance. Given the nature of the wind farm turbines there are no mitigation measures that can address these visual impacts, but it is noted that they will be reversed following the decommissioning phase.

The construction and operational phases will not result in any likely significant effects on the cultural heritage resource.

The assessment does not predict any likely cumulative effects on cultural heritage resources that are significant in terms of the EIA Regulations.

15 NTS.15 TRAFFIC AND TRANSPORT

Chapter 15 of the EIAR sets out the effect that construction traffic would have on the road network, and the consequent effects that that could have on people and communities nearby.

Potential effects associated with the Project are presented in two key forms: those from the transport of wind turbine components, and those as a result of the import of construction material, equipment and personnel.

A computer model of the turbine delivery vehicles is used to identify locations along the turbine component delivery route where road improvements will be required to facilitate delivery for abnormal loads between Ringaskiddy Port and the wind farm site (refer to **EIAR Appendix 15.2**). =. These components would be transported with an escort vehicle as standard practice, to help ensure safe passage.

The haul route is proposed as:

- Exit Ringaskiddy Port onto N28.
- At the roundabout, continue on N28.
- At the roundabout, continue on N28.
- At the roundabout, take the 2nd exit onto N28.
- Continue on N28, then take the slip road onto N40.
- Continue on N40 to N22, use new Macroom By-Pass which ends north-west of Ballyvourney (to be known as Ballyvourney junction).
- Rejoin the existing N22, Continue on N22, then turn left at site access point at Derryreag. Continue on 2.5 km of forest track to the wind farm site.
- Upon exit from the site, turn left onto N22, then turn right at the island junction at Cummeenavrick (Co. Kerry) and complete a 180 degree turning manoeuvre and continue on the N22.

For the delivery of construction materials from locally identified quarries to the south, trucks will use the R599, R587, then the R584, then the existing N22 south-eastwards to join the new N22 Macroom By-Pass. They will then follow the new N22 Macroom By-Pass to the Ballyvourney Junction, exiting onto the existing N22 and travel westwards to Derryreag and then enter the wind farm Site.

From Keim, trucks will follow the R582 in a south-easterly direction and join the New Macroom By-Pass (N22) at Gurteenroe Junction. They will then follow the new N22 By-Pass to Ballyvourney Junction and then the existing N22 to Derryreag to access the forest track in the wind farm site.

The recorded traffic figures show that, in 2025, the N22 is predicted to be running at approximately 71.9% capacity at the proposed turning location for construction and turbine delivery vehicles at Cummeenavrick townland (existing N22 west of the Macroom by-pass) and therefore has capacity to accommodate additional traffic in the future. The N22 Ballyvourney (Baile Bhuirne) to Macroom Road Development is predicted to be running at approximately 11,100 to 11,200 AADT in 2027 or at 56% capacity. The amount of traffic that will be generated by the construction phase of the Project and potential effects on people and nearby communities were assessed as negligible, except for the following:

- Driver delay during the short periods of time when the abnormal loads are moving, at points highly localised to the turbine components delivery route.
- Pedestrian intimidation can occur where there are large changes to traffic flow and composition. No local roads will be used and there is no significant pedestrian traffic in the area.
- Mud and debris on the local road network from HGVs entering and egressing from the construction site.
- Vibration caused by large vehicles, either airborne or ground based as a result of a rough road surface. There is likely to be some noise and vibration from HGV movements along the Haul Route on the regional roads, particularly on the R599, R587, R584 and R582 which can cause disturbance to residents living along these roads. Due to the relatively low number of trips generated per day, (apart from the six days when concrete pours are taking place) the restrictions on working hours and the short-term nature of the construction phase, the effects of noise and vibration are not predicted to be significant.

A number of mitigation measures are proposed to minimise effects, including:

- The applicant will confirm the intended timescale for deliveries and every effort will be made to avoid peak times such as school drop off times, church services, sporting events, peak traffic times where it is considered this may lead to unnecessary disruption.
- Drivers of all delivery vehicles will be made aware of the presence of schools and other sensitive receptors and that formal pedestrian crossing facilities are not present.
- Wheel cleaning facilities will be provided at the two proposed entrances to the site.
- To reduce dust emissions, vehicle containers/loads of crushed stone will be covered during both entrance and egress to the site.

- The local road network will be monitored and maintenance will be carried out as required with any repairs undertaken at the cessation of the construction phase.

A detailed Traffic Management Plan will be agreed with the relevant authorities and the community and will detail the measures to be implemented during the temporary construction/decommissioning phases.

No significant effects related to operational phase traffic will occur due to the minimal traffic that would be generated during that phase of the Project.

16 NTS.16 VULNERABILITY OF THE PROJECT TO MAJOR ACCIDENTS AND NATURAL DISASTERS

Major accidents or natural disasters are 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).

17 NTS.17 INTERACTIONS AND INTERRELATIONSHIPS

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

Table 3 below 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 Development.

Table 3: 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		Landscape & Visual		Material Assets		Cultural Heritage		Traffic & Transportation		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
Population & Human Health	■	■																				
Biodiversity			■	■																		
Ornithology					■	■																
Soils & Geology							■	■														
Hydrology and Hydrogeology									■	■												
Noise											■	■										
Landscape & Visual													■	■								
Material Assets															■	■						
Archaeology and Cultural Heritage																	■	■				
Traffic & Transportation																			■	■		
Major Accidents & Natural Disasters																					■	■

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

■ Interaction or inter-relationship

□ No interaction or inter-relationship