An Bord Pleanála

Inspector's Report

ABP-314602-22

Development	Wind farm development of 14 turbines with 110kV electrical substation and all related site works and ancillary development.
Location	The townlands of Cahernacaha, Gortnabinna, Derryfineen, Gortyrahilly, Rath West, Derree, Fuhiry, Derreenaculling and other townlands, Co. Cork and Derryreag, Cummeenavrick, Glashacormick, Clydaghroe and Cummeennabuddoge, Co. Kerry.
Planning Authority	Cork County Council
Applicant(s)	Gortyrahilly Wind Designated Activity Company
Type of Application	Application under the provisions of Section 37E of the Planning and Development Act 2000, as amended

Prescribed bodies	1. Cork County Council 2. Department of Housing, Local Government & Heritage 3. Geological Survey Ireland 4. Inland Fisheries Ireland 5. Irish Aviation Authority 6. Uisce Éireann 7. Transport Infrastructure Ireland
Observer(s)	1. An Coiste Forbartha c/o Olice Creed. 2. Like Versloot 3. Mark Lucey 4. Peader O'Riada 5. Peter Sweetman & Associates 6. Susanne Duerr 7. Teddy Creedon and Caroline Kelly 8. Wild Ireland Defence CLG 9. John Riordan 10. Peggy and Paddy Healy
Date of Site Inspection	16th of June 2023, 02nd of July 2024 and 13th of December 2024.
Inspectors	Karen Hamilton, Lead Inspector Heidi Thorsdalen, Second Inspector

Contents

1.0 Introduction 7

1.1. Pre- Application Consultation 7

1.2. Design Flexibility 7

1.3. Application Submission 8

1.4. Site Location and Description 8

2.0 Proposed Development 9

2.1. Introduction 9

2.2. Turbines 9

2.3. Access and Road Infrastructure 10

2.4. Borrow Pits 11

2.5. Grid Connection 11

2.6. Water Crossings for Access Road 12

3.0 Planning History 13

3.1. Application Site 13

3.2. Adjoining Site 14

4.0 Policy Context 14

4.1. European Policy 14

4.2. National Policy and Guidelines 14

4.3. Regional and Local Policy 18

4.4. Kerry County Development Plan 2022-2028 22

4.5. Natural Heritage Designations 25

5.0 Observations 26

6.0 Prescribed Bodies 31
6.1. Transport Infrastructure Ireland (TII) 31
6.2. Irish Aviation Authority (IAA) 32
6.3. Inland Fisheries Ireland (IFI) 33
6.4. Geological Survey Ireland (GSI) 33
6.5. Uisce Éireann (Irish Water) 34
6.6. Department of Housing, Local Government & Heritage 35
7.0 Cork County Council Submission 39
7.1. Planning Assessment 39
7.2. Technical Reports 45
8.0 Additional Information Request 46
8.1. Introduction 46
8.2. Summary of Request 46
8.3. Applicant's Submission 53
8.4. Consideration of Additional Information Request. 63
9.0 Oral Hearing 64
10.0 Assessment 65
10.2. Principle of Development and Planning Policy 65
10.3. Impact on Residential Amenity 69
10.4. Submission of Plans and Particulars in the Irish Language 73
10.5. Material Contravention of Cork County Development Plan 2022-2028 .. 74
11.0 Environmental Impact Assessment 81
11.1. Statutory Provisions 81

11.2. EIA Structure 81
11.3. Issues Raised in Respect of EIA 83
11.4. Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations 2001 83
11.5. Assessment of Likely Significant Effects 86
11.6. Site Selection 87
11.7. Population and Human Health 90
11.8. Terrestrial Ecology 101
11.9. Ornithology 119
11.10. Aquatic Ecology 134
11.11. Geology and Soil 144
11.12. Hydrology & Hydrogeology 153
11.13. Air and Climate 172
11.14. Noise 179
11.15. Material Assets 188
11.16. Landscape and Visual Amenity 197
11.17. Cultural Heritage 218
11.18. Traffic and Transport 230
11.19. Vulnerability of the Project to Major Accidents and Natural Disasters 241
11.20. Interactions 247
11.21. Reasoned Conclusions on significant effects 248
12.0 Appropriate Assessment 250
12.1. Introduction 250

12.2. Background on the Application 250
12.3. Submission and Observations 252
12.4. European Sites 252
12.5. Potential Impact on European Sites 262
12.6. Screening Determination 263
12.7. Appropriate Assessment Stage II 264
12.8. Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365] 266
12.9. Mullaghanish to Musheramore Mountains SPA [004162] 276
12.10. The Gearagh SAC [000108] and The Gearagh SPA [004109] 279
12.11. Submissions 284
12.12. Appropriate Assessment Conclusion 285
13.0 Recommendation 286
14.0 Reasons and Conclusions 286
15.0 Conditions 292
16.0 Appendix 1: Report from the Board's Ecologist 305
17.0 Appendix 2: Report from the Board's Environmental Scientist 306

1.0 Introduction

1.1. Pre- Application Consultation

1.1.1. Gortyrahilly Wind Designated Activity Company (DAC) (the applicant) requested Pre-Application Consultations under Section 37B of the Planning and Development Act, 2000, as amended, on the 28th of April 2022 for the development of a wind farm of up to 14 no wind turbines and a 110Kv grid connection with ancillary works and infrastructure (ABP-313440-22).

1.1.2. One Pre-Application Consultation meeting took place between An Bord Pleanála (the Board) and the prospective applicant on 28th June 2022. The Board determined on 27th of July 2022 that the proposed development falls within the scope of Sections 37(2)(a), (b) and (c) of the Planning and Development Act 2000, as amended, and served a notice under Section 37B(4)(a) that the proposed development is Strategic Infrastructure Development (SID) within the meaning of the Act and that a planning application should be made directly to the Board.

1.1.3. Pre-application consultation was also held with the Board for the same site, but for a proposed development of 12 turbines (ABP 308173-20). Having regard to the inclusion of two additional turbines the applicant undertook separate pre-application consultation, as detailed above.

1.2. Design Flexibility

1.2.1. The application predates the amendments introduced to The Planning and Development Act 2000 (as amended) on foot of The Planning and Development, Maritime and Valuation (Amendment) Act 2022, in recognition that certain applications require a degree of flexibility.

1.2.2. The application was submitted to An Bord Pleanála on the 09th of September 2022. The proposed development includes 14 turbines with three design options for the 14 turbines. Due to the date of submission the applicant was not required to enter into pre-planning consultation with An Bord Pleanála on design flexibility options.

1.3. Application Submission

1.3.1. The proposed development meets the SID threshold for wind energy set out in the Seventh Schedule (Class 1) of the Planning and Development Act 2000, as amended, i.e. the project will consist of a wind farm with an expected total output greater than 50 Megawatts (MW). Therefore, the planning application is being submitted directly to An Bord Pleanála as an SID project in accordance with Section 37E of the Planning and Development Act 2000, as amended.

1.3.2. The applicant, Gortyrahilly Wind DAC, as per the planning application documentation is a joint venture between FutureEnergy Ireland and SSE Renewables.

1.4. Site Location and Description

1.4.1. The proposed development is to be located in close proximity (c. 2km) to the boundary between counties Cork and Kerry, c. 5km southwest of the village of Ballyvourney and 6km north of Ballingeary in the Múscraí Gaeltacht Co. Cork. The proposed development will include the provision of an underground grid connection to Ballyvouskill 220kV substation which is located c. 14km to the northeast of the proposed wind farm site (the site). The proposed wind farm site will cover an area of 667 hectares (ha) and is located within the townlands of Gortyrahilly, Cahernacaha, Derree, Derryfineen and Gortnabinna.

1.4.2. The site is in an upland area whereby residential development is sparse and the local road network is narrow and poorly surfaced in many areas. The site comprises of areas of coniferous plantations and upland peatland habitats. The Sillahertane Bog Natural Heritage Area (NHA) is located c. 2km to the west of the wind farm site and St Gobnet's Wood Special Area of Conservation (SAC) is located c.3.7km to the northeast of the wind farm site.

2.0 Proposed Development

2.1. Introduction

2.1.1. The planning application is for a proposed wind farm development of 14 turbines with grid connection, 110kV electrical substation and all site related works. The components of the proposed development are provided in more detail below.

A 10-year planning permission is applied for with a 35 operational life for the turbines from the date of commissioning of the entire wind farm.

2.2. Turbines

2.2.1. 14 No. turbines with permeant turbine hardstands and foundations are proposed. It is requested that there is flexibility with the choice of turbines within the parameter range listed below:

Turbine Parameter	**Assessment Envelope**
Turbine Blade Tip Height	179m to 185m
Rotor Diameter	149m to 155m
Hub Height	102.5m to 110.5m
Output	5.6 to 6.6 MW

2.2.2. Each turbine will be placed on a turbine base and beside an area of hardstanding (used for cranes during construction). The turbines have typical rotational speeds of between 11.2 and 12.6 times per minute.

2.2.3. The turbine delivery route will require road widening, one temporary bridge and one turning point along the N22.

2.3. Access and Road Infrastructure

2.3.1. The turbines will be delivered from Ringaskiddy port, along the N28 and N40 until the N22. The route follows the N22 along the Macroom bypass where it then turns south onto a local road (L-3400-79) towards the site. The following works are required for the turbine delivery and construction works throughout the site.

2.3.2. Permanent works:

- New internal site access roads, there are seven watercourse crossings.
- Upgrade of L-34011-20 (part of the Beara Breifne Way) to include passing bays and associated drainage infrastructure.
- Improvement of an entrance into the existing private road off the L-7405-0 to include local widening.
- Improvement of existing site entrance off the L-3402-36 local road to include the removal of vegetation for visibility splays to facilitate the delivery of construction materials to the site.

2.3.3. Upgrade works on the turbine delivery route:

- Construction of a temporary bridge over the Sullane River to allow access to the L-3400-79 from the N22 in Ballyvourney.
- Localised widening of the L-3405-0 road with a width of 4.5m from the junction with the L3400-79 to the junction with the L-7405-0.
- Localised widening of the L-7405-0 road with a width of 4.5m, from the junction with the L-3405-0 to the entrance of an existing private road off the L-7405-0.
- The construction of a temporary access road off the N22 in the townland of Cummeenavrick to facilitate 180-degree turning manoeuvre by the turbine delivery vehicles.

2.4. Borrow Pits

- Two on site borrow pits, A and B. They will provide material for roads and foundations.
- Borrow pit A is located to the north of turbine T3 (26,307m^2 area) with a volume of extraction at 47,353m^3.
- Borrow pit B is located northwest of T11 (6,500m^2 area) with a volume extraction at 11,700m^3.
- Rock from the borrow pits, extracted using hydraulic excavators, will be used to construct the site access roads which are also capped by stone from nearby quarries.
- The volume of rock to be excavated from the borrow pits will be 59,053m^3 of excavated material after the fill from the turbine foundations is used.
- The borrow pits will be reinstated after use with surplus inert material such as peat and subsoil from the site and made secure using permanent stock proof fencing.

2.5. Grid Connection

2.5.1. The **underground cabling** route is approximately 27.8km in length and traverse in a west to south westerly direction from the existing Ballyvouskill 220kV substation to the proposed Gortyrahilly Wind Farm substation location.

- 3 no. 1600mm diameter HDPE power cable ducts.
- 2 no. 125mm diameter HDPE communications ducts.
- Total of 36 no. cable joint bays (CJBs).
- 144 no. identified watercourse crossings.
- 7 no. watercourse crossings which require Horizontal directional drilling methods to cross.
- Additional horizontal directional drilling crossing at the N22.

- One permanent 110kV electricity substation (2 no. control buildings and welfare facilities).
- Permanent connection of the proposed wind farm to the national electricity grid comprising of 110kV underground cable in permeant cable ducts.

2.5.2. The **route** of the grid connection includes 0.5km within the wind turbine site, 7.0km along a public road corridor, 19.9km along the route of an existing forestry road and 0.4km off road on third party lands.

2.6. Water Crossings for Access Road

2.6.1. The proposed development includes crossings at seven surface water courses within the site as detailed below:

Watercourse	Location	Proposed works
W1 (New)	Access road to T13 at the southeast of the site	Bridge over the water course, c. 3.5m of reinforced concrete structure, road over and timber post & rail fence along ether side.
W2 (New)	Access Road to T11 at the centre of the site	Bridge over the water course, c. 3.5m of reinforced concrete structure, road over and timber post & rail fence along ether side.
W3 (Existing)	Access road into the site from the southeast at Toon River	Bridge over c. 2.5m from ground and c. 4m in width
W4 (Existing)	Access road between a site compound and T13	Bridge just above the existing ground level and above the predicted flood top water level

W5 (New)	Crossing over Douglas River (Sullane) for entrance to T14 hardstand.	Bridge over the watercourse for site access to T14
W6 (Existing)	Along the turbine delivery route on a drainage/ditch tributary to the Douglas	Bridge over main site access road into the site, north of the sub station
W7 (New)	Along the turbine delivery route on a drainage/ditch tributary to the Douglas	Bridge over main site access to the north of the sub-station

3.0 Planning History

3.1. Application Site

3.1.1. **Reg. Ref. 19/4732:** Permission granted for the retention of a meteorological mast for a temporary period of 5 years. The development consists of an 80m temporary meteorological mast and associated guy wires. The lattice mast holds anemometry equipment or wind measurement.

3.1.2. **ABP 305388-19:** As noted above, Coillte CSA and SSE Renewables have previously sought a SID determination in respect of a proposed wind farm development on site for 12 no. wind turbines within the townlands of Gortyrahilly, Cahernacaha, Derree, Derryfineen and Gortnabinna, Co. Cork with a combined output of approximately 60MW and an underground grid connection to Ballyvouskill 220kV substation. The proposed development was determined to be SID by the Board on the 10th of September 2021.

3.1.3. **ABP 313440-22:** As noted above, Gortyrahilly Wind DAC came back in with a Pre-Application Consultation request for an amended scheme of 14 No. wind turbines and a 110Kv grid connection with ancillary works and infrastructure. The proposed development was determined to be SID by the Board on the 27th of July 2022.

3.2. Adjoining Site

3.2.1. **ABP 307939-20:** Permission granted for Substitute Consent for the Cleanrath Wind Farm, 9 turbines following the Boards grant for Leave to Apply for Substitute Consent (ABP 306272-19). These turbines have been constructed, although upon the second site inspection (July 2024) they were not operational.

4.0 Policy Context

4.1. European Policy

4.1.1. Renewable Energy Directive III (RED III)

4.1.2. The Directive on the Promotion of the Use of Energy from Renewable Sources (Directive EU 2018/2001) (RED III) requires that 45% of energy produced in Europe is from renewable sources. The Directive recognises the impact renewable energy infrastructure may have on birds and those mitigation procedure which may be required.

4.1.3. Member states are required to have regard to the overriding public interest and serving public health and safety when assessing renewable energy cases.

4.2. National Policy and Guidelines

4.2.1. National Development Plan (NDP) 2021-2030

4.2.2. This plan includes an 80% target of electricity from renewable sources by 2030.

4.2.3. National Policy and Guidelines Project Ireland - National Planning Framework (NPF) 2040

- National objective of achieving a transition to a competitive, low carbon, climate resilient and environmentally sustainable economy by 2050
- National Strategic Outcome NSO8: seeks a transition to a low carbon and climate resilient economy.

- Objectives in respect to Green Energy: "*deliver 40% of our electricity needs from renewable sources by 2020 with a strategic aim to increase renewable deployment in line with EU targets and national policy objectives out to 2030 and beyond. Itis expected that this increase in renewable deployment will lead to a greater diversity of renewable technologies in the mix".*
- National Policy Objective (NPO) 55: Promote renewable energy use.

4.2.4. **Ireland's Transition to a Low Carbon Energy Future 2015-2030**

- Sets out the energy policy update up to 2030.
- Vision for transforming Irelands fossil fuel-based energy sector to a clean low carbon system.
- Directive 2009/28/EC the government is legally obliged to ensure that by 2020 at least 16% of all energy consumed in the state is from renewable sources with a sub target of 40% in the electricity generator sector.
- On shore wind will continue to make significant contribution but that the next phase of Irelands energy transition.

4.2.5. **Climate Action Plan (CAP) 2024**

4.2.6. The Climate Action Plan 2023 was the plan in place when the planning application was submitted to the Board. The Climate Action Plan 2024 was approved by Government in May 2024 and is the relevant CAP for consideration in the decision making of the proposed development.

- Identify how Ireland will achieve its 2030 targets for carbon emissions by sector and through a series of actions.
- CAP 2024 includes targes of deploying **9 GW** of electricity from onshore wind projects by 2030 with **80%** of electricity generated from renewable sources.
- Chapter 12 deals with electricity
    - Progress on key performance indicators in CAP 2023.
    - Electricity accounted for 14.4% of Irelands GHG emissions in 2022.

- The revision of the NPF, the Renewable Electricity Spatial Planning Framework and the implementation of the recast Renewable Energy Directive, including the mapping of Renewable Acceleration Areas, will support indigenous renewables.

4.2.7. **Climate Action and Low Carbon (Amendment) Act, 2015, as amended**

4.2.8. Requires in section 15(1) relevant bodies to, in so far as practicable, to perform its functions in a manner consistent with the most recent approved climate action plan, national long term climate action strategy, national adaption framework and sectoral adaption plans, the furtherance of the national climate change objective and the objective of mitigating greenhouse gas emissions (GHG) and adapting to the effects of climate change in the State. The definition of 'relevant bodies' includes public bodies, as defined under the Freedom of Information Act 2014, and includes An Bord Pleanála.

4.2.9. **Wind Energy Development Guidelines 2006**

- Section 5.6 discusses noise impacts, which should be assessed by reference to the nature and character of noise sensitive locations i.e., any occupied house, hostel, health building or place of worship and may include areas of particular scenic quality or special recreational importance. In general noise is unlikely to be a significant problem where the distance from the nearest noise sensitive property is more than 500m.
- Section 5.12 notes that careful site selection, design and planning and good use of relevant software can help to reduce the possibility of shadow flicker in the first instance. It is recommended in that shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day. The potential for shadow flicker is very low at distances greater than 10 rotor diameters from a turbine.
- Chapter 6 relates to aesthetic considerations in siting and design. Regard should be had to profile, numbers, spacing and visual impact and the

landscape character. Account should be taken of inter-visibility of sites and the cumulative impact of developments.

4.2.10. **Draft Revised Wind Energy Development Guidelines, 2019**

4.2.11. The Department of Housing, Planning and Local Government (DHPLG) issued guidelines for wind energy development in 1996, superseded by guidelines in 2006. The Draft 2019 Guidelines were intended to supersede the 2006 Guidelines, but a final version of these guidelines has yet to be formally published. The Draft 2019 Guidelines provide reference to a lot of best practice and updated guidance for assessing wind energy development.

- Chapter 5 – considering an application for wind energy development. A planning authority may consider some if not all of certain matters, inter alia, community engagement, grid connection, geology and ground conditions, site drainage and hydrological effects, land scape and visual, ancillary, natural heritage etc.
- Noise: Section 5.7.4 – The *"preferred draft approach"*, proposes noise restriction limits consistent with World Health Organisation (WHO) Guidelines, proposing a relative rated noise limit of 5dB(A) above existing background noise within the range of 35 to 43dB(A), with 43dB(A) being the maximum noise limit permitted, day or night. The noise limits will apply to outdoor locations at any residential or noise sensitive properties.
- Shadow Flicker: Section 5.8.1 – Shadow flicker control mechanisms should be in place for the operational duration of the wind energy development project.
- Community Investment: Wind energy development to be undertaken in line with best practice guidance and with full engagement of communities.
- Visual Impact: Section 6.4- Siting of Wind energy projects.
- Setback: A setback distance for visual amenity purposes of 4 times the tip height should apply between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed

development, subject to a mandatory minimum setback of 500 metres. Exceptional circumstances for lower setback where the occupiers / owners of the properties are agreeable.

4.2.12. **National Biodiversity Action Plan (NBAP) 2023-2030**

4.2.13. The National Biodiversity Action Plan 2017-2021 was the plan in place when the planning application was submitted to the Board. Ireland's 4th NBAP was published 25th January 2024 and builds upon the achievements of the previous Plan. The NBAP includes five strategic objectives aimed at addressing new and emerging issues associated with biodiversity loss.

4.3. Regional and Local Policy

4.3.1. Southern Regional Spatial and Economic Strategy (RSES)

- The Regional Spatial and Economic Strategy sets out a strategy to implement the NPF in the Southern Region.
- RPO 99 Renewable Wind Energy: Support for renewable energy sources
- Section 8.2: Support for renewable energy sources and requirements for transmission and distribution infrastructure.

4.3.2. Cork County Development Plan 2022-2028

4.3.3. <u>Wind Energy Strategy</u>

ET 13-4: Wind Energy

- Facilitate renewable energy production in line with national targets.

ET 13-5: Wind Energy Projects

a) Support a plan led approach to wind energy development in County Cork through the identification of areas for wind energy development. The aim in identifying these areas is to ensure that there are minimal environmental constraints, which could be foreseen to arise in advance of the planning process.

b) On-shore wind energy projects should focus on areas considered ‘Acceptable in Principle’ and ‘Areas Open to Consideration’ and generally avoid “Normally Discouraged” areas as well as sites and locations of ecological sensitivity.

ET 13-7: Open to Consideration

Commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on:

- Residential amenity particularly in respect of noise, shadow flicker and visual impact;
- Urban areas and Metropolitan/Town Green Belts;
- Natura 2000 Sites (SPA’s and SAC’s), Natural Heritage Areas (NHA’s), proposed Natural Heritage Areas and other sites and locations of significant ecological value.
- Architectural and archaeological heritage;
- Visual quality of the landscape and the degree to which impacts are highly visible over wider areas.

In planning such development, consideration should also be given to the cumulative impacts of such proposals.

ET 13-9: National Wind Energy Guidelines

- Development of on-shore wind should be designed and developed in line with the ‘*Planning Guidelines for Wind Farm Development 2006’* and *‘Draft Wind Energy Development Guidelines 2019”* and any relevant update of these guidelines

ET 13-10: Development in line with Best Practice

ET 13-11: Public Consultation and Community Support

Section 13.7: Development Proposals (Guidance for assessment to accompany applications)

- The requirement for Environmental assessments (EIA, AA etc.).

- Community engagement and participation.
- Grid Connection. In particular grid connections with the potential to impact on the strategic function of the national road network should be discussed and agreed with Transport infrastructure Ireland and should use alternative available routes where feasible in the first instance.
- Geology and ground conditions, including peat stability; and management plans to deal with any potential material impact. Reference should be made to the National Landslide Susceptibility Map to confirm ground conditions are suitable stable for project;
- Site drainage, water storage and hydrological effects such as water supply and quality and watercourse crossings; management plans to deal with any potential material impact on watercourses; the hydrological table; flood risk including mitigation measures;
- Landscape and visual impact assessment, including the size, scale and layout and the degree to which the wind energy project is visible over certain areas and in certain views;
- Visual impact of ancillary development, such as grid connection and access roads;
- Potential impact of the project on natural heritage, to include direct and indirect effects on protected sites or species, on habitats of ecological sensitivity and biodiversity value and, where necessary, management plans to deal with the satisfactory co-existence of the wind energy development and the particular species/habitat identified;
- Potential impact of the project on the built heritage including archaeological and architectural heritage;
- Consideration of carbon emissions balance is demonstrated when the development of wind energy developments requires peat extraction.

- Local environmental impacts including noise, shadow flicker, electromagnetic interference, etc.;
- Adequacy of local access road network to facilitate construction of the project and transportation of large machinery and turbine parts to site, including a traffic management plan;
- Information on any cumulative effects due to other projects, including effects on natural heritage and visual effects;
- Information on the location of quarries to be used or borrow pits proposed during the construction phase and associated remedial works thereafter.
- Disposal or elimination of waste/surplus material from construction/site clearance, particularly significant for peatland sites; and
- Decommissioning considerations.

4.3.4. Transmission Grid

Objective ET13-12: Electricity Network

- Support and facilitate infrastructure connections to wind farms.

4.3.5. Landscape

Objective GI 14-9: Landscape

a) Protect the visual and scenic amenities of County Cork's built and natural environment.

b) Landscape issues will be an important factor in all land-use proposals, ensuring that a pro-active view of development is undertaken while protecting the environment and heritage generally in line with the principle of sustainability.

c) Ensure that new development meets high standards of siting and design.

d) Protect skylines and ridgelines from development.

e) Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.

GI 14-10: Draft Landscape Strategy.

4.3.6. Scenic Routes

GI 14-13: Scenic Routes: Preserve the character of the scenic route listed in Volume 2 Heritage and Amenity and Chapter 5 Scenic routes.

4.3.7. Protected Sites

BE 15-2: Protect sites, habitats and species.

a) Protected all designated or proposed to be designated a European Sites
b) Protect all species listed in the Flora Protection order.
c) Protect and where possible enhance local biodiversity value etc and habitats of special conservation value significance listed in Volume 2 of the plan.
d) Recognise the value of protecting geological heritage sites.
e) Encourage, pursuant to Article 10 of the Habitats Directive, the protection and enhancement of the landscape.

4.3.8. Ecology

Table 2.4.1 (Volume 4) Habitats of Conservation Importance in County Cork

- Wet Heath (HH3)
- Upland blanket bog (PB2)
- Cutover bog (PB4)
- Lowland blanket bog (PB3)
- Oak-ash-hazel woodland (WN2)

4.4. **Kerry County Development Plan 2022-2028**

4.4.1. The majority of the underground grid connection is located within Co. Kerry (total c. 17km of the overall 27.8km grid connection).

4.4.2. Wind Energy Designation

The Kerry County Development Plan 2022-2028 was initially subject to a Ministerial Direction relating to alterations in the wind energy designations within the development plan. This Ministerial Direction[1] was subsequently withdrawn and those designations remain the same, with no alterations required to Map 12.4. The Ministerial Direction refers to the location of Map 12.4 within Volume 1 of the development plan, although this map is currently within Volume 4 of the development (section 5: Wind Zoning).

Volume 1, Part 6: Wind Zoning Methodology

- Map 6.19: Part of the grid connection is located within the Lough Leane Catchment
- Map 6.22: Part of the grid connection is located on peat soils.
- Map 6.25: Part of the grid connection is in an area unsuitable for Wind Energy Development.

Volume 4: Maps

- Map 7:21: Part of the grid connection is located in an area designated a medium/high visual sensitivity. The area is characterised by one off dwellings, wind turbines and grid connections.
- Landscape Character Area 27: Clydagh River, The Paps and Derrynasaggart Mountains.
- Map O: Landscape Designations
- Map 12.4: Part of the grid connection is not located within an Area Open for Consideration and/or a Potential Repowering Areas

4.4.3. Landscape Designation

Part of the grid connection route is located in an area designated as visually sensitive area (Map O).

Views and Prospects along the N22, to the northeast and southwest.

[1] Ministers-Statement-of-Reasons_Kerry_05_12_22.pdf (kerrycoco.ie)

4.4.4. Energy

Chapter 12 includes the council's policy in relation to Energy.

KCDP 12-1 Support and facilitate the sustainable provision of a reliable energy supply in the County, with emphasis on increasing energy supplies derived from renewable resources whilst seeking to protect and maintain biodiversity, archaeological and built heritage, the landscape and residential amenity and integration of spatial planning and energy planning in the county.

4.4.5. Wind Energy Development

KCDP 12-19: Facilitate wind energy development within open-to-consideration areas at appropriate locations where demonstrated no significant adverse impact on residential amenity, built and natural environment and visual character of the landscape.

4.4.6. KCDP 12-20: Ensure that commercial wind energy projects will not be considered in areas outside of "Open-to-consideration" and "Repower Areas".

4.4.7. Transmission Grid

KCDP 12-9: Facilitate electricity infrastructure.

KCDP 12-7: Facilitate enhanced generation capacity and associated networks.

KCDP 12-8: Ensure the siting of power lines is managed in line with the natural and built environment.

KCDP 12-9: Supports EirGrid's roadmap plan subject to other considerations.

KCDP 12-10: Grid connection routing options should safeguard the strategic function of the national road network.

KCDP 12-11: Power lines should be sited to avoid any adverse impact on sensitive landscape and Natura 2000 sites.

4.5. Natural Heritage Designations

The following natural heritage areas are located within the vicinity of the proposed wind farm, turbine delivery route and/or the grid connection route:

- Sillahertane Bog NHA (site code 00182) c. 2km to the west of the wind farm site.
- Mullaghanish to Musheramore Mountains SPA (site code 004162) c. 5km to northeast of the wind farm site, c. 1.1km northeast of the temporary bridge and c. 170m to the south of the grid connection route.
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (site code 000365) and pNHA, c. 8.65km to the north of wind farm site and c. 41m to the north of the grid connection route.
- Ballagh Bog p NHA (site code 001886) c. 7km to the southwest of the wind farm site.
- Mullaghanish Bog SAC (code 001890), c. 9km northeast from the wind farm and c. 632m from the grid connection route.
- St Gobnet's Wood SAC (code 00106), c. 3.67km to the northeast from the wind farm, and c. 33m from the temporary bridge crossing.
- Blackwater River (Cork/Waterford) SAC (code 002170), c. 12km to the north of wind farm site and c. 3.7km north of the grid connection route.
- Derryclogher (Knockboy) Bog SAC (code 001873), c.12km to the southwest of the wind farm site.
- Glanlough Woods SAC (code 002315), c. 13.5km to the west of the wind farm site.
- Kilgarvan Ice House SAC (code 000364), c. 14.5km to the west of the wind farm site.

- Old Domestic Building, Curraglass Wood SAC (code 002041), c. 12km to the northwest of the wind farm site and c. 8.8km to the west of the grid connection route.
- Lough Allua p NHA (code 001065) c. 3.7km to the south of the wind farm site.
- The Gearagh SAC (code 000108), SPA (code 004109) and p NHA (code 000108) c.11km to the east of the wind farm site.

5.0 **Observations**

5.1.1. 10 No observations were received from residents in the vicinity of the site and concerned environmental groups. One of the submissions is made by an engineering company on behalf of a local resident (eastern boundary). The issues raised in the submissions are similar and these have been grouped these into common themes.

5.1.2. Principle of the Wind Farm

- The common good of the SSE is questioned.
- The decision making by ABP means less democracy and more expensive submissions.
- There is no Government strategy on Wind Farms.
- There are 33 wind farms within a 20km radius.
- The Government should have prevented an increase in windfarms because of the impact it has on small communities.
- The wind farm owners give access to local landowners only to use the lands and restrict access to others.
- Consent has not been given to the construction of the wind farm and site notices have been erected on lands without consent.
- Letters of consent have not been signed (correspondence to solicitor).

5.1.3. Alternatives

- There is no indication in the application that other types of turbines or options for producing electricity were examined.
- The tiny village of Ballingeary has an excessive amount of wind farm developments.
- There is a recent consent for a seven-turbine wind farm (ABP 308244-20).

5.1.4. Wind Design & Layout

- There was little input from the local people into the design and layout of the wind farm.
- There was only consultation with the locals at the end of the design stage.
- The carbon cost of manufacturing the turbine is questioned.
- The case Peter Sweetman v ABP * An Bord Na Mona (200 No. 557 JR) is applicable here where the use of variable design application and open-ended options is not appropriate.

5.1.5. Wind Speeds

- The lack of wind in the summer months and high storm winds in winter needs consideration.
- Climate change is altering the wind speeds, and they are generally decreasing.

5.1.6. Impact on Residential Amenity

- The 750m setback is not sufficient.
- Studies show that the turbines cause a negative impact on sleep disturbance.
- Noise pollution is an issue.
- The proposal will lead to loss of phone, TV, and internet signals.
- Houses in the area are already experiencing flicker from nearby turbines.
- The construction and operation of the wind farms does not bring any local benefits.

- Three turbines are not within the required distances (planned dwelling).
- A proposed dwelling (currently in the planning system).

5.1.7. Impact on livestock.

- The turbines will be huge, rapidly moving an intimidating for livestock.
- The livestock may not move and T14 is too close to agricultural lands.

5.1.8. Impact on Visual Amenity

- The turbines will be very visible.
- The thresholds and standards for visual impact have been lowered.
- There cannot be a neutral impact on the landscape and visual from 14 turbines as stated in the EIAR.
- There is a high saturation of windmills with 20km radius where a total of 182 windmills and 9 farms with a further 50 windmills and 46 at pre planning not including these 14.
- The magnitude of the visual impact will be great.
- The site is in the Upper Lee Valley, an area of striking scenic beauty.
- The images in the photomontage do not adequately represent the visual impact and have been take from a low-lying area.
- The turbines are clumped together and will be very dense.
- T1 is the tallest and the most visually domineering.

5.1.9. Impact on the Biodiversity

- There will be a significant amount of damage caused to the wet bogland.
- The turbines require 1,000m^3 of concrete per foundation. The impact on the water table is of concern.

5.1.10. Impact on Birds and Bats.

- Eagles have been seen in the area and come from Lough Allua.

- There are warning systems that stop turbines when they notice a bird.
- The common pipistrelle is attracted to the inspects which gather around the turbines.
- Migrating bats usually fly higher and are attracted to red lights.
- Table 5.10 of the EIAR states that the common pipistrelle has decreased population between 20, 331 and 6,923 (2019- 2021. The Cleanrath Wind Farm was constructed at the same time and may have impacted the population.

5.1.11. Materials for wind farms

- The use of balsa for the turbine blades has a negative impact on the indigenous communities in Ecuador.
- Other rare earth metals are used for the magnets in the turbines. The only mine appears to be in Germany.

5.1.12. Impact on property values/ land use

- The statement in the EIAR relating to property values is incorrect. The proposal will significantly impact the property values.
- The location of the wind farm will affect the rights of way of landowners to the east of the site (maps submitted). Access for agricultural uses will be restricted. The EIAR does not adequately assess this impact.
- In relation to material assets the EIAR predicts no significant impact on agricultural use. The assessment does not affect the potential impacts on property rights.

5.1.13. Access into the site

- The proposed access will remove a bog which supports wildlife.
- The widening of the small country roads will have a negative impact on the wildlife due to the removal of the hedgerows.

- The construction of a new road for the delivery of rotary blades would further erode the landscape.

5.1.14. Impact on watercourse

- The proposal will damage the Rivers Lee and Sulán.
- The forestry and wind farms have drained the mountain tops and impact the water supply for the surrounding environs area. These mountain tops should be returned to bogs.

5.1.15. Archaeology

- A proper archaeology survey has not been undertaken.
- There is an ancient road running across the mountain top (an old funeral route).
- There is an old, cobbled road and a 200-year-old house of a famous poet.
- There is a megalithic tomb in the area.

5.1.16. County Development Plans

- The wind farm is in an area “open for consideration” in Co Cork and neither an “area open for consideration” or “area permissible” in Co Kerry.
- The site is in an area discouraged in the Cork Development plan.

5.1.17. Environmental Impact Assessment Report (EIAR)

- The applicant has not addressed the alternative, impacts on material assets, or impacts on the landscape and visual amenity.

5.1.18. Appropriate Assessment (AA)

- The threshold for assessments has been set out in numerous legal cases (Kelly-v- ABP, People over Wind and Peter Sweetman v Coillte Teoranta and CJUE case 258/11) and permission cannot be given if it is not met.
- The proposal is within an area of highly sensitive species and habitats including the Fresh Water Pearl Mussel.

5.1.19. Water Framework Directive (WFD)

- The development must be assessed for compliance with the requirements of the WFD.

5.1.20. Impact on Tourism

- The area has been developed for hiking and tourism.
- Hikers come to the area to enjoy the landscape and views.
- The visitors will not come to the area once the wind farm is built.

5.1.21. 110kv cable

- The cable is too close to the house boundary.
- There are alternative locations for the cable boundaries.
- There will be no options for extending the dwelling.
- There is an alternative more direct route.

5.1.22. Gaeltacht Area

- The proposal does not comply with the Aarhus Conventions in relation to the protection of linguistic and cultural heritage.
- The assessment does not indicate how the proposal can comply with the EU requirements where the central documents in Irish are arising with the application.
- A fully bilingual planning process is essential to meet the needs of the community.
- The proposal will degrade the Gaeltacht community.

6.0 **Prescribed Bodies**

6.1. **Transport Infrastructure Ireland (TII)**

6.1.1. Haulage Routes

- The haul route includes N22, N28 and N40.
- The construction of a temporary access off the N22 is also proposed.
- The network traversed includes national roads and is the responsibility of the County Councils.
- Any works should comply with the TII publications and shall be subject to Road Safety Audit as appropriate.
- Subject to a Road Safety Audit there is no objection to the principle of the proposal.
- A recommended condition is included.

6.1.2. Structures

- A load assessment should be undertaken to assess the impact of any abnormal weight loads.
- A recommended condition for this assessment is included.

6.1.3. Grid Connection

- The grid connection is 27.8km in length an along public roads, private roads and forestry and interacts with the N22 at an island junction at Cummeenavrick.
- Works should be undertaken in line with TII publications.
- A recommended condition for these works is proposed.

6.2. Irish Aviation Authority (IAA)

- The applicant is required to engage with Kerry Airport.
- It is recommended that a condition is included in relation to an aeronautical obstacle warning light and to provide contact with the airport before the erection of any crane.

6.3. Inland Fisheries Ireland (IFI)

6.3.1. The submission from IFI is summarised below:

- The proposal should not negatively impact any fisheries or water quality.
- There is a potential for the escapement of suspended solids to waters.
- Waters should be protected in line with the WFD requirements.
- There is also a potential for prevention of fish passage.
- A condition requirement that works are undertaken in line with the IFI guidelines and other recommended conditions.

6.4. Geological Survey Ireland (GSI)

6.4.1. The submission from the GSI is summarised below:

6.4.2. Geo-heritage

- There is limited information on the geo heritage in County Kerry.
- Unaudited GSI information is available. This unaudited information is available for the wind farm site.
- The road section at Gornabiina contains several Devonian trace fossils which should not be damaged, or integrity impacted or reduced due to the proposed development.
- If it is not possible to retain the trace fossils, mitigation measure should be put in place to minimise or mitigate potential impacts.
- It is requested that the use of information panels be considered to highlight the significance of impacts GCS.

6.4.3. Groundwater

- Groundwater maps are available on our Map Viewer.
- The groundwater viewer indicates the aquifer as “poor aquifer- Bedrock Generally Unproductive except for local zones”.

- The groundwater vulnerability indicates a range of vulnerabilities and these areas of High or Extreme vulnerability and “Rock at or near surface” should be identified.
- There are Groundwater Protection Schemes (GWPSs).

6.4.4. Geohazards

- Geohazards should be taken into consideration.
- Landslide susceptibility in the proposed wind farm is variable and is classed from Moderately Low/ Moderately High to High.
- There is information on landslides via the National Landslide Database and Landslide Susceptibility Map.

6.4.5. National Resources (Minerals/Aggregates)

- There is Aggregate Potential Mapping Viewer to identify High to Very High source aggregate potential within the area.
- Should any significant bedrock cuttings take place it is requested these remain visible as rock exposure rather than covered with soil and vegetated.

6.5. **Uisce Éireann (Irish Water)**

6.5.1. The submission from Irish Water (IW) is summarised below:

6.5.2. Water Catchments

- The study area crosses two drinking water catchments (Zone 2- Ballingeary/ Macroom)
- 3 turbines will be positioned within the Ballingeary catchment, the remaining turbines in the Macroom catchment.

6.5.3. Chapter 9 of the EIAR

- There is a lack of adequate information in Chapter 9 of the EIAR to allow IW to complete a thorough assessment of the development and ensure any IW

abstraction points and/or watercourse hydrology/ hydrogeology connection to the IW abstraction points are in accordance with the WFD.

- The EIA does not provide any evidence of the scale of the project or the assimilative capacity as a protection against potential impacts.
- There is no baseline data for organic carbon (dissolved, particulate, or total) all of which have a potential impact on the treatability of raw drinking water.
- Chapter 9 does not outline what the potential impacts on raw drinking water are and how these related to issues with operational treatment and implications for Trihalomethanes (THMs).
- Treatment plants can be subject to issues with validation on treatment infrastructure at the plant should event loading deliver high organic matter, with implications for public health.
- The carbon calculator cities figure for dissolved organic carbon DOC and particulate organic carbon (POC) losses, but it is not integrated to the implication on water treatment.
- It is the applicant's responsibility to identify the location of all public water services assets, possible connection points from the applicants' site/ lands to the public network and any drinking water abstractions.

6.5.4. Further Information

- The applicant has not provided sufficient information on the impact of the proposal.
  - on the water quality and/or treatability;
  - other Irish Water abstraction points and/or watercourse hydrologically and/or hydrogeological connected to Irish Water abstraction points.

6.6. Department of Housing, Local Government & Heritage

6.6.1. The submission from the Department's Development Applications Unit (DAU) is summarised below:

6.6.2. Archaeology

- Chapter 14 notes that unknown archaeological features/deposits maybe disturbed during groundworks.
- There is more specificity required in relation to the proposed buffer zones/exclusion zones outlined in the mitigation measures. This should be included as a condition.
- Any recommended conditions should align with the sample Conditions C5 and C6 as set out OPR Practice Note PN03: Planning Conditions
- Recommended conditions relating to the mitigation measures, Construction Environmental Management Plan (CEMP), suitably qualified archaeology shall be retained to advise on and establish a buffer zone around designated sites and turbine 13, final archaeology report to the Planning Authority and National Monuments Service.

6.6.3. Nature Conservation

- The site is not within any European Designated sites but within range of several protected species.

6.6.4. White-Tailed Sea Eagle

- Recently reintroduced Annex I species.
- Now reintroducing itself in Ireland
- Susceptible to collision with wind turbines,
- 39 deaths from wind turbine collision were recorded in Norway between 2005-2010.
- 3 deaths recorded in Ireland between 2007-2014.
- Eagles when soaring may be attracted to fly within the rotor-swept zone of turbines.
- The reintroduction of the eagle is at a critical stage.

- Studies indicate the importance of controlling mortality at the early stages.
- Two measures are important in avoiding reducing the risk of collision:

  a) the prompt removal of carcasses of dead sheep which attract eagles.

  b) avoid the siting of turbines on locations on ridges above valleys where eagles are likely to use rising air currents to obtain “orographic lift” to gain altitude. Turbines T1, T2, T7, T10, T12 appear to be located on top of steep ridges. It is not clear if their micro siting is in an area higher “orographic fit”.

6.6.5. Merlin

- The proposed wind farm is in an area used by breeding merlin (Annex I)
- Its hunting range is 5km from the next site.
- A probable breeding pair were recorded towards the east of the site in one of the three years baseline survey.
- This species appears to have a low recorded risk of collision mortality, but the EIAR missed the record of 4 merlin killed at Smøla wind farm in Norway.
- More subtle indirect impacts need to be considered a) disturbance displacement of breeding merlin while foraging b) drying out of hunting habitat c) cessation of burning due to wind-farm construction.
- The habitat loss does not take into account a) or b) above.
- Further information should be sought to habitat loss especially at turbine T13 and T14.

6.6.6. Leisler’s Bat

- There is considerable use of the site by the bat which is susceptible to wind turbine collision.
- There is particular activity at T3, T10, T11 and T13.
- There should be some means of verifying the implementation of higher cut-in speeds of these turbines (an importance mitigation measure).

6.6.7. Golden Plover

- A moderate residual impact is predicted (mortality c. 15 birds per year).
- The in-combination impact from all other wind farms has not been considered (171 turbines are listed within 20km radius in Table 5.13).

6.6.8. Barn Owl

- Chapter 7 does not mention the owl.
- There is a breeding record within 10km from the site.

6.6.9. Red Grouse

- It is not sure if there is predator control on the site.
- Should consider greater fox activity due to the access tracks.
- Greater human access for shooting due to the access tracks.
- Greater human access due to vehicle on the access tracks.

6.6.10. Nathusius' Bat

- The wind farm site was used by the bat in 2019.
- The bat is susceptible to wind turbine collision.
- Expert comment would be useful.

6.6.11. Slender Cudweed

- This species was recorded along the grid connection cable and although no longer protected, it remains a species of conservation status and mitigation measures will be needed to ensure no net loss of species.

6.6.12. Botanical survey

- The botanical survey was carried out in January, the optimum time is May to September.
- An additional survey is recommended before works commence.

6.6.13. Impacts of increased drainage efficiency of downstream wetland erosion.

- The cumulative impact of works in upland areas can result in accelerated runoff and cause a significant effect.
- The site access road and turbines at T4 and T5 are within the catchment of the Toon River.
- T3 and associated access road area are within the catchment of the River Lee.
- Both catchments have downstream wetlands of conservation value.
- This issue was not fully addressed in the EIAR although should have been addressed in the NIS.
- Based on an additional application (PL04.245082) the in-combination impacts could be an increase in hydrographic peak by 0.1-0.2%.

6.6.14. Request for further information

1. Impact on breeding merlin
2. Impact on the on wintering golden plover
3. Impact on the white-tailed sea eagle (removal of dead sheep).
4. Impact on the white-tailed sea eagle (Turbine T1, T2, T7, T10, T12 on top of steep ridges).
5. Impact on the red grouse (greater fix predation/ human access)
6. Impact on the Leisler's Bat
7. Schedule of commitments and summary of ecological limitations

7.0 Cork County Council Submission

7.1. Planning Assessment

7.1.1. The planning assessment includes a list of the relevant national and regional policy and those objectives from the Cork County Development Plan 2022-2028. The

assessment includes a breakdown of each of the chapters in the EIAR as summarised below:

7.1.2. Environmental Impact Assessment

Chapter 1- Introduction

- The site is rural and there are 106 dwellings within a 2km radius.

Chapter 2- Project description

- Details of the project description are provided.

Chapter 3- Alternatives Considered

- The site emerged from a screening exercise and is fully informed by national, regional and local policy.
- The site can take advantage of a local road network.
- Grid options were selected and three different turbine layouts considered.

Chapter 4- Population and Human Health

- A shadow flicker assessment uses a study area which is defined as 10 times the widest potential rotor diameter within the range.
- A study area of 2km was used for completeness.
- No shadow flicker was experienced at 17 No. dwellings due to orientation.
- The outcome, no cumulative impacts on the remaining dwellings, due to mitigation measures, are noted.

Chapter 5- Terrestrial Ecology

- The Ecology Section of the council has reviewed this chapter, NIS and supporting information and concerns are raised on the potential impact of habitat of high natural value.
- There is concern over the permeant loss of habitat. The proposal is 40.2ha and the loss of wet heath is 2ha.

- Mitigation including the implementation of a habitat enhancement plan can be reduced to moderate significance.

Chapter 6-Aquative Ecology

- The report of the ecology section has identified gaps in the data and considered additional details would be required.
- There is a lack of information on the potential impacts and effects the proposed development have on sensitive aquatic species.

Chapter 7- Ornithology

- The ecology section of the council has raised the impact of the intensification of wind farm development in the area which may, along with other factors, negatively impact the population of both breeding and wintering Hen Harrier and other competing species.
- While the Habitat Enhancement Plan (HEP) will mitigate for a loss of breeding habitat, the carrying capacity of 28ha of existing good quality peatland habitat is not equivalent to 9ha of afforested peatland to be restored.

Chapter 8- Soil and Geology

- An Bord Pleanála should ensure that proposed mitigation measures are sufficiently robust and satisfied that assessment have been carried out to an acceptable standard.

Chapter 9- Hydrology and Hydrogeology

- The surface water catchment areas are noted, and all surface waters eventually combine in Carrigadrohid Reservoir, into Cork Harbour and the Celtic Sea.
- There are a lot of non-mapped natural and artificial drainage channels on the site.
- Mitigation Measures are noted.
- The Area Engineer and Environmental Office is satisfied with the proposal.

Chapter 10- Air and Climate

- The chapter concludes with a long term positive impact on reducing carbon emissions.

Chapter 11- Noise and Vibration

- 5 baseline noise surveys locations were selected (receptor houses)
- The closest inhabited dwelling (H1) is located 753m from the nearest turbine.
- Limits on noise will be set at 43 dB (A) at day and night.
- Operational noise impacts assume that all 14 turbines are directly down wind.
- The Environmental Section notes that because of the specific nature of the Wind Farm Noise Impact Assessment the Board should engage their own acoustic expertise.

Chapter 12- Landscape and Visual

- 30 viewpoints were selected and assessed in the Visual Impact Assessments.
- It was not considered necessary to use long term viewpoints (>10km) as the turbine dimensions are unlikely to be rear at these distances.
- The site straddles three landscape character areas, none of these are considered to be High Value Landscape.
- It is noted in the wider context other wind farm developments are visually discrete and the cumulative effect d deemed low.

Chapter 13- Material Assets

- The site is 667ha and the total land take is 20%.
- Mitigation measures will ensure no interference with communication links.
- No significant impacts on air navigation predicted. IAA safety regulations requirements noted.
- Sub-base and base course materials to be sourced from borrow pits and crushed stone and concrete from licenced quarries.

Chapter 14- Cultural Heritage

- There will no direct impact on any known archaeological monuments.
- There is potential for sub surface archaeology.
- The report includes mitigation and protection measures.
- The County Archaeologist is happy with the Archaeological and Cultural Heritage assessment.

Chapter 15- Traffic and Transport

- The route of the turbine deliveries is noted.
- The Area Engineer has reviewed the Traffic Management Plan and considers the measures and mitigations are acceptable.

Chapter 16- Major Accidents/ Disasters

- The risk of major accident during construction has been assessed in line with national guidance.

Chapter 17- Interactions

- The EIAR concludes no significant impacts due to the implementation of mitigation measures.

7.1.3. Natura Impact Assessment

- The NIS has been reviewed by the Ecology Section (See report)
- There are significant concerns in relation to the impact in an area of high ecological value and the adequacy of information in the EIAR and NIS
- The proposal to offset the loss of habitat because of a wind farm through the creation of smaller habitat management/ enhancement is inadequate.
- A large proportion of the area is assessed as existing Annex I habitat.
- No assessment of the potential operational impacts of the wind farm on this area has been through-out e.g. underlying peatland hydrology.

7.1.4. Conclusion

- It is acknowledged that the national and local policy (Objective ET 13-2) supports renewable energy.
- The loss of significant area of Annex I Habitat will put pressure on habitats at a county and national level.
- The ecology section recommends that intact peatland habitats and upland habitats of high natural value are avoided.
- The proposal should be refused based on Objective ET 15-2 and ET 13-7 of the development plan.
- In the event of a grant of permission the following turbines should be located in an area of low ecological value (T1, T2, T3, T4, T6, T7, T8, T9, T10, T11, T12 and T13) along with the proposed substation and borrow pit A.
- Access road through Oak-birch-holly woodland and all internal road network should be relocated to areas of low value.
- Conditions which substantially alter the design of the wind farm should be avoided, therefore, 12 out of the 14 turbines should be refused.
- A recommended reason for refusal is included.
- A list of conditions is included in Appendix A.
- The applicant has committed to providing a contribution to community gain.
- A special contribution towards the upgrade of the L-3402 is included.

7.1.5. Recommended Further Information

- Relocation of 12 No. turbines and out of the intact peatland / degraded habitats.
- Relocation of proposed access road out of Oak-Birch-Holly woodland.
- Submission of an Ecological Protection Plan (to reference specific habitats/species).
- Submission of a Conservation and Habitat Management Plan.

- Survey of Breeding Bird and resting places of protected terrestrial species.
- Present and quantify the distance of turbines from sensitive receptors and location on a map.

7.1.6. Recommended refusal reason

- The proposed development would contravene materially development objectives BE 15-2 of the Cork County Development Plan 2022 the aim of which is to protect and where possible enhance areas of local biodiversity, ecological corridors and habitats that are features of the County's ecological network. The facilitation of this proposal would ultimately result in the loss of a significant area of Annex I Habitat at both County and National level. It is considered that the impact and assessment provided in relation to loss of habitats listed as Annex I Habitats under the Habitats Directive and habitats of high natural value has been significantly underestimated. This would contravene materially development objective ET 13-7 of the Cork County Development Plan which states "*commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on: Natura 2000 sites (SPA's and SAC's), Natural Heritage Areas (NHA's), proposed Natural Heritage Areas and other sites and locations of significant ecological value".*

7.2. **Technical Reports**

- Area Engineer: No objection subject to a condition requiring a contribution of 50% towards the upgrading of the L-3402.
- Ecology Section: Concern raised in relation to the impact on intact peatland habitats, degraded peatland habitats and other habitats with high ecological value.
- Environment (Surface water and ground water): No objection subject to conditions.

- Environment (Air, Noise and Vibration): Request for further information on the noise assessment in relation to the location of all noise sensitive receptors.
- Archaeology: No objection subject to conditions.

8.0 Additional Information Request

8.1. Introduction

8.1.1. On the 20th of July 2023, the Board issued a further information request to the applicant requiring the submission of information as detailed below. The applicant submitted a response the Board's further information request on the 29th of September 2023.

8.2. Summary of Request

8.2.1. Letters of Consent

8.2.2. The Planning Statement and the Environmental Impact Assessment Report (EIAR) reference two residential buildings located 225m from T12. It is stated throughout the submitted documentation that should planning consent be given, these buildings will be in the control of the applicant and will not be inhabited for the operational period.

8.2.3. The applicant is requested to submit the following information:

- Identify the exact location of those dwellings on the Site Layout Key plan (Dwg No 6225-PL-100).
- Confirm if these dwellings are located within the red and/or blue line of the proposed application.
- Provide letters of consent, and/or any other relevant information from the existing landowners agreeing to the information in the application.

8.2.4. Impact on Blanket Bog

8.2.5. Section 5.3.6.1 of the EIAR refers to the location of blanket bog on the southern half of the site with small pockets of active blanket bog throughout. It is noted that blanket bog has an Annex I designation while active blanket bog has priority status. The EIAR records a low representation of the priority habitat on site with an overall rating of local importance (higher value).

8.2.6. Having regard to the defined status of both blanket bog and active blanket bog in the EIAR it is considered the overall importance of this habitat may be considered greater than local. The applicant is required to provide exact details of the location of both the blanket bog and the active blanket bog, in conjunction with those areas which will be disturbed as part of this proposal.

8.2.7. **Borrow Pits and Habitat Loss**

8.2.8. Section 5.4.5.1 of the EIAR states that the effect of the loss of 28 ha of wet heath, which includes areas of dry heath, outcropping rock, and blanket bog (all Annex I listed habitats), is considered Significant and of Permanent duration. Section 5.4.5.2 further states that the proposed borrow pit to the north of T2 will involve the removal of 26.3 ha of wet heath dominated by *Molinia caerulea* and with low heather cover.

8.2.9. The Board has some concerns in relation to the figures submitted in Chapter 5 of the EIAR with regard the quantum of loss of wet heath. In the interest of clarity and to fully understand the impact on this habitat from both the turbine sites, borrow pits, substation's locations etc the applicant is requested to clarify the following:

a) Does the 28ha of wet health include the 26.3ha for borrow pit A? If not, then the overall figure should be updated to address the same, if it is then Table 5.12 should be updated to include reference to borrow pits.

b) Does Table 5.12 include that habitat removal for the borrow pits? If not, then this table should be updated, along with relevant reference in the EIAR to the loss of habitats for the borrow pits.

c) If overall figure for removal of wet health is greater the 28ha referenced through EIAR, please the habitat enhancement plan is sufficient to compensate for a greater proportion of habitat loss.

8.2.10. **Habitat Map**

8.2.11. Section 5.1 of the EIAR Figures includes a Habitat Map. Considering the additional information request above and the potential impact of the proposed development on Annex I habitats, the Board considers that the proposed development should be overlayed onto the Habitats Map. The applicant should note that the location of all works should be clearly illustrated on the map, including temporary and permanent works, i.e., grid connection, turbine location, construction compounds, borrow pits and delivery access.

8.2.12. In addition to the above, the applicant is required to clearly illustrate the area of Oak-birch-holly woodland (WN1), proposed to be removed, on the Habitats Map, along with the any works overlaid.

8.2.13. **Habitats Enhancement Plan**

8.2.14. Chapter 5 of the EIAR lists mitigation measures for the permeant loss of c. 40 ha of habitat on the site. A Habitat Enhancement Plan (HEP) is one such mitigation measure and includes the restoration of c. 9.5ha of bog and heath that has been degraded by afforestation. Appendix 5.5 includes details of the HEP where it is stated that works include tree cutting, pulling of seedlings and drain blocking.

8.2.15. The applicant is requested to confirm if the 9.5ha for HEP includes the areas associated with T4 and the access road. In addition, the applicant should confirm if the actions included in Appendix 5.5 are sufficient to restore the current degraded area to a standard appropriate to mitigate against the habits which will be lost.

8.2.16. **Temporary Stockpiles**

8.2.17. Section 8.5.2.3 of the EIAR refers to the location of temporary stockpile areas as identified in the Construction Environmental Management Plan (CEMP) (Appendix 2.1). The Board notes that Appendix 2.1 does not include a plan illustrating those areas. The applicant is required to submit a plan clearly illustrating the location of all temporary stockpile areas.

8.2.18. Section 3.3.4 refers to mitigation for peat ground stability which states that *"Draining of stockpiled peat in a controlled manner is recommended*". The Board notes that details of stockpile draining have not been submitted. The applicant should clarify if a) it is proposed to drain any stockpile and b) if so, the measures and process involved with draining these areas including any mitigation to ensure that surface water run-off associated with the peats does not give rise to sediment-laden run-off.

8.2.19. Chapter 9 states that silt fencing will be erected around the base of any temporary stockpile to protect surface waters and plastic sheeting will cover the top of any stockpile. The applicant is requested to clarify, having regard to the additional information request above, if these measures are sufficient to prevent a landslide event. In this regard, the applicant shall have regard to the topography of the site, the size of stockpile areas, and the proposed locations of any temporary stockpile.

Peat stability

8.2.20. During the scoping period the Department of Culture, Heritage and the Gaeltacht requested a thorough geotechnical stability risk and hydrogeological assessment in areas of relatively deep peat soil, not just for turbine foundations, but also for access roads, borrow pits, drains, etc. It was noted in this submission that there are a number of cases of peat slides during upland wind-farm construction, and the scientific investigations of the causes of these should be taken into account in the EIAR.

8.2.21. Table 13 of the Peat Stability and Geotechnical Assessment notes acceptable peat stability at all turbines, with the exception of minor isolated pockets of deeper peat at T1, T6, T7, T11, T12, T13, T14 and Borrow Pit B.

8.2.22. Appendix 8.1 of the EIAR includes a Peat/soil stability risk assessment. Appendix H of this assessment further illustrates areas where peat stability risk is moderate to high. This stability risk matrices and ratings records a high-risk rating (accounting for distance to sensitive receptors) at T2, T12 and T13 with moderate risk Factor of Safety for peat stability at other locations.

8.2.23. From the information in the EIAR (Chapter 8 and Appendix 8.1) and the proposed location of turbines on steep inclines where there are pockets of deep peat, the

Board considers that the submitted information does not definitely conclude no potential for impact on the hydrology and drainage on the site.

8.2.24. The Board notes that Section 8.5.2.5.4 of the EIAR states that peat stability monitoring programme will be undertaken in line with The Scottish Government (2017) “Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Developments” Energy Consents Unit Scottish Government, whilst the Peat Stability and Geotechnical Assessment was undertaken in line with this guidance. This best practice guidance states that where the risk level for a zone is medium to high, avoidance or specification of mitigation measures would normally be the only mease measure by which the project can be considered.

8.2.25. Having regard to the above and to allow the Board to fully understand the impact on peat stability, the applicant is requested to submit site specific information for those areas considered at risk and/or with pockets of deep peat. The information submitted shall be presented in Chapter 8 of the EIAR in tabular format and include for T1, T2, T6, T7, T11, T12, T13, T14 and Borrow Pit B:

a) Peat depth (including all areas over 2m).

b) Peat Stability (including Factor of Safety for pockets of deeper peat).

c) Alteration of Table 17 (Appendix 8.1) to include specific mitigation measures proposed for those areas with potential for localised stability issues.

d) Details of all practices in place to ensure that any areas identified as having high stability risk per the GSI Landslide Susceptibility model will be avoided during construction.

e) Any further site investigations required as per recommendation 4 in Section 6 of the Peat Stability and Geotechnical Assessment.

f) Any site-specific mitigation measures proposed having regard to the location of each turbine and the Factor of Safety.

g) A breakdown of the risk ranking and suggested actions for each of the above locations, with specific refence to Table 5.4 of the Peat Landslide Hazard and

Risk Assessments: Best Practice Guide for Proposed Electricity Developments.

8.2.26. The applicant shall also confirm if the proposed access roads or construction traffic will be in areas as having high stability risk per the GSI Landslide Susceptibility or as ranked in the Peat stability assessment.

8.2.27. **Irish Water**

8.2.28. The submission received from Uisce Éireann (Irish Water) has raised concerns in relation to the information contained in the EIAR, in particular Chapter 9. The applicant is requested to submit a response to those issues raised in this submission (as summarised below).

a) Provide details of any the assimilative capacity in the receiving waters, based on the 95%ile flow statistic, that may be impacted by the proposed development.

b) Provide details of any baseline data for organic carbon (dissolved, particulate, or total) all of which have the capacity to impact the treatability of raw drinking water. In addition, include evidence to ensure the Board is satisfied that any dissolved organic carbon (DOC) will not have an adverse effect on drinking water.

c) Provide an assessment of the proposed development in relation to the potential impact on the operational treatment of any treatment systems and the implications it may have for Trihalomethanes (THMs).

d) Provide details of the potential for a pollution episode during the construction phase delivering high organic matter and the implications for the operation at any water treatment infrastructure,

e) Outline and assess the implications on water treatment having regard to dissolved organic carbon (DOC) and particulate organic carbon (POC) losses.

8.2.29. **Avian Species**

8.2.30. The Board received a submission from the Department of Housing, Local Government and Heritage (DHLGH) in relation to the impact of the proposed development on several species listed in Annex I of the EU Birds Directive. The DHLGH recommended that further information be sought on, *inter alia*,

a) The impact on breeding meirliún (Merlin),

b) Impact on wintering feadóg shlēibhe (golden plover),

c) Impact on iolar mara (White-Tailed Sea Eagle) (removal of sheep carcasses and location of T1, T2, T7, T10 and T12 on steep inclines),

d) Impact on scrēachóg reilige (Barn Owl) and its emission from chapter 7 of the EIAR,

e) Impact on the cearc fhraoigh (Red Grouse),

f) Impact on ialtóg leisler (Leisler's Bat),

g) Summary of the ecological mitigations.

8.2.31. It is also noted that concerns have been raised in relation to the impact of Avian Species by the Ecology Section of Cork County Council, inter alia,

a) Impact on the Golden Plover and Whooper Swan,

b) Cumulative impact of birds redirecting towards the proposed development due to other wind farm locations,

c) The additional impact on the iolar mara (White-Tailed Sea Eagle) population having regard to avian flu,

8.2.32. The applicant shall submit a detailed response to both the DHLGH submission and the Cork County Council submission in relation to the potential impact on the above Avian species.

8.2.33. **Noise and Vibration.**

8.2.34. The submission received from the Environment Section of Cork County Council has requested clarification on information contained in Chapter 11 in relation to noise and

vibration assessment. In this regard the applicant is requested to submit the following information:

a) The number and distance of all noise sensitive receptors within 500m, 1,000m, 1,500m and 2,000m for the turbines. The information should be presented in tabular format.
b) Confirmation that those dwellings on Fig 11.1 (H1, H2, H4, H21 and H37) are the most representative noise monitoring locations and the submission of rationale why noise sensitive locations to the north and west where not considered appropriate. Any additional information should be quantified and illustrated on a map suitably scaled.

8.2.35. **Supporting Information**

8.2.36. Having regard to this further information request, the applicant is requested to provide a summary of all amendments to the EIAR, NIS and other supporting information. It is requested that all changes are clearly identified.

8.3. Applicant's Submission

8.3.1. The applicant responded to the Board's further information (FI) request on the 29th of September 2023 and in addition to the further information response, the following was submitted:

- Appendix A: Revised drawings
- Appendix B: Letter of Consent
- Appendix C: Gortyrahilly Wind Farm Annex I Habitat Condition Report
- Appendix D: Oak, Birch, Holly Woodland Map
- Appendix E: Graphics
- Appendix F: Schedule of Ecological Mitigation Measures

8.3.2. **Letter of Consent**

8.3.3. A letter of consent from the owner of the two closest dwellings to T12 has been submitted. In the event that permission is granted, the owner confirms they will not inhabit the dwellings for the operational period of the proposed development, and they will be in the control of the Gortyrahilly Wind DAC.

8.3.4. **Impact on Blanket Bog**

- A further habitat survey was undertaken in June 2023 with a focus on Annex I habitats.
- Appendix C of the FI submission notes the condition of the habitats.
- Whilst the habitats within the wind farm site may meet some of the criteria for Annex I habitats, they may not meet all the criteria i.e. (area, future prospects and structure and functions).
- Figure 1 of the Annex I Habitat Condition Report (AECOM, 2023) indicates the location of the Annex I habitats.
- A number of H7130 (Blanket Bog) and H7130* (priority Blanket Bog) have been mapped within areas dominated by other habitats or a mosaic with other habitats. These will be impacted by the wind farm and are considered small (0.8ha of H7130 and 1.71 ha of H7130*).
- There will be 1.2ha of H7130 and 12ha of H7130* retained within the site.
- All of the H7130 is in poor condition.
- 60% of the H7130* is in favourable condition although is lacking in peat-forming species that would confer active peat bog status. There is also an overabundance of purple moor-grass *Molinia caerulea*.
- The T3 turbine will be in an area which includes a larger fragment of H7130*. In this instance the turbine will be on cutover bog where much of the peat has been removed and turf cutting has removed a lot of the habitat.

- The presence of H7150, Depressions on peat substrates of the *Rhynchosporion.* T2 is in the vicinity of the H7150 habitat although that habitat which is in good condition is not impacted by T2 turbine.

8.3.5. **Impact on Borrow Pits and Habitat Loss**

- Reference to 26.3ha in Section 5.4.5.2 of the EIAR is a topographical error and should be in fact 2.63ha.
- The design of the borrow pit A is based on an area of 2.63ha.
- The updated habitat mapping in July 2023 indicates that there will be less wet heath lost from the wind farm development (17.85ha) which is significantly less than previously recorded at 28ha. This figure includes the habitats lost to borrow pits.
- The habitat loss has been reduced due to the refinement of the survey, the recent conversion of wet heath to agricultural pasture and the occurrence of several areas of wet heath as a mosaic component.

8.3.6. **Habitat Map**

- Figure 1 of the Habitat Condition Report shows all the locations of the Annex I habitats with an overlaid footprint of the proposed wind farm and associated development.
- Appendix D of the RFI includes a view of the Oak-birch-holly woodland (WN1) with an overlaid of the proposed wind farm. The access track avoids this habitat. 30m^2 of this habitat will be lost from a total of 14,021m^2.

8.3.7. **Habitats Enhancement Plan**

- The 9.5ha area for the HEP does noy include the areas associated with T4 and access road.
- The actions set out in the HEP are sufficient to enhance and improve the condition of habitats for this area.

- In addition, the applicant is committed to putting additional measure in place such as the cessation of burning vegetation and no further land drainage.
- The applicant also proposes the creation of permanent turbine clearance areas in forestry around turbines T3, T4, T5 and T10 to allow the establishment of wet heath.

8.3.8. **Information on temporary stockpiles**

- Appendix E of the RFI (Dwg No. 603679) illustrates the location of all stockpiled areas and includes the management of excavation arisings.
- The management of excavated materials from turbine foundations includes the use of stone for hardcore and storing of topsoils and subsoils separately.
- Subsoil will be used to create berms at the edge of hardstand and as a ballast to a turbine.
- There will be no permanent storage areas.
- Surplus materials will be transported off-site and reused as a biproduct under licence or as waster to a licenced facility.
- 26,092m^3 of excavated material from the grid connection will be disposed of at a licenced facility and 9,418m^3 of peat and soil reused.
- Two on-site borrow pits and the temporary compound areas will temporarily store 9.108m^3 of materials until needs within the reinstatement.
- Temporary stockpiled areas will not be in areas which are indicated as being geo-hazards or with poor stability, will not be placed in areas of deeper peat and will be limited to 1m in height.
- Five locations are identified as suitable for temporary stockpile locations.
- Excavation management includes drainage prior to excavation by sumps on a phased approach, controlled by an inline gate valve.

- In areas of slope or stability risks engineering attenuation features will be used for dewatering.
- Mitigation measures detailed in EIAR Appendix 9.6 (Tile 7,8 and 9) include silt fencing, temporary drainage, monitoring, emergency intervention, plastic sheeting, avoiding receptors and buffers and avoiding areas of moderate to high-risk areas.

8.3.9. **Peat Stability**

- Isolated pockets of deep peat are generally located within rock outcrops.
- Table 17 indicates the peat depth in Each of the main infrastructure units. This table has modified Appendix 8.1 of the EIAR.
- Table 17 is in line with The Scottish Government (2017) and includes the Factor of Safety (FoS) score.
- It is important to consider all factors and not just the numerical data. For example, while the locations of deeper peat my indicate unfavourable FoS, the general risk of significant peat landslide occurring at the site as a function of development is low.
- Isolated pockets of deep peat should be considered and mitigated.
- Appendix E of the RFI includes illustrations of the stability risk at identified locations.
- Three areas have been identified as sensitive to a major landslide being, north of T1 and T2, and north of T12. These have high landside susceptibility (GSI), existing extensive drainage channels and evidence of deeply eroded drainage channels.
- In both areas, the turbine hardstands and associated drainage will divert runoff away from high-risk areas.
- There is a recommendation to undertake further site investigations before construction in line with best practice.

8.3.10. **Response to Irish Water**

- No direct discharge is proposed, therefore, an assessment of assimilative capacity is not required.
- There is one surface water body within the redline boundary designated for drinking water (River Lee (Lee (Cork) 030 IE_SW_19L030200)) located to the south and with a WFD status as “not at risk”. The designation continues down the River Lee to Lough Allua which is not designated for drinking water.
- There are other drinking water designations in neighbouring catchments but downstream.
- The next downstream water treatment plant is the Lee Road Water Treatment facility c. 50km east of the site.
- No extracted or pumped water will be discharged directly to the existing drainage or surface water network.
- All mitigation measures will be implemented to prevent any adverse impact on the water quality.
- The development will not impact the assimilative capacity of the receiving surface water network.
- Peatlands emit carbon to the atmosphere and as particulate or dissolved carbon runoff.
- Mitigation measures will be used to maintain the baseline hydrological regime including a Peat and Spoil Management Plan.

8.3.11. **Avian Species: Response to DHLG submission**

- In relation to the impact on the **merlin**, the dimensions of the rotor diameter in the Smøla wind farm are noted as between 76m to 82.4m, with a rotor sweep above ground estimate of 28.8m. The rotor sweep for the proposed wind farm is within the range 25m-36m.

- Notwithstanding the four merlin collisions reported at the Smøla wind farm a further US study indicated that the merlin is not a high-risk category.
- The Collison Risk Modelling (CRM) caried out for the proposed development indicated the merlin is a low risk with 1 bird collision every 33 years.
- The impact on merlin from disturbance/ displacement is addressed during the construction and operational phases (Section 7.4.2.2 of the EIAR). NatureScot research indicates a buffer of between 300-500m to prevent a disturbance of construction on breeding birds. A buffer of 500m is applied in the EIAR.
- Studies indicate that the displacement effects of wind turbines on raptors are negligible for the most part.
- During the breeding season, merlin is associated with open and semi-open habitats e.g. peat bogs, heathland, and natural grassland habitats. Studies from Sligo indicate the use by merlin of tough pasture and degraded grassland. There may be some localised drying effect at Gortyrahilly, although it is considered merlin will still hunt over areas of peatland where vegetation may be slightly altered by a drying effect due to the construction. The site will still be dominated by bog/heath species.
- There was no evidence during the baseline surveys between 2017-2022 that there have been extensive burning episodes on site.
- The presence of purple moor-grass throughout the site is evidence of past burning events.
- Buring of bog and heath on the site will be prohibited during construction.
- In relation to the **golden plover**, it is noted that the DHLGH refers to 171 turbines within a 20km radius of the site rather than 253.
- It is noted that the CRMs for other permitted wind farms do not include the golden plover.

- Based on the CRM from the proposed development an estimation of the cumulative impact on the golden plover has been derived.
- Based on c. 15 no. collisions for 14 turbines it is estimated an average of 1.07 collisions per turbine per year. This equates to 251 collisions within the 20km cumulative baseline.
- The cumulative impact of 251 collisions is relatively low (0.27%) given the All-Ireland wintering population for golden plover is 92,060 birds. The residual effect remains as long term moderate negative.
- In relation to the **white-tailed sea eagle**, there will be a programme for the removal of sheep carcasses on the site, as a mitigation measure, and therefore, this will remove the potential for attracting this species to the site for foraging. The use of drones, as recommended by the DHLGH, is not considered appropriate in bad weather. If found practical during operation it will be considered.
- The location of turbine T1, T2, T7, T10 & T12 are on steep ridges. These may be in areas of higher “orographic lift”. The number of white-tailed sea eagles would not benefit the micro-siting of turbines to avoid such areas due to the location on the steep ridge. There are no breeding or roosting sites for the white-tailed sea eagle on this site. There has been only one siting in the last 24 months of systematic baseline surveys between 2017- 2022. Even with an increase in the number of white-tailed sea eagle, due to the reintroduction scheme, the use of mitigation measures would ensure no impact.
- In relation to the **barn owl,** although their presence has been recorded in the 10km study area, there is no evidence of the species in the study area. It is not considered that there are any relevant habitats for the barn owl, and there is no record of any potential roosting site.
- In relation to the **red grouse**, the presence of fox on site is noted although it is not considered that the red grouse would be a major part of the fox’s diet. The presence of access tracks throughout the site is noted. These access tracks

include private access, public walking routes and existing public tracks. Shooting was not recorded as an issue during baseline surveys, and it is not considered that the proposed development will increase this activity.

- In relation to the **Leisler's bat,** clarification on the implementation of higher cut-in speed of the turbines (as a mitigation measure) can be verified. The turbine shut down calendar will be based on a calendar with exact sunsets, restarts etc., like the shadow-flicker shut off system.
- Turbines will also have illuminous sensors, used in addition to the shutdown system.
- A summary of the ecological mitigation measures is listed in Appendix 17.1 of the EIAR.

8.3.12. **Avia Species: Response to Cork County Council Submission**

- In relation to the **golden plover,** it is considered to occur entirely in winter and confined largely to extensive boglands in County Galway and County Donegal.
- Breeding and wintering golden plover are of very different distributions, population sizes and behaviours in Ireland. There is no known breeding population in the southwest region.
- The Cork County Council submission refers to a study Samson et al. (2016) regarding negative impacts on the breeding golden plover and considers the proposed development involves "*a risk of significant cumulative displacement effects to this species."*
- This statement has no basis as the study referred to in the council submission relates only to studies of breeding golden plover and during the breeding season of these species.
- Although golden plover are very mobile during the winter, their movement often occurs in flocks and usually in response to tidal movement. There are also larger scale movements due to severe spells of cold weather.

- Cork County Council note a barrier effect of turbines on birds such as golden plover and **whooper swans** with species migrating at night or during periods of low light when ornithological surveys are not undertaken.
- It is noted that whooper swans migrate at night although at heights considerably higher than the turbine height (c. 8,000m being recorded on radar).
- Whooper swans usually congregate around Lough Foyle and Lough Swilly on arrival in Ireland in October. They were recorded at other wetland sites during surveys such as The Gearagh. There is little or no likelihood of whooper swans migrating at low altitudes over the proposed wind farm at night.
- In relation to **cumulative impact**, there is no evidence of migrating routes in the study area, and it is not likely that there is a barrier effect to migrating birds.
- There was no evidence, in the baseline surveys, of local movements of birds, such as wetland species commuting daily between feeding and roost sites.
- There is a wide scatter of wind farms at least 3km from the site, apart from the Derragh Wind Farm (closest 189m to the south).
- In relation to the potential for impact on the **white-tailed sea eagle and avian flu,** the RAPTOR (recording and addressing persecution and threats to our raptors) programme by the NPWS (2007-2019) recorded 18 deaths of the white-tailed sea eagle, with direct poisoning the highest factor for fatalities. Three casualties from collision with wind turbines were record. The white-tailed sea eagle is a rare species, only one sighting on the proposed wind farm site in the 2 years for baseline surveying. There is no suitable breeding habitat for the eagles within the site.
- The proposed development will contribute to a negligible cumulative effect (predicted collision rate of 1 in every 20years).

8.3.13. **Noise and Vibration**

8.3.14. Response to the submission from the Environment Section of Cork County Council:

- The number and distance of all noise sensitive receptors within 500m, 1,000m, 1,500m and 2,000m has been presented in tabular format (Table 11.1, 11.2 and 11.3).
- There are 106 noise sensitive receptors within 2km of the proposed wind turbines, none within 750m, 16 within 1,000m, 56 within 1,500m, and 33 within 2,000m.
- It is confirmed that the dwellings on Figure 11.1 (H1, H2, H4, H21 and H37) are the most representative noise monitoring locations based on:
  - Existing waterfalls are in the area.
  - There is no industrial noise in the area.
  - The wind direction is from southerly and westerly directions so the side of a hill/ mountain exposed to these winds will generate higher wind speeds and higher noise levels.
  - Locations H1, H21 and H37 are at locations influenced by wind speeds.
  - H4 background noise is influenced by waterfall.
  - H16, H14 and H20 are influenced by wind effects on vegetation e.g. mainly trees.
  - The five monitoring locations at H1, H2, H4, H21 and H37 represent the range of background noise for the wind farm.
  - The lowest background noise was recorded at H2 and any lower would not be expected at any location.

8.4. **Consideration of Additional Information Request.**

8.4.1. The applicant's additional information was assessed on receipt to the Board. It was noted that the additional information did not significantly amend the information in the original plans and particulars nor was there considered to be any new information of significance. The additional information provided either clarity or expanded on

information in the original information submitted to address the issues of concern raised in the Board's additional information request.

8.4.2. Due to the absence of any significant new information in the applicant's submission, it was not considered necessary to undertake further public consultation on the information submitted. The Board will note the applicant uploaded their submission on the proposed development designated website, Gortyrahilly Planning[2] .

9.0 Oral Hearing

9.1. A request for an oral hearing was made in two of the third party submissions, as follows:

- Peter Sweetman & Associates
- Wild Ireland Defence CLG

9.2. The issues raised in these submissions are summarised as follows:

- Compliance with development plan polices and appropriate location of wind farms and associated development.
- Applicant's necessity to comply with EIA Directive.
- The role of the Board as a competent authority under the Habitats Directive.
- Compliance with the requirements of the Water Framework Directive.
- The submitted application is incomplete in respect to the Aarhus Convention and key documents in Irish are missing from the application. The only thing in Irish is the site notice.

9.3. A substantial amount of information was submitted with the application. In addition, the Board requested further information from the applicant on the 20th of July 2023, as summarised in Section 8.0 above. The applicant responded to this information on the 29th of September 2023.

[2] Planning - Gortyrahilly (gortyrahillyplanning.ie)

9.4. The Board determined that having regard to the issues raised in the observations and the plans and documentation, there was sufficient information available to assess the proposed development. In this instance, it was decided there was no requirement to hold an oral hearing, therefore the request for an oral hearing was refused.

10.0 **Assessment**

10.1.1. Having regard to the requirements of the Planning and Development Act 2000, as amended, there are three parts to my assessment: planning and sustainable development, the Environmental Impact Assessment (EIA) and an Appropriate Assessment (AA) all detailed below separately in the individual sections. In the interests of brevity, and to avoid undue repetition where possible, where overlaps occur these have been indicated, where appropriate.

10.1.2. It is considered that the key planning and sustainable development issues arising are as follows:

- Principle of Development and Planning Policy.
- Impact on Residential Amenity.
- Submission of Plans and Particulars in the Irish Language.
- Submissions from Cork County Council.

10.2. **Principle of Development and Planning Policy**

10.2.1. **Introduction**

10.2.2. The proposed development includes 14 no. wind turbines, a grid connection northeast, 27.8km, connecting into the Ballyvouskill 220kv substation, turbine delivery haul route works and a meteorological mast. The wind farm site and part of the grid connection (c. 10km) are located within County Cork, therefore the polices of the Cork County Development Plan 2022-2028 are relevant to this part of the proposal. The remaining grid connection (c. 17km) and connection into the substation are located within County Kerry, therefore the policies and objectives of

the Kerry County Development Plan 2022-2028 are relevant to this part of the proposal.

10.2.3. National policy (including the NPF and Climate Action Plan 2024), and regional policy (Southern RSES) include objectives to support proposals which aim to achieve a climate neutral economy. The provision of electricity by onshore wind farm and grid connection are supported by national and regional policy.

10.2.4. **Submissions**

10.2.5. One of the third party submissions note the location of the wind farm in an area open for consideration of wind farms although the grid connection in County Kerry is not located in areas open for consideration or permissible for such development.

10.2.6. Landowner consent for the use of lands has been raised in the submissions and the erection of site notices without consent is noted. Third parties also note the absence of any solicitor signatures on those letters submitted.

10.2.7. **Landowner Consent**

10.2.8. The planning application has been submitted by Gortyrahilly Wind DAC, a joint venture between FutureEnergy Ireland and SSE Renewables. Question 7 of the application form notes the land contained within the wind farm site is owned by 15 different parties and those lands which the turbine delivery nodes are proposed are owned by 7 different parties. Addendum 2 includes letters of consent from all the landowners, aside from Coillte (letter submitted). In addition, it is noted that 10 landowners are involved in the works for the grid connection, which are not in, on or under a public road. Letters from these landowners have also been submitted. Addendum 3 includes a letter of confirmation from the applicant confirming works to the public road will be undertaken by a statutory undertaker with the right to provide such services.

10.2.9. Those letters of consent from the landowners have in some cases been stamped and confirmed by a solicitor, but not in all cases. The Planning and Development Regulations, 2001 (as amended) require the written consent of the owner to make

the application, where the applicant is not the legal owner. There is no obligation on the applicant to have such consents verified by a solicitor, or other.

10.2.10. No submissions have been received from any third parties to indicate that the applicant has not received any consents on lands within the proposed development. Therefore, having regard to the information contained in the application form, it is considered that the applicant has sufficient interest to submit an application for the proposed development.

10.2.11. **Wind Farm Development.**

10.2.12. The majority of the site, including the 14 turbines and c.10km of the grid connection, are located in County Cork. They are located on lands which have been designated in the Cork County Development Plan 2022-2028 as “Open to consideration” for wind energy. Objective ET 13-7 allows wind energy proposals where they can avoid adverse impacts on the following:

- Residential amenity particularly in respect of noise, shadow flicker and visual impact.
- Urban areas and Metropolitan/Town Green Belts.
- Natura 2000 Sites (SPA’s and SAC’s), Natural Heritage Areas (NHA’s), proposed Natural Heritage Areas and other sites and locations of significant ecological value.
- Architectural and archaeological heritage.
- Visual quality of the landscape and the degree to which impacts are highly visible over wider areas.

10.2.13. This objective also requires that consideration should be given to the cumulative impacts of such proposals.

10.2.14. The site is in an upland location, spanning 667 ha, which comprises of mostly bog, agricultural pastures and forested land. The majority of the built environment relates to one-off rural dwellings. The potential impacts of the proposed development on residential amenity, European Sites, architectural and archaeological heritage, and

the visual impact on the landscape have been assessed either below in my planning assessment or within the EIAR and AA. In this instance, it has been concluded the proposed development would not have an adverse impact on any of these areas and would therefore be in compliance with Objective ET 13-7 of the Cork County Development Plan 2022-2028.

10.2.15. **Grid Connection**

10.2.16. As stated above, c.17km of the grid connection is in County Kerry. The site is not located on any area designated for wind farm development in the Wind Energy Maps in the Kerry County Development Plan 2022-2028. Part of the grid connection links with the existing grid lines and part of it involves a new grid connection. Those policies in the Kerry County Development Plan, like the Cork County Development Plan, support the delivery of renewable energy in line with national targets, subject to development management criteria. The Kerry County Development Plan includes specific polices (KCDP) for the development of transmission grid. Electricity infrastructure will be facilitated (KCDP 12-9) where the power lines are managed in line with the natural and built environment (KCDP 12-8) and sited to avoid any adverse impact on sensitive landscape and Natura 2000 sites (KCDP 12-11).

10.2.17. One observation notes the location of the grid connection is not located in areas not open for consideration and is therefore not permissible. Whilst it is noted that the proposal relates to the overall proposed development, the Board will note that the vast majority of the development and the wind farm site, is located in County Cork, on lands open for consideration. The policies and objectives of the Kerry County Development Plan for restricting wind farm development at certain locations, stem from the need to protect sensitive landscape areas, for example. The works involved for the grid connection in County Kerry are by underground cabling and generally confined to construction along forestry tracks. There will be no visual impact from these works once complete.

10.2.18. The policies and objectives of the Kerry County Development Plan relating to the delivery of reliable electricity transition infrastructure, can be reasonably interpretated when assessing the grid connection component of the planning application. The

Board will note an underground 110kV grid connection previously permitted to the south of the site (ABP 314275-22), connecting a permitted wind farm (Reg Ref 19/4972) located in County Cork, into the Ballyvouskill 220kV substation, was also partially within County Kerry.

10.2.19. Having regard to the nature of the proposed development, the absence of any visual impacts, and the policies and objectives of the Kerry County Development Plan in relation to electricity transmission and grid connection, it is considered that the location of the proposed grid connection route is acceptable at this location and does not contravene any of the objectives of the Kerry County Development Plan 2022-2028.

10.2.20. **Conclusion**

10.2.21. Having regard to the location of the wind farm site on lands designated as open for consideration in the Cork County Development Plan 2022-2028 and the policies and objectives in relation to electricity infrastructure in the Kerry County Development Plan 2022-2028, it is considered that the principle of the proposed development is acceptable, subject to further planning and environmental considerations as detailed below.

10.3. Impact on Residential Amenity

10.3.1. Introduction

10.3.2. Ten observations have been received from residents in the vicinity of the site. Issues raised range from the impact from construction, noise from the operation of the wind farm, the impact on human health and overall impacts on property values of the properties in the vicinity. The population and human health chapter in the EIAR has assessed the impact of the construction, operational and decommissioning phases of the proposed development. Many of the issues raised by the third parties have been addressed in the EIA (Section 11.0 below) and it concluded no significant long-term negative impacts on the residential amenity of any residents in the vicinity

of the site. Some issues have been highlighted below for clarity, although the Board will note an overlap with some of these issues in the EIA.

10.3.3. **Setback from individual properties**

10.3.4. Observations note inadequate setback of the proposed turbines from dwellings. The location of a dwelling within 250m of a proposed turbine has been raised as a cause of concern.

10.3.5. The Draft 2019 Guidelines includes a mandatory setback of 500m of any turbine from an individual property. SSPR 2 of these Draft 2019 Guidelines sets out the requirement for the setback. The 2006 Guidelines does not include a mandatory setback. Chapter 12 of the EIA indicates that the proposal can met the requirements of the Draft 2019 Guidelines and there are no inhabited dwellings within 750m of the closest turbine (H1). There is two uninhabited dwellings 225m from T12. The applicant has submitted a letter from the owner, on response to an additional information request by the Board, to state that these will not be inhabited during the operational period of the proposed development and will be in the control of the applicant.

10.3.6. Whilst it is noted the 2019 Guidelines remain in draft, it is considered that the applicant has included a setback necessary to ensure the protection of residential amenity of persons within individual properties. The 2006 Guidelines provide guidance on the appropriate setting and design of turbines and the location of T12 uphill from the individual properties would have the potential to have a negative impact by way of overbearing. The location of other dwellings in the vicinity of the turbines and the associated terrain are noted, and it is considered the setbacks provided are sufficient to ensure no negative impact on the residential amenity of occupiers of these properties.

10.3.7. **Shadow Flicker**

10.3.8. The issue of shadow flicker has been addressed in detail in the EIAR (Section 11.0 below). No specific issues relating to shadow flicker have been raised in the third

party submissions, rather the general impact of the proposed development on residential amenity.

10.3.9. The shadow flicker results of computer-generated modelling have been presented in Appendix 4.1 of the EIAR (Volume IV) and detailed in Section 4.6 of the EIAR (Volume II). It is considered the shadow flicker assessment has been undertaken in line with best practice guidance. The EIAR includes a study area of 2km, and 106 dwellings have been identified within this. Regard is also had to the cumulative impact of an adjoining Derragh Wind Farm. As noted above, aside from the two dwellings 225m to the south of T12 (which have been excluded from the assessment because they are vacant and will remain so during the operational phase of the proposed development and will be in the control of the applicant in the event of a grant of permission), there are no other dwellings within a 750m radius of any turbine.

10.3.10. The potential for shadow flicker has been identified at 89 sensitive receptors, and 20 of these are solely generated from the Derragh Wind Farm. The results are presented in EIAR Table 4.11 and assume the sun is always shining and excludes vegetation, building or other man-made structures. These results indicate that having regard to a worst-case scenario and including the cumulative impact from the adjoining Derragh Wind Farm there will be 89 receptors out of 106 that will experience some degree of shadow flicker and 17 receptors that will experience no shadow flicker for scenario 1 and 89 receptors out of 106 that will experience some degree of shadow flicker and 17 receptors that will experience no shadow flicker for scenario 2. In both scenarios 20 No. of the shadow flicker receptors are impacted solely by the Derragh Wind Farm and not by the proposed development.

10.3.11. The EIAR states that the installation of a blade control system on the turbines will eliminate shadow flicker impacts therefore eliminating any cumulative impact as a result of the proposed development. When the control system detects the sunlight is strong enough to cast a shadow, it will automatically shut down. These control systems have proven to be effective and can ensure zero shadow flicker as a result of the proposed development.

10.3.12. The 2006 Guidelines state that it is recommended that shadow flicker at dwellings within 500m should not exceed 30 hours per year or 30 mins per day. The Draft 2019 Guidelines require a zero-flicker policy, more stringent than the current adopted 2006 Guidelines. The applicant states that should the Draft 2019 Guidelines be adopted during the application process the proposed development can comply with those requirements. The use of the blade control system can ensure the zero-flicker policy is applied. It is accepted that this is an industry accepted method of preventing an adverse impact on the residential amenity as a result of shadow flicker.

10.3.13. As stated in the analysis and conclusion in the EIAR (Section 11.0 below), it is considered that the impact from shadow flicker on the population is not significant. In reaching this conclusion, regard has been given to the location of the properties in the vicinity of the proposed turbines, the potential cumulative impact with Derragh Windfarm, and the information in the applicant's shadow flicker assessment. It is considered satisfactory that the proposed development would not cause any negative impact on residential amenity from shadow flicker generated from the proposed turbines.

10.3.14. **Noise**

10.3.15. Noise and Vibration has been dealt with in Chapter 11 of the EIAR and below in the EIA (Section 11.0). Background noise levels indicate that while the current environment is not a low noise environment, as defined in the 2006 Guidelines (i.e. <30 dB), nor is the wind farm site a particularly noisy environment. This aside, the operational noise levels are not predicted to exceed the national standards and will remain well below the lower fixed limit of 43 dB. Further assessed in detail below in Section 11.24.

10.3.16. **Impact on property values**

10.3.17. The impact of the proposed development on property values and the value of agricultural lands in the vicinity, is raised in the third party submissions. It is stated in the submissions that the EIA does not adequately address these issues.

10.3.18. The applicant's documentation includes information to confirm that all landowners have permitted access/ works on lands. The majority of the site is commercial forest owned by Coillte (154ha) and the remaining lands is mostly agricultural sheep and cattle grazing, farmland, residential properties and open heath (513ha). The closest inhabited house (H1) is 753m from a turbine.

10.3.19. Section 4.3.7 of the EIAR outlines current available research on findings between wind farms and property values carried out in the UK in 2014 and Scotland in 2016 which find no evidence of a negative impact from the location of turbines. The Scottish research found the impact of some wind farms could provide economic and amenity benefits to an area. The third party submission on the impact of property values does not include any further information on the impact on property value, therefore it is considered the information in the EIA reasonable.

10.3.20. Therefore, it is not considered the proposal would lead to any significant negative impact on the property values in the vicinity of the site. In reaching this conclusion, regard has been given to the information in the EIA and the layout of the turbines in a sparsely populated areas with the closest turbine some 753m from a dwelling.

10.3.21. **Conclusion**

10.3.22. Having regard to the location of the site, the proximity of proposed turbines to the existing dwellings, the design of the turbines and the mitigation measures involved during the construction phase, it is considered that the proposed development would not have any significant negative impact on the residential amenity of the residents of properties in the vicinity of the site.

10.4. Submission of Plans and Particulars in the Irish Language

10.4.1. Introduction and third-party submission.

The site is located within the in the Múscraí Gaeltacht Co. Cork. One observation submission noted the location of the site within the Gaeltacht area and considered the application to be incomplete. The inclusion of the site notices in Irish was noted in the submission although it was considered that in the absence of any further

documentation in Irish the planning application was incomplete and therefore, the observers rights under the Aarhus Convention were compromised.

10.4.2. **Plans and Particulars submitted.**

The applicant has erected site notices and published newspaper notices in both Irish and English language. The planning application was accompanied by a non-technical summary of the EIA, also translated into Irish and placed on public display. The information contained within this non-technical summary has been assessed and it is considered the document provides a satisfactory overview of the main environmental impacts of the proposed development.

Chapter 14 of the EIAR acknowledges that the site is located within the Múscraí Gaeltacht area, does not predict any significant impact on the Irish Language, and includes a proposal to erect all signage within the public realm in both Irish and English. In addition to the above, the Board has responded to the observation in both Irish and English as requested in their submission.

10.4.3. **Conclusion**

Having regard to the erection and publication of all public notices in both English and Irish, the submission of the non-technical summary of the EIAR in both English and Irish, it is considered that members of both the English and Irish speaking communities in the vicinity of the site would be aware of the proposed development and the main environmental impacts associated with the proposed development. To this end the submission of the plans and particulars, and the Board's response to the observer, is sufficient to address the third-party concerns.

10.5. **Material Contravention of Cork County Development Plan 2022-2028**

10.5.1. **Introduction**

10.5.2. The wind farm site is located within County Cork, the grid connection traverses into County Kerry, connecting into the Ballyvouskill 220 kV substation. Cork County Council made a submission on the wind farm application recommending refusal.

10.5.3. Concern is raised over a number of issues as summarised below:

- The impact of the proposed development on biodiversity and the significant loss of Annex I Habitat. The proposed development would contravene materially Objective BE 15-2 and ET 13-7 of the Cork County Development Plan.
- Inadequacy of the documentation to fully assess the significance of impact on the habitats.
- Lack of robust scientific assessment in the Natura Impact Statement (NIS) to establish beyond any reasonable scientific doubt that there will be no adverse effects on the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and the Mullaghanish to Musheramore Mountains SPA.

10.5.4. The recommended reason for refusal, detailed in Section 7.1 of the submission, refers to both Objective BE15-2, protect and enhance areas of local biodiversity, ecological corridors, and habitats of value to the county's ecological network and Objective ET13-7, the impact of wind farms on habitats of high ecological value.

10.5.5. **Objective ET13-7: Open for Consideration**

10.5.6. Objective ET13-7, as detailed below, states that wind farm developments on the site are open for consideration where they can avoid adverse impacts on scenic locations etc. and will not have a negative impact on European Sites or other sites of ecological value.

Commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on:

- *Residential amenity particularly in respect of noise, shadow flicker and visual impact;*
- *Urban areas and Metropolitan/Town Green Belts;*
- *Natura 2000 Sites (SPA's and SAC's), Natural Heritage Areas (NHA's), proposed Natural Heritage Areas and other sites and locations of significant ecological value.*

- *Architectural and archaeological heritage;*
- *Visual quality of the landscape and the degree to which impacts are highly visible over wider areas. In planning such development, consideration should also be given to the cumulative impacts of such proposals*

10.5.7. The impact on habitats has been addressed below in the EIA. The Board will note the information contained in the EIAR, based on the applicant's surveys of the habitats, including Annex I habitats H7130 Blanket bog and H7130* priority Blanket bog, H7150 Depressions on peat substrates of the Rhynchosporion and Oak-birch-holly woodland (WN1), concludes that the effects are of local importance and minor in scale. The analysis of the EIA concludes that it is not considered there will be any significant effects from the proposed development on any habitat will be that of county or national scale.

10.5.8. To reiterate the conclusions of analysis undertaken in relation to the impact of any habitat removal and the information in the EIA and AA, it is considered that the proposed development is not a material contravention of Objective ET13-7 of the Cork County Development Plan. The impact on European Sites and compliance is further expanded below.

10.5.9. **Objective BE 15-2: Protect sites, habitats and species**

10.5.10. The applicant submitted a Screening for Appropriate Assessment and a Natura Impact Statement which includes an assessment of the impact of the proposal on all European Sites with a potential ecological pathway to the site. A full assessment of the applicant's information in both the AA screening, NIS and the relevant information in the EIAR has been undertaken. A full Stage II assessment for both Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and the Mullaghanish to Musheramore Mountains SPA has been undertaken.

10.5.11. The applicant has concluded there is no reasonable scientific doubt as to the absence of adverse effects on the Hen Harrier or the integrity of the Mullaghanish to Musheramore Mountains SPA [004162]. The applicant's information submitted in the EIAR and the report of the Board's Ecologist are noted which states that whilst the

Hen Harrier is an occasional winter visitor, no breeding site have been identified. Mitigation measures, including construction works outside the breeding season can adequately prevent any negative impact on the Hen Harrier. In relation to the impact on the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, details of works to the streams along this SAC, as detailed in the EIAR, have been used to undertake a detailed assessment. Having regard to mitigation measures, no significant effects on this SAC has been identified.

10.5.12. The details of Objective BE15-2 for the Board's ease of reference are outlined below. A brief response to each section of the objective is included below and as it is considered this has been addressed in detail above, and in the EIA and the AA below.

a) Protect all natural heritage sites which are designated or proposed for designation under European legislation, National legislation and International Agreements. Maintain and where possible enhance appropriate ecological linkages between these. This includes Special Areas of Conservation, Special Protection Areas, Marine Protected Areas, Natural Heritage Areas, proposed Natural Heritage Areas, Statutory Nature Reserves, Refuges for Fauna and Ramsar Sites. These sites are listed in Volume 2 of the Plan.

10.5.13. The proposed development will not have any adverse effect on any ecological linkage between European or National Sites. There will be no significant effects on the nature or range of habitats, and it is considered that, subject to compliance with relevant conditions recommended within his grant of permission and the mitigation measures stated by the applicant, the proposed development will not have any adverse effect site designated for European, National or local protection.

b) *Provide protection to species listed in the Flora Protection Order 2015, to Annexes of the Habitats and Birds Directives, and to animal species protected under the Wildlife Acts in accordance with relevant legal requirements. These species are listed in Volume 2 of the Plan*.

10.5.14. The National Biodiversity Action Plan (NBAP) 2023-2030 includes objectives aimed at addressing biodiversity loss. Section 59B(1) of the Wildlife (Amendment) Act 2000

(as amended) requires the Board, as a public body, to have regard to the objectives and targets of the NBAP in the performance of its functions to the extent that they may affect or relate to the functions of the Board. The impact of the proposed development on biodiversity including species and habitats has been fully considered. No species listed in the Flora Protection Order 2015 will be affected.

c) *Protect and where possible enhance areas of local biodiversity value, ecological corridors and habitats that are features of the County's ecological network. This includes rivers, lakes, streams and ponds, peatland and other wetland habitats, woodlands, hedgerows, tree lines, veteran trees, natural and semi-natural grasslands as well as coastal and marine habitats. It particularly includes habitats of special conservation significance in Cork as listed in Volume 2 of the Plan.*

10.5.15. The EIA includes a detailed analysis of the impact of the proposed development on hydrology, terrestrial and aquatic ecology and biodiversity. It has been concluded that with appropriate mitigation measures in place no significant negative effects will occur from the proposed development on any ecological corridors, watercourse or habitats.

d) *Recognise the value of protecting geological heritage sites of local and national interest, as they become notified to the local authority, and protect them from inappropriate development.*

10.5.16. The applicant's EIA has not identified any geological heritage sites of local or national interest, nor has the impact on any such sites been raised in the submissions or observations.

e) *Encourage, pursuant to Article 10 of the Habitats Directive, the protection and enhancement of features of the landscape, such as traditional field boundaries, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species.*

10.5.17. The applicant's expert ecologist refers to the habitat survey undertaken as part of the EIAR. In response to the Boards FI request, the applicant states that the area

which have Annex I habitat have fragmented habitats, with non-contiguous pockets which do not have the species present to ensure they are considered good quality. The largest area of H7130* identified around T3 is noted to be largely dominated by cutover bog with a significant amount of peat removal due to turf cutting. Due to the fragmented nature of the habitats on site, they can be discounted as being of major importance or essential for the migration, dispersal and genetic exchange of wild species. Regards has been given to the information on file and the condition of habitats on site and it is considered that the proposed development would not impact the Natura 2000 network.

10.5.18. **Section 37 (G) of the Planning and Development Act, as amended**

10.5.19. Section 37G (2) of the Planning and Development Act, as amended, requires that An Bord Pleanála have regard to the provisions of County Development Plans in the case of Strategic Infrastructure Development (SID) applications, however, should the Board be minded granting permission for the development, it is not constrained by material contravention considerations (Section 37G (6) of the Act). 37G (6) of the Act states:

> *"The Board may decide to grant a permission for development, or any part of a development, under this section even if the proposed development, or part thereof, contravenes materially the development plan relating to any area in which it is proposed to situate the development."*

10.5.20. Although, it is not considered the proposed development materially contravene any of the polices or objectives of the development plan, should the Board consider otherwise, and want to grant permission, they can grant permission under Section 37G (6) of the Planning and Development Act, as amended. The proposed development is of national importance having regard to the provisions of the Climate Action Plan 2024 which seeks to accelerate renewable energy generation, including a 9 GW onshore wind capacity by 2030 in order to reach 80% of electricity demand from renewable sources by 2030. The proposed development will contribute to meeting the objectives of the Climate Action Plan.

10.5.21. **Conclusion**

10.5.22. Having regard to my assessments undertaken below in my EIA and the AA, which has been based on the applicant's technical experts and on the best scientific information available, it is considered that the proposed development will not either on its own or in-combination with other developments have a significant negative impact on any Annex I habitat or ecological network of national or European importance.

10.5.23. In addition to this, the information in the EIAR, which has been integrated and considered in the AA, has regard to the impact of works on three streams which are hydrologically linked to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

11.0 Environmental Impact Assessment

11.1. Statutory Provisions

11.1.1. Schedule 5 of the Planning and Development Regulations, 2001 (as amended) transposes Annex I and II of the EIA Directive and sets out prescribed classes of development, for which an environmental impact assessment is required. The following classes are noted:

> Part 2 (3)(i) Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts.

11.1.2. This Statement has also taken cognisance of EIA Directive 2014/52/EU. The proposed development consists of 14 No. turbines with a capacity to generate more than 50 megawatts (MW), therefore an EIAR is mandatory.

11.1.3. The planning application is submitted on behalf of Future Energy Ireland and SSE Renewable. The site comprises of 667 ha, of which 154 ha is commercial forestry owned by Coillte and the remaining (c. 513 ha) owned by third parties. The site is mostly rural with upland sections and there are 106 dwellings within a 2km radius of the proposed turbines.

11.2. EIA Structure

11.2.1. This section of the report comprises the environmental impact assessment (EIA) of the proposed development in accordance with Planning and Development Act 2000, as amended and the associated Regulations, which incorporate the European Directive on EIA (Directive 2011/92/EU, as amended by 2014/52/EU). Section 171 of the Planning and Development Act 2000, as amended defines EIA as:

> a. consisting of the preparation of an EIAR by the applicant, the carrying out of consultations, the examination of the EIAR and relevant supplementary information by the Board, the reasoned conclusions of the Board and the integration of the reasoned conclusion into the decision of the Board, and

b. includes an examination, analysis and evaluation, by the Board, that identifies, describes and assesses the likely direct and indirect significant effects of the proposed development on defined environmental parameters and the interaction of these factors, and which includes significant effects arising from the vulnerability of the project to risks of major accidents and/or disasters.

11.2.2. Article 94 of the Planning and Development Regulations, 2001, as amended, and associated Schedule 6 set out requirements on the contents of an EIAR.

11.2.3. This EIA section of the report is therefore divided into two sections. The first section assesses compliance with the requirements of Article 94 and Schedule 6 of the Regulations. The second section provides an examination, analysis and evaluation of the proposed development and an assessment of the likely direct and indirect significant effects of the proposed development on the following defined environmental parameters, having regard to the EIAR and relevant supplementary information:

- population and human health,
- biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive,
- land, soil, water, air and climate,
- material assets, cultural heritage and the landscape,
- the interaction between the above factors, and
- the vulnerability of the proposed development to risks of major accidents and/or disasters.

11.2.4. It also provides a reasoned conclusion and allows for integration of the reasoned conclusions into the Board's decision, should they agree with the recommendation made.

11.3. Issues Raised in Respect of EIA

11.3.1. Issues raised in respect of EIAR by parties (sections 5.0 to 7.0 above) are summarised below and are elaborated on in the following assessment.

- The applicant has failed to consider its obligations under the EIA Directive with regard to consideration of alternatives, impacts on material assets, impacts on landscapes and visual amenity.
- Lack of information contained within Chapter 9 of the EIAR and the impact of the proposal on IW abstraction points and/or watercourse hydrology/ hydrogeology connection to the IW abstraction points are in accordance with the Water Framework Directive (WFD).
- Impact of suspended solids on water quality.
- Impact on biodiversity, bats, and birds.
- Impact on the material assets, housing values and residential amenity.

11.4. Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations 2001

11.4.1. Compliance with the requirements of Article 94 and Schedule 6 of the Regulations has been assessed in the table below.

Article 94 (a) Information to be contained in an EIAR (Schedule 6, paragraph 1)	
A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under section 94(b).	A description of the proposed development is contained in Chapter 2 of the EIAR including details on the location, site, design and size of the development, arrangements for access and construction methodology, spoil and waste to be generated. In each technical chapter of the EIAR details are provided on use of natural resources and the production of emissions and/or waste (where relevant). It is noted that the proposed development does not involve demolition works.
A description of the likely significant effects on the environment of the proposed	An assessment of the likely significant direct, indirect, and cumulative effects of

development (including the additional information referred to under section 94(b).	the proposed development is carried out for each of the technical chapters of the EIAR. It is considered that the assessment of significant effects is comprehensive and robust and enables decision making.
A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development (including the additional information referred to under section 94(b).	The EIAR includes designed in mitigation measures and measures to address potential adverse effects identified in technical studies. These, and arrangements for monitoring, are outlined in appendices including additional information appendices and summarised in Appendix 17.1 (Schedule of Mitigation Measures). Mitigation measures comprise standard good practices and site-specific measures and are largely capable of offsetting significant adverse effects identified in the EIAR, except in respect of T12 and peat slide risk, for the reasons stated in the assessment below.
A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment (including the additional information referred to under section 94(b).	A description of the alternatives considered is contained in Chapter 3 of the EIAR. The alternatives considered include, do nothing', strategic site screening, alternative turbine numbers and dimensions, alternative layout and design including access roads, compounds and borrow pits, alternative grid connection routes, alternative turbine haul route and alternative mitigation measures. The main reasons for opting for the current proposal were based on minimising environmental effects. Therefore, it is considered that the applicant has studied reasonable alternatives in assessing the proposed development and has outlined the main reasons for opting for the current proposal before the Board and in doing so the applicant has taken into account the potential impacts on the environment.
Article 94(b) Additional information, relevant to the specific characteristics of the development and to the environmental features likely to be affected (Schedule 6, Paragraph 2).	
A description of the baseline environment and likely evolution in the absence of the development.	A description of the baseline environment has been provided in for each of the technical chapters of the EIAR. A likely evolution in the absence of the development is provided under the 'do nothing scenario'. It is considered that a

	comprehensive understanding of the baseline environment has been provided and enables identification of key impacts in respect of likely effects as a consequence of the proposed development. The baseline is commented on, where necessary in the technical assessment below.
A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved	The methodology employed in carrying out the EIA, including the forecasting methods is set out, in each of the individual chapters assessing the environmental effects. The applicant has indicated in the different chapters where difficulties have been encountered (technical or otherwise) in compiling the information to carry out EIA. These are referred to where necessary in the technical assessment below and for the reasons stated, it is considered that forecasting methods are adequate in respect of likely effects.
A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it.	This issue is specifically dealt with in Chapter 16 of the EIAR. Specific risks have been identified in relation to the project's vulnerability of the project to peat slide, flooding and fire. These risks are reasonable except for T12 and peat slide risk as assessed below.
Article 94 (c) A summary of the information in non-technical language.	This information has been submitted as a separate standalone document (Vol I) and provided in both Irish and English language. This document has been read, and it is considered that the document is concise and comprehensive and is written in a language that is easily understood by a lay member of the public.
Article 94 (d) Sources used for the description and the assessments used in the report	The sources used to inform the description, and the assessment of the potential environmental impact are set out within each chapter. It is considered the sources relied upon are generally appropriate and sufficient except in relation to concerns raised in respect of Chapter 10 Air and Climate, capacity or load factor of 35% as outlined in the assessment below, Section 11.13. This has been assessed and it not considered to significantly aLTER any conclusions in the EIA.

Article 94 (e) A list of the experts who contributed to the preparation of the report	A list of the various experts who contributed to the report are set out in Table 1.3 in Chapter 1 of the EIAR (and in Appendices). Where relevant the introductory section of each of the chapters also details of the individual's expertise, qualifications which demonstrates the competence of the person in preparation of the individual chapters within the EIAR.

11.4.2. **Consultations**

11.4.3. The application has been submitted in accordance with the requirements of the Planning and Development Act 2000, as amended, and the Planning and Development Regulations 2001, as amended, in respect of public notices. In addition, the applicant has carried out public consultation and the public consultation stages carried out between September 2020 and July 2022 are outlined in Section 1.7.1 of the EIAR. Submissions have been received from statutory bodies and third parties and are considered in this report, in advance of decision making.

11.4.4. It is considered that appropriate consultations have been carried out and that third parties have had the opportunity to comment on the proposed development advance of decision making.

11.4.5. **Compliance**

11.4.6. Having regard to the foregoing, it is considered that the information contained in the EIAR, and supplementary information provided by the applicant is sufficient to comply with article 94 of the Planning and Development Regulations, 2001. Matters of detail are considered in my assessment of likely significant effects, below.

11.5. **Assessment of Likely Significant Effects**

11.5.1. This section of the report sets out an assessment of the likely environmental effects of the proposed development under the following headings, as set out Section 171A of the Planning and Development Act 2000, as amended:

- Population and human health.
- Biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directives (Directive 92/43/EEC and Directive 2009/147/EC respectively).
- Land, soil, water, air and climate.
- Material assets, cultural heritage and the landscape.
- The interaction between these factors.

11.5.2. Where relevant, headings have been subdivided to better reflect the layout of the EIAR and the main environmental considerations of the proposed development.

11.5.3. In accordance with section 171A of the Act, which defines EIA, this assessment includes an examination, analysis, and evaluation of the application documents, including the EIAR and submissions received and identifies, describes, and assesses the likely direct and indirect significant effects (including cumulative effects) of the development on these environmental parameters and the interaction of these. Each topic section is therefore structured around the following headings:

- Introduction
- Issues raised in the application.
- Evaluation of the EIAR.
- Examination, Analysis and Assessment: Direct and indirect effects.
- Conclusion: Direct and indirect effects.

11.6. Site Selection

11.6.1. Introduction

Chapter 3 outlines those alternatives assessed including both the wind farm and grid connection. The applicant screened all their sites in 2014 with the aim of applying for wind farm developments. The suitability of this site is determined by:

- National Grid Connection capacity (Close to Ballyvouskill 220Kv substation and Cloonkeen 110 kV).

- Designated sites (not within or impact any site designated for ecological value).
- Wind Speed (wind speed are consistent with a wind farm development).
- Population Density (a lower-than-average rural population density of 27 persons per km^2).

A constraints map (Fig 3.1) highlight:

- 750m buffer for residential dwellings (greater than the 4 x4 tip height separation distance).
- Operator specific buffer for telecommunications links.
- 65m buffer for watercourses.
- 100m buffer for archaeological sites/ monuments.

11.6.2. **Issues Raised**

One of the submissions considered that there is no indication of any other types of turbines or options for producing energy investigated.

11.6.3. **Evaluation of the EIAR**

The turbine layout is informed by the constraints map (Fig 3.1). The turbine number and **turbine layout** have regard to the wind-take by siting of the turbines for optimal performance, noise and shadow flicker.

Alternatives were considered for the **number of turbines** i.e., more and less turbines (illustrated in Fig 3.2a, 3.2b and 3.2c). Some of the turbines would have been too visible from scenic routes or be linked to other turbines in the vicinity. Three layouts were assessed and Table 3.2 of the EIAR includes a breakdown of the environmental effects from each.

The **site access road** was chosen following confirmation of the turbine layout. The scale of construction compounds was assessed with proposals for two smaller compounds as an alternative to one large.

In relation to the **grid connection,** overhead and underground cabling were assessed, whereas the overhead connections provided greater visual impacts. Five cabling routes (Routes A-E on Fig 3.6) were assessed. The final route was a combination of routes B, C, D and E to avoid main roads, protected bridges and allow other wind farms connection in the future.

In relation to **borrow pits**, alternatives to the use of off-site materials from local quarries were investigated although would lead to an increase in construction traffic and heavy loads. The environmental impacts for traffic, noise and disturbance are greater when transporting materials into the site.

Alternative range of **turbine dimensions** were assessed (Fig 2.3). A range of tip height, hub height and rotor diameter were assessed. The larger turbines were found to generate greater outputs. The model of turbines will be subject to a competitive tendering process and will be within the dimensions detailed in the planning application.

An alternative **turbine haul route** was considered starting from different ports (Cork/ Limerick). Ringaskiddy was closer to the site and, therefore, a shorter distance to travel. A number of routes were investigated, with the size and scale of local roads assessed.

The "**Do Nothing" scenario** would lead to the potential for sustainable energy production at the site would be lost, and the potential for financial penalties due to not meeting EU targets.

Mitigation alternatives included avoidance, best practice design and mitigation measures.

11.6.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

The chosen option includes 14 No turbines with a tip range of 179m to 185m, hub height range of 102.5m to 110.5m and a rotor diameter range of 149m to 155m. This is classified as a large-scale wind farm. The output range from the 14 turbines would be 78.4 MW to 92.4 MW.

It is considered that the overarching alternatives considered have had regard to the investigations undertaken by the applicant. Those alternatives are in the most part reasonable as they include an indication of the main reasons for the option chosen and have taken into account different environmental effects in concluding the options chosen.

The Board will note the applicant's justification for turbine location relates in the most part to the impact on hydrology and hydrology, material assets and landscape and visual. On initial assessment of the application, concerns were raised in relation to the impact on biodiversity and peat stability. In addition, submissions from prescribed bodies in relation to the impact on water, ornithology and noise were also noted. The Board issued a requested for additional information on the 20th of July 2023, which the applicant responded to on 29th of September 2023. No significant information was submitted and no amendments to the site layout proposed.

There are concerns in relation to the investigations undertaken for turbine T12. In this regard, it is noted that the turbine is in an area of peat classified as high risk. This has been addressed in detail below and it is recommended to the Board that this turbine is removed by condition, should they grant permission (Section 11.11).

11.6.5. Conclusion

The submission of the planning authority, prescribed bodies, the observations received from members of the public, the relevant chapters of the EIAR and the response to the further information request have been considered in fill. It is considered that the site has been selected having regard to the potential to accommodate the wind farm and grid connection and the location and siting of the turbines has been informed by the constraints on the site.

11.7. Population and Human Health

11.7.1. Introduction

Chapter 4 deals with the impact on population and human health.

11.7.2. **Issues Raised**

Ten submissions were received from residents of properties in the vicinity of the site. Concerns raised by these residents relate to the impact of the wind farm on their residential amenity, insufficient setback, noise pollution, shadow flicker and sleep disturbance.

The adequacy of the information contained in the EIAR is questioned. It is considered there is insufficient information relating to property values, access through the site for existing landowners and the impact on agricultural lands and land values.

11.7.3. **Evaluation of the EIAR.**

11.7.4. **Context**

Areas of investigation within the EIAR are as follows:

- Population and Settlement Patterns
- Economic Activity and Tourism
- Employment
- Topography and Land Use
- Health Impacts of Wind Farms
- Property Value
- Natural Disaster and Major Accidents

It is noted that taking account of possible interactions, the assessment presents an amalgamation of findings of the following assessments: Soils and Geology (Chapter 8); Hydrology and Hydrogeology (Chapter 9); Air and Climate (Chapter 10); Noise (Chapter 11), Traffic and Transportation (Chapter 15), and Major Accidents and Natural Disasters (Chapter 16).

The study areas include electoral divisions Derryfineen, Gortnatubbrid and Cleanrath (87km^2) at a local level and the two counties, 7,316km^2 in Cork County and 4,807km^2 in Kerry County.

11.7.5. **Baseline**

The site is located under Macroom Municipal Division, and electoral divisions Derryfineen, Gortnatubbrid and Cleanrath that can be separated into distinct townlands, Derree, Gortyrahilly, Fuhiry, Rath West, Derryfineen, Gortnabinna, Derragh and Cahernacaha.

The surrounding area is mainly rural. The 2016 Census statistics note 330 occupied residences and a total population of 919 in the three ED areas Derryfineen, Gortnatubbrid and Cleanrath. Macroom, the closest settlement with a population greater than 2,500, has a population of 3,765 persons and is located c. 16km to the east. Killarney is located 39km to the northwest.

There are 141 farm holdings in the area and the main livestock is sheep. For employment, it is assumed that the majority of those residing within the ED areas would travel outside of it for employment. The economic performance of County Cork is noted as strong, contributing 19% to the national GDP.

There are 106 dwellings within 2km of the site. All inhabited dwellings are located over 750m from the turbines. Two vacant residential buildings are located within 225m from T12, and it is stated that these will remain vacant during the operational phase of the proposed development and will be in the control of the applicant in the event of a planning consent. The general health of the population (2016) was very good for 62% within a 10km radius, more than the County average at 59%.

The main **tourism and recreation** to the area is trail walking, hiking and cycling. Coillte operates an open forest policy and allows access to all its forest estate. A section of the Beara Breifne Way runs through part of the wind farm site. Gougane Barra and the St Finbarr's Oratory is located 7.6km southwest of the wind farm site. It is stated that based on research, it there is not expected to be any direct

relationship between the tourism sector growth and the proposed development. The proposed development is located within the Múscraí Gaeltacht area.

In relation to **Electromagnetic Interference**, reference is provided to the International Commission on Non-Ionising Radiation Protection (ICNIRP) which states that there is a limit for magnetic fields. 110 kV and 200kV lines are significantly below those magnetic field levels stated in the ICIRP guidance.

In relation to **property values**, it is stated that there are currently no Irish Studies undertaken to assess the impact of wind farms on properties prices. UK findings from a study undertaken in 2014 (Table 4.5) indicate a negative impact of wind farm on property values, although a 2016 study in Scotland found no significant effect on property values within a 2km to 3km radius.

The impact of **natural disasters and major accidents** can be cross referenced with other environmental assessments in the EIAR. Chapter 16 specifically deals with Major Accidents and Natural Disasters, Appendix 2.1 Construction Environmental Management Plan and Chapter 8: Soils and Geology deals with peat slide. Wind turbine fires are relatively rare, and the environmental effects are limited. The issue of turbine safety has been addressed in Section 4.3.6.9 of the EIAR.

Section 4.6 deals with **Shadow Flicker.** The assessment uses the 2006 Wind Energy Guidelines and 'Best Practice Guidelines for the Irish Wind Energy Industry' (Irish Wind Energy Association, 2012) in assessing the impact. Reference is also made to the Draft Revised Wind Energy Development Guidelines in 2019 for zero shadow flicker. The study area used was 2km as being 10 times the maximum rotor diameter within the range (10 x 155m = 1,550m). Three scenarios were included for the assessment, detailed below, and a shadow flicker computer model used to calculate the occurrence of shadow flicker at relevant receptors (results from the shadow flicker assessment are included in Appendix 4.1, EIAR Volume IV). Derragh Wind Farm was also included in the assessment as it is located 189m from the site boundary. The three scenarios modelled were:

- Specimen Turbine – 107.5m hub, 155m rotor diameter (longest rotor), 185m tip height

- Alternative Scenario 1 – 102.5m hub (lowest hub), 155m rotor diameter (longest rotor), 180m tip height
- Alternative Scenario 2 – 110.5m hub (tallest hub), 149m rotor diameter (shortest rotor), 185m tip height

The data inputted into the modelling includes the real time and worst-case scenario available. This included the path of sun which would generate the greatest impacts and the orientation and direction of the turbines relative to the windows of those dwellings. 106 dwellings are identified within the study area (two dwellings located 225m from T12 have been excluded as these are vacant and it is stated these will remain vacant during the operational phase of the proposed development and will be in the control of the applicant). The frequency of flicker is considered to impact residential amenity rather than the health. Results indicate that for the worst-case scenarios and with the cumulative impact of Derragh Wind Farm 89 receptors out of the 106 will experience some degree of shadow flicker (further discussed above in Section 10.2.7).

The **Community Benefit Fund** will contribute €2 per megawatt hour (MWh) of electricity produced into a community fund for at least 15 years (possibly over €500,000 annually). The fund will be designated as a “near neighbour fund”.

11.7.5.1. **Likely Potential Effects**

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• The site would continue to be planted and felled with no additional visual impacts.
Construction	• Employment generated during the construction phase is predicted to have a direct, short-term significant, positive impact, and to generate temporary significant positive induced effects for local businesses such as local accommodation, restaurants, and other services. • .

	• Sections of the Beara Breifne Way will be temporary closed and diverted during construction. Tourism effects are considered to be short-term, slight, negative. • Construction works within the area will be temporary and will not result in permanent settlement by non-Irish speakers resulting in a negligible, indirect, not significant effect. • The proposed development will impact on existing habitats within the site. Water contamination could potentially occur in the absence of mitigation measures. Potential landslide from construction of turbine and associated works on unstable or unsuitable locations. • Increase in traffic on the local roads resulting in negative, slight/moderate, direct and short term effects. Potential noise and vibration and air quality effects from the construction traffic will be short-terms and not significant.
Operation	• No significant employment effects. • No significant visual effects predicted on the Gougane Barra to the southeast. The proposed development will provide improved access to the area for walkers/hikers. Tourism effects are considered to be long-term, slight positive. • Noise impacts during operation (Chapter 11) can meet those limits set out in the 2006 Guidelines and are not significant. • Air quality effects from renewable energy generation will be slight, long term, and positive. • Potential shadow flicker will be experienced at 84 to 89 of the receptors and it is noted that 20 of these receptors are impacted solely by Derragh Wind Farm. . • Electromagnetic Fields from the wind farm and grid connection are very localised, imperceptible and long term. • Changes in land use from forestry and agricultural to wind farm is not considered a long term negative impact. The proposed

	development will have a long-term imperceptible impact on property values. • Long term positive effects on the local community from the operation of the Community Benefit Fund
Decommissioning	• Similar effects to construction.
Cumulative	• The shadow flicker assessment has taken account of Derragh Wind Farm which is located within a 2km range of the proposed turbines. • No other cumulative effects identified.

11.7.5.2. **Mitigation**

- The main mitigation measures is the design of the proposed development.
- The construction and decommissioning works will be planned and controlled by a Construction and Environmental Management Plan (CEMP) which include best practice site safety and environmental management procedures. The CEMP incorporates the following management plans (MP):
    - MP1 Environmental Incident and Emergency Communication Response Plan
    - MP2 Water Quality Inspection and Monitoring Plan and Watercourse Crossing Plan
    - MP3 Surface Water Management Plan
    - MP4 Peat and Spoil Management Plan
    - MP5 Waste Management Plan
    - MP6 Decommissioning Plan
    - MP7 Traffic Management Plan.

- Appendix 17.1 summarises the mitigation measures from the technical assessments within the EIAR.
- Shadow flicker detection systems will be installed on all turbines will eliminate shadow flicker on nearby receptors from the proposed development.

11.7.5.3. Residual Effects

The residual risk on population and human health is assessed to be an imperceptible, long-term effect.

11.7.6. Analysis, Evaluation and Assessment: Direct and Indirect Effects

The impact of the proposal on residential amenity has also been addressed above. The issues raised are similar to those addressed above and have been replicated for the purpose of the EIAR assessment.

Setback from residential property: Submissions have raised the proposed setback of the turbines from properties in the vicinity. The applicant's documentation indicates a proposal to purchase a cluster of two properties within a 225m of proposed turbines (T12). Upon site inspection it was noted that these dwellings are currently vacant. In response to the Board's Further Information request the applicant submitted letters to confirm an agreement with the landowner that these dwellings will be in the control of the applicant and will remain vacant for the operational life of the proposed wind farm. Other dwellings within the vicinity of the site are located more than 750m from any turbine. The location of dwellings is in accordance with the 2006 Guidelines and the impact of the predicted noise impacts has been assessed below (Section 11.14) and it has been concluded that the noise generated from either construction or operation would not have a significant negative effect on the amenity of residents in the vicinity of the site.

Shadow Flicker: The study area is defined as 10 times the widest potential rotor diameter within the range (10 x 155m = 1,550m). A study area of 2 km is used for completeness. Appendix 4.1 includes the results of the modelling generated for two scenarios, real time and worst case. Maps in Appendix 4.1 broadly illustrate the

location of dwellings within the study area and Table 4.9 of the EIAR includes a detailed description of the location of these dwellings relative to individual turbines. The output from the calculations is analysed to identify and assess potential shadow flicker impacts. The applicant's assessment allows a robust analysis of the potential impact of shadow flicker on properties in the vicinity to be undertaken.

The results of the shadow flicker assessment indicates that out of the 106 properties assessed, there is a potential for 89 properties to receive some degree of shadow flicker. Out of the 89 properties, 20 will be impacted only by the Derragh Wind Farm which is located to the south of the site.

The assessment is based on compliance with the current 2016 Guidelines limit (30 hours per year or 30 minutes per day). The adopted 2006 Guidelines are currently under review. The applicant proposes to apply zero shadow flicker, with mitigation measures, as per the Draft 2019 Guidelines. It is stated that this can be achieved by using turbine control systems to stop the offending turbine when shadow flicker conditions are present. This system will eliminate the potential for shadow flicker from the proposed development. The assessment provided in the EIAR is considered acceptable and has regard to the best practice guidelines available at the time of writing and regard has been given to both the current 2006 Guidelines and the Draft 2019 guidelines.

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

Cumulative Effects have been assessed for all turbines within 2km. As stated above, 20 of the 106 properties assessed will be impacted by shadow flicker from the Derragh Wind Farm only. There are ten receptors (H1, H4, H6, H7, H10, H25, H30, H50, H51 and H61) that will be affected by cumulative shadow flicker effects. The mitigation proposed above is considered acceptable , the potential for cumulative shadow flicker to occur as a result of the proposed development at the identified receptors within the study area for each of the scenarios will be avoided.

Mitigation Measures: As outlined above, the principal measure to prevent shadow flicker is to prevent the operation of the turbines during periods when shadow flicker

may occur so as to ensure zero shadow flicker. The EIA states that the use of the control system, installed within the turbines, detects any sunlight which is strong enough to cast and shadow and causes the turbine to shut down. This mitigation measure is recommended in the Draft 2019 Guidelines. It is considered that the mitigation proposed is appropriate to ensure that any impact will not be significant.

Residual Impacts: Subject to the mitigation proposed above, the potential for shadow flicker to occur as a result of the proposed development at the identified receptors within the study area for each of the scenarios will be avoided. There will be no residual impacts.

Impact on property values: The absence of sufficient information in the EIAR on the potential impact on property values and agricultural lands has been raised as an issue of concern. This issue has been addressed in the planning assessment of the impact of the proposal on residential amenity and the Board will note the following:

- Chapter 4 includes information on available research undertaken in the UK and Scotland.
- The Centre of Economic Research concluded no detectable negative impact on the house price growth within a 5km radius of a wind farm site.
- The London School of Economic (LSE) noted an average reduction in the value of houses (based on 125,000 house sales between 2000-2012) of between 5% and 6% within 2km of very large wind farms.
- The Scottish research noted the LSE and concluded no significant effect on the price of properties within 2km or 3km and some positive benefits due to community funds and increasing access to rural landscapes.

The Board will note that the applicant has provided relevant agreements from landowners to undertake works or have access to lands within the site. A significant portion of the site is commercial forestry or bog lands, unsuitable for large scale agriculture. No evidence has been submitted from third parties indicating that the remaining lands can no longer be used as agriculture or that the wind farm would

have a negative impact. It is considered there is no reason to conclude that the agricultural lands could no longer be used or devalued because of the proposal.

In relation to the devaluing properties in the vicinity of the site, the applicant has highlighted three research papers, one of which indicated a reduction in the value of houses (2014). A more recent paper in 2016 notes no indication of a reduction in property values. In the first instance, the reduction of c.5% is based on a study of 125,000 houses within a 2km radius of a very large wind farm. The applicant information indicates c. 106 occupied dwellings within a 2km radius of any turbine, a substantially smaller scale development then that presented in the UK study in 2014. The information presented in the 2016 paper also indicates an economic benefit from the community fund and enhanced amenity benefits to an area. The applicant has confirmed a “Community Benefit” package for the area, advertised annually and managed by an independent body on behalf of the local community. The research presented in the EIAR indicates that these funds have a positive impact on property values in the area.

Therefore, having regard to the characteristics of the area which is sparsely populated, and the research provided in the EIAR, it is not considered the proposed development would have any significant negative impact on the values of properties or agricultural lands in the vicinity of the proposed development.

Access to lands by landowners: Submissions have raised concern in relation to local access. As outlined in my assessment below (Section 11.18), It is considered that local access is to be maintained during construction and that this has been considered in detailed as part of initial diversion and construction phasing considerations. Of further note all access points (domestic, business, farm) will be considered when finalising the proposed road closures and diversions. Beara Breifne Way will also remain open, but temporary transporting of walkers through the site during periods of heavy onsite construction traffic is noted. There are no constraints on access during the operational phase.

11.7.7. Conclusion: Direct and Indirect Effects

The submission of the planning authority, prescribed bodies, the observations received from members of the public have been considered, in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that potential effects on population and human health would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. The proposed development would not have any unacceptable direct, indirect or cumulative effects on population and human health.

11.8. Terrestrial Ecology

11.8.1. Introduction

Chapter 5 deals with terrestrial ecology including species and habitats. This chapter is informed by the information in the EIAR Volume IV Appendices as summarised below:

- Appendix 5.1: Total plant species for the wind farm site
- Appendix 5.2: Plant species for habitats encountered along the forest tracks within the grid connection route
- Appendix 5.3: Ecobat tool: Summary to enable analysis of bat activity
- Appendix 5.4: Raw data used for the Ecobat Tool
- Appendix 5.5: Habitat Enhancement Plan
- Appendix 5.6: Bat Survey Report 2019/2020

The applicant's further information received on the 29th of September 2023 included additional supporting information on the following:

- Impacts on blanket bogs
- Borrow pits and habitat loss
- Habitats map
- Habitat Enhancement Plan

- Impact on ialtóg leisler (Leisler's Bat)

11.8.2. **Issues Raised**

Submissions have been received from third parties and Cork County Council on the impact of the proposal on terrestrial ecology. In the first instance Cork County Council have raised concern with regard to the permanent loss of high value habitat including wet heath. The council do not consider the Habitat Enhancement Plan (HEP) will adequately mitigate against the effects on the habitats. It is recommended that permission is refused having regard to the impact on the habitats and the policies of the development plan, as stated below:

The proposed development would contravene materially development objectives BE 15-2 of the Cork County Development Plan 2022 the aim of which is to protect and where possible enhance areas of local biodiversity, ecological corridors and habitats that are features of the County's ecological network. The facilitation of this proposal would ultimately result in the loss of a significant area of Annex I Habitat at both County and National level. It is considered that the impact and assessment provided in relation to loss of habitats listed as Annex I Habitats under the Habitats Directive and habitats of high natural value has been significantly underestimated. This would contravene materially development objective ET 13-7 of the Cork County Development Plan which stated, "*commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on: Natura 2000 sites (SPA's and SAC's), Natural Heritage Areas (NHA's), proposed Natural Heritage Areas and other sites and locations of significant ecological value".*

Submissions from third parties have also raised concern on the impact on bats. It is considered the proposal will have a negative impact on the common pipistrelle as they are attracted to insects and the red lights around turbines. It is considered that Table 5.10 (survey in 2019-1021) does not fully consider the cumulative impact as the Cleanrath Wind Farm was constructed around this time. The impact on the ialtóg leisler (Leisler's Bat) was raised in the submission from the Department of Housing, Local Government and Heritage (DHLGH).

11.8.3. Evaluation of the EIAR

11.8.3.1. Context

The proposed development includes 14 No. turbines, one met mast and associated ancillary infrastructure in an upland location. Works are also required for the turbine delivery route and the grid connection route (c. 27.8km) which connects the proposal to the Ballyvouskill substation. The majority of the grid connection is proposed to be located along forest tracks (20km), public roads (6.km) and ESB access tracks (1km).

The Board requested additional information from the applicant in relation to the location of borrow pits, impact on blanket bog (Annex I habitat), the location of stockpiles and the habitat enhancement plan and habitat mapping. The applicant's response did not include any material alterations to the information contained in the EIAR or alter the findings. This is highlighted the further information response below, where relevant.

11.8.3.2. Baseline

Habitats: A survey of the site (walkover survey and aerial photography) has been undertaken and the loss of habitat removal quantified. The applicant's additional information supplements the EIAR with a habitat report and notes an error in the calculation of the size of borrow pit A as 2.63ha and not the 26.3ha originally stated.

The details of **habitats** proposed to be removed at the turbine and substation locations are detailed in Table 5.7 of the EIAR. Table 5.12 provides a summary of the main habitats occurring at turbine and substation locations as listed below. There will be a permeant loss of c. 40 ha of habitat on the wind farm site. No alterations to this table are proposed in the FI submission.

Main habitats within wind farm footprint	Area (ha)
Wet heath (HH3) dominated by *Molinia caerulea*	8.89
Mosaic of Wet heath (HH3) and Blanket Bog (PB2)	2.93

Mosaic of Wet heath (HH3), Dry heath (HH1) & Outcropping rock (ER1)	13.46
Mosaic of Wet grassland (GS4) and Wet heath (HH3)	2.80
Remnant uncut High Bog (PB2)	0.17
Semi-improved acid grassland (GS3)	0.20
Improved / semi-improved agricultural grassland (GA1)	2.20
Conifer plantation (WD4)	8.70
Immature Conifer plantation (WD4)	0.85

It is concluded that **wet heath** is the principal habitat affected by the wind farm location. A total of c. 28ha will be lost with a total resource estimated at 404 ha (including other associated habitats).

EIAR Section 5.3.6.1 refers to the location of **blanket bog** on the southern half of the wind farm site. It is considered there are no extensive sections of blanket bog with small pockets throughout. It is noted that blanket bog has an Annex I designation while active blanket bog has priority status. Some of the blanket bog on the wind farm site can be considered as active although has a low representation and is given an overall rating of local importance (higher clause). The updated **habitat report**[3] includes a detailed map of the current mosaic of habitat with the proposed development overlaid, which includes an in-depth analysis below.

The habitat loss along the **grid connection** is minimised by the use of existing roads and tracks for the connection. Some areas of wet heath and cutover bog are identified along the grid connection. The legally protected species *Filago minima* (Least cudweed) is recorded at two locations along the grid connection.

In relation to the impact on **designated sites**, a list of European and national designated sites within 15km of the site is included. There are 14 proposed Natural

[3] Response to request for further information: September 2023

Heritage Areas (pNHA)[4], of which seven have substantial separation distances or no ecological/ hydrological links. The closest pNHA to the site is located 8.65km from the wind farm site although 41m from the grid connection route (Killarney National Park, Macgillycuddy's Reeks & Caragh River Catchment pNHA). Of those seven pNHA with ecological/hydrological links to the site most are also European Designated sites apart from the Lough Allua pNHA. The planning application is accompanied by a Natura Impact Statement (NIS), as detailed below in Section 12.0. The following important designated sites have been identified in the EIAR as having a potential hydrological link to the site:

Designated site	Location	Hydrological Connection	Potential Impact
Killarney National Park, Macgillycuddy's Reeks & Caragh River Catchment pNHA –	Located c. 41m from the grid connection route at its nearest.	Ground water connection due to separation distance.	Risk of contaminants generated from site flowing into designated site during construction/ decommissioning.
Lough Allua pNHA	Located south of the wind farm site, where the River Lee enters Lough Allua.	The main River Lee channel runs between the western part of the wind farm and Lough Allua.	Risk of contaminants generated from site flowing into designated site during construction/ decommissioning.
The Gearagh pNHA	Located downstream from Lough Allua.	Hydrological link with the River Lee. Lough Allua which flows into The Gearagh.	As per above and impacts on water quality.

[4] Three of which are no longer proposed and have been designated.

St. Gobnet's Wood pNHA	Located northeast of the wind farm site.	Wind farm drains form the north to the Sullane River and linked by a channel.	As per above.

A **Habitat Enhancement Plan (HEP)** is proposed to enhance and extend the wet health and blanket bog and create an open corridor for wildlife through connecting bog/heath to the north and south. Details in Appendix 5.5 indicate an area of 9.5ha around T4. The HEP includes the removal of planted trees and self-seeded trees and block all drains to allow reestablishment and enhance bog, health habitats.

Species.

Bats

Appendix 5.3 includes an Ecobat tool, Appendix 5.4 details the raw data used for the Ecobat Tool and Appendix 5.6 details a bat survey undertaken between 2019-1020 on the site.

A 2km zone was used in the assessment with other known bat records within 4km and designated sites within 15km taken into near each turbine with reasons given for the location of each detector (Table 5.9). All trees and structures were assessed for potential bat roosts. Bat detectors were placed near each turbine with reasons given for the location of each detector (Table 5.9).

Four species were recorded during the bat activity survey (May to September 2019):

- Common pipistrelle (most frequent)
- Soprano pipistrelle
- Leisler's bat
- Natterer's bat (least frequent)

12 species were recorded from the static recordings in 2019 and 2021.

- Brown long-eared bat

- Common pipistrelle (most common)
- Daubenton's bat
- Leisler's bat
- Lesser horseshoe bat
- Nathusius' pipistrelle
- Natterer's bat
- Soprano pipistrelle
- Whiskered bat
- 40 kHz Pipistrelle
- Daubenton's bat (Myotis daubentonii)
- Whiskered / Daubenton's bat (least common)

Table 5.8 details the bats and species recorded within a 5km radius of the site.

Other Species

The **Kerry Slug** was recorded on the wind farm site during all the site inspections. Most commonly found during hand searches at exposed rock locations within wet heath. A total of 6 individual slugs were recorded, 62 from hand searches. The Kerry slug (Geomalacus maculosus) is protected by the Wildlife (Amendment) Act 2000 and is listed under Annex II and Annex IV of the Habitats Directive.

A search for the **badger** was undertaken. This was restricted with the commercial plantations and access through dense conifer plantations. There was no evidence of any presence however could be present in the forestry. It is not considered there is any suitable habitat to support the otter. The Irish Hare and Sika deer are known to be widespread on the site.

11.8.3.3. **Likely Potential Effects**

The EIAR sets out the likely potential effects on species and habitats. The impacts on aquatic species are further detailed below in section 11.20. In general, the

impacts of construction will have the greatest effect on the habitats, including the permanent loss of wet heath/bog. The effects of the proposed development on species will be present during construction and operation, including the removal of vegetation, movement of construction traffic and the operation of turbines.

Summary of Potential Effects on terrestrial ecology

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• No alteration to habitats or species
Construction	Habitats • The main impacts from construction relate to the removal of habitat. The effects of 28ha of wet health (including a mosaic of dry health, outcropping rock and blanket bog) are considered significant and permanent. • The potential pollution of water course from sedimentation and pollutants in the surface runoff and through groundwater. Species • Potential for permeant and significant effects on the Kerry Slug during construction. • Overall moderate risk for Soprano Pipistrelle and Leisler's bat and a high overall collision risk for Common Pipistrelle • The removal of conifer plantations will negatively impact bat roosts. Two were located during the surveys which are not planned to be removed. There will be no impact on buildings or bridges.
Operation	Species • Loss of commuting/foraging habitat for bat populations • The creation of habitats along the grid connection will have a long term positive effect for bats. • Impact on foraging/commuting bats due to artificial lighting.

Decommissioning	Similar effects on the habitats and species from the decommissioning of the turbine
Cumulative	• Consideration of 32 wind farms within a 20km radius of the site. • Further loss of peatland habitat is not considered significant due to the scale of bog habitats in the southwest region of Ireland.

11.8.3.4. **Mitigation**

Appendix F of the applicant's response to the Board FI request includes a schedule of ecological mitigation measures. This was updated to reflect the alterations in the FI relating to a reducing in the permeant loss of habitat on the site (from 40.2ha to 30 PROVha) and the reference to the borrow pit as 2.63 ha rather than 26.3ha. The area of H4010 wet heath that will be lost due to the proposed wind farm was reduced from 28ha to 17.5ha following additional survey work in 2023. The following mitigation measure are specifically refence to reduce and/or remove the effects on terrestrial ecology.

Habitats

- Preconstruction surveys to map the tracks during the summer.
- Mitigation for the loss of habitat, c. 30ha is proposed in the form of a Habitat Enhancement Plan (HEP).
- A pre-construction survey will take place to map the distribution of the *Filago minima* (Least cudweed) distribution along grid connection tracks in the summer before construction commences. Should the plant occur across an entire width of track, a licence will by sought from NPWS to remove the plants from the required work area and to transplant to a suitable location elsewhere
- Upon removal the reuse of heath and bog will be planned, either storage and reuse around the turbine and hardstand or immediate reuse along the road margins. Care will be taken to ensure the "turves" are intact, under the supervision of an ECoW and all reinstatement will be supervised.

- Turves will be used to revegetate the area.
- Vegetation recovery will be monitored

Species

- Survey for presence of **badgers** before tree felling, preferably around October to March when vegetation cover is low. Use of a buffer zone if a sett is located. If a sett is located and requires closure this will be undertaken in compliance with NPWS requirements. If more than 2 years has passed since the 2021 baseline survey a further survey will be undertaken.
- Presence of **frog** spawn, tadpole and adult frogs assessed and removed under licence from NPWS if necessary.
- In relation to **bats** the following mitigation measures apply:
    - The use of artificial lighting during construction will be restricted and if used designed to reduce any negative impact.
    - A buffer of 100 m from blade tip to forestry edge for turbines 3, 4, 5 and 10 will be included as these are based within conifer plantation.
    - All mature broadleaf trees assessed for host bat roost and reassessed before any felling.
    - Increasing the cut-in speed above that set by the manufacturer can reduce the potential for bat/turbine collisions and is proposed at T1, T3, T6, T8, T9, T10, T11, T12 & T13 (high activity during the baseline surveys).
    - Buffers of 100m from blade tip to forestry edge for turbines T3, T4, T5 and T10. All other turbines require a set back from woodland, treeline, scrub or hedge of 110m.
    - If planning stage lapse between in 2019 survey, one full season survey will be undertaken.

- All turbines will enact a feathering[5] protocol when wind speeds are below the cut-in speed of the turbine.

- Area of suitable habitat for the **Kerry Slug** will be avoided, outside the construction. Areas of suitable habitat will be checked by the ECoW before works, particularly in weather, and the slug will be transferred to a suitable habitat (subject to a derogation licence).
- An ECoW will supervise areas where vegetation, scrub and hedgerow removal will occur prior to and during construction and will be independent of the Contractor.

11.8.3.5. **Residual Effects**

With mitigation measures in place, the predicted effect on designated sites and water quality is not significant. With the Habitat Enhancement Plan implemented in full, the predicted effect on habitats is moderate residual long term and negative. With mitigation measure in place, the effect on the bat population is slight to imperceptible residual and negative. No effect on the Kerry Slug is predicted.

11.8.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

The key issues raised in the submissions relate, in the most part, to the impact on the ecologically important habitats and bats. My evaluation below, provides a response to the issues raised and evaluates other potential direct and indirect effects. It should be noted that the impact on aquatic ecology is assessed in Section 11.20 below, and the impact on European Designated Sites in Section 12.0 below. In both assessments it has been concluded that the proposed development is not likely to have any significant negative impact on either the water quality (when considering mitigations) or any conservation objectives of any European Site.

11.8.4.1. **Habitats**

[5] Feathering entails pitching turbine blades at 90 degrees or parallel to wind to reduce their rotation speed while idling to below two revolutions per minute.

Impact on blanket bog: The Board's further information request queried the level of impact on both blanket bog (Annex I habitat H7130) and active blanket bog (priority status H7130*). The applicant's response confirmed that the site was located outside a SAC and referred the Board to the Habitat Condition Report (AECOM, 2023) and the detailed survey[6] on the location of both habitats relative to the works proposed for the wind farm. This information clearly shows the location of the Annex I habitats H7130 Blanket bog and H7130* priority Blanket bog. The applicant's ecologist has determined that priority H7130* is considered 'active' bog, and non-priority H7130 inactive bog, based on the presence or absence of key peat-forming species respectively. It is stated that the number of mapped patches of H7130/H7130* within the wind farm site is considered small (0.8ha and 1.71 ha). In addition, having regard to the guidance for assessing the condition of habitats the applicant has classified it as poor condition as the blanket bog is lacking peat forming species. The majority of effects on the H7130/H7130* habitats are curtailed to the works around T3.

Upon site inspection, it was noted that there is a wide range of habitats present, many of which have already been impacted by peat cutting, overgrazing, dumping etc. It is considered the applicant's detailed habitat survey report, and associated maps, allow an in-depth analysis of the scale of blanket bog removal and the importance of these effects. Section 5.3.6 of the EIAR classified the representation of blanket bog on the site as local importance. Having regard to the additional information, it is considered that there is sufficient information to concur with this classification.

The Board will note the submission received from Cork County Council recommended a refusal of permission having regard to the *"loss of a significant area of Annex 1 Habitat at both County and National level"*. Due to Cork County Council's classification of the impacts on a county and national level they consider the proposal materially contravenes materially development objective ET 13-7 of the Cork County Development Plan which stated, "*commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts*

[6] Response to request for further information: September 2023 Appendix C- Gortyrahilly Wind Farm Annex 1 Habitat Condition Report

on: Natura 2000 sites (SPA's and SAC's), Natural Heritage Areas (NHA's), proposed Natural Heritage Areas and other sites and locations of significant ecological value".

As stated above, the applicant's classification of the value of the habitats on site is considered acceptable. The applicant has had regard to national guidance and in-depth survey and analysis of the existing habitats in determining this classification. Having regard to this information, it is noted considered the proposed development would have an adverse impact on any locations of significant ecological value and therefore the proposal does not represent a material contravention of objective ET 13-7 of the development plan.

Cork County Council also raised concerns on the absence of any quantification or assessment of direct impacts on other Annex I habitats outside the wind farms have been include in the EIAR. It is thought that the amount of EU Annex I habitats has been underestimated and as the overall status of some of these habitats are "unfavourable-bad" the impact is of national importance. The cumulative impacts in the EIAR has regard to the 32 wind farms within the 20km radius of the site are noted. Although it is noted that the proposal will contribute to the loss of peatland habitats, the significance of effects is considered low considering the frequency of heath in the southwest regional of Ireland. It is further noted in section 5.4.10 of the EIAR that there are no pathways or in-combination effects with other plans or projects which would give rise to cumulative effects. Having regard to the scale of proposal and the applicant's assessment of the cumulative impact, it is considered that there is sufficient information to conclude that the proposal will not have a direct or indirect impact on other Annex I habitats outside the wind farm site.

Impact on the H7150 Depressions on peat substrates of the *Rhynchosporion*: The applicant's response to the FI request included an updated condition survey which notes the presence of Annex I habitat H7150 Depressions on peat substrates of the *Rhynchosporion* during the survey. The condition notes the loss of c. 1-2 m^2 of this habitat turbine T2. It also notes the condition of the habitat at poor, due to insufficiency of white beak-sedge and overabundance of deergrass *Trichophorum germanicum.* Any other Annex I habitat H7150 in good condition will not be affected

by the proposed development. The condition survey has been assessed, and it is considered the proposed development will not have a significant negative impact on the presence and range of Annex I habitat H7150 Depressions on peat substrates of the *Rhynchosporion.*

Impact on the Oak-birch-holly woodland (WN1): Cork County Council submission requested that the access road was relocated away from Oak-birch-holly woodland and all internal road network should be relocated to areas of low value. The Board's request for further information required the applicant to clearly illustrate the area of Oak-birch-holly woodland (WN1) along with an overlay of the proposed works. The applicant's response includes a separate map in Appendix D of the revised habitat survey and report which shows that the access track almost entirely avoids this woodland with a total of 30m^2 being lost out of a total of 14,021m^2.

The EIAR notes the example of this habitat on site as local importance (higher value). The location of the Oak-birch-holly woodland to be removed, at the corner of the larger habitat area is noted, which is considered will prevent any fragmentation of this habitat. It is considered that the impact, whilst permanent will not have a significant negative impact on an Annex I habitat.

Mitigation Measures: Cork County Council do not consider the use of the Habitat Enhancement Plan can be used to reduce the impact of the habitat removal to a moderate effect. The permeant loss of wet heath habitats has been detailed in the FI submission as c. 17.5ha. The HEP includes the enhancement of 9.5ha of afforested area as wet heath, bog. Whilst the 9.5ha included in the HEP falls short of the 17.5ha removed in the first instance, other mitigation measures are noted, which include the reuse of cut our bog or "turves" along the road margins and around the turbines. These areas will be monitored to ensure sufficient revegetation. Although these areas have not been quantified, having regard to the scale of the works and mitigation measures, the EIAR concludes on the effects as moderate residual long term negative effect which is considered acceptable.

Conclusion: The proposed development includes the removal of c.30 ha of habitat of which there are c. 17.5 ha of wet heath and/or bog habitat included. The

applicants condition survey notes the presence of Annex I H7130/H7130* and H7150 on the site of which some will be affected by the proposed development. The applicant's condition survey provides a detailed analysis of the condition of these habitats and concludes that the majority of these are located within mosaics of habitats and in poor condition. The survey and the expertise of the surveyors is noted, and it is considered that the removal of this habitat will have no significant effect on the overall network of Annex I habitat at a European Level or a local level. The applicant's conclusion that the proposed development would have a moderate effect on the habitats rather than a significant effect as indicated by Cork County Council is considered acceptable. In reaching this conclusion regard has been given to the delivery of mitigation measures proposed, including the Habitat Enhancement Plan.

No significant vegetation removal is proposed for the grid connection route which will be within the public road verge or within existing forestry tracks for the majority of the route. Identified widening of the local roads as part of the turbine delivery route will take place within the verge as detailed within Appendix 15.1, and that mainly pruning and trimming of vegetation will be required. A couple of trees have been identified for removal and no hedgerow removal has been identified. Having travelled the local roads for the turbine delivery route, it is noted that there is generally a wide road verge present along the route, and this is overhung by vegetation in places. It is considered that mainly vegetation pruning will be required and that proposed mitigation measures as summarised in Appendix 17.1 will ensure no significant effect on habitat and species.

Impact on Bats: Submissions from third parties have raised concern that the proposed development will have a negative impact on bats. It is considered the common pipistrelle is attracted to the turbines due to insects around the red lights. In addition, a survey undertaken in 2019-2021 has not fully considered the cumulative impact of the Cleanrath Wind Farm. The impact on the ialtóg leisler (Leisler's Bat) was raised in the submission from the DHLGH.

The findings of the EIA have been informed by bat surveys carried out by skilled bat specialist and considers the best practice guidance for assessing the impact of wind farms on bats. The Zone of Influence (ZoI) considers the impact of the construction activities of up to 2km to ensure the impact on bats is fully considered. Bat surveys were undertaken in 2019/2020 with additional work in 2021.

The surveys indicate that seven of the ten species in Ireland are located within a 4km of the site surveys, i.e. the use of bat detectors at each turbine location, nine species of bat were recorded at the Gortyrahilly site, with a total of 28,953 recordings over the 33 nights of surveys18. The most commonly recorded species was common pipistrelle, followed by soprano pipistrelle and Nathusius' pipistrelle. Having regard to this information the applicants bat landscape association model (Lundy et al., 2011) concludes that the subject site and the associated landscape is of low to moderate suitability for bats.

In relation to the impact on **bat roosts,** the EIAR includes details of all areas surveyed, including potential habitats and building and structures within the study area. The survey concluded that there was evidence of bat roosts at three locations in the study area. The EIAR notes one species has been recorded as roosting c. 2.1km to the north-east of the proposed sites (brown long-eared bat), although not within the study area. The bat roost inspection survey notes two trees which have potential for roost. The emergence survey noted potential bat roosts at two locations. A disused house Dwelling G1 at Gortyrahilly supports minor summer roosts is likely a small group of males and a dwelling C2 at Cahernacaha supports a common and soprano pipistrelle maternity roost. No works are proposed to these buildings and associated linear features and roosts will remain unaffected by the proposed development. There will be no loss of tree roosting potential.

Those European sites with the Lesser Horseshoe Bat listed as a species of special interest.

- Killarney National Park, Macgillycuddy's Reeks & Caragh River Catchment SAC (site code 000365)
- Glanlough Woods SAC (site code: 002315)

- Kilgarvan Ice House SAC (site code 000364) (also a pNHA)
- Old Domestic Building, Curraglass Wood SAC (site code 002041) (also a pNHA)

The assessment concludes that the European sites, listed above, are located greater than the normal distance that foraging lesser horse-shoe bats and normal foraging bats would normally fly. This assessment is based on scientific evidence by experts who have specialist knowledge. Having regard to the location of the site from the European Sites and the information in the EIAR, which is considered reasonable, it is not considered the proposal will have a significant negative impact on the bat species within the European Sites,

Table 5.13 of the EIAR indicates that there will be an overall moderate risk for Soprano Pipistrelle and Leisler's bat and a high overall collision risk for Common Pipistrelle. With the inclusion of mitigation measures including a restriction on artificial lighting, design of luminaire to direct to the intended area only and restriction of construction operations during the daytime, there is no likely impact on commuting or foraging bats. The proposal will have no impact on any roosting sites.

The impact on the ialtóg leisler (Leisler's Bat) was addressed in the applicant's FI submission. The applicant noted that the submission requested verification as to how the implementation of higher cut-in speeds of these turbines (a mitigation measure). The applicant notes that the turbine related cut-offs can be controlled by the operators of the wind farm and usually set for 30 minutes before sunset. This is similar to the shadow flicker shut off system which is international considered to be an effective system. The information includes a record system of those dates and times of curtailment/shut down implemented to minimise effects on Leisler's bat. It is considered that these proposed mitigation measures can adequately prevent any significant negative impact on the ialtóg leisler (Leisler's Bat) and can be in included as a standard condition on any grant of permission.

In relation to the observation that the cumulative impact of the Cleanrath Wind Farm was not fully considered, the results of the bat surveys in the Cleanrath Wind Farm

have been considered (Ref: PL04.246742) with no bat roosts in this study area. This wind farm is located c. 6km to the east of the proposed wind farm at Gortyrahilly.

Having regard to the information in the EIAR and the applicant's FI response, of which has been undertaken by relevant experts, and the mitigation measures proposed to prevent any increase in bat activity on the site, it is considered the proposed development would not have any significant negative direct or indirect effects on bats.

Impact on other species: The information in the EIAR notes the presence and potential effects of the wind farm on other species, including the Kerry Slug, which is a protected species. Aside from specific refence to bats, no concerns were raised by Council, prescribed bodies or third parties with regard effects on other species. It is noted that there will be no significant effect, following the implementation of mitigation measures, on any other species is predicted. Regard has been given to the information in the EIAR and those mitigation measures, it is considered that the proposed development will not cause any significant effects on species on site, or in the vicinity.

Hydrology: Impact on water quality, hydrologically connected and sensitive sites has been addressed in detail within the hydrology, aquatic ecology and the Appropriate Assessment. This section of the EIAR highlights four sites which are hydrologically connected to the subject site. The location of these nationally protected sites (listed below), also designated for European protection, it noted and detailed throughout the EIAR, where relevant.

- Killarney National Park, Macgillycuddy's Reeks & Caragh River Catchment pNHA
- Lough Allua pNHA
- The Gearagh pNHA
- St. Gobnet's Wood pNHA

It has been concluded that having regard to either the distance of the site and/ or mitigation measures, the proposed development will not have a significant effect on

the water quality, water dependent habitats or species of interest in any of the above nationally protected sites or European Site.

National Biodiversity Action Plan (NBAP) 2023-2030: The NBAP has been adopted nationally since the EIAR was submitted. The NBAP includes five strategic objectives aimed at addressing new and emerging issues associated with biodiversity loss. Section 59B (1) of the Wildlife (Amendment) Act 2000 (as amended) requires the Board, as a public body, to have regard to the objectives and targets of the NBAP in the performance of its functions, to the extent that they may affect or relate to the functions of the Board. The impact of development on biodiversity, including species and habitats, can be assessed at both a European, National and Local Level and has been taken into account in my assessment, having regard to Habitats and Birds Directives, Environmental Impact Assessment Directive and Water Framework Directive, and other relevant legislation, strategy and policy where applicable throughout my assessments.

11.8.5. Conclusion: Direct and Indirect Effects

The planning authority, prescribed bodies, the observations received from members of the public, are considered in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that potential effects on terrestrial ecology including the removal of habitats would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. It is considered that the proposed development would not have any unacceptable direct, indirect or cumulative effects on the terrestrial ecology.

11.9. Ornithology

11.9.1. Introduction

Chapter 7 deals with Ornithology. The information in Chapter 7 is linked with bird surveys dating back to 2017 and is recorded in Appendices 7.1 to 7.19 of the EIAR (Volume IV). The study area includes the site and extends out to 10km to represent

a “flight activity study area” (FASA). A collision Risk Modelling Report (CRM) is detailed in Appendix 7.17 of the EIAR.

11.9.2. **Issues Raised**

The NPWS made a submission in relation to the proposed development with the main areas of concern highlighted as potential impact on the White-Tailed Sea Eagle, Merlin, Golden Plover, Barn Owl and the Red Grouse as summarised below:

- White-Tailed Sea Eagle has recently been reintroduced to Ireland. Three deaths have been recorded in Ireland between 2007-2014 (within 6km from the site). It is important that there is a prompt removal of carcasses and avoid the siting of turbines on ridges above valleys (T1, T2, T7, T10 and T12 appear to be on the top of ridges).
- The area is used by Merlin. The EIAR does not assess some indirect effects on the Merlin. Further information should be sought on the disturbance displacement of breeding Merlin, the drying out of hunting habitat and the habitat loss. The adverse residual effect should be established particular from T13 and T14.
- The impact on the Golden Plover has not been assessed in the in-combination assessment.
- The Barn Owl has not been considered in the EIAR.

The Ecology Section of Cork County Council are concerned the reduction in available habitat and intensification of the wind farm development will have a negative impact on the Hen Harrier and Golden Plover. The Board should request a more detailed assessment regarding the barrier effect of the turbines on species such as Golden Plover and Whooper Swans. Cork County Council noted the Habitat Enhancement Plan will mitigate for some loss of breeding habitat although did not consider the carrying capacity of 28ha of existing good quality peatland habitat is equivalent to 9.5ha of afforested peatland which is proposed to be restored.

Submissions to the proposed development have also raised concern in relation to the impacts on eagles which have been seen in the area.

11.9.3. Evaluation of the EIAR

11.9.3.1. Context

The wind farm site is located in an upland location with elevations ranging between c. 230 to 423m Above Ordnance Datum (AOD). The study area for the purposes of ornithology extends c. 10km from the site boundary to include hinterland areas.

As discussed below, the applicant submitted additional information as a response to the issues raised in the NPWS and Cork County Council submissions. This additional information did not include any alterations to the survey results of in Chapter 7 of the EIAR.

11.9.3.2. Baseline

The surveys carried out comprised of the following with the surveys explained in detail in the EAIR:

- Flight Activity (Vantage Point) Surveys
- Breeding Moorland Survey
- Breeding & Winter Bird Transect Survey
- Hinterland Survey
- Merlin Survey
- Red grouse Survey

During breeding season, the Kestrel is the most frequently recorded species in the summer months. Sparrowhawk was a scarce species. Merlin was recorded during vantage point watches only in summer 2018. A single Peregrine was observed in May 2021 and Buzzards recorded in summer 2020. A flock of Golden Plover was recorded on 16th of April 2021 and the Lesser Black-backed Gull three times over the summer of 2020.

During the non-breeding season Kestrel was reordered on and off the site during the winter surveys, Sparrowhawk occasionally during the winter and Merlin was recorded in Winter 2017/18 and 2018/19. One Peregrine was observed on one occasion. The Hen Harrier was recorded on site in each of the three winter surveys (10 observations over 5 dates in 2017/18, 2 observations in 2018/19 and 4 in 2020/21). It appears the Hen Harrier is an occasional visitor and does not roost on the site. Golden Plover and Cough were also recorded.

No breeding waders were recorded although the Snipe was recorded drumming in wet heath. There was a pair of Merlin in the vicinity (VP6) but not on site.

11.9.3.3. **Likely Potential Effects**

Summary of potential impacts on Bird Species recorded on the site.

Species	Conservation Status	Recorded Location	Potential Impact
Red Grouse	Red List	Present throughout the site Breed and forage on the site	Significant amount of available habitat on the site and within the vicinity therefore no significant threat. Potential disturbance on breeding birds during construction due to the vehicle track establishment. Significant adverse effect- short term.
White-Tailed Sea Eagle	Annex I Red List	5 occasions during winter in hinterlands, twice on site. Presence in the wider area.	Potential collision risk with turbines.

Whooper Swan	Annex I	Identified during the winter across three of the hinterland survey areas	Wetland Bird no impacts identified
Hen Harrier	Annex I Amber list	Recorded on site during the winter survey. Possibility foraging or just flying. No evidence of roosting on site. Breeding in the surrounding SPA with closest distance of the cable route at 170m.	Potential disturbance on breeding birds during construction (only the grid connection). Significant Adverse Effect short term duration. Potential collision risk with turbines.
Peregrine Falcon	Annex I	Single falcon recorded on site in 2017/28 and off site in May 2020 and 2021.	Potential collision risk with turbine although does not generally fly as high as the height of the rotor sweep of turbine.
Merlin	Annex I	Present during the Summer 2018 and Winter 2017/18 and 2018/19 No evidence of breeding merlin during focused merlin surveys.	Potential disturbance on breeding birds during construction. Potential collision risk with turbines.
Golden Plover	Annex I Red List	Present during the winter surveys in 2017/18 and 2018/19. Winter records show concentrations in the north-west sector.	Potential collision risk with turbines. Significance is long term Moderate Negative (potential significant long term declined)

		Occasional visitor at times of spring and autumn migration.	
Kestrel	Red List	Present in summer and winter. Level of activity indicates breeding territory in the vicinity. Utilises the site on a regular basis for hunting.	Significant amount of available habitat (wet heath) therefore no significant threat. Potential collision risk with turbines.
Snipe	Red List	At least one pair recorded in 2021. Wet heath considered suitable supporting habitat. Breed and forage on the site.	Significant amount of available habitat (wet heath) therefore no significant threat. Potential disturbance on breeding birds during construction/decommissioning. Slight Adverse Effect of short term duration. Potential for displacement due to turbine location although will use habitats elsewhere (long term effect).
Curlew	Red List	Curlew were recorded during winter vantage point surveys in 2018/2019	None identified
Lesser Black-backed Gull	Amber List	Recorded during summer vantage surveys in 2017 and 2020.	None identified

		Forage occasionally on farmland surrounding.	
Chough	Annex I Amber List	Observed primarily during winter vantage point surveys in 2017/18 and March 2019. Occasional visitor to the site.	Potential collision with turbines.
Grey Wagtail	Red List	Considered to be breeding on site or along streams downstream.	None Identified
Meadow Pit	Red List	Breed and forage on the site.	Significant amount of available habitat (wet heath) therefore no significant threat.

Based on the use of the site it is considered the impact of the turbines on the bird species is of County Importance. The site has not been identified as a migration route for any wetland species or birds of prey.

Collision Risk Modelling (CRM) has assessed all those turbine parameters. (Appendix 7.17), species of conservation importance identified as being potentially at some risks of collision are White-tailed Sea Eagle, Hen Harrier, Sparrowhawk, Kestrel, Peregrine, Merlin and Golden Plover. The CRM includes the parameters for the three proposed turbine models for the proposed wind farm. The risk of collision for the Kestrel, Sparrowhawk, Hen Harrier, Merlin, Peregrine, Golden Plover and White-tailed Sea Eagle are modelled against the three turbine designs using the results the four vantage point locations (VP6, VP7, VP8 and VP9). The collision probability was based on the best practice guidance (Scottish Natural Heritage (SNH)/Nature Scot[7]). No significant difference in collision rates were identified for each of the species between the three turbine types.

[7] Wind farm impacts on birds - Calculating the probability of collision | NatureScot

11.9.7.1. **Mitigation**

Mitigation only proposed for those which will be disturbed, i.e., Red Grouse, Snipe, Merlin, Hen Harrier and White-tailed Sea Eagle:

- Construction works undertaken outside the breeding season.
- Use of good practice measures to reduce the damage of nests.
- Habitat Enhancement Plan for bird species associated with peatland habitats (including Red Grouse and Meadow Pit)
- Works along the grid connection will be restricted to a period outside the breeding season.
- Should any species have been recorded breeding a 500m buffer zone will be established around the expected location.
- Programme in place to remove any dead carcasses from the site on a weekly basis.
- Bird Monitoring undertaken by a qualified ornithologist.
- In addition to the list of mitigation measures included in Appendix 17.1 specific for reducing impacts on the birds, the EIAR notes those mitigation measures in the CEMP in Appendix 2.1 which includes mitigation for emergency spillage, surface water waste and traffic management.

11.9.8. **Cumulative**

- There are 32 wind farms within a 20km of the proposed development.
- 21 wind farms are operational (182 turbines), 9 are permitted (49 turbines) and 2 are proposed (23 turbines).
- Most of the closest turbine are clustered to the west and north of the site.

11.9.8.1. **Residual Impacts and Summary of Impact.**

No residual impacts are identified in the EIAR. With the full implementation of mitigation measures, the significance of impacts from construction on birds because of the proposed development will range from Imperceptible to Moderate adverse effects. The impact from the operational development of the wind farm, with mitigation in place has regard to the cumulative impact of the other wind farms in the vicinity and the effects are predicted to range from Slight adverse (White-tailed Sea Eagle, Kestrel, Merlin, Chough) to Moderate adverse (Golden Plover).

No impacts on any migrating species or local wetland bird species have been identified.

11.9.9. Analysis, Evaluation and Assessment: Direct and Indirect Effects

11.9.9.1. Further Information Response

On foot of the NPWS submission and the Cork County submission the Board requested the submission of additional information in relation to the impact on the following issues and species:

- Impacts on raptors.
- Impact on Merlin, disturbance and displacement for the hunting habitat.
- Impacts on wintering birds (barrier effects and cumulative impacts) including the Golden Plover and the Whooper Swan.
- Impacts on the recently introduced White-tailed Sea eagle population and management of carron (dead sheep) at the wind farm site.
- Barn Owl records for the area.
- Impacts on breeding Red Grouse from increased accessibility of the site, greater fox predation and disturbance from humans, shooting and movement off road vehicles.
- Impact on Leisler's Bat (further discussed in Section 11.18 above).

The applicant's submission has been reviewed by the Board's Ecologist, as attached to this report. This report notes the professional qualifications of the author of Chapter 7 and the additional information, and the scientific information submitted, which is both considered reasonable to undertake an assessment of the impact of the wind farm on the birds.

In general, the potential impacts are the habitat loss including loss of breeding habitat, disturbance to breeding birds and nest damage or destruction. The potential impacts identified during the operation include collision, direct mortality, displacement and barrier effects. As noted above, the applicant's response to the further information on ornithology has been summarised in Section 8.3.9 and 8.3.10. Table 1 of the Inspectorate's Ecologist Report includes a review of the DHLGH submission, further information request and the applicant's response and consideration of adequacy of response for the purpose of EIA. The Board will note the following conclusions by the Board's Ecologist:

Impact on breeding Merlin

- It has been accepted that the Merlin is not in high-risk collision category (estimated 0.025 collisions/year) and the effect from collision would be slight, negative and long term.
- The undertaking of construction works more than 500m from any potential hunting habitat has been proven as a mitigation measure. In scientific literature, against the disturbance and displacement from hunting habitat and the works are not considered to have a significant effect.
- The effect of drying out peatland on the availability of hunting habitat has been studied and it is accepted that any localised drying effect will not significantly change the hunting habitat for the Merlin.
- Although there is some evidence of burning between T8 and T9 there is no data on extensive burning and any burning is to be prohibited by the wind farm operator which will have a positive effect for ground nesting breeding bird.

Impacts on wintering Golden Plover

- The applicant's review of the CRM of other turbines is valid, if a somewhat crude estimation. It is acknowledged that using the All-Ireland population estimate may underestimate the cumulative local or regional effects on the wintering Golden Plover although the long term moderate negative effect is considered a reasonable estimate.
- The cumulative impacts on the Golden Plover for collision have adequately addressed by the applicant and conclusion accepted.

Impact on the Whooper Swan

- The migrating birds will fly at heights greater than the turbines and there are no wetland sites within a 20km radius to support these species.
- The applicant's response, which considers the available baseline information, is considered acceptable and it is reasonable to exclude barrier effects of the turbines based on this evidence.

Impact on White-tailed Sea Eagle

- The removal of sheep carcasses has been a proven technique to reduce the attract of White-tailed Sea Eagles. The use of drones and weekly searches during the operation of the wind farm is an acceptable mitigation measure.
- There is sufficient justification in the applicant's submission as evidence that the suggested modelling by the NPWS is not suitable in the Gortyrahilly context.
- The scare and infrequent nature of the White-tailed Sea Eagle combined with the characteristics of the species which are highly mobile, indicates that there is a degree of uncertainty regarding this species and its range as part of the of the reintroduction programme.

Impact on the Barn Owl

- The applicant's response to the NPWS submission is considered acceptable and based on scientific justification for the lack of habitat suitability.

- The Board will note the applicant stated that the breeding record of the Barn Owl between 2008-11 was not considered during the survey as there were no habitats on the site which are used regularly by the Barn Owl. There was no evidence of any barn owl presence in the study area during any of the baseline surveys.

Impact on the Red Grouse

- The applicant's response to the NPWS concerns is considered a reasonable response. The Board will note the response states that the impact on Red Grouse from fox predation is not considered significant as this species would not be the most important part of the diet of a local fox and human disturbance factors are not considered significant.

11.9.9.2. **Overall effect on a range of species**

The baseline surveys undertaken on the site have recorded a range of bird species using the site. The submission from the NPWS includes specific queries on certain species such as raptors, White-tailed Sea Eagle, Merline and wintering birds. The Board's ecologist response includes a detailed analysis of the applicant's further information submission although the Board should note that effects on the wider ornithology on the site and surrounding areas has also been assessed. Having regard to the information in the EIAR and associated appendices, it is considered that the proposal will not have a significant long term negative residual effect on the wider ornithology. In relation to those specific issues raised by the NPWS, the Board will note the Board's ecologist report in relation to this response and my further analysis below, which concludes no significant long term negative effects on these species.

In relation to the **Merlin**, it is considered that the applicant has adequately addressed the effects of activity on the site from the proposed development and having regard to specific mitigation measures such as prohibition of burning and buffer zones during construction, there will be no significant long term effect on the Merlin.

In relation to the **Whooper Swan**, as a wetland bird the only potential impacts from migration can be excluded as the site is not located on any identified migration route. It is considered that having regard to the information provided by the applicant as considered appropriate by the Board's ecologist that the proposed development would not have a significant negative impact on the Whooper Swan.

In relation to the **Red Grouse:** The EIAR refers to UK studies which indicate that although they are impacted during the construction phase, the Red Grouse has proven to recover the first year after operation. Red Grouse surveys are proposed in Years 1, 2, 3 and 5 of operation.

In relation to the impact on the **White-Tailed Sea Eagle**, the results of the EIAR indicate that the site is not a location for a high breeding density of eagles, therefore the use of modelling of uplift from high resolution remote sensing data to inform micro-siting of turbines (as suggested in the NPWS submission). Having regard to the siting of only one within a 24-month survey period (2017-2019) and the absence of any breeding or roosting habitats for this species, it is considered that the applicants response is sufficient to address concerns raised by the NPWS. The Board's ecologist report notes the applicant's response is informed using the best available scientific information and concludes the likely effects on the White-tailed Sea Eagle as a slight adverse effect.

In relation to the **Hen Harrier,** the EIAR notes the site is not located close to any breeding territory and the wind farm site is c. 5km with the connection grid passing 170m from the Mullaghanish to Musheramore Mountain SPA. Further analysis on the conservation objectives of this SPA is included in Section 12.0 below and it has been concluded that the proposed development would have no significant negative effect on this European Site. The applicant's further information submission does not include any additional analysis of effects on the Hen Harrier, and the impact on this species was not raised in the NPWS submission. The Board's ecologist report notes the reference to the Hen Harrier in the EIAR, and those mitigation measures comprising restricted work zones around identified nest areas and seasonal restrictions, which will reduce impacts to non-significant levels for these species.

Having regard to the information in the EIAR, undertaken by experts and considering best scientific evidence, It is considered that proposal will not have a significant negative impact on the Hen Harrier.

In relation to the **Golden Plover**, the information submitted by the applicant in relation to the in combination assessment and reference to an approximate number of collisions is considered acceptable. This estimation is based on a full suite of CRM for the proposed development, which is noted as acceptable by the Board's ecologist. Although this number of collisions appears high, it represents 0.27% of the All-Ireland wintering population of Golden Plover. Having regard to these estimates, it is considered that the proposed development will not have a significant long term effect on the Golden Plover.

11.9.9.3. **Loss of peatland habitat**

The loss of peatland habitat and the impact on the availability of suitable habitat has been raised by observations. The EIAR notes that peatland habitats support a certain bird species including Red Grouse, Snipe and Meadow Pipit (all Red listed), all of which breed and forage within the site. The disturbance of peatland habitats is expected to have an adverse effect on bird species such as the Red Grouse, although due to the range of suitable breeding habitat available, it is not expected that there is an adverse residual effect.

The Report of the Board's ecologist noted that the loss of 28ha of peatland habitat (reduced to 17.5ha following 2023 surveys, FI submission) from a total of 404ha would result in predicted slight adverse effect of long term duration but is not considered significant as it is a relatively small amount of available wet heath on the site and surrounding areas.

The Board will note the effect of the proposed development on the terrestrial ecology has been assessed above, in Section 11.18. It has been concluded that the removal of c.17.5ha of wet heath habitats would not have a significant negative direct or indirect effect on any European, national or local ecological network.

Having regard to the range of suitable breeding habitat which remains on the site, and within the wider vicinity, for bird species which breed or forage in the peatland habitat and the mitigation measures which include, not least, a Habitat Enhancement Plan, it is not considered that the loss of peatland habitat will have a significant negative effect.

11.9.9.4. **Design Flexibility of Turbines**

The CRM includes calculations for each of the three wind turbine models proposed. The CRM concludes that the range of design parameters for each of the turbine heights. The collision probability and the 30-year collision rates for each of the target species in the CRM does not vary considerably between each of the turbine types. It is considered that the applicant has fully considered the effects of the turbine flexibility on ornithology and there is no significant negative effect.

11.9.9.5. **Cumulative Impacts**

The cumulative effects addressed all the 32 wind farms within the 20km radius. Issues raised on the cumulative effects related to the potential displacement of Golden Plover and Whooper Swan due to impacts on suitable habitat and the redirection of birds to the site due to the location of other wind farms. Having regard to the applicant's response to the FI, which concludes that the proposed development will note result in any significant cumulative effect on ornithology, which has been based on the best scientific evidence, and the report of the Board's Ecologist, it is considered that the proposed development will not have any significant cumulative effects.

11.9.10. **Conclusion: Direct and Indirect Effects**

Chapter 7 of the EIAR has been examined, analysed, and evaluated along with the associated appendices. The submission of the planning authority, prescribed bodies, the observations received from members of the public, has been considered in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that potential effects on ornithology would be

avoided, managed and mitigated by the measures which form part of the proposed scheme and the proposed mitigation measures. It can be concluded that the proposed development would not have any unacceptable direct, indirect or cumulative effects on ornithology.

11.10. Aquatic Ecology

11.10.1. Introduction

Chapter 6 deals with aquatic ecology. This chapter is informed by Figures in EIAR Volume III and construction method statements within Appendix 2.1 Construction Environmental Management Plan (CEMP) and 2.6 Temporary Bridge Crossing Over Sullane River- Method Statement.

11.10.2. Issues Raised

The Ecology Section of Cork County consider those mitigation measures included in the EIAR look reasonable although consider the Board should ensure details of all instream works have been submitted in the EIAR. Mitigation measures, monitoring programmes and peat stability assessment should be resolved before a grant of permission. The composition of watercourse, morphology, hydrogeology and species composition should be looked at.

Cork County Council Chapter 6-Aquative Ecology

- The report of the ecology section has identified gaps in the data and considered additional details would be required.
- There is a lack of information on the potential impacts and effects the proposal has on sensitive aquatic species.
- Potential for the proposed development to give rise to negative effects on freshwater habitats and associated species.
- Potential for the proposed development to give rise to negative effects on population of protected species.

- Sensitive catchment of the Clydagh River and Sullane River, details of the environmental monitoring and surface water monitoring programme should be assessed and confirmed by a competent person.
- Turbidity monitoring should be conducted daily.
- Gap in data and a full assessment cannot be carried out.

Inland Fisheries Ireland: The submission from IFI outlines that the proposal should not negatively impact any fisheries or water quality. There is the potential for prevention of fish passage and the escapement of suspended solids to waters is noted. Waters should be protected in line with the WFD requirements. A condition requirement that works are undertaken in line with the IFI guidelines and other recommended conditions.

Observations to the application by members of the public have raised concerns that the proposal will damage the Rivers Lee and Sulán.

11.10.3. Evaluation of the EIAR

11.10.3.1. Context

The desktop study identifies sensitive species records within a 10 km. To inform the field survey work a Zone of Influence (ZOI) has been selected using potential hydrological connections from the site. Areas outside the catchment of the site were not surveyed including the catchments for the turbine delivery route and grid connection route. The EIAR references relevant survey guidance, methodology, standards, licence applications, date of surveys, and any location and assessment criteria informing the survey work.

A more in-depth discussion of water quality is provided in Chapter 9: Hydrology and Hydrogeology.

11.10.3.2. Baseline

The watercourses within the site are tributaries of Douglas River, Toon River and Abha Bhun Silinn. Douglas River flows into Sullane River which flows into Lee River

within the Inniscarra Reservoir. The two other rivers flow directly into Lee River. Freshwater Pearl Mussel records are noted on the Douglas c. 5km downstream of the site and c. 10km downstream on the River Toon (NPWS, 2020) (EIAR Figure 6.3). No works are proposed within a 65m buffer zone of watercourses within the site with exception for watercourse crossings. New watercourse crossings for the access tracks will be over minor headwater streams and clear span structures are proposed. Existing minor drains will require to be upgraded to accommodate the increased width of tracks, and some will need to be culverted. The borrow pit location is over 500m from the nearest watercourse.

The turbine delivery haul route will have a temporary crossing of the Sullane River just upstream of Ballyvourney. A temporary clear span bridge crossing is proposed for the Sullane River (See Appendix 2.6). A temporary crossing is noted to have been in the same location for the construction of Grousemount Wind Farm in 2018. The Sullane River is noted including at the location of the temporary bridge to be supporting populations of Freshwater Pearl Mussel, Atlantic salmon and Brown trout.

The grid connection route follows the Clydagh River and crosses a number of its tributaries. The Clydagh River becomes the Flesk River in its lower reaches, and is within the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC. A qualifying interest for the SAC is Freshwater Pearl Mussels and records on the Flesk River in the lower reaches of the Clydagh River are noted (EIAR Figure 6.5). The majority of existing culverts have sufficient surface depth to accommodate cable trench crossings, and new watercourse crossing will be carried out by directional drilling. Open-cut crossing will be required for a small number of drains or minor ditches along the grid connection route (see Appendix 2.1 CEMP).

Electro-fish surveys were carried out at eight locations (S1 to S8) downstream of the proposed development on the Rivers Douglas, Toon and Abha Bhun Silinn (EIAR Figure 6.2). Salmonids, lamprey and eel were the main species targeted. Low to moderate nursery, spawning and holding habitats value for brown trout were found for the wider river channels within the Douglas River catchment to the northeast of the site. A juvenile trout was found in in an area of deep pool habitat downstream

(S3). The stream within the site (S4) and a small stream to the north of the site (S1) were not considered to be of any fisheries value. The River Toon catchment was found to provide moderate (S5) to good (S6) spawning habitat and nursery value for brown trout. Moderate holding habitat for brown trout was also found downstream (S6). The smaller Abha Bhun Silinn tributary (S7) to the southwest was considered to provide very good nursery and spawning area for brown trout, and good holding habitat. This improved to excellent for spawning, nursery and holding habitat value for brown trout further downstream (S8). These characteristics were noted to support the high density mixed cohort trout population recorded during electro-fishing.

Water quality samples were taken at the eight electro-fishing survey locations and assessed using the Q Value biotic index system. Water Framework Directive (WFD) ecological status Good (S1, S2 and S5) and High (S3, S6 to S8) were recorded for seven watercourses and Poor was recorded for the stream within the site (S4). Given improved status to High downstream (S3), effect on water quality at the site was noted to be localised in its extent and potentially reflect the release of nutrients during clear felling of forestry.

Freshwater Pearl Mussel Stage 1 survey was carried out at 12 locations within the catchment of the site (EIAR Figure 6.4). The transect locations surveyed recorded no evidence of Freshwater Pearl Mussel in these locations. Unsuitable or marginally suitable location were recorded within the upper reaches of the catchment, whilst suitable conditions were found further downstream on the Douglas River and the Toon River.

11.10.3.3. Likely potential effects

Summary of Potential Effects on Air and Climate

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• Current forestry and agricultural activities would continue. It is noted that these are having some effect on water quality within the catchment.

Construction	• Impact on natural watercourses from watercourse crossings and culverts. There will be no instream works for the clear span of directional drilling watercourse crossings. Several smaller drains within the site will be culverted which could result in the loss of a limited area of aquatic habitat. • Impact on water quality, the composition of the riverbed substrate, and aquatic habitat and species from potential for release of sediment, fine concrete particles and the spillage of hydrocarbons into surface water and groundwater from construction activities. • Impact on water quality from nutrient release from felling of conifers for the proposed development. Potential minor risk predicted. • Potential negative effects on aquatic ecology and riparian habitats from the introduction of invasive non-native species from machinery and plant. • Impact on water quality from peat failure. Aquatic species: • Potential direct effects on freshwater pearl mussel from increase in sediments and other pollutants. Potential effects may last longer as a result of existing water quality treats. • Potential direct effects on salmonid species from reduced water quality and increased siltation affecting riverbed composition. • Potential direct effects aquatic invertebrate communities and aquatic macrophytes by increased sediment loading in water quality. • Potential for indirect effects on otter and kingfisher in downstream reaches through a reduction in prey availability. The predicted effects on the aquatic environment are medium term, significant and negative at the international scale. This reflects the sensitive freshwater pearl mussel populations and value of the lower reaches of the watercourses for salmonids.
Operation	• Risk for sediments and other pollution of surface and groundwater during maintenance activities including repairs to roads and

	drainage network. Short term significant effects at the Local (Higher) scale are predicted.
Decommissioning	• Type of impacts would be similar to construction phase. The resultant effects are however, considered to be much lower. Predicted effects on the aquatic environment are considered to be short term, significant and negative at the local scale.
Cumulative	• Not addressed in the assessment.

11.10.3.4. **Mitigation Measures**

- The main mitigation proposed is the design itself incorporating watercourse buffer zones, maintaining existing surface flow networks, and utilising existing tracks where possible.
- New watercourse crossings will be by clear span structures which are setback from the river banks or by directional drilling. There will be no instream works undertaken and no tracking of machinery across any watercourse.
- Appointment of an Ecological Clerk of Works (ECoW).
- Measures for the containment and treatment for all surface water run-off are provided within Construction Environmental Management Plant (CEMP) including method statements (Appendix 2.1) and Chapter 9: Hydrology and Hydrogeology.
- Method statements for watercourse crossings and culverts are detailed within the CEMP, Water Quality Management Plan (Section 4), and Appendix 2.6
- Construction of watercourse crossings within the site will be undertaken during the period 1st July to 30th September.
- Contingency plan and specific measures to deal with peat movement or failure are provided in the CEMP and Chapter 9: Hydrogeology and Hydrology (Section 9.5.2.10 Emergency Response).

- Measures aimed at protection of instream aquatic biota including downstream population of Freshwater pearl mussel and salmonids are provided within the CEMP and Chapter 9: Hydrogeology and Hydrology.
- Water Quality Management Plan provides specification for the water quality monitoring within the catchment of the construction area prior to, during and post completion of construction works.
- Emergency Response Plan for any pollution of watercourse incidents included in the CEMP.
- Dry weather conditions specified for a number of work activities including concrete pouring and extensions to existing drainage culverts to avoid pollution of the freshwater environment.
- During operation, storage of potential pollutants will be within a secure and bunded store. Onsite wastewater treatment facilities will be in full compliance with applicable regulations.

11.10.3.5. **Residual effects**

No negative residual effects on any aquatic species, habitat or on water quality at a local or catchment level as a result of the proposed development is predicted. The design of crossings and culverts will ensure no impediment to movement of fish or other aquatic biota. Measures identified will ensure no deterioration in water quality, either during construction, operation, or decommissioning. Populations of Freshwater Pearl Mussel will not be negatively affected by the Development.

11.10.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Aquatic habitats and species Surveys: The Board will note the submission received from Cork County Council identified gaps in the data submitted. The baseline data submitted has been reviewed and it is noted that the survey work focused on the hydrological connections of the proposed wind farm site. The EIAR notes that the catchments of Clydagh River and Sullane River, relevant to the grid connection route and the temporary bridge crossing for turbine delivery route, are not

within the ZOI of the proposed wind farm site and no baseline aquatic species and habitat surveys have been carried at significant work locations within these catchments. The EIAR recognises that sensitive aquatic species such as Fresh Water Pearl Mussel and Salmonids are known to inhabit the catchments and national records for both catchments have been included in the EIAR. The EIAR places a value of international importance of these freshwater habitats and associated, therefore recognising the sensitivity of the aquatic habitat and species. I have concluded on this below following my assessment of instream work and mitigation measures relating to water quality.

Instream works: The Board will note the submission received from Cork County Council seeking details of all instream works. The submission by IFI notes the potential for prevention of fish passage. The proposed watercourse crossings for the grid connection route and the turbine delivery route will not require any instream works and that the construction method statements in Appendix 2.1 and Appendix 2.6 prevent interferences with the river bank. As such, it is considered that the watercourse crossings within the Clydagh River and Sullane River catchments will not result in the loss of instream habitat, or impact on water connectivity or the movement of fish. I am also satisfied that instream works for the access tracks within the site will be limited to the culverting of minor drains and at that the seven watercourse crossings will be by clear span structures.

Mitigation measures and monitoring: The Board will note the submission received from Cork County Council. The submission by the IFI notes the potential for the escapement of suspended solids to waters and potential to negatively impact on water quality. Observations have raised concerns that the proposal will damage the Sullane River and the Lee River. The primary risk to sensitive aquatic habitat and species is the potential for release of sediments and other pollutants to enter the watercourses and negatively impact on water quality, resulting in adverse effects on the water quality, aquatic habitats, such as salmonid spawning habitat, and species such as the Freshwater Pearl Mussel (FPM). My assessment of hydrology and hydrogeology including surface water and water quality management is provided in Section 11.12 below. This concludes that the mitigation measures proposed,

including the interception of surface water, attenuation and treatment of solids will ensure water quality in any surface water body will not be adversely affected. Furthermore, as outlined in my Appropriate Assessment (AA) in Section 12 below It is considered the proposed development, either alone or in-combination, will not adversely affect the integrity of any European Sites, and there is no reasonable doubt as to the absence of adverse effects.

It is considered that best practice mitigation measures and method statements, and specific measures for the protection of instream aquatic biota and the protection of the downstream population of Freshwater pearl mussel and salmonids, have been identified within the EIAR, specifically Chapter 9 Hydrology and Hydrogeology, Appendix 2.1 CEMP including Surface Water Management Plan and Water Quality Management Plan, and Appendix 2.6. A detailed water quality monitoring programme is proposed as per Appendix 2.1 CEMP and Chapter 9 Hydrology and Hydrogeology, section 9.5.2.12.2. These sections of the EIAR incorporate specific measures for the protection of instream aquatic biota and the protection of the proposed water quality monitoring will be carried out at significant construction locations and significant environmental receptors within and downstream of the wind farm site, along the grid connection route and the turbine delivery route. Prior to construction baseline surface and ground water samples will be carried out, it is considered that this will provide a current baseline for ongoing monitoring of water quality during the construction phase. I also note that the Cork County Council under Chapter 9 – Hydrology and Hydrogeology raised no environmental concerns with the surface water management and water quality management regimes proposed for the proposed development.

Chapter 9 Hydrology and Hydrogeology, Section 9.3.13 notes that the temporary bridge crossing of the Sullane River and associated infrastructure work are situated within the flood zone and that some portions of the grid connection route are within a mapped probable flood zone. Mitigation measures identified in Chapter 9 Hydrology and Hydrogeology, Section 9.5.2.8 sets a strict requirement to carrying out works at these locations during seasonally dry conditions and that exposed soils and fill

materials will be reinstated and/or will have erosion control installed prior to the next seasonally wet period.

It is consideredthat the mitigation measures proposed are appropriate to prevent an increase in sedimentation and pollution in the surface waters and will protect sensitive aquatic habitat and species downstream of the proposed wind farm site, gird connection route and delivery haul route works. Any discrepancies in the EIAR in terms of the cross referencing of mitigation measures from Chapter 9 to Appendices 2.1, 2.4 and 2.6 can be addressed satisfactorily by a condition in the event a consent is forthcoming.

Water Framework Directive: My assessment of the WFD is provided in Section 11.12 below, and having regard to the construction works and those mitigation measures which protect the water quality, It is considered the proposed development will not impede the objective of achieving good or high status of any surface water body.

Cumulative effects: Potential for cumulative effects would arise from corresponding construction phases from permitted wind farms and the potential release of sediments and other pollutants into the hydrological network. In this regard, it is noted from the assessment in Chapter 9 Hydrology and Hydrogeology that applicant has stated that in the event that the permitted wind farms are developed at the same time as the proposed development then mitigation measures can successfully prevent any cumulative adverse effects to the associated hydrological network in terms of water quality. Having regard to my assessment above, that the cumulative effects on aquatic ecology would not be considered significant.

Conclusion: Taking account above and that no instream works within watercourses are proposed, it is considered that the applicant understanding of the baseline environment is sufficiently comprehensive and that the key impacts in respect of likely effects on aquatic ecology, as a consequence of the proposed wind farm development, the turbine delivery route and the grid connection route have been identified. It is considered that the proposed development would not have negative residual effects on aquatic species, habitat and on water quality. The proposed

development will not impact upon any surface water or groundwater body as it will not cause a deterioration of the status of the body and/or it will not jeopardise the attainment of good status. In reaching this conclusion regard has been given to the delivery of mitigation measures proposed within the EIAR, and the Board will note the recommendation of a condition to ensure that mitigation measures within the EIAR and the method statement for the temporary bridge (Appendix 2.6) are fully transposed into the CEMP.

11.10.5. Conclusion: Direct and Indirect Effects

The submission of the planning authority, prescribed bodies, the observations received from members of the public has been considered, in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that potential effects on aquatic ecology would be avoided, managed and mitigated by the measures which form part of the proposed scheme and the proposed mitigation measures. It can be concluded that the proposed development would not have any unacceptable direct, indirect or cumulative effects on aquatic ecology.

11.11. Geology and Soil

11.11.1. Introduction

Chapter 8 deals with Soil and Geology. The chapter is informed by the following:

- Appendix 8.1: Site investigation reports include the Stability and Geotechnical Assessment (Table17)
- Appendix 8.2: Photographs
- Appendix 2.1: Construction and Environmental Management Plan (CEMP)

Additional information was sought from the applicant with regard the geotechnical stability risk and hydrogeological assessment as detailed above in Section 8.9 and addressed in my assessment below.

11.11.2. **Issues Raised**

Submissions received from **Geological Survey Ireland (GSI)** refers to the potential impact of landslides and that information available from GSI on the potential of landslides. It is noted that there is limited information on the geo heritage in County Kerry although there is unaudited information available for this wind farm site. The road section at Gornabiina contains several Devonian trace fossils which should not be damaged, or integrity impacted or reduced due to the proposed development. If it is not possible to retain the trace fossils, mitigation measures should be in place to mitigate potential impacts. Information panels should be considered to highlight the significant of impacts. The moderate to high impact potential of a landslide and the landslide susceptibility is noted.

11.11.3. **Evaluation of the EIAR**

11.11.3.1. **Context**

Land use: The site is comprised mainly of Peat bogs with some Agricultural and Forest and semi- natural areas.

The topography at the immediate section of the site is variable with multiple peaks, ridges and variable inclines. At the lower sections the topography is relatively flat.

Soils and subsoils: The majority of the site geology has rock at or near the surface with blanket peat at higher elevations. Many minor rocky outcrops were observed across the site, particularly at higher elevations.

Peat depths are generally shallow (82% coverage) with isolated parts of deeper peat (greater than 2m) and rocky outcrops. Deeper peat is located at ridges or shallow bedrock.

Works: Total land take for the site access roads, turbines, turbine delivery route and grid connection route is 135ha (20% of the 667ha site). 35.42ha of commercial forestry needs to be clear-felled for the turbine hardstands and associated access roads. The total volume of excavated soil amounts of 141,236m^2 and will be stored in the on-site borrow pits.

11.11.3.2. **Baseline**

Site Investigation Data: The site investigation data is presented in Appendix 8.1, with some updated information in the applicant's response to the Board further information request, is based on sampling from 37 trial pits, 10 shear vane tests and 3 drilling tests. The information is used to inform the peat stability report. The results indicate:

- Subsoils on site are generally classified as clayey, silty, GRAVEL (or till) with cobbles and boulders.
- Soil type is a mix of blanket peat, loamy drift (peaty soil) and bedrock at surface.
- Peat depths range from 0.0-0.5m with isolated pockets of deep peat between shallow bedrock.

The GSI mapping tool shows bedrock of three variations throughout the site as follows:

- The northern portion of the site is Gortanimill Formation (GM)- medium to fine grained sandstone.
- The central, most significant portion of the site is Caha Mountain Formation (CM)- sandstone and siltstone.
- The remainder of the site is made of Bird Hill formation- fine grained sandstone and siltstone.

The topography of the site is highly variable with multiple peaks and ridges. At lower elevations the topography is relatively flat. There are several mapped rivers through the site and there is extensive constructed drainage channels associated with forestry, agriculture and peat cutting activities.

Peat stability: There is a residual risk of landslide although the significance is considered low given the depth of peat on the site. Peak Stability risk assessment results indicate 15 potentially unstable locations and 3 high ranking locations. Using a worst-case scenario (Scenario B). Table 13 includes the risk assessment

associated with each of the turbine locations with T1, T2, T12 and the Met Mast locations having a high-risk landslide susceptibility downgradient. A dwelling located 225m from T12, is identified as a sensitive receptor, and there moderate to high risk of impact due to the location. The site investigation report recommended the use of a Geotechnical Engineer during works and that the proposed development layout avoids areas classified as high stability risk.

Landslide events: The GSI mapping as presented in the EIAR, does not indicate any landslides within the wind farm site and there is one recorded event to the west, outside the development site. In relation to the grid connection route, there have been 7 no. recorded Landslide Events (OBJECTIDs: 7517, 7518, 7519, 7520, 7521, 7524, 8079) within c. 500m of the northern portion of the Grid Connection Route, documented by GSI (2022). Each landslide event took place in both coniferous forests and peat bogs with 'No Apparent Impact'.

Further Information Request: The Board requested additional information on the 28ha wet heat and 26.3ha borrow pit area. The applicant confirmed that the reference to 26.3ha was a typographical error and the correct figure which informed the assessment within the EIAR was 2.63ha for borrow Pit A.

11.11.3.3. **Likely potential effects**

Summary of Potential Effects on Geology and Soil

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Existing land activities will continue including agriculture, commercial afforestation activities and peat cutting activities. • The cumulative impact of afforestation will lead to excavation of soil, construction drainage ditches and localised drainage of soil.
Construction	• **Clear fell of Afforested Areas:** 35.42ha of clear felling (5.3%) of the site area can cause erosion of soils and release of suspended solids into the surface water network and compacting solid and reducing the recharge capacity, with a negative, direct, significant,

	likely long term to permanent effect on surface water and ecological sensitive sites. • **Excavation**: Total land take of 135ha (20%) of the site for turbine hardstands, foundations, site access roads, grid connection, turbine delivery and substation. Potential soil stability issues brought about by excavation or vehicular movements, native, profound, and potentially permanent impact on waterbodies due to the increase in high organic matter. • **Stockpiles:** Excavation of area, including borrow pit A (2.63ha of wet heath) between T 1 & T2, and borrow pit B (c. 6.6 ha) between T11 and T6 and temporary stockpiling at 5 locations have a direct and indirect negative impact on surface water quality. • **Subsoil and Bedrock removal:** Erosion of exposed areas by construction activities for the wind farm, grid connection and access roads impact will have similar impacts from the excavation activities and cause landslide particularly on steep inclines. Negative, direct, profound, long term permeant effects. • **Ground stability:** Impact on stability from breaking and weathering of bedrock and boulders with risk of localised impacts at areas with deep till deposits and elevated locations with down gradient impacts and negative, significant to profound, potentially permanent effects. • **Soil Contamination**: fuel and oil spillage from construction traffic, excavation activities, including the drilling process, can lead to significant negative impacts on aquatic ecology and soils with a long term, permeant and negative impact.
Operation	• Land take for the delivery route, wind farm and connection route will be c. 135 ha (20%) of the overall site and is considered to be a negligible to slight effect.
Decommissioning	• No new impacts envisaged although baseline conditions may change over the course of the proposed development.

Cumulative	• Effects are considered to be localised although on a national scale the importance of peatlands in terms of ecological value and carbon value must be considered.

11.11.4. **Mitigation**

Appendix 17.1 of the EIAR includes a list of those mitigation measures proposed. These are reiterated in the Construction Environmental Management Plan (CEMP) in Appendix 2.1. In relation to Geology and Soil mitigation measures during the construction phase include:

- Peat and Spoil Management Plan (Management Plan 4 of the CEMP)
- Mitigation by avoidance during the design phase where the layout plan was reviewed following site investigations and environmental constraints avoided.
- During construction cut and fill will be minimised
- Engineering at depths >1.0m in peat depth will follow appropriate engineer's controls e.g., drainage of peat along the site tracks and drainage will be attenuated prior to outfall.
- Excavation in areas of deeper peat (>2.0m) excavation supports will be used and this will be incorporated into the CEMP, for example temporary sheet piling, or similar.
- Excavated Peat will be deposited at 5 temporary stockpile areas with a view of restoring infilled excavation areas e.g. adjacent to hardstanding areas and borrow pits.
- Use of a Geotechnical Engineer to supervise and manage the excavation and drainage.
- Potential for side wall collapse will be minimised by using excavation supports for depth c.20m.
- Materials will be used to backfill and then the rest sent to a licenced facility.

- No permeant stockpiles on site and temporary stockpile areas identified at appropriate locations.
- Use of floating tracks where ground conditions are poor.

11.11.5. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Geological Survey Ireland (GSI): The issues raised in the GSI submission relate to the landslide susceptibility and the impact of the road section at Gornabiina which contains several Devonian trace fossils. In relation to the impact on the trace fossils, it is requested that a condition is included to retain the trace fossils and if this is not possible to put in place mitigation measures to mitigate potential impacts. The inclusion of a geotechnical engineer during construction is noted, and it is considered the inclusion of a condition to mitigate any impact on trace fossils during the construction of the road reasonable.

Major landslide/ mass movement: Appendix 8.5 (a), (b) and (c) of Volume IV of the EIAR illustrates the location of the turbines, associated access routes, turbine delivery route and grid connection route in conjunction with the landslide susceptibility mapping from GSI. No turbines, borrow pits or substation are located on areas of high susceptibility to landslide. One landside event has been recorded to the west of the wind farm site, outside the development site and a number of landslide events have been recorded to the north of the grid connection route, also outside the development site.

The applicant's EIAR and FI response notes the location of two areas susceptible of landslide/ mass movement outside the development footprint, but within the development site are and within the control of the applicant. These areas are identified as particularly sensitive and include:

- The portion of the site north of T1 and T2. This area possesses high landslide susceptibility (GSI), extensive existing drainage channels, evidence of deeply eroded drainage channels in till with evidence of iron pan.
- The portion of the site north of T12. This area is characterised similar to the above scenario but without deep till deposits.

Mitigation measures included in the EIAR, including the Peat and Spoil Management Plan, state that it is proposed to divert the draining from the turbine hardstand areas away from these sensitive areas to more favourable areas. The information contained in the applicant's FI response (modified Table 17)notes a reduced the risk category of T12 from medium to high-risk to a low-risk category once mitigation measures are integrated. It states that the assessment of the turbine units is in line with best practice guidance, *"Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Developments"* (The Scottish Government, 2017).

The peat stability risk and hydrological assessment in the EIAR, and the information submitted to the Board requested FI, are noted, in particular the Appendix H (a – c) GWF SI Geo Hazards, and Appendix I (a – c) Peat and Subsoil Stability Risk Assessment which indicates the peat stability risk at T12 is high for scenario B (worst case scenario). Whilst T1 and T2 are noted as sensitive locations, the peat stability risk is very low to moderate. The potential effects of T12 are discussed further below.

Factor of Safety: The Factor of Safety at peat probe locations on the Gortyrahilly site is generally acceptable with the exception of marginally stable / unstable point locations associated with isolated deeper peat and/or steeper inclines (the locations of which are shown in EIAR Appendix H (a – c) of EIAR Appendix 8.1). The Factor of Safety at trial pit locations on the Gortyrahilly site is 'Acceptable' (Factor of Safety (FoS) values of 1.0 or greater).

Turbine 12: As stated above, T12 is located in a sensitive area with a peat stability risk as high. Two dwellings and associated farmyard are located 225m downgradient to the north of the T12 site. These dwellings are located within the development site and a letter of consent has been provided from the owner of the site, indicating that the dwellings will be in the control of the applicant should permission be granted for the proposed development. Aside from this information, the geo-hazard information provided in Appendix H (c) of the EIAR records a High to moderate peat stability risk for the turbine stand at T12.

The Stability and Geotechnical Assessment also notes the location of sensitive receptors such as receiving water body, and the River Douglas located c. 200m downstream. The applicant's response to the further information refers to the information in the EIAR, the medium to high-risk category, and concludes that with mitigation in place the risk factor is reduce to low. The response also notes the location of a particularly sensitive area to major landslide or mass movement to the north of T12. Aside from the applicant's response to the further information, there are concerns with regard the high risk peat stability scenario and the location of the turbine.

Section 5 of best practice guidance "Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Developments" recommends that areas of medium to high risk are avoided with mitigation for areas of low to medium risk (Scottish Government, 2017). Having regard to the mitigation measures proposed, it is considered the infrastructure and turbine located in the medium risk areas will have no significant adverse effects although I find no information in the applicant's EIAR to justify the rationale for locating the T12 in a peat area with a high-risk or any evidence base to suggest that the location of T12 in an areas of high peat stability risk is acceptable. In this regard, when applying the precautionary approach, a condition to remove T12 from the overall proposed development is considered necessary to prevent any significant long term negative effect.

11.11.6. **Conclusion: Direct and Indirect Effects**

The submission of the planning authority, prescribed bodies, the observations received from members of the public, has been considered, in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that the applicant provided sufficient survey data to enable assessment of likely effects on the environment. Having regard to the detailed assessment carried out, the location of the proposed development, the modest footprint of the development, and subject to the detailed and full implementation of proposed mitigation measures and the removal of T12, it is considered that the proposed

development will not give rise to significant direct, indirect, or cumulative effects on land, soils, or geology of the site.

11.12. Hydrology & Hydrogeology

11.12.1. Introduction

Chapter 9 deals with Hydrology and Hydrogeology. Additional supporting information is contained in Appendices, including:

- Construction Environmental Management Plan (CEMP, Appendix 2.1)
- Site Specific Flood Risk Assessment (Appendix 9.1)
- Photographs (Appendix 9.2)
- Surface Water Hydrochemistry Database (Appendix 9.3)

The Board requested additional information on the impact of the proposed development on the hydrology and hydrogeology, as detailed above in Section 8.0 above and referred to throughout my EIA analysis.

11.12.2. Issues raised.

Uisce Éireann (Irish Water) submission refers to the impact of the wind farm on the drinking water catchment area. Reference is made to the Water Framework Directive (WFD) and the need to protect drinking water as a priority. It is requested that further information is sought. In relation to the information contained in Chapter 9 of the EIAR concerns relate to:

- Absence of any evidence on the assimilative capacity which will mitigate against any potential impacts from the project.
- Absence of any baseline data for organic carbon (dissolved, particulate, or total) all of which have the capacity to impact the treatability of raw drinking water.

- Absence of any outline of the potential impacts on raw drinking water and how these relate to issues with operational treatment and implications for Trihalomethanes (THMs).
- Impact of event loading delivering high organic matter and the implications for validation at treatment plant infrastructure.
- The absence of implications on water treatment in the carbon calculator figures for dissolved organic carbon (DOC) and particulate organic carbon (POC) losses.

Department of Housing, Local Government & Heritage

The submission from the DAU refers to the following issues:

- Impacts of increase drainage efficiency of downstream wetland erosion.
- The cumulative impact of works in upland areas can result in accelerated runoff and cause a significant effect.
- The located of the site access road and turbines at T4 and T5 which are in catchment of the Toon River and T3 and which is associated access road area within the catchment of the River Lee.
- The location of site within catchments which have downstream wetlands of conservation value and concern this issue was not fully addressed in the EIAR and should have been addressed in the NIS.
- Based on an additional application (PL04.245082) the in-combination impacts could see an increase in hydrographic peak by 0.1-0.2%.

The Environment Section of **Cork County Council** included comments on Chapter 9, to state the following:

- The surface water catchment areas are noted, and all surface waters eventually combine in Carrigdrohid Reservoir, into Cork Harbour and the Celtic Sea.

- There are a lot of non-mapped natural and artificial drainage channels on the site.
- Mitigation Measures are noted.
- The area engineer and environmental office is satisfied with the proposed development.

The **GSI** commented on the groundwater information in the EIAR as follows:

- Groundwater maps are available on our Map Viewer
- The groundwater viewer indicates the aquifer as *"poor aquifer- Bedrock Generally Unproductive except for local zones"*.
- The groundwater vulnerability indicates a range of vulnerabilities and these areas of High or Extreme vulnerability and *"Rock at or near surface"* should be identified.
- There are Groundwater Protection Schemes (GWPSs).

Observations have also raised concerns in relation to the impact of the proposed development on the hydrology and hydrogeology as summarised below:

- The proposed development will damage the Rivers Lee and Sulláne.
- The forestry and wind farms have drained the mountain tops and impacts on the water supply for the surrounding environs area. These mountain tops should be returned to bogs.
- The proposed development must be assessed for compliance with the requirements of the WFD.

Other issues with regard to impacts on the hydrology have been identified in relevant chapters such as the IFI submission, detailed under Aquatic Ecology.

11.12.3. Evaluation of the EIAR

11.12.3.1. Context

The site is situated on Carrigalougha Hill, in Shehy Mountains, C. Cork. The site comprises of a mix of peatlands, agricultural lands and commercial forestry. There has been significant works related to the agricultural and forestry over the years which included significant drainage works.

The proposed development includes the removal of c.40 ha of habitat of which there are c. 28 ha of wet heath and/or bog habitat includes. Some habitat loss will occur during the construction of the turbine delivery route and the proposed development requires water crossings to accommodate the grid connection and turbine delivery routes.

The proposed development includes crossings at seven mapped surface water courses at the wind farm site as detailed below:

Watercourse	Location	Proposed works
W1 (New)	Access road to T13 at the southeast of the site	Bridge over the water course, c. 3.5m of reinforced concrete structure, road over and timber post & rail fence along ether side.
W2 (New)	Access Road to T11 at the centre of the site	Bridge over the water course, c. 3.5m of reinforced concrete structure, road over and timber post & rail fence along ether side.
W3 (Existing)	Access road into the site from the southeast at Toon River	Bridge over c. 2.5m from ground and c. 4m in width
W4 (Existing)	Access road between a site compound and T13	Bridge just above the existing ground level and above the predicted flood top water level

W5 (New)	Crossing over Douglas River (Sullane) for entrance to T14 hardstand.	Bridge over the watercourse for site access to T14
W6 (Existing)	Along the turbine delivery route on a drainage/ditch tributary to the Douglas	Bridge over main site access road into the site, north of the sub station
W7 (New)	Along the turbine delivery route on a drainage/ditch tributary to the Douglas	Bridge over main site access to the north of the sub-station

The grid connection route will include up to 144 No. identified surface water crossings in the form of 130 No. culverts, 7 No. service crossings, 7 No. of bridge / watercourse crossings requiring horizontal directional drilling. These crossings are described in detail in Appendix 2.4. There are eight locations along the grid connection route which will require horizontal directional drilling, however only 7 No. deal with a watercourse crossing.

The turbine delivery route will require road widening, one temporary bridge (ITM: E519298, N577600), and one turning point along the N22 (Appendices15.2 and 2.6). The temporary bridge will have a clear span of 32.0m and entails no instream works.

11.12.4. Baseline

The topography is variable with elevations ranging between c.230m and c.423m AOD. There are two aquifer types on the site, where the northern portion is dominated by locally important aquifer with bedrock moderately productive in local zones and the southern portion underlain by a poor aquifer where bedrock is generally unproductive. The average rainfall is 1,427mm/year and the groundwater growth recharge are spilt between the two aquifers across the site.

Surface Water Catchment: The proposed development is situated within the Lee, Cork Harbour and Youghal Bay catchment (ID: 19, Area: 2,182km^2). Surface water

runoff associated with the site drains into three sub catchments and/or four river sub basins, or four No. rivers:

- Sub Catchment: Lee (Cork) SC 010, River Sub Basin: (Lee Cork) 010 (southwest).
- Sub Catchment: Lee (Cork) SC 020; River Sub Basin: Toon 010 (south boundary).
- Sub Catchment: Sullane SC 010: River Sub Basins: Sullane 010 and Douglas (Sullane) 010 (majority of the site).

Volume III of the EIAR includes an overview of the WFD status and risk to the surface waters and includes illustrations of the site, the constraints in the area and Section 9.3.8 of the EIAR details the status assigned to the surface water bodies associated with the site as presented in Figures 9.2.1 and Figure 9.4. The WFD status (2013-2018) for surface water bodies / rivers and streams directly draining the site range from Good to High. My analysis and evaluation below, has regard to the WFD Cycle 3 results (May 2024).

Surface water quality was monitored at all six monitoring locations with the ammoniacal nitrogen (N) elevated at two out four monitoring events, NO3 elevated at one location during 2021. Elevated concentrations of Nitrogen compounds are indicative of current land practices, agriculture and forestry.

Groundwater Catchment: The majority of site is located in the Ballinhassig West groundwater catchment. There are no groundwater source protection areas within the hydrogeological catchment of the grid connection route or the wind farm site. A small section of the south-west portion of the site, T1, T2, Borrow Pit A and T3 are located within the Lee (Cork)_SC_010 which also encompasses the Carraignadoura Groundwater Scheme (GWS).

Two individual mapped wells have been identified, one along the turbine delivery route for domestic purposes and one along the grid connection used for agriculture and domestic purposes.

Groundwater vulnerability maps indicate high to extreme vulnerability *"Rock at or near surface (x)"*. The GSI classification indicate that the entire site is generally a poor aquifer (PI) and generally unproductive expect for local zones. The grid connection route range from *"moderately vulnerable"* to *"extreme vulnerability"*. The underlying bedrock aquifer classifications as poor or locally important infer a maximum recharge capacity per annum where after excess recharge capacity the groundwater will be rejected. The peat conditions also have very low permeability.

The peat in the area is generally this with small, isolated pockets of deeper intact peat.

The combining factors indicate low recharge rates and high surface water runoff rates.

Lake Water Bodies: Lake water bodies associated with the surface water network around the site range from Moderate (Carrigadrohid Reservoir) to poor (Allua Lough). The Carrigadrohid is a heavily modified water body (HMWB) due to the hydroelectric power station. Forestry has placed significant pressure on the Allua waterbody with excessive nutrient release from clear-felling and drainage.

Flood Risk: The site is not within a probable flood zone. The OPW maps indicate no mapped flood areas immediate or downgradient of the site. The closet mapped flood areas include the Lee (Cork) (030) c.4 km south of the site and the Sullane (030) river c. 4km to the north-east which is noted to overlap with the temporary bridge.

Due to the conditions on the site, there will be a high surface runoff rate during extreme hydrological conditions. The net increase in runoff equates to 0.319m3/second or 0.63% relative to the site area. The associated drainage is to be attenuated for greenfield runoff to ensure no flooding elsewhere.

Designated Sites: The site is not directly adjacent to or immediately upstream of any European Protected areas the nearest downstream designated areas include the following:

- Lough Allua Proposed NHA, located to the south of the wind farm site.

- The Gearagh SAC (Site Code: 000108), The Gearagh SPA (Site Code: 00409), on the Carrigdrohid Reservoir, located to the east of the site wind farm site.
- Cork Harbour SPA (Site Code: 004030), east of the site.

Sensitive Receptors: Surface waters with a poor WFD designation, downstream sensitive protected areas (e.g. SAC, SPA) associated with the catchment and species (e.g. Fresh Water Pearl Mussel) and waterbodies designated as course of drinking water. The following hydrologically connected sensitive receptors have been identified:

Sensitive receptor	**Proposed development**
Designated Sites	
Mullaghanish to Musheramore Mountains SPA	Works related to culverts in the northeast portion the grid connection reroute near the existing Ballyvouskill 220kV substation (surface waterbody Garrane [Lee] (EPA Code: 19G03),
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and pNHA	Works along the grid connection route along the HDD locations for Stream 1, Stream 2, Stream 3 and N22 HDD crossing via Flesk [Kerry] River (EPA Code: 22F02).
St. Gobnet's Wood SAC and pNHA	Bridge 1, Bridge 2, Bridge 3 along with Culvert-115 and the turbine delivery route drain water to Sullane_010 River (EPA Code:19S02)
Drinking Water	
Designated drinking water	Lee (Cork) 030 river designated drinking water continues to the Lee (Cork) River into Lough Allua which discharges downstream section of the Lee (Cork) 30 river.

	The Toon (010) river drains southern portions of the site, flows into the Lee (Cork) 050 river, c.8km to the east of the site and continues to the Carrigdrohid Reservoir and Inniscarra Reservoir (not designated) however the reservoir discharges to the downstream section of the Lee (Cork) river (090) designated for drinking water.
Protected Species	
Freshwater Pearl Mussel (FPM)	Highly endangers species which are responsible for filtering the water and highly sensitive to direct disturbance and to flow, sediment and nutrient stresses.

Excavation/ Dewatering: Table 2.6 of the EIAR details the volume of material to be excavated (m3) and reused within the site. In the most part it is noted that excavated materials will be deposited locally where possible and/or dried and used to reinstate the borrow pits after extraction. It is not proposed to excavate more than a 100m section during any day. Excavation will be required to upgrade the watercourse crossings with entry and exit pits (1m x 1m x 2m). Cable trenches will require shallow excavation. Two wells are located within 100m buffer zone of shallow excavation. Excavation for turbine foundations will generally be c. 2.85m and deeper for borrow pits. There are not wells within 250 of any turbine foundation.

Due to the characteristics of the site, dewatering will be required for a short duration.

11.12.5. **Impacts**

Summary of Potential Effects on Air and Climate

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Continuation of existing land-use practices including commercial afforestation, agricultural activities etc and associated pressure on surface and groundwater quality.

	• Release of contaminant from uncontrolled actives during heavy rainfall events and negative effects on water quality.
Construction	• **Tree felling:** Clearing of 35.4ha of forest area will lead to increase nutrient loads in surface water as run-off dominates infiltration. • **Subsoil and bedrock removal**: Excavation will lead to an increased sediment and nutrients to received waters. • **Stockpile Storage:** Nutrient and sediment loss potential wit negative effects on receiving waters. • **Soil contamination:** fuel loss to soils, waste waters and cementitious waters and bentonite clays from drilling negative effects on ground water and surface water **Increased hydraulic loading** • With no attenuation features and low recharge rates on the site, the net increase in run off would have a potential to have a significant moderate to profound effect on downstream receptors. **Release of contaminants and water contamination** • Horizontal directional drilling involves plant machinery and use of drilling fluids which can be harmful and release of suspended solids with contamination of water having significant short to medium effects. • Suspended run-off will add turbidity to receiving waters and impact the habitat of the Freshwater pearl mussel. • Release of suspended solids and peat will contribute to excessive loading of Nitrogen (N) and Phosphorous (P) compounds in waters leading to eutrophication and potentially significant impacts on ecological attributes downstream of the site.
Operation	**Impact on habitats.**

	• Peatland areas have the potential to drain excess surface runoff with uncontrolled runoff having an adverse effect outside the site footprint particularly during extreme events. • Reduction in groundwater flow can have negative impacts on the water table and potential for peat growth leading to long term degradation and potential erosion. Impact on Species • Increased surface run-off, sedimentation and water pollution will have a long term significant negative impact on the FWPM. Impact on drinking water • Negative impact on the assimilative capacity of the surface water system and potential negative impact on designated drinking waters downstream in the Lee (Corl) 030 river
Decommissioning	• No new effects anticipated during decommissioning, no excavation required and any hardcore of turbines will be allowed to vegetate naturally.
Cumulative	• Potential negative effect on water quality if other permitted proposal development at the same time

11.12.6. **Mitigation**

Section 9.5 of the EIAR details the mitigation measures where a process of "mitigation by avoidance" has been designed into the proposal in the first instance by using the constraints map and any hydrological/ hydro geotechnical characteristics.

Water Quality (Management Plan 2)

- Compliance with Inland Fisheries Guidance during the construction and works around rivers and streams.

Surface Water (Management Plan 3)

- Avoid by design: 65m buffer zone around mapped surface water features and 15m around non-mapped surface water features.
- Use of the constraints map to locate turbines, turbine delivery route and grid connection.
- Clean water inspection reduces the volume of surface waters that can become contaminated. The upgradient interceptor drain will collect the clean waters and divert them separately downslope and discharge to local watercourse.
- Dewatering flow/ pump rate controlled to reduce loading and discharged to a vegetated surface through silt bag outside surface water buffer zones. An initial outlet overflow rate of 36.92/s/ha (litres per second) c. greenfield rate will be applied.
- Extracted or pumped water will not discharge directly to the surface water system and will go through a settlement tank before discharge.
- Collector drains will be used as attenuation feature to divert runoff during the operation phase with actual capacity calculated during the design phase.
- Silt screens will be down gradient form silting pond outfall. Silt bags will be used as an alternative to stilling ponds in lower risk areas (i.e. outside buffer zones).
- 67 settlement ponds located across the development to ensure adequate treatment of contaminated surface waters.
- Check dams to reduce the velocity of run-off and facilitating the settlement of solids upstream of the dam. Installed at c. 20m intervals within the length of drainage channels.

11.12.7. **Residual**

The ecological value of the restoration of the peatland through attenuation is considered a positive effect of the treatment of the surface water.

11.12.8. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Drainage Network

The proposed drainage network is an important mitigation measure in the treatment of surface runoff. The applicant states that the drainage will be attenuated for greenfield run-off and includes measures within the drainage design network as detailed in the CEMP (Appendix 2.1), Management Plan 2: Water Quality and Management Plan 3: Surface Water Management Plan. Appendix B of the CEMP uses a UK based greenfield runoff tool and throughout the EIAR the applicant states that discharge will be controlled by an upgradient interceptor drain and pump to control discharge similar to what occurs onsite presently. A technical assessment by the Board's Environmental Scientist (Appendix 2 to this Inspector's report), has reviewed the applicant's information and confirms the use of these measures are acceptable controls for the surface waters.

Further information request Uisce Éireann (Irish Water) and response by the applicant

As stated in Section 6.0 and further discussed in Section 8.0 Uisce Éireann have raised concern with regard to the assimilative capacity of received waters, details of baseline data for organic carbon and the impact on treatability of raw drinking water, the impact of dissolved organic carbon (DOC) on drinking water, the potential impact of Trihalomethanes (THMs) on treatment systems, details of any pollutions episode and the release of high organic matter and the implications on water treatment with regard DOC and particulate organic carbon (POC) losses.

The applicant responded by referring to the information presented in the EIAR, the hydrological/ hydrogeological links to the drinking water bodies and the surface water catchment and the CEMP Management Plans proposed. This information has been integrated into a technical assessment undertaken by the Board's Environmental Scientist (Appendix 2) which is integrated into my assessment of each of these issues below:

In regard to the impact on the **assimilative capacity** in receiving waters, the EIAR states a net increase of surface water run-off to be c. 0.319m3/second, or. 0.63%

relative to the site area as such increasing the hydrological response to rainfall events downstream. The Board's Environmental Scientist notes this information and considers this increase to be adverse but imperceptible to slight, noting the applicant's conclusions that cumulative increase and impacts on sensitive receptors are considered not significant.

The applicant's response to the further information request refers to the information in the EIAR (Section 9.3.17) and reiterates the following:

- One surface water body within the red line boundary designated for drinking water (River Lee (Lee (Cork) 030 IE_SW_19L030200) with a WFD status as "not at risk").
- Designated for drinking water along the Lee (Cork) River up to Lough Allua (not designated for drinking water) however discharging downstream to Lee (Cork) 030 River which is designated for drinking water.

The applicant notes this hydrological connection between the site and the closest downstream water treatment facility (Ballingeary Water Supply Scheme, c.6km south of the site) represents c. 15% of the catchment draining to the water treatment plant. It is not proposed that any extracted pumped water will be discharged directly to an existing drainage or surface water network associated within the site and with mitigation measures the impact on surface water bodies is concluded neutral to temporary slight adverse impact.

The applicant's mitigation measures, the proposal for discharge at greenfield run-off and the report of the Board's Environmental Scientist (Appendix 2), are noted, which has regard to the proposed mitigation and buffered volume flow and concludes there will be no deterioration in the status of surface waters, and it is considered the proposed development will not have a significant negative impact on the assimilative capacity of receiving surface water network.

In regard to the impact on the **dissolved organic carbon (DOC),** the applicant's response notes the general presence of DOC within peatland environments and refers to the use of colour and turbidity results as a good indicator of DOC in the

water. Samples obtained at SW6 (Toon 010) as noted and will be used as baseline conditions. The Board's Environmental Scientist notes the continuous hydrochemistry monitoring during the construction phase with monthly reporting for DOC, no issues have been raised. The applicant further notes the overall use of mitigation measures, which is consider reasonable and in conjunction with the proposed SuDS design principles (designed for an increase in 20% rainfall), it is considered that the contamination can be adequately treated during all phases of the proposed development.

Concern in relation to the impact of **Trihalomethanes (THMs) in drinking water** is also raised by Uisce Éireann. THMs in drinking water occurs as a result of chlorination of organic matter present in raw water supplies. The applicant states that the colour and turbidity can be used to detect changes in the hydrochemistry of the water. The applicant notes the use of an Environmental Clerk of Works during construction to monitor the surface water on an ongoing basis. The environmental quality standards and Total Suspended Solids (TSS) will be monitored (threshold of 25 mg/L). Samples from the SW6 location record a peak TSS value of 2.95mg/L, below the environmental quality standard for TSS. Should monitor detect higher ranges a pollution incident control scenario will be followed. It is considered that the monitoring analysis proposed for the proposed development will ensure adequate analysis of the water quality.

In relation to the potential for a **pollution episode** during the construction phase, the applicant's response notes the predicted effect on water quality (including high organic matter discharge) is neutral to temporary adverse during the construction phases, and neutral to beneficial during the operational phase. Current unmitigated land activities have a potential for negative impact downstream. The mitigation measures proposed, including the interception of surface water, attenuation and treatment of solids will ensure water quality in any surface water body will not be adversely affected. It is not proposed to include any uncontrolled stockpiling and appropriate environmental engineering controls will be integrated. Monitoring will allow for the use of mobile water treatment facilities which allows for active carbon

filtration or activated carbon dosing to remove and reduce dissolved contaminants/pollutants where necessary.

In relation to the **Dissolved Organic Carbon (DOC) or Particulate Organic Carbon (POC)** the implementation of mitigation measures detailed above will ensure the protection of water quality on site and downstream.

The Department of Housing, Local Government & Heritage (DHLGH) have also raised concerns with regard to the impacts of increased drainage efficiency of downstream wetland erosion and the cumulative impact of works in upland areas which can result in accelerated runoff and cause a significant effect. Specific reference to the location of the site access road and turbines at T4 and T5 in catchment of the Toon River and T3 and associated access road area within the catchment of the Lee River.

The Board will note my assessment above in relation to Uisce Éireann and the impact on the hydraulic loading on surface water and the drainage capacity downstream. It is concluded that the applicant could control discharge at greenfield rates, within the surface water network and with appropriate mitigation measures to prevent pollution of the water by way of contamination or sedimentation. These measures will ensure that downstream wetland areas are adequately protected from any surface water flow from the site.

In relation to the location of T4, T5 and the access road in the Toon River catchment, and T3 and associated road in the Lee River catchment, the Board will note my WFD assessment below. The Toon_010 has a good status under the WFD 2016-2022 cycle and flows downstream to the Lee River. The WFD status of both catchments is of high to good status, with Q values of 4 or more. The Board's Environmental Scientist reviewed the EIAR and associated documentation and concludes that, where surface water from the site drain to the existing watercourse, the works will not impede the ability of the WFD objectives of maintaining the high/good status and will prevent any deterioration in all wates.

Water Framework Directive.

Due to the passing of time since the applicants EIAR was submitted to An Bord Pleanála. Regards has been given to the most up to date information available on EPA Maps with regard to the status of the **surface water** bodies on the site[8]. As stated above there are three sub catchments for the wind farm site:

- Sub Catchment: Lee (Cork) SC 010, River Sub Basin: (Lee Cork) 010
- Sub Catchment: Lee (Cork) SC 020; River Sub Basin: Toon 010
- Sub Catchment: Sullane SC 010; River Sub Basins: Sullane 010 and Douglas (Sullane) 010.

All surface water bodies are at classified as "good status" aside from the Sullane SC 010 rivers which are currently "at risk". These rivers form part of catchment 19: Lee, Cork Harbour and Youghal Bay. The public information on this catchment [9] include the status as high in 2015 to good in 2021 and the current 2021 cycle concluding with "at risk" status due to morphological pressure as a significant issue and hydromorphology as a significant pressure. No significant pressures from nutrients or organic are identified.

Figure 9.2.2 of Volume II of the EIAR illustrates the grid connection route within the catchment of the Flesh (Kerry)_020 and Flesk (Kerry)_ 030 river bodies and recorded these as not at risk of achieving good status in Cycle 2. The proposal has been assessed against the most up to date available public information on the EPA website[10] and note the Flesk (Kerry)_ 030 remains not at risk while the Flesk (Kerry)_020 has been highlight at risk of not achieving good status. This river body forms part of the wider Laune Main Dingle Bay Catchment report. The EPA report on Cycle 3 (May 2024) recorded morphological issues and hydromorphological pressures on this water body. This waterbody is located within an area heavily forested and it was evident from site inspection that there has been significant tree felling in the area. This aside as stated throughout this assessment, the proposed development, in particular the grid connection route, does not include any instream

[8] EPA Maps (15/11/24)
[9] 19 Lee, Cork Harbour and Youghal Bay Catchment Summary WFD Cycle 3.pdf
[10] EPA Maps

works or proposal to alter the channels of any watercourses. Mitigation measures to prevent any negative impact on the water quality have been included and these have been assessed as reasonable to prevent any significant effects on the surface waterbodies. Therefore, having regard to the construction works and those mitigation measures which protect the water quality It is considered the proposed development will not impede the objective of achieving good or high status of any surface water body.

Hydromorphological pressures relate to abstraction, impoundment, channelisation of rivers and embankments. Whilst the proposal includes works to the drainage network throughout the site, there are no proposals to significantly alter the waterbodies on the site or the flow of water into the Douglas, Toon or River Lee.

Morphological pressures come from alterations to riverbed, banks and floodplains. No flood plains have been identified in the catchment area and those works proposed will dramatically reduce the volumes of surface water that will enter into the water bodies. An upgradient interceptor drain will collect clean waters and divert them separately downslope, discharging to local watercourses. The EIAR notes a long term positive effect from the proposed development and associated mitigation measures.

Cork County Council note the surface water information, the amount of non-mapped natural and artificial channels and those mitigation measures proposed. No issues have been raised and the area engineer and environmental office is satisfied with the proposal. The EIAR Appendices 9.5 (a) and (b) include the surface water mapping and surveys including the location of existing culverts, overlaid onto the micro-catchments. In addition to this Figures 9.8 (b) – (k) illustrate the water drainage on the site, in addition to the proposed settlement ponds, which are considered reasonable. As stated above the CEMP and SWMP include a list of mitigation measures proposed. It is considered that the applicant does not propose any significant alteration to the current hydromorphology on the site.

The grid connection route flows north towards the Ballyvouskill 220 kV station, adjacent to the Lough Leane Catchment. Horizontal directional drilling is proposed at

three streams which flow to the Flesk (Kerry)_2020. The impact on this catchment has not been assessed in the EIAR but referenced in the Appropriate Assessment (AA). The good water status of the Flesk (Kerry)_020 in the WFD 2016-2021 cycle is noted. Having regard to those mitigation measures proposed in the CEMP and the SWMP, there are no concerns the proposed development will impede the WFD objectives of maintaining high to good status waters in this catchment.

Having regard to the information in the EIAR, the applicant's further information response and the Board's Environmental Scientist report, it is considered that the proposed development will not impede the ability to achieve WFD objectives of good status waters as it will not cause any significant deterioration of the surface water.

Groundwater: GSI have commented on the proposal and note the groundwater conditions/ vulnerability and aquifer details rather than raise any specific issues with the proposed development. In relation to the impact on ground water it is noted that the site is in the Ballinhassig West catchment (code IW_SW_G_005) where the ground water is classified as "not at risk". The site bounds the Sullane and Lee (Cork) catchments. The WFD status of those rivers on the site is classified as "good"[11]. The status of the groundwater has remained the same in most up to date WFD information in Cycle 3 and it is noted that there are no groundwater buffer zones required within the site.

Cumulative effects: In the event that the permitted wind farms are developed at the same time as the proposed development the applicant states that the mitigation measures can successfully prevent any cumulative adverse effects to the associated hydrological network. Having regard my assessment above, the control of surface water discharge at greenfield rates and the information in Appendix 8.1 of the EIAR which concludes the risk of a major landslide is generally low, the cumulative effects on water quality would not be considered significant long term.

11.12.9. **Conclusion: Direct and Indirect Effects**

[11] https://gis.epa.ie/EPAMaps/ (EPA Maps) (accessed 17/11/24)

The submission of the planning authority, prescribed bodies, the observations received from members of the public, has been considered in addition to the relevant chapters of the EIAR and the response to the further information request. It is considered that potential effects on hydrology and hydrogeology would be avoided, managed and mitigated by the measures which form part of the proposed scheme and the proposed mitigation measures. It is considered that the proposed development would not have any unacceptable direct, indirect or cumulative effects on hydrology and hydrogeology.

11.13. Air and Climate

11.13.1. Introduction

Chapter 10 deals with Air and Climate. The figures in this chapter are informed by the information provide in Appendix 10.1: Scottish Government – Carbon Calculator Input and Output Data.

11.13.2. Issues Raised.

Issues were raised by observers in relation to the impact of climate change on wind speeds such as decreasing wind speeds and fluctuations with seasons from the lack of wind during summer months to high storm winds in the winter.

11.13.3. Evaluation of the EIAR

11.13.3.1. Context

The EIAR deals with air quality in Section 10.2 and climate and greenhouse gases in Section 10.3, however some overlap between the two assessments in relation to emissions are noted.

The assessment is supported by Figures provided in Volume III and Appendix 10.1 Scottish Government – Carbon Calculator Input and Output Data, provided in Volume IV.

The assessment addresses the proposed wind farm, the grid connection, and the turbine delivery route.

11.13.3.2. **Baseline**

Air Quality: The EIAR outlines the relevant Directives applicable to air quality. Reference is made to revised provisions by Ambient Air Quality and Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC), and EU limit values are provided in Table 10.1 and Table 10.2. The Directive 2008/50/EC was transposed into Irish legislation by the Air Quality Standards Regulations 2011, as amended.

In terms of existing air quality conditions, the site is situated within air quality zone D: Remainder of the country. The closest monitoring point is Macroom. It is noted that no levels above the EU limit values were recorded at the Irish monitoring sites in 2020. The stricter WHO guideline values for fine particulate matter ($PM_{2.5}$), ozone, NO_2 were however, exceeded at a number of monitoring sites. The EIAR clarifies that the construction phase is likely to result in an increase in **exhaust emission** such as carbon dioxide (CO_2), carbon monoxide (CO), Nitrogen Oxides (NOx), PM_{10} and $PM_{2.5}$) from construction plant, machinery and transport vehicles.

In terms of **dust**, the EIAR does not reference any limit guidance. It notes that the distance airborne dust can travel depends on the particle sizes, disturbance activities and weather conditions. With larger dust particles (greater than 30µm) noted to deposit within c. 100m of its source, particles between 10-30µm travelling up to 250-500m, and smaller particle sizes (less than 10µm) travelling up to c. 1km.

Climate: Climate change agreements, plans and reports at Global, European and National levels are referenced. The Board will note the Climate Action Plan (CAP) 2021 referenced in the EIAR has been superseded by CAP 2024, with the lodgement of the application predating the current Plan. CAP 2024 is referenced above in Section 4.

The EIAR makes reference to projected impacts on the climate from the continued emissions of greenhouse gases including from the burning of fossil fuel to produce electricity. In terms of existing climate conditions, Table 10.3 and Graph 10.1 present

mean annual and monthly air temperature and precipitation records (1991-2021) from Cork Airport monitoring station (approximately 48 km south-east of the site). The prevailing wind direction in Ireland is between south and west. Average wind speeds are noted to range from 3m/s in south Leinster to 8m/s in the extreme north of the country.

The EIAR considers the net impact that operating the proposed development will have in terms of CO_2. The applicant has used the Scottish Carbon Calculator Tool to calculate **carbon losses** as a result of constructing the proposed development (Appendix 10.1). Carbon losses are presented in Table 10. 4. These are calculated based on inputting data relating to wind turbine manufacturing, transportation, construction, peat removal and peat disturbance including drainage, tree felling, and loses due to backup from fossil fuels.

Carbon savings as a result of the proposed development over a 35-year period have been calculated using a separate formula. The EIAR notes that the Scottish Carbon Calculator Tool is preloaded with UK CO_2 emissions and that similar data for Ireland was not available. The applied formula includes proposed maximum generating capacity (MW), wind capacity factor (35%), hours in a year (8,760), and the 2018 carbon load of electricity generated and distributed via the national grid (366g CO_2/kWh). The EIAR does not include any source reference for the 35% wind capacity factor. Carbon savings from proposed habitats improvements have also been calculated utilising the Scottish Carbon Calculator Tool.

11.13.3.3. **Likely potential effects**

Summary of Potential Effects on Air and Climate

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• Dust and exhaust emissions from construction and decommissioning works would not arise. • Opportunity to increase electricity generation from renewable energy sources and provide greenhouse gas savings that would

	arise from the operation of the proposed development would be lost. A long term, moderate, negative effect predicted.
Construction	• **Dust:** Construction activities and vehicle movements have the potential to generate dust particles. Only ready-mix concrete will be used with no on-site batching taking place, reducing the potential for dust from cement. The deposit of airborne dust is most likely to occur at sensitive receptors within 100 m of the source. The predicted effects on workers, local road users, vegetation and residents along public roads are slight, negative, short term, direct. • **Exhaust Emissions / Greenhouse gases:** Construction plant, machinery and vehicles are likely to result in an increase in exhaust emissions and greenhouse gases emitted. The predicted effect on air quality and climate are short term, slight negative.
Operation	• **Dust and exhaust emissions:** Small number of vehicles, imperceptible negative effect predicted. • **Greenhouse Gases:** The operation of the proposed development will displace carbon dioxide from fossil fuel-based electricity generation lead to greenhouse gases savings. A long term, moderate, positive effect on the climate is predicted. • Calculated carbon loses for the proposed development taking account of manufacturing, peat loss and disturbance, tree felling, and back-up fuels are 140,798 tonnes of CO_2 (5.6MW turbine) and 163,537 tonnes of CO_2 (6.6MW turbine) over the 35 years period. • Calculated carbon savings including habitats improvements works (329 tonnes per year) are 88,306 tonnes of CO_2 (5.6MW turbine) and 104,016 tonnes of CO_2 (6.6MW turbine) per year over the 35 year period.
Decommissioning	• **Dust and exhaust emissions:** Less dust and exhaust emission generating activities than those occurring during construction, and an imperceptible effect predicted.

	• **Greenhouse gases:** Similar to construction effects.
Cumulative	• **Construction/Decommissioning**: • The assessment identifies 11 wind farms which have the potential to be under construction at the same time as the proposed development. • Given distances between the wind farms, no cumulative effects on air quality are predicted. • In the event construction phases overlaps, a short term slight negative cumulative impact on climate is predicted. • **Operational:** • Dust and exhaust emissions will be limited to operations and maintenance vehicles, and a long term imperceptible negative cumulative effect is predicted. • A cumulative long term, significant, positive effect on air quality and climate is predicted as a result of reduced greenhouse gas emission during the operational phase.

11.13.3.4. **Mitigation Measures**

- The main mitigation proposed is the design itself utilising existing tracks where possible and the provision of two on-site borrow pits, reducing the requirement for and the import of stone material.
- A detailed Construction Environmental Management Plan (CEMP) (EIAR, Appendix 2.2) is proposed for construction and decommissioning works.

11.13.3.5. **Residual Effects**

The residual effects on air quality from dust generation and exhaust emissions during construction are predicted to be reduced to slight/imperceptible. No further changes in the predicted effects outlined above are noted.

11.13.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Chapter 10 of the EIAR has been examined, analysed and evaluated and all of the associated documentation and submissions on file in respect of air and climate. It is considered that the applicant understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on air and climate, as a consequence of the development have been identified. I have reviewed the carbon loss and saving calculations provided in Chapter 10 and Appendix 10.1. Having regard to this and matters raised in the application in respect of air and climate, I address the following below:

- Carbon balance
- Wind speed trends

Carbon balance: The EIAR has applied a 35% wind capacity factor to the carbon saving formula, and as noted above, the source or reasoning for this wind capacity factor is not clear in the EIAR. Annual capacity factors for wind generation and carbon intensity in electricity generation are published in the Energy in Ireland reports by the SEAI. The December 2020 report, Section 6.1.2 notes an average wind capacity factor of 30%, although the mean of the data presented in the 2023 report sees this falling to 29% (Table 8.8). It should be further noted that the annual capacity factor over the past 10 years ranges from a 25.8% low to a 31.7% high.

The EIAR notes that the most recent carbon intensity in electricity generation was the 2018 data (366g CO_2/kWh). In this regard, it is noted that the 2019 and 2020 data would also have been available. The SEAI's Energy in Ireland 2020 Report, published in December 2020, in Section 4.1.4 notes that the 2019 emission factor for electricity was 324 gCO2/kWh down from 364 gCO2/kWh in 2018, and that a historic low of 309 gCO2/kWh was recorded in 2020 (Section 1.4, 2022 Report). The 2023 Report, Section 1.3 notes an increase to 348 gCO2/kWh in 2021 which is noted as a year of poor wind generation, and a fall to 332 gCO2/kWh in 2022. The estimates for 2023 indicate the continuation of the downward trend.

Having regard to this, it is considered the capacity and emissions factors included in the carbon savings formula in the EIAR, Section 10.3.4.3 to be high. By adding a reduced wind capacity factor of 0.30 (30%) and the 2022 reduced emission factor for electricity 332 gCO2/kWh to the formula, the revised savings are noted 68,404 tonnes of CO_2 (5.6MW turbine) and 80,619 tonnes of CO_2 (6.6MW turbine) per year over a 35 year period. As outlined above, the carbon losses from manufacturing, loss and disturbance of peat, deforestation and fuel backup are calculated as being between 139,496 and 161,482 tonnes of CO_2. This will take around 2 years to offset, an increase from the 1.6 years within the EIAR. Given the lifespan of the proposed development, the carbon savings of the proposed development are acceptable and are noted to be consistent with other wind farm developments on peat.

As part of its functions the Board must, in so far as practicable, perform its functions in a manner that is consistent with a) the most recent approved climate action plan, b) most recent approved national long term climate action strategy, c) national adaptation framework, sectoral plans, d) furtherance of the national climate objective and e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State[12]. The long term positive effect from the carbon savings will support the objectives of these plans and the national transition towards a low carbon, climate resilient and sustainable nation.

Wind speed trends: The Climate Status Report for Ireland (EPA, 2021) identifies that no long term trend in wind speed can be determined with confidence due to monitoring changes in the location of observation stations and instrument changes in the 1990s. CAP 24 references the Climate Status Report for Ireland 2020 and the consequences of climate change to Ireland. Among the listed predicted impacts are changes in wind speeds and storm tracks. The onus, however, is on mitigating the magnitude of long term climate change by reducing greenhouse gas emission, and to increase the capacity of carbon sinks such as forests and wetlands. In this regard, CAP 24 identifies wind energy as central to the decarbonising of the electricity sector. As set out in Section 4 above, CAP 24 includes targets of deploying 9 GW of

[12] Section 15 (1) of the Climate Action and Low Carbon Development Act 2015 (as amended)

electricity from onshore wind projects by 2030 with 80% of electricity generated from renewable sources.

11.13.5. Conclusion: Direct and Indirect Effects

Having regard to the examination of environmental information in respect of air and climate, in particular the EIAR and the observations received from members of the public in the course of the application, it is considered that there is no potential for significant negative environmental effects on air and climate. It is considered that potential negative effects on air and climate would be avoided, managed and mitigated by the measures which form part of the proposed development. There will be a long-term positive effect on climate due to the displacement of CO^2 from the atmosphere arising from fossil fuel energy production.

In reaching this conclusion regard has been given to the cumulative impact of the wind farms in the study area. There is the potential for significant cumulative positive effect on climate by reduced greenhouse gas emission from increased electricity generation from renewable sources.

11.14. Noise

11.14.1. Introduction

Chapter 11 deals with noise. The EIAR is accompanied by a number of appendices listed below:

- Appendix 11.1: Photos of noise monitors in-situ
- Appendix 11.2: Methodology for calculating wind shear, different hub heights and standardising hub height wind speed
- Appendix 11.3: Calibration certificates of noise instruments
- Appendix 11.4: Candidate turbine manufacturer’s noise emission data
- Appendix 11.5: Predicted noise levels for 102.5m hub height

11.14.2. **Issues raised.**

The submission from Cork County Council notes the information contained in Chapter 11, the survey locations chosen, the closest inhabited dwelling (H1) 753m from the nearest turbine, the limitations on noise set at 43 dB (A) during the day and night and the assumption that the 14 turbines are directly down wind. The council's submission does not specifically raise any issues with the noise assessment, although considers the Board should engage with their own acoustic expert due to the nature of the wind farm noise impact assessment.

The impact of noise from the wind farm on the residential amenity is raised in the third-party submissions.

11.14.3. **Evaluation of the EIAR**

11.14.3.1. **Context**

The assessment methodology refers to the various refences in the report:

- Wind Energy Guidelines 2006
- ETSU-R-976: The Assessment & Rating of Noise from Wind Farms (ETSU-R-97)
- ISO 19968Acoustics-Description and Measurement of Environmental Noise - Part 1: Basic Quantities and Procedures (ISO 1996)
- WHO 2018 Environmental Noise Guidelines for European Region (WHO 2018)
- Draft Revised Wind Energy Development Guidelines December 2019 (DRWEDG, 2019)
- National Roads Authority (NRA) Guidelines for Treatment of Noise and Vibration in National Road Schemes, 2004.

11.14.3.2. **Baseline**

Baseline Wind Data: A meteorological mast located on the site was used for wind data measurements at heights 80m and 61m with wind shear derived and used to calculate the hub height wind speed of 110.5m. The hub height wind speed was standardised to 10m height wind speed with the wind speed plotted against the 10minute background noise data. The variation in hub height will not change the maximum power level of a turbine.

Noise levels: The EIAR refers to the 2006 Guidelines and notes that they do not specify daytime or night-time hours. However, the applicant considered it was good practice to follow the framework given in ETSU-R-97 and IOA Good Practice Guide where daytime and night-time hours are specified. The limits are based on the prevailing background noise level for 'quiet daytime' periods, defined in ETSU-R-97 as:

- Quiet waking hours or quiet day-time periods are defined as:
    - All evenings from 18:00 to 23:00hrs
    - Saturday afternoon from 13:00 to 18:00hrs and all-day Sunday 07:00 to 18:00hrs
    - Night-time is defined as 23:00 to 07:00hrs

Table 11.1 indicates noise levels for different types of environments where a wind farm at 350m would typically experience noise levels at 35-40 dB (A).

Sensitive Receptors: A noise contour map of the 14 turbines illustrates the location of the 106 dwellings within the study area. The results in Chapter 11 include the predicted noise levels at these locations, with a detailed analysis of background noise at 5 locations.

Baseline noise levels: Baseline noise monitoring was undertaken at five locations between 6th August and 3rd September 2020. Noise data was recorded for a representative range of wind speeds during this four-week period and included continuous monitoring of background noise levels. This formed the basis of the noise assessment in Chapter 11. The LA90 is used for assessing both the wind energy

development noise and background noise. 16hr daytime noise level was calculated for each day with the average level for each location presented below:

- H1 – 33.4 dB L_{A90}
- H2 – 37.1 dB L_{A90}
- H4 – 39.5 dB L_{A90}
- H21 – 32.6 dB L_{A90}
- H37 – 40.4 dB L_{A90}

Having regard to the above levels and the 2006 Guidelines, the site is not considered a low noise environment i.e. under 30 dB L_{A90}. The results are presented in Table 11.12 and are based on standardised mean 10m height wind speed (m/s).

Turbine Design: It is acknowledged in the EIAR that the final design of the turbines has not been decided. The Nordex N149 turbine has a range of hub heights, however the proposed hub heights range between 102.5m and 110.5m. The maximum sound pressure levels from two turbine heights (102.5m and 110.5m) has been presented. No significant difference in sound pressure has been identified when using a number of different wind speeds (3 ms^{-1}-9 ms^{-1}+), and only at lower wind speeds (3 ms^{-1}) will be a small variation to the sound power levels. A wind farm noise assessment is based on a standardised noise level referenced to a wind speed at 10m height. The worst-case scenario for noise impact has been used in the assessment.

Construction and Decommissioning Noise Impacts: The NRA Guidelines (2004) are used to assess in the methodology to assess the impact of the noise from construction and decommissioning.

Further Information Request: The Board requested additional information on the number and distance of all noise sensitive receptors within 500m, 1,000m, 1,500m and 2,000m and requested confirmation that the dwellings on Fig 11.1 were the most representative noise monitoring locations. Table 11.1 of the FI response includes the location of each “current house” within 1,000m from a proposed turbine.

11.14.3.3. **Likely potential effects**

Construction Noise: Typical construction noise levels are used as predictions. These predictions are made for receptors nearest to the borrow pit processing, turbine bases / hardstands activity and for receptors at varying distance from the grid connection route. The construction of a substation is considerably less intensive than the construction of a small bungalow. Typical construction levels will range from 70-89 dB L_{Aeq} at 10m with the highest noise for pile driving, rock breaking associated with turbine foundations and borrow pit processing. At the closest sensitive receptor these equate to 34-47 dB L_{Aeq} 1hr range as the worst-case scenario.

Operation Noise: Table 11.16 includes the predicted noise levels from the development as LA90 at varying wind speeds (from 3m/s to 9+m/s) using a height of 110.5m hub height.

Decommissioning Noise: Noise effects will be similar to the construction phase although less intensive and of a shorter duration.

Summary of Potential Effects on Noise

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	• Noise environment likely to remain unchanged.
Construction	• Cable laying is proposed at 15m and 20m from two sensitive receptors (H15 and H31). An acoustic barrier will be installed at both locations to provide a 10 dBA reduction., in line with best practice. • Horizontal directional drilling is required at seven locations along the grid connection. The nearest sensitive receptor of 540m of the N22 crossing. Noise levels are all within the NRA Guidelines. • Construction traffic will generate low levels of noise as the movement of turbine will be slow. It is expected that there are 148 truck movements for each turbine (i.e. 74 loads of concrete and turbine movement) which equates to c. 14. movements per

	hour. At 10m from the roadside the noise levels will equate to 57.8 L_{Aeq} 1hr and the concrete pour will be c. 15 days (1 day per turbine). • No noise assessment considered necessary for the 110kV substation as it is very low compared to the turbines (i.e. less than 30dBA at 150m and will have negligible impact at the nearest noise sensitive receptor H10 which is 325m away. • The level of vibration generated by truck movements at receptors will be below the thresholds of sensitivity to humans. The effects of ground vibrations from blasting at the two borrow pits will not be significant as they are in excess of 924m from the nearest receptor. The levels of air pressure will be kept within the EPAs guidance value of 125 dB. • Construction noise will be slight and temporary and blasting will be **negative but short term and not significant.**
Operation	• Table 11.16 includes the predicted noise levels from the proposed development as LA90 at varying wind speeds (from 3m/s to 9+m/s) using a height of 110.5m hub height. • All predicted noise levels will be under or at 40 dBA at all wind speeds apart from H4 with noise levels predicted to be 41.1 dBA at wind speeds 5m/s to 9+m/s. • 110kV substation is less than 32 dBA at 150m and inaudible. • Operational noise will be **negative although not significant in the long term**.
Decommissioning	• No blasting will be required. Similar noise levels to construction would be expected during decommissioning.
Cumulative	• The cumulative effect of the operational Derragh Wind Farm, c. 1km to the south was assessed assuming 6 No. Nordex N100, 3.3MW turbines of 100m hub height.

	• Noise levels are lower than the fixed 43 dBA limits which means that the levels are within the day and night limits.

11.14.3.4. **Mitigation Measures and Residual Effects**

Although no significant construction noise effects are identified, where the grid connection is closer than 20m from a receptor and acoustic barrier will be used around the construction site.

Residual effects are the same as construction and decommissioning.

11.14.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Environment Section of Cork County Council submission: The issues raised in the Cork County Council submission have been addressed by the applicant in the FI submission which clearly sets out the number and distance of all noise sensitive receptors within 500m, 1,000m, 1,500m and 2,000m as presented in tabular format (Table 11.1, 11.2 and 11.3) and confirmed that the dwellings on Fig 11.1 (H1, H2, H4, H21 and H37) are the most representative noise monitoring locations based on the following attributes:

- Existing waterfalls are in the area.
- There is no industrial noise in the area.
- The wind direction is from southerly and westerly directions so the side of a hill/ mountain exposed to these winds will generate higher wind speeds and higher noise levels.
- Locations H1, H21 and H37 are at locations influenced by wind speeds.
- H4 background noise is influenced by waterfall.
- H16, H14 and H20 are influenced by wind effects on vegetation e.g. mainly trees.

- The five monitoring locations at H1, H2, H4, H21 and H37 represent the range of background noise for the wind farm.

Comments from Cork County Council also refer to the need for the Board to engage an acoustic expert. No specific issues in relation to the applicant's wind farm noise impact assessment have been raised. The information presented in the Chapter 11 of the EIAR, and the accompanying appendices includes a detailed assessment of the noise predicted from the construction, operation and decommissioning of the wind farm, which is considered reasonable and robust to undertake an assessment.

The main source of noise from the construction will be from the excavation of the borrow pits, including the blasting and crushing, and the construction of the turbine foundations. Horizontal drilling for the grid connection (at four of the locations) will also lead to some short-term noise disturbance. It is considered these locations are at a sufficient distance from any properties and will not have a significant negative effect on their residential amenity.

In relation to the operation, the predicted noise levels from the turbine operation, assumes that all turbines are simultaneously downwind at the same time to each chosen location. The noise levels predicted for a range of wind speeds is presented in Figure 11.1 and there is a maximum sound power output at a wind speed of 8m/s at 10m height. Regard has been given to the noise levels presented throughout this evaluation of the impact of the noise on sensitive receptors in the vicinity of the turbines. The predicted noise levels will be under or at 40 dBA at all wind speeds apart from H4 with noise levels predicted to be 41.1 dBA at wind speeds 5m/s to 9+m/s.

The applicant states that the background noise levels recording indicate that the area is not considered a low noise environment (i.e. less than 30 dB) and therefore the predicted noise levels are well within the recommended lower fixed levels of 43 dB or 5 dB above background. The information presented in Charts 11.1 – 11.10, provide a comparison between the day and nighttime noise levels against the predicted noise levels at all the representative locations. At locations H5, H15 and H35 the predicted noise levels will be the same as the background noise +5 dB at

wind speeds of 5 m/s, and while the predicted noise levels at location H2 and H3 are greater than the background noise +5 dB, they are well within the lower fixed limit of 43 dB consistent with the 2006 Guidelines.

Overall, it is considered the applicant has satisfactorily demonstrated that all predicted noise levels are well below the limits set in the 2006 Guidelines at 43 dB for both day and nighttime, at all wind speeds. The cumulative impact from Derragh Wind Farm to the south of the proposed development and again, with an overprediction of noise levels, the predicted noise levels are within the 43 dB limit.

Section 11.2.7 of the EIAR provides information with regard **Amplitude Modulation**. It is noted that in early wind designs, where the rotor was positioned downwind of the tower, a type of “beat” was audible as the blade passed through the turbulent wake shed from the tower. This effect does not exist for the upwind rotor designs of modern wind farms and the EIAR refers to UK research. No effects from amplitude modulation have been identified in the EIAR and no issues have been raised in any submissions. The applicant predicted operation noise levels, based on a contour map, assumes that all turbines are simultaneously downwind at the same time at each location. The applicant states that these results are an overprediction of the noise levels. Having regard to this information, it is considered that the worst-case scenario has been included in the applicant’s noise assessments and the results are representative for the proposed development.

11.14.5. **Conclusion: Direct and Indirect Effects**

Having regard to the examination of environmental information in respect of noise and vibration, in particular the EIAR and supplementary information provided by the applicant, it is considered that the main significant direct and indirect effects on noise and vibration arise during the construction phase of the development and that these effects can be mitigated by the application standard good construction practices. During operation, the noise environment in which the development is situated will change, however, noise levels will not be significant and can be controlled by condition. In reaching this conclusion regard has been given to the cumulative impact of the wind farms in the study area.

11.15. Material Assets

11.15.1. Introduction

Chapter 13 deals with Material Assets and Other Issues, and is subdivided into the following sections:

- Section 13.4 Land use – Agriculture
- Section 13.5 Land Use – Forestry
- Section 13.6 Telecommunications
- Section 13.7 Electricity Networks
- Section 13.8 Air Navigation
- Section 13.9 Quarries
- Section 13.10 Utilities

The chapter is informed by Figures in Volume III and Appendices in Volume IV, including Appendix 13.1: Ai Bridges Telecommunications Impact Study and Appendix 13.2: PUNCH Civil & Structural Due Diligence Report.

11.15.2. Issues Raised

A submission has been received from Irish Aviation Authority (IAA) recommending conditions are included for aeronautical obstacle warning light, contact with the airport before the erection of any crane, and to engage with Kerry Airport.

Matters raised by Uisce Éireann relating to drinking water catchments, abstraction and Water Framework Directive are assessed in Section 11.23 above, Hydrology and Hydrogeology.

The following issues have been raised in observations to the application by members of the public:

- Impact on livestock and restricted access for agricultural uses
- Loss of phone, TV and internet signals.

Materials used in wind turbine manufacturing, including rare metal only found in Germany and negative impact on the indigenous communities in Ecuador from the use of balsa wood.

11.15.3. Evaluation of the EIAR

11.15.3.1. Context

The proposed development includes 14 No. turbines, one met mast and associated ancillary infrastructure in an upland location. Works are also required for the grid connection route (c. 28km) which connects the proposal to the Ballyvouskill substation. The majority of the grid connection is proposed to be located along forest tracks (20km), public roads (6.8km) and ESB access tracks (1km).

11.15.3.2. Baseline

Land Use – Agriculture: The site extends to approximately 667 ha and the principal land uses are commercial forestry and agricultural. Agricultural land is noted to be predominately utilised for sheep and cattle grazing. It is stated that the site has elevations between 230m to 423m above ordnance datum (AOD), but noting that most of the site is above the 300 AOD mark. The total landtake including site access roads, turbine hardstand and foundations, grid connection and delivery route is 135 ha (20% of the site). Ten turbines will be located on or partly on agricultural lands, and the proposed development will remove approximately 127 ha of agricultural land.

Land Use – Forestry: The site contains approximately 154 ha of commercial forestry, mainly Sitka spruce with pockets containing Lodgepole Pine, Alder, Birch and Beech. Six turbines are located within or will affect forestry. To facilitate the access roads, civil works, site compounds, borrow pits and Turbine Hardstands, 35.42 ha of Sitka Spruce or Lodgepole Pine forestry will be clearfelled.

Reference is made to EIAR Appendix 2.2 for detailed consideration of the approach to afforestation requirements. It is noted that both felling and afforestation will require separate licenses from the Forest Service of the Department of Agriculture, Food &

the Marine, and the proposed development will not commence until both are in place. It is stated that the applicant commits that the location of any replanting will be located greater than 10km from the wind farm, and outside the water catchment of the proposed development and any potential hydrological pathways of connectivity.

Telecommunications: Seven communications links which could potentially be affected by the proposed development were identified and confirmed through consultation with relevant telecommunication operators (TOs). The links identified included: three Vodafone links, three 2RN links (RTE Transmission Network DAC) and one ENET Link using 3D network modelling. Five telegraph poles will be temporarily removed along the L-3405-0 to facilitate the transport of Turbine components.

Electricity Networks: The EIAR outlines that grid connection will be to Ballyvouskill 220kV substation via underground 110kV cables, a 27.8km connection route along public roads, private roads, and forestry roads. The grid connection would be subject to an application to EirGrid and construction to the requirements and specifications (CDS-GFS-00-001-R1) of EirGrid. ESB network installations along the route include a high voltage cable route crossing and joint bays (Appendix 13.2).

Air Navigation: The EIAR outlines that Enniskeane Airstrip is 28km to the south-east and Bantry Aerodrome is 29km to the south-west of the proposed development. Consultation with Kerry Airport has confirmed that the proposed development is outside the 'Outer Horizontal Surface' (over 15km away) and over 30km from the extended centreline of Runway 08/26 (Kerry Airport) and the Kerry Aerodrome Reference Point. The proposed development is 48km from Cork Airport.

Quarries: The EIAR outlines that sub-base and base course materials will be sourced from the proposed onsite borrow pits. Crushed Stone and concrete will be imported from licenced quarries, and six potential quarries in the locality have been identified.

Utilities: EIAR notes that a scoping exercise was carried out with Gas Networks Ireland, ESB, Irish Water and Local Authorities. There are no gas mains within the site and no existing services along the grid connection or turbine delivery routes.

Furthermore, no visible gas infrastructure along the routes have been identified. No local water services within the site have been identified. The locations of watermains, fire hydrants, metres and sluice valves along the routes have been recorded.

A desk study of available information from the EPA was carried out and no waste facilities, illegal waste activities, chemical monitoring points or industrial EPA licensed facilities within a 2km radius of the site were identified. The nearest authorised municipal waste facility identified is located approximately 13km east of the site.

11.15.3.3. Likely potential effects

Summary of Potential Effects on Air and Climate

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	Commercial forestry and agricultural land uses will continue within the site and with no additional direct or indirect effects. No offset to fossil fuel usage or provision of additional electricity in the local area.
Construction	• Land use – Agricultural: A long term slight, negative impact on agricultural land use predicted due to the removal of grazing lands (127 ha). Localised excavation works followed by reinstatement mainly along or within public roads, and some private lands, for grid connection and turbine delivery routes. • Land use – Forestry: A permanent slight, negative impact predicted on the existing forestry land use due to the loss of 35.4ha (21%) of 154ha commercial forestry lands within the site. • Telecommunications: Five telegraph poles will be temporarily removed along the L-3405-0 to facilitate the transport of Turbine components, a not significant temporary, short term effects on telecommunications in the locality.

	• Electricity Networks: There will be no impact on the overhead electricity network. The connection into Ballyvouskill 220kV substation is predicted to have a slight, short term effect. The proposed development will have a direct and long term contribution to the electricity network. • Air Navigation: No potential effects on air navigations predicted. • Quarries: Aggregates will be sourced from quarries for construction and a slight, permanent negative effect on non-renewable resources of the area is predicted. The long term effect is considered imperceptible. • Utilities: No impact on gas and water utilities identified. No significant effects on waste predicted.
Operation	• Land use – Agricultural: Similar to construction with the addition of improved access to agricultural lands through provision of new and upgraded site access roads. • Land use – Forestry: Potential effects as per construction above. • Telecommunications: There will be no impact on six of the seven links. There will likely be interference with the 2RN transmission link (FM link from Mullaghanish to Bantry), turbines 3 and 7 will be oscillated into a position predicted to impact on the 2RN telecommunications links the most (i.e., worst case interference position). • Air Navigation: No potential effects on air navigations predicted. • Quarries: Only small amounts of aggregates for maintenance required. • Utilities: No impact on gas and water utilities identified. No significant effects on waste predicted.
Decommissioning	• Land use – Agricultural: Removal of wind turbines, turbine plinths and extraction of cables with remainder left in-situ to

	revegetate naturally and roads with associated drainage serving ongoing forestry and agricultural use. Effects less than construction and operation. • Land use – Forestry: Potential effects as per construction above. • Telecommunications: Potential effects as per construction above. • Air Navigation: No potential effects on air navigations identified. • Quarries: No effects predicted. • Utilities: Similar ton construction above.
Cumulative	• 32 No. proposed, permitted or operational wind farms within 20km of the proposed development have been identified (Appendix 2.5). The nearest wind farm is located 189m to the south of the Development (Derragh Wind Farm). • Land use – Agriculture/Forestry: Given localised nature of the works and continuation of land use on surrounding lands, no potential for significant cumulative effects. • Telecommunications: Each wind farm have to address potential interference with telecommunication links, no significant cumulative effects predicted. • Electricity Networks: No cumulative effects predicted. • Air Navigation: No potential negative cumulative effects on aviation predicted. • Quarries: Quarries are the source of stone for almost all developments in the area, and cumulative effects during the construction phase are predicted. • Utilities (gas, water, waste): None identified.

11.15.3.4. **Mitigation Measures**

The main mitigation proposed is the design itself which seeks to prevent unnecessary or inappropriate works or land use alterations to occur and avoiding unnecessary soil compaction.

The construction and decommissioning works will be planned and controlled by a Construction Environmental Management Plan (CEMP). The CEMP includes measures relating to existing land use, local access, scan and survey of existing services, sourcing of stone, and waste management.

Land use: Existing access points providing local access will be accessible during temporary road closures and diversions occurring at construction and decommissioning phases. A community liaison officer will be appointed for the duration of the construction period.

Telecommunications: Mitigation measures to interference with the 2RN FM link from Mullaghanish to Bantry include: the installation of upgraded microwave radio link/FM Radio Multiplex or equipment to be installed and maintained on behalf of 2RN for the duration of operation of the wind farm; or the provision of point-to-point 10MB dedicated internet access connection from 2RN Head-end site to Bantry Mast Transmitter site for a FM link.

Electricity Networks: Consultation with ESB and drawings for all existing services, CAT scan survey, as-build survey and record drawings, and temporary safety signage during live work areas.

Air Navigation: As per IAA Safety Regulations and ICAO Annex 15, aeronautical obstacle warning light scheme to be agreed with the IAA and installed. IAA to be provided with as-built coordinates of ground and tip height elevations at each wind turbine location. Advance notification of crane operations commencement to the IAA.

Quarries: Quarries in proximity to the site identified, reducing impact on transportation. Stone which is chemically similar to that occurring within the site will be sourced to reduce hydrogeochemical effects.

11.15.3.5. Residual Effects

Land use – Agriculture: The predicted residual effects on agricultural land use within the site are slight negative for the construction, operational and decommissioning phases. The predicted residual effects on surrounding land uses during the same phases are negligible.

Land use – Forestry: Residual effects during construction and decommissioning are predicted to be slight negative and short term in duration. No residual effects during operational phase on forestry land use predicted.

Telecommunications: No residual effects on telecommunications or radio reception predicted.

Electricity Networks: No residual effect on distribution predicted. The residual effect on transmission infrastructure in the area predicted as positive, slight and long term.

Air Navigation: No potential effects on air navigation were identified.

Quarries: The residual effect on natural resources within the area is predicted as slight, permanent negative and imperceptible in the long term.

Utilities: No residual effect on utilities predicted. The residual effect of waste produced during construction, operational and decommissioning phases are predicted to be not significant.

11.15.4. Analysis, Evaluation and Assessment: Direct and Indirect Effects

Chapter 13 of the EIAR, and all of the associated documentation and submissions on file in respect of material assets has been examined, analysed and evaluated. It is considered that the applicant understanding of the baseline environment, by way of desk and site surveys, is comprehensive and that the key impacts in respect of likely effects on Material Assets, as a consequence of the proposed development have been identified.

Parties to the application have raise a number of issues in respect of material assets which are addressed below.

- Impact on livestock

- Restricted access for agricultural uses
- Loss of phone, TV and internet signals
- Aviation
- Wind turbine materials

Impact on livestock: No significant negative effects on existing agricultural land use have been predicted in the EIAR. Existing land-use, such as agricultural sheep and cattle grazing and farmland, that are outside the footprint of the proposed development and works areas can continue on the site as normal. It is further noted that several existing wind farms around the country operate within and adjoining farming operations. It is not considered that the proposed development would have an adverse effect on farming or livestock.

Restricted access for agricultural land: The EIAR outlines that existing access points providing local access to domestic premises, business and farms will be accessible during temporary road closures and diversions occurring at construction and decommissioning phases. This is further detailed within the CEMP, in Appendix 2.1. It is considered that potential effects on local access would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

Loss of phone, TV and internet signals: The EIAR notes that the switchover from analogue to digital television in 2010 and the advancement in turbine technology, potential effects on television and radio signals will be negligible. Telecommunications links which could potentially be affected by the proposed development have been assessed in the EIAR. It is considered that potential effects on telecommunications would be avoided, managed and mitigated by the measures which form part of the proposed scheme, the proposed mitigation measures and through suitable conditions.

Aviation: Conditions outlined by the IAA reflect standard aviation mitigation measures and which are included in the EIAR.

Wind turbine materials: The EIAR in Chapter 2 Project Description notes that the final turbine will be chosen in a competitive tendering process. An overview of turbine components and materials are also provided, noting that there are variations in the composite materials for turbine blades depending on the manufacturer.

11.15.5. Conclusion: Direct and Indirect Effects

Having regard to the examination of environmental information in respect of material assets, in particular the EIAR and observations received from members of the public in the course of the application, it is considered that there is no potential for significant negative environmental effects on material assets. It is considered that potential negative effects on material assets would be avoided, managed and mitigated by the measures which form part of the proposed development.

In reaching this conclusion regard has been given to the cumulative impact of the wind farms in the study area.

11.16. Landscape and Visual Amenity

11.16.1. Introduction

Chapter 12 deals with Landscape & Visual Amenity and informed by additional studies in the Appendices, as detailed below.

11.16.2. Issues Raised

Issues were raised by observers in relation to the impact of the proposed development on the landscape and the visual amenity of the surrounding area.

In relation to the **visual amenity**, it is stated that:

- The impact of the turbines will be substantial, with T1 being extremely domineering, many of the turbines are clumped together.
- There is a high saturation of windmills with 20km radius where a total of 182 windmills and 9 farms with a further 50 windmills and 46 at pre planning not including these 14.

- The Upper Lee Valley is an area of striking scenic beauty and there cannot be a neutral impact on the landscape and visual amenity from 14 wind turbines.

11.16.3. **Evaluation of the EIAR**

11.16.3.1. **Context**

The proposal is for 14 wind turbines and a 27.8km grid connection route, north and then northeast, across into County Kerry.

The EIAR is informed by a Landscape and Landscape Visual Impact Assessment (LVIA) in Appendix 12.1 and a cumulative assessment in Appendix 12.2 (EIAR Volume IV). LVIA photomontages are presented in two books (VP1-17 in Book 1 and VP17-30 in Book 2). A Zone of Theoretical Visibility (ZTV) map indicates areas from which the proposed development is potentially visible in relation to terrain within the Study Area. The magnitude of impact is assessed using the IEMA Guidelines for Landscape and Visual Assessment (2013). The Scottish Natural Heritage (SNH) guidance 'Assessing the Cumulative Effects of Onshore Wind Farms' (2012) and the DoEHLG Wind Energy Guidelines (2006) are used to identify cumulative impacts on visual amenity.

11.16.3.2. **Baseline**

EIAR Section 12.3 includes a description of the baseline environment. The site spans c. 4km in a north-east-south-west direction, covering a variety of land uses. A description of the landform and use of the study areas, area 5-10km and 10-20km away are detailed. The immediate area is rural with the nearest village of Coolea around 2.5km to the north and the dispersed rural settlement of Reananerree a similar distance to the east. The nearest substantial sized settlement to the site is Ballyvourney, which lies along both sides of the N22 around 5.5km to the northeast.

The study area is upland and sloping with a variance in elevation with most of the site resting at elevations above 300m AOD. Terrain is broadly angled in a northeast to southwest direction, within the site peaking at Carrigalougha in the southwest

(423m AOD), with the lowest terrain of the site dropping to c. 220m AOD, along the eastern boundary of the site. There are more mountainous ranges further north, northwest and northeast, along the Cork-Kerry Border (up to c. 650 AOD) and gentler valleys to the south (c. 220 AOD).

The landscape effects have been considered in respect of the immediate surrounding landscape (central study area <5km) and the broader scale (wider study area 5-20km).

Cork County

Figure 12.1 of Volume III of the EIAR illustrates the location of the individual turbines in relation to the landscape character areas in the Cork County Development Plan 2022-2028.

The site straddles three **landscape character areas** in the Cork County Development Plan, two are classified as High Value and High Sensitivity

- 12a – 'Rolling Marginal and Forested Middleground'
- 15a – 'Ridged and Peaked Upland'

The central area has been designated as low landscape value and medium sensitivity.

- 16a- Glaciated Cradle Valleys

Within the study area there are 17 No. County Cork **designated scenic routes.**

In the central study area, there are six County Cork scenic routes, one of which traverses the south-western corner of the site:

- Scenic Route S24: Road between Coolea and Coom, located within c. 2.2km northwest of the location of the nearest turbine.
- Scenic Route S25: Winding Road joining Coolea - Coom road to Lissacresig road, which dissects the south-western corner of the site and comes within c. 160m of the nearest proposed turbine.

- Scenic Route S26: Road between Lissacresig and the Mouth of the Glen, which aligns the southern site boundary as well as dissecting a small section of the south-western corner of the site, while coming within c. 320m of the nearest proposed turbine.
- Scenic Route S27: Road between Gougane Barra and the Mouth of the Glen, coming within c. 2.6km of the nearest proposed turbine.
- Scenic Route S32: South Lake Road - Inchigeela and Ballingeary to Keimaneigh, coming within c. 4.8km of the nearest proposed turbine.
- Scenic Route S34: Road between Inchigeela and Ballingeary to Keimaneigh, coming within c. 4.0km of the nearest proposed turbine.

5-10km from the site, there are a further five additional County Cork scenic routes and within 10-20km from the site, there are a further six additional County Cork scenic routes all of which have been listed in the EIAR. EIAR Figure 12.2 illustrates relevant scenic routes within the development plans for County Cork and County Kerry.

Kerry County

The grid connection is located within County Kerry although the wind farm will be visible from parts of County Kerry, particularly those upland areas to the north. The nearest and most relevant landscape character areas include:

- LCA 27- Clydagh River, The Paps and the Derrynasaggart Mountains
- LCA 40- Bonane and Sheen River Valley.

Both landscape character areas have been classified with an overall sensitivity of “medium to high”.

There are numerous County Kerry **scenic designations** within the study area. The EIAR notes these are mapped although no further details of the direction etc. of the designation is included in the plan.

- In the central study area, there are no County Kerry designated view/prospects.
- 5-10km from the site, there is one County Kerry designated view/prospect more than 7km, at its closest point, north of the location of the nearest turbine (along the N22).
- 10-20km from the site, there are four further County Kerry designated views/prospects, ranging from 11-19km from the location of the nearest turbine.

County Cork/Kerry

There are many **tourist amenities** within the vicinity, included in the EIAR.

- The 'Slí Gaeltacht Mhúscraí (Beara Breifne Way) is a long-distance marked trail that also passes through the Gougane Barra valley and the site.
- The Kerry Way runs along the northern slopes of the Derrynasaggart Mountains in an east-west orientation.
- Danú Mountain Trail is a route to the summit of Danu Mountain / The Paps. Only the upper part of the route, close to the summit, lies within the ZTV pattern.
- Killarney Lakes National Park lies just beyond the edge of the study area. The Derrynasaggart and Mangerton ranges to the north and northeast will experience cumulative impact.
- The Gougane Barra Forest Park is located to the southwest, which hosts St Finbarr's Oratory on an island in the middle of the lake.

11.16.3.3. **Sensitivity**

30 No. key receptors, viewshed reference points, have been chosen (VP 1-30) to represent sensitive locations within the study area. The LVIA includes baseline photography, cumulative wireline views and modelling to illustrate the proposed and existing wind farms. The Magnitude of visual effects (Appendix 12.2) details the

sensitivity, magnitude, and significance of the visual impact from each of the locations and range from medium-low to very high. Very High Sensitivity was recorded at VP10, 13, 14 and High at VP12, 15b, 19, 20 & 21. Section 12.4.3.5 of the EIAR notes the areas of very high sensitivity tend to be from the mountainous ranges and tourist views from Gougane Barra. V13 is from the Paps of Nau, VP10 Crohane Mountain and VP14 Mangerton Mountain.

Zone of Theoretical Visibility (ZTV)

The ZTV is influenced by the turbine height (as recommended in the Draft 2019 Guidelines, a higher standard than the 2006 Guidelines). The EIAR includes a radius of 20km for the study area based on the blade tip range between 179m and 185m. No sites of national or international importance were noted between 20-25km. The mapping does not consider trees etc. and is based on the terrain. The results from the ZTV mapping indicate:

- At a broad level the visibility occurs within the central and eastern portions of the study area, immediately to the east, down-valley and across the south facing slopes that lie to the north.
- Beyond the 4-5km from the site the ZTV breaks up, due to the intervening ridges and hill tops that screen distance turbines.
- A band of visibility in the outer north-western quarter of the study area corresponds to the upper slopes and ridges of the Mangerton and Derrynasaggart, but with relatively little potential for visibility within the intervening valley as well as the landscape beyond.
- There is piecemeal visibility within the outer south-eastern portions of the study area.

Two ZTV figures have been included to illustrate the difference between the impact from a turbine height of 179m (Figure 12.3) and with a turbine height of 185m (Figure 12.3).

11.16.3.4. **Consideration of Turbine Dimension Range**

The planning application includes a range of turbine sizes within the proposed development, as summarised below. Chapter 12 provides an analysis of the visual impact from any change in the rotor diameter vs the blade scenario. For the purpose of the majority of visual assessment, the applicant has presented the maximum tip height dimension of 185m and a median hub height of 107.5m and a maximum rotor diameter of 155m. The rationale for this is that any variation from this specimen will see an immaterial impact on the results on the visual impact assessment.

The comparative scenarios used include:

- Specimen Turbine – 107.5m hub, 155m rotor diameter, 185m tip height (as used for the visual impact assessment)
- Alternative Scenario 1 – 102.5m hub, 155m rotor diameter, 180m tip height (lowest hub height, longest rotor diameter)
- Alternative Scenario 2 – 110.5m hub, 149m rotor diameter, 185m tip height (highest hub height, shortest rotor diameter)

To examine the full range of potential turbine dimensions and illustrate the immaterial impact, comparative photomontages at three selected viewpoints (VP1, VP26 and VP27) were chosen to represent short and mid-distance views. It is stated in the EIAR that any long-distance views would be less likely to be visual and have therefore not been included.

11.16.3.5. **Cumulative Effects**

Appendix 2.3 of the EIAR lists all wind farms in pre-planning, planning, permitted and operations within a 20km radius of the site with c. 206 turbines operational. The closest wind farm, Derragh, is located 189m to the south of the site. The significant of this number of wind farms is evident upon site inspection, although having regard to the surrounding terrain and the changing views the visual impacts change significantly between locations. The locations along the north and northwest VP10, 11, 12, 13, 14 are taken from higher locations and illustrate the visual impact of the proposed turbines, within the context of the existing permitted turbines.

A ZTV indicating the cumulative theoretical visibility of the proposed development in-combination with other wind farms is detailed in Figure 12.7. This map includes the existing and permitted turbines within the broader study areas (20km). The map indicates the following:

- 44.8% visibility of existing, permitted, or proposed turbines.
- 34.7% visibility of the proposed turbine as well as the existing, permitted, and proposed turbines.
- 0.2% visibility of the proposed wind farm only.
- 20.3% of the entire study area will have no view of any turbines.

Appendix 12.2 includes an overview of the cumulative visual impact within the study area from all the viewpoints. Table 12.1A presents the overview with details on the number of other wind farms visible, whether they are closer or further from the viewpoints, a combination cumulative impact and either a successions view (within a series of viewing arcs from the same location) and/or sequential view (view of different developments moving along a linear receptor). VP10, VP13 and VP14 include the greatest number of visible wind farms, i.e. greater than 10.

Appendix 12.1 under Section 12.1b includes a breakdown of the magnitude of visual effects at the viewshed reference points. A summary of the identified impacts from each viewpoint is provided in tabular format, having regard to the receptor sensitivity, the existing view and the sensitivity and visual impact magnitude for the VP. Some of this this information has been used, in addition to the LVIA, within the analysis of effects below.

11.16.3.6. **Likely Potential Effects**

EIAR Section 12.4 assesses the potential impacts of the proposed development on the visual amenity of the central area (<5km) and the wider study area (>5km and <20km). Likely significant effects of the development, as identified in the EIAR, are summarised below.

Summary of Potential Effects on Landscape and Visual Amenity

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	• The site would continue to be planted and felled with no additional visual impacts.
Construction	• Modest visual impact due to the removal of vegetation and trees to accommodate construction for the grid connection and the turbines. Excavation is usually contained within the surrounding landform. • Short term, moderate to slight impacts.
Operation	• The visual impact on the immediate surrounds of the site (central study area) is considered medium to low and on the wider study area also medium to -low but with local importance. The potential effects on the high sensitivity of the mountain ranges to the north and the Gougane Bara to the southeast are considered in the LVIA with no significant effects identified. The views are long range, only viewed from the highest ridge above the Gougane Barra and distant from the Derrynasaggart and Mangerton ranges to the north. • The presence of existing and permitted wind farms in the vicinity of the site is considered for cumulative impact.
Decommissioning	• None
Cumulative	• Visual impact of the proposed 14 wind turbines in-combination with those permitted and operational within the 20km radius is considered.

11.16.3.7. **Mitigation**

The design itself is an embedded mitigation measure. No specific landscape and visual mitigation measures have been identified and would not be considered effective.

11.16.3.8. **Residual Effects**

No change in predicted effects which remain medium to low on the immediate and wider study area, and not significant.

11.16.4. Analysis, Evaluation and Assessment: Direct and Indirect Effects

11.16.4.1. Introduction

Chapter 12 of the EIAR, all of the associated documentation and submissions on file in respect of landscape and visual amenity has been examined, analysed, and evaluated. The application site, the surrounding area have been inspected and each of the viewpoints referred to in the Visual Impact Assessment (Appendix 12.1) and the associated photomontages (EIAR Book 1 and Book 2) assessed. Regard has been given to the landscape character and sensitivity as set out in the policy framework in the Cork and Kerry County development plans and the sensitive receptors identified in these.

It is considered that the applicant understanding of the baseline environment, by way of desk and site surveys, is comprehensive and that the key impacts in respect of likely effects on landscape and visual amenity, because of the proposed development have been identified. Observations to the application have raise a number of issues in respect of landscape and visual which are addressed below:

- Cumulative impact
- Significance of effect

11.16.4.2. Sensitivity

Sensitivity of the area

The majority of the proposed wind farm is located within the landscape character area 12A: Rolling Marginal Middle ground. There are c. 4 turbines located along the eastern boundary of landscape character type 16c- glaciated cradle valleys and c. 1 turbine on the northern boundary of the ridged and peaked upland landscape character type. The character types range from high value and sensitivity, but with local importance. None of these landscape character types are considered to be

High Value Landscapes. The report of the Cork County Council notes the area as one which is considered to be an intensively managed working landscape where existing wind energy development is already a strong characteristic in-combination with forest plantations and upland farming. No issues with the landscape assessment have been raised in the submission by the planning authority.

It is considered that the most sensitive features in the vicinity of the site relate to the long-range visual effects from the Gougane Barra to the southeast and the Derrynasaggart and Mangerton ranges to the north. The Board will note the representative views correspond with the views detailed in the text of Chapter 12 of the EIAR. The photomontages illustrations in Book 1 and 2 of the LVIA includes a different description for some of the addresses of the representative views. The location of the representative locations has been checked on both gogglemaps and on-site inspection and the Board will note the location and description included in the text are correct. In addition, the information in the photomontage illustrations corresponds with the VP information in the text of Chapter 12. It is not considered that the discrepancy of the location description for some of the viewpoints precludes a full analysis of the visual impact assessment of the proposed development.

A detailed analysis of the effects of the wind farm on the visual amenity and landscape has been undertaken from each of the VP chosen. This is presented in the table below and takes into consideration both the visual receptor sensitivity and the visual impact magnitude as detailed in Chapter 12 of the EIAR and Appendix 12.1. It is considered that the applicants summary of visual impact assessment and the EIAR includes a robust evaluation. Overall, given the nature of the topography of the site which vary considerably throughout the 20km study area, and the presence of a significant number of wind farms already established in the vicinity of the site, no significant visual effects predicted. The table below provides an overview of the impact of the landscape from the various VPs chosen and whilst many of the landscapes are considered highly sensitive, it is considered the impact will not be significant due to distance and the presence of other turbines, for example VP13 as viewed form the western Summit of “the Paps of Anu” is over 12km and at a height which can already view all existing wind farms. The addition of this proposed

development will not, in my opinion, significantly change the landscape or affect the visual amenity from this VP.

Impact of the proposed wind farm on representative viewpoints			
VP. No	**Location**	**Sensitivity of receptor**	**Effects on the visual amenity and landscape**
VP1	Local road at Gortnagross	Medium	Short-range, local community views towards the site, southwest from the VP with no cumulative impact. Most of the turbines are visible, with the closest 3.5km from the VP. The significance of the effect is moderate due to the visibility and the sensitivity of the landscape.
VP2	Local road north of Coolea Village	Medium low	Short-range, local community view towards the site, south from VP with no cumulative impact. Approx. 9 turbines are visible in part, with the closest turbine 2.8km from the VP. The significance of the effect is moderate-slight due to the limited visibility and the sensitivity of the landscape.
VP3	Local Road at Fuhirees	Medium low	Short-range, local community view towards the site, south from the VP. All the turbines are visible in part or full, with the closest turbine 1.2km from the VP. The significance of the effect is moderate due to the visibility of most of the turbines and the sensitivity of the landscape.
VP4	Local road at Lumnagh Beg	High Medium	Short-range, local community and regional views due to scenic route, facing southeast. All turbines are visible in full or part with closets turbine 2.2km from the VP. The significance of effect is moderate due to the visibility of most of the turbines and the sensitivity of the landscape.

VP5	Local road intersection at Derrylahan	High Medium	Views east from the VP. No turbines are visible therefore the effects are imperceptible.
VP6	Local road at Laharan East	Medium low	Short-range, local community and regional views due to the scenic designation, facing southeast. Approx. 7 of the turbines are visible with the closet turbine 1.1km from the VP. The significance of effect is moderate-slight due to the number of turbines visible and the sensitivity of the landscape.
VP7	Local road at Caraghnacaha	High medium	Very short-range, local community and regional views due to the scenic designation, facing east. Three turbines are visible with the closest turbine 0.6km from the VP. The significance of effect is substantial-moderate to moderate due to the substantial visibility of the closest turbine and the sensitivity of the landscape.
VP8	Local road intersection at Gorteenakilla	High Medium	Medium range, local and regional views due to the scenic designation and the Beara Breifne Way, facing North-northeast from the VP. Approx. 7 turbines are visible or in part, c. 3.4km from the VP, in addition to 6 existing turbines. The significance of effect is moderate-slight due to the visibility of the turbines, range of VP, presence of existing turbines and sensitivity of the landscape.
VP9	Local road south of Ballingeary	Medium	Long-range, local, and regional views due to the scenic designation and centre of population, facing north from the VP. The tips of most of the turbines will be visible, at 5.1km from the

			closest turbine, in addition to c. 6 existing turbines. The significance of effect is moderate-slight due to the limited visibility of the turbines and the sensitivity of the landscape.
VP10	Summit of Crohane Mountain	Very High	Very long-range, local, and regional views due to the location from an amenity feature, facing southeast. All the turbines, in addition to all existing and proposed turbines will be visible,14.4km from the closest turbine. The significance of effect is moderate-slight due to the scale of visibility, the cumulative impact, and the sensitivity of the landscape.
VP11	N22 at Derrynasaggart	High Medium	Very long-range, local, regional, and national views due to the location along a national route, facing south. All turbines, in addition to existing turbine will be visible, 6.2km from closest turbine. The significance of effect is moderate due to the long-range visibility and the sensitivity of the landscape.
VP12	Local road at Coomnagire	High	Very long-range, local and regional views due to the location from a designated scenic route, facing southeast. All turbines, in addition to >20 existing turbines will be visible from 7.2km from the closest turbine. The significance of effect is moderate-slight due to the long-range visibility and the sensitivity of the landscape.
VP13	Western Summit of “the Paps of Anu”	Very High	Very long-range, local, regional, and national views due to the location at a national amenity and heritage feature, facing south from the VP. All turbines, in addition to all other existing, permitted, and proposed turbines will be visible from 12.6km from the closest turbine. The significance of effect is moderate due to the proposed number of turbines, the cumulative effect, and the sensitivity of the landscape.

VP14	Summit of Mangerton Mountain	Very High	Very long-range local, regional, and national views due to the location at the summit of the mountain facing southeast from the viewpoint. All turbines, in addition to all other existing and permitted wind farms within most of the study area will be visible. The significance of effect is moderate-slight due to the proposed number of turbines, the cumulative effect and the sensitivity of the landscape.
VP15a	Gougane Barra	Very High	No view from the Gougane Barra lake which is of national interest. Views to the northeast are blocked by the southern slopes above the Gougan Barra. The significance of effect is imperceptible due to the absence of any visual impact.
VP15b	Beara Breifne Way	High	Medium-range views from the southern slopes above Gougan Barra, towards the northeast. Most of the turbines will be visible or partially visible in addition to c. 5 existing turbines, along the ridgeline in the distance. The significance of effect is moderate-slight due to the visibility in the periphery and the sensitivity of the Gougane Barra setting.
VP16	Local road to Threegneeves	Medium	No view of any turbines, towards the north. The significance of effect is imperceptible due to the absence of any turbines and the sensitivity of the landscape.
VP17	Beara to Breifne Cyle Route at Gortnacarriga	Medium	Medium-range views from a way-marked cycling route facing north. Most of the turbines are visible with existing turbines to the northeast and permitted turbines further north of the proposed site. The significance of effect is moderate-slight due to the visibility of the turbines and the sensitivity of the landscape.

VP18	Local road above Lough Allua	High Medium	Medium-range local and national views north from the edge of Lough Allua. Parts of the tops of the turbines will be visible, in addition to existing turbines along the existing ridgeline. The significance of effect is moderate-slight due to the presence of existing turbines, the visibility of the proposed turbines and the sensitivity of the landscape.
VP19	Local road at Gortnahoughtee	High	Long-range local and national views facing north. All turbines will be visible in addition to a substantial number of existing turbines within the wider study are. The significance of effect is moderate due to the presence of existing turbines, the visibility of proposed turbines and the sensitivity of the landscape.
VP20	Local road at Kilbarry	High	Very long-range local, regional and national views facing north. All turbines will be visible, in addition to a substantial number of existing and permitted wind farms in the study area. The significance of effect is moderate due to the presence of the existing wind farms, the visibility of the proposed turbines and the sensitivity of the landscape.
VP21	Rossnakilla	High	Very long-range local and regional from a settlement facing northwest. All turbines will be visible in the distance in addition to other permitted and existing wind farms. The significance of effect is considered moderate-slight due to the location of the viewpoint from a centre of population, the distance of the turbines and the sensitivity of the landscape.
VP22	N22 at Toonlane	Medium	Medium range local views facing west. All turbines will be visible in addition to the tips of other turbines in the far distance. The significance of effect is moderate to slight due to the visibility of the turbines and the sensitivity of the landscape.

VP23	N22 at Inchinlinane	Medium	Very long-range local, regional and national views facing west. All turbines will be visible in the far distance with a permitted wind farm to the north. The significance of effect is slight due to the visibility of the turbines and the sensitivity of the landscape.
VP24	Local road at Gortyrahilly	Medium to low	Close up local views facing west. Eight turbines will be visible, in addition to two existing turbines in the distance and the tips of two turbines in the far distance. The significance of effect is considered moderate slight considering the visibility of the turbines and the sensitivity of the landscape.
VP25	Local road at Gortnabinna	Medium	Short-range local, regional and national views from along a local road facing northwest towards the site. Two turbines will be particularly visible, no other turbines will be visible. The significance of effect is moderate considering the number of turbines visible and the sensitivity of the landscape.
VP26	Local road near Kilnamartyra	Medium	Very long-range view from Kilnamartyra to the east of the proposed development. All the turbines from the proposed wind farm and a significant number of existing and permitted wind farms in the vicinity. The significance of effect is slight due to the distance from the proposal, the existing wind farms and the sensitivity of the landscape.
VP27	Local road at Coolea South	Medium low	Close up local views to the south. Most of the turbines in part are visible. The significance of effect is moderate due to the sensitivity of the landscape.

VP28	Local road at Derryfineen	Medium	Short range local and regional views to the west. Most of the turbines are visible. The significance of effect is considered substantial-moderate due to the visibility of the turbines from the VP and the sensitivity of the landscape.
VP29	Local road at Gortnabinna	High medium	Short range local and regional views to the east. Parts of a few of the turbines will be visible. The significance of effect is moderate due to the limited view of the turbines and the sensitivity of the landscape.
VP30	N22 Bypass above Ballyvourney	Medium low	Very long-range views of the site from Ballyvourney, west towards the site. The tips of most of the turbines will be visible in addition to a permitted wind farm and existing wind farm in the far distance. The significate of effect is slight due to the distance from the turbines, the existing turbines and the sensitivity of the landscape.

11.16.4.3. **Consideration of Turbine Dimension Range**

Book 2 of the LVIA Photomontage includes the comparative photomontages of the three comparative design scenarios at three chosen locations. As stated above, this visual comparison of the different turbine designs having regard to a specimen turbine and two alternative design scenarios where the hub height ranges from 102.5m to 110.5m, the rotor diameter from 148m to 155m and the tip height from 180m to 185m. The representative locations include VP1, VP26 and VP27 as detailed below, and an overview of the visual impacts as presented in the LVIA has been presented below:

View	**Location**	**Direction of View**	**Summary of difference in visual impacts**
VP1	Local road at Lumnagh Beg	Medium-range view facing southwest.	No distinguishable difference in visual impact from each of the turbine design.
VP26	Local Road near Kilnamartya	Long-range view facing west towards the wind farm.	No distinguishable difference in the visual impact as presented in the photomontage.
VP27	Local Road at Coolea South	Short-range view facing south towards the wind farm.	No distinguishable difference in the visual impact as presented in the photomontage.

It is considered the location of the chosen views for the comparative photomontage is sufficient to provide a reasonable understanding of the impact of the turbine range. The three chosen locations allow for a robust assessment of the visual impacts of the turbine range. Having regard to the topography of the landscape, which includes an elevated location in comparison to the south, the three chosen locations allow for an understanding of the impacts from locations where the visibility of the wind farm will be greatest.

11.16.4.4. **Cumulative Impact**

The cumulative impact of the proposed development, in-combination with the existing, permitted, and proposed turbines has been clearly addressed in the documentation of the EIAR.

The applicant has undertaken an extensive analysis including the turbines in the photomontages (Book 1 and 2) as seen from the viewpoints and a ZTV indicating the cumulative theoretical visibility. As stated in the Cork County Council submission, the surrounding landscape is currently an intensively managed working landscape for wind farm developments, this was evident upon site inspection. When approaching the site from different locations, it is evident that the cumulative impact is not constant. This is due to the variations in landscape and the presence of mountains and changing ridgelines within the site and throughout the wider area.

The submissions from third parties in relation to the impact of an additional 14 turbines considered the proposed development which would lead to a saturation of the landscape although due to the location of the application site. It is my opinion that the photomontages do not illustrate that the additional wind farm will lead to a saturation of the landscape.

Due to the location of the existing and permitted wind farms, away from the subject site, the impact is greater from a long-range view. Having regard to the sensitivity of the landscape, mostly from the north and east, it is not considered that the long-range impact on the landscape, visible from these views will be a significant negative impact on the surrounding area.

11.16.4.5. **The Beara to Breifne Way**

The Beara Breifne Way, as referenced below in relation to culture and heritage, is noted in Appendix 12.1 of the EIAR. Public information[13] illustrates the route, from Ballyvourney, radiating south, through the site and south towards Ballingeary. During site inspection, the wayward markings for the route were visible and mostly located

[13] www.bearabreifneway.ie

along the public roads. VP8, VP15b, VP17 and VP25 record the sensitivity of these as high to medium. My examination of effects concluded a moderate-slight effect on VP8, VP17 and VP15b, and a moderate effect on VP25, due to the location and the visibility other wind farms at these locations. It is considered there is no significant visible impact on the Beara Breifne Way from the proposed development.

11.16.5. Conclusion: Direct and Indirect Effects

Having regard to the examination of environmental information in Chapter 12 and the accompanying documentation within Volume III and IV of the EIAR and the LVIA, it is considered that by virtue of the scale of the development, within the landscape, the distance from sensitive receptors and the visual impact on the surrounding area there is no potential for significant environmental effects on landscape. In reaching this conclusion, regard has been given to the cumulative impact of the wind farms in the study area.

11.17. Cultural Heritage

11.17.1. Introduction

Chapter 14 deals with Cultural Heritage. This chapter is informed by Figures in EIAR Volume III and Appendix 14.1 Cultural Heritage Plates in EIAR Volume IV.

11.17.2. Issues raised

Submissions have been received from third parties, Cork County Council and DAU on the impact of the proposal on cultural heritage assets. DAU has requested conditions in relation to archaeology and cultural heritage mitigation measures set out in Chapter 14. A minimum 25 m buffer zone/exclusion zone is required for RMP sites CO069-002, CO069-003, CO0069-093 and the undesignated standing stone adjacent to turbine 13. A final archaeology report to the planning authority and National Monuments Service. Cork County Council Archaeologist has requested conditions.

Submissions from third parties have also raised concerns that a proper archaeology survey has not been undertaken, there is an ancient road running across the mountain top (an old funeral route), an old, cobbled road and a 200-year-old house of a famous poet, and a megalithic tomb in the area. Concern is also raised on the impact on a Gaeltacht area, the proposal does not protect the linguistic or cultural heritage of the area.

11.17.3. Evaluation of the EIAR

11.17.3.1. Context

The proposed development includes 14 No. turbines, one met mast and associated ancillary infrastructure in an upland location. Works are also required for the grid connection route (c. 27.8km) which connects the proposal to the Ballyvouskill substation. The majority of the grid connection is proposed to be located along forest tracks (20km), public roads (6.8km) and ESB access tracks (1km).

The relevant legislation and guidance outlined within the EIAR is noted.

It is noted that the study area for the cultural heritage assessment desk study comprised the site, 1km from the site and 10km from the site. In addition, a 100m wide corridor centred on the grid connection route and the turbine delivery route work areas was also reviewed. Field walking surveys of proposed construction areas and site inspections or visual appraisals of archaeological sites are also noted to have been carried out.

11.17.3.2. Baseline

The desk study identified three recorded archaeological sites within the site and a further six within the surrounding study area (**Table 14.5 and Figure 14.1**). None were identified within the construction footprint of the proposed development.

Whitin the site, it is stated that two extant wedge tombs Bronze Age monuments, (**CO069-003----** and **CO069-093----**) and a third site, a field boundary feature dating from the Bronze Age (**CO069-070----**) were identified. Fieldsurvey work for the

proposed development revealed revised locations for CO069-003---- and CO069-093 indicating a mapping error on Archaeological Survey of Ireland on the Record of Monument and Places mapping and on the online National Monuments Service's Historic Environment Viewer. Wedge tomb (COU69-003----) is noted to be located 1000m north of the proposed met mast. The closest development element to wedge tomb (COU69-003----) is Turbine 9, edge of hardstand noted to be c. 70m to the west. For wedge tomb (CO069-093), Turbine 1 is located 520m to the southeast. No surface traces were identified for CO069-070 and reference to extensive ground works in recent years noted.

The fieldsurveys carried out for the EIAR identified a potential **prehistoric standing stone**, located c.70m downslope of the southern end of the hardstand ground works for Turbine 13 (Figure 14.8).

It is noted that a small number of farm buildings within site are shown on the first edition 6-inch Ordnance Survey (OS) map (1830s-40s series), and that there are no construction works proposed at the locations of these buildings.

The EIAR notes that the proposed turbine locations have been occupied by areas of heathland, improved fields and commercial forestry plantations since at least the 1990s. The potential for the presence of unrecorded, archaeological sites within forestry plantation areas is considered low, rising to a medium potential on lands outside the forested areas. The medium potential is noted to reflect the presence of archaeological sites within the site and its surrounds.

The desk study did not identify any recorded archaeological sites or designated architectural heritage structures located within the footprint of the proposed grid connection route or turbine delivery work area.

Within the 1km study area from the wind farm site, one Bronze Age monument comprising a radial stone cairn (**CO069-040----**) was identified. This is noted to be located 65m from an existing farm lane which will form part of the site access tracks. The nearest turbine is Turbine 14, c. 615m to the south.

There is one early medieval settlement site comprising a cashel (CO069-004001-) and also a possible internal souterrain (**CO069-004001-**), located 320 m north of the

site. There are a further three unclassified enclosure sites within the study area (**CO069-002----; CO069-036---- and CO069-074----**). Enclosure (CO069-002----) is noted to be located 40m south of the edge of the earthworks for the substation. Fieldsurvey notes indicate that the dimensions of the enclosure are not suggestive of a cashel and may as such be of a more recent origin, potentially comprising an animal enclosure.

A 19th century lime kiln (**CO057-002001-**) monument was identified within the grid connection study area located in a field and setback from the public road which will contain a cable trench for the grid connection.

The EIAR outlines that the proposed temporary bridge crossing of the Sullane River will be at the same location as the previous temporary bridge crossing for the Grousemount Wind Farm project. Furthermore, pre-construction archaeological underwater and riverbank survey carried out for that project did not reveal anything of archaeological significance.

A memorial plaque (dated 1970) commemorating a local 1918 event associated with the War of Independence is located on the side of a public road to the south of the wind farm site. This memorial plaque is not located on a section of road forming part of the grid connection or turbine delivery routes.

Of the 57 Bronze Age ritual monuments identified **within 10km** of the wind farm site, one was noted to have a potential alignment towards the site. This monument comprises a partially extant wedge tomb (CO069-069----) and is located 2km to the north of the site and which faces directly south.

The nearest Protected Structure is noted to be located 2.3km to the east of the wind farm site in Reananerree, a late 19th century Naomh Lachtáin Roman Catholic Church (RPS 00419). The nearest listed structure is also located within Reananerree, a late 19th century two-storey house (NIAH 20906901) at a distance of 1.76km to the east of the site.

The nearest National Monuments are two archaeological monuments, Lissacresig ringfort (CO070-017----) and five-stone circle (CO070-016----), located approximately

9 km east-northeast of the site. These are both listed under National Monument (no. 571) and in State Care.

St. Finbarr's Oratory (CO080-012001-) in Gougane Barra is located 7.6 km to the southwest. This forms part of the LVIA in Chapter 12, and Viewpoint 15a. The summits of 'the Paps of Anu' which is located 12.2 km to the north of the site also forms part of the LVIA (Viewpoint 13). The east and the west summits contain prominent stone cairns (CO069-002--- and KE076-019---).

11.17.3.3. Likely Potential Effects

Summary of Potential Effects on Cultural Heritage

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	Not considered in the assessment.
Construction	Direct effects • There are no direct effects on recorded archaeological sites or cultural heritage assets predicted for the construction phase within the site and its environs, the grid connection route and the turbine delivery work areas. • The potential sub-surface unrecorded archaeological features or artefacts within the site is noted as low for the forestry areas and medium for areas of improved pasture and heathlands. Accounting for uncertainties, the predicted direct effect on any such unknown remains is considered negative, permanent, and moderate to significant. • A low potential for unrecorded archaeological features along the grid connection route is noted given the majority of the works will be within existing roads. • Horizontal directional drilling at two watercourse crossings along the grid route, avoids work to two undesignated masonry road bridges and potential impact on unrecorded underwater archaeological features. Indirect effects • Indirect effects on the wider setting of the two extant recorded archaeological sites (**CO069-002----** and **CO069-003----**), predicted

	to be short term, slight and negative. No indirect effects on other identified monuments are predicted during the construction phase. • No significant indirect effects on designated architectural heritage structures predicted. • Arrival of non-Irish speaking construction workers within the Múscraí Gaeltacht area works, predicted to result in a short term, negligible, indirect, no significant effects on the Irish language. • The historical accounts commemorated with the memorial plaque are noted as minor, localised incident centred on the public roadway and did not comprise a military action that spread into the wider landscape. The Project will, therefore, have • The historical association with the memorial plaque is noted to be minor and a localised incident, therefore, not predicted effect. • The construction of the grid connection route and turbine delivery route work areas will not result in any predicted indirect impacts on the cultural heritage resource.
Operation	Direct Effects • No predicted direct effects during operation. Indirect Effects • Wedge tomb (CO069-003): Turbine 9 is located 100 m to the west of the monument and will impact on its recorded alignment and setting. A poor state of preservation of the monument is noted along with low perceptibility from close distances within the heathland. A medium magnitude, long term, indirect, negative, moderate effect is predicted. • Wedge tomb (CO069-093): This monument is noted to be located at the base of a steep sided gully, it is well-preserved, and its entrance faces west. There are no turbines located within the direct alignment and views towards Turbines 4 and 5 to the north are noted as screened. A low magnitude, long term, indirect, slight, negative effect is predicted. • Enclosure (CO069-002----): The monument has no visual alignment attributes. The location of the substation 40m to the south. A medium magnitude, permanent, indirect, negative, moderate effect is predicted. • Radial stone cairn (CO069-040----): A low magnitude, long term, indirect, slight, negative effect on the wider setting of this monument is predicted.

	• The proposed development is predicted to have a low magnitude, long term, indirect, none to slight effect on other identified recorded archaeological sites. • The proposed development will be visible from various cultural heritage assets within the wider landscape, no moderate or significant indirect effects predicted. Taking account of distance, intervening vegetation, potential for visual alignment, the predicted effects are slight or imperceptible on settings.
Decommissioning	• No direct effects on archaeological and cultural heritage resources predicted. • Long term indirect operational effects are noted to be reversible at decommissioning for the majority of archaeological monuments.
Cumulative	• Consideration of 32 wind farms within a 20km radius of the site, no significant direct or indirect effects predicted. • Review of non-wind farm developments within 3 km of the proposed development did not reveal any examples that would result in any likely cumulative effects with the proposed development on archaeological and cultural heritage resources.

11.17.3.4. **Mitigation**

- The main mitigation is the layout design, avoiding the known locations of archaeological monuments within the site and to avoid potential significant indirect effects on alignment of the two wedge tombs (CO069-003---- and CO069-093----).
- Pre-construction geophysical survey of improved grassland area at the location of turbine 9 and associated hardstand and access roads.
- Pre-construction targeted archaeological test trenching of any identified features of archaeological potential.
- Archaeological monitoring for ground works areas.
- Archaeological watching brief of grid connection trench excavations within sections of public roadways and forest roads.

- Post-tree felling archaeological field-walking surveys, and archaeological monitoring of ground works.
- Appropriate mitigation measures of any sub-surface archaeological features identified during site investigations to be agreed with National Monuments Service.
- Construction buffer zones cordoning off the extant archaeological monuments Wedge Tomb (CO069-003----), Wedge Tomb (CO069-093----), and Enclosure (CO069-002----), and the potential standing stone in proximity to turbine 13.
- Construction site investigations, surveys, watching brief and monitoring will be subject to licences by National Monuments Services.
- Any signage erected within the public realm during the construction phase will include Irish and English text.

11.17.3.5. **Residual Effects**

No residual direct or indirect construction effects predicted. No change in the predicted indirect operational effects which are long term and reversible by decommissioning except for indirect effects from the substation on the setting of Enclosure (CO069-002----) which are permanent.

11.17.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Chapter 14 of the EIAR, all of the associated documentation and submissions on file in respect of cultural heritage has been examined, analysed and evaluated. It is considered that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on cultural heritage, as a consequence of the development have been identified. The application site and the surrounding area have been inspected, and the Figures in Volume III and the plates in Appendix 14.1, Volume IV as well as the LVIA Figures and Photomontages are noted. Having regard to this, there following concerns are raised with regard to the assessment:

- Impact on setting of recorded archaeological sites.

In addition, parties to the application have raised a number of issues in respect of cultural heritage which will be addressed below.

- Buffer zones to archaeological sites.
- Archaeology Surveys.
- Ancient road (an old funeral route), 200-year-old house of a famous poet, a megalithic tomb.
- Impact on Gaeltacht area.

11.17.4.1. **Impact on setting of recorded archaeological sites**

As outlined above, the operational magnitude of impact on the extant wedge tomb (**CO069-093----**) in the EIAR is low, resulting in a predicted indirect effect of slight. Whilst the turbines are not located within the direct west alignment of the recorded site, there is potential for close range views from the setting of the wedge tomb of the proposed turbines towards the northwest, north and northeast. In this regard, Plate 14.1 and 14.2, and the LVIA Viewpoints 25 and 28 from the local road directly south of the wind farm site are noted. Having regard the methodology outlined in Section 14.3.3 of the EIAR, it is considered that the change to the setting could potentially affect the character of the archaeological asset. As such, it is considered the magnitude of impact to be medium and not low, resulting in a long term moderate negative indirect effect of the proposed development on the extant wedge tomb (**CO069-093----**).

Similarly, for the setting of the radial stone cairn (**CO069-040----**) to the east of the site there are potential for close range views of the proposed development in a west, northwest and north array. The open views from the site towards the radial stone cairn in Plate 14.8 and the views of the proposed development in LVIA Viewpoint 28, from the local road to the east of the cairn are noted. Given access restrictions, there are limited details on the setting of the monument within the EIAR. As such, it is not considered there is a slight change to the setting taking account of potential views of

the proposed development has been sufficiently demonstrated in the EIAR. Having regard to the methodology in Section 14.3.3 and particularly Table 14.1, it is considered that the potential changes to the setting could affect the character of the monument. As such, the magnitude of impact is considered to be medium and not low, resulting in a long term moderate negative indirect and not significant effect of the proposed development on the extant wedge tomb (**CO069-040----**).

It is considered that the indirect effect on the setting of recorded archaeological sites within the wind farm site and immediately adjunct to it, will be moderate to slight and not significant. DAU and Cork County Council's Archaeologist have not raised any concerns with the assessment in the EIAR.

11.17.4.2. **Buffer zones to archaeological sites**

The EIAR assessment confirms distances between the proposed development components and the recorded archaeological sites in Table 14.10. The siting of development components and references to the edge of earth works in the EIAR, would comfortably allow for a minimum 25m buffer zone/exclusion zone is required by DAU for RMP sites CO069-002, CO069-003, CO0069-093 and the undesignated standing stone adjacent to turbine 13, are noted. It is considered that the revised mitigation measures requested by DAU can reasonably be conditioned. The Cork County Council Archaeologist has recommended a 50m buffer for same, however it is not considered that an increased buffer will be required taking account of the proposed work areas, the baseline survey information outlined within the EIAR, the defined nature of these sites and the mitigation measures proposed.

11.17.4.3. **Archaeology Surveys**

The EIAR outlines that the assessment has been carried out in accordance with relevant legislation and guidance. A desktop study, consultation and field surveys were carried out. Reference to historic ground disturbance within the site is also noted including commercial forestry and agricultural land management practices. The result of the field surveys and photographic records are provided in the EIAR. The proposed design has avoided the potential for direct effects on known

archaeological sites. Mitigation measures as outline in Section 14.6 of the EIAR and summarised above, include pre-construction surveys and construction monitoring and watching briefs. These are aimed at identifying any sub-surface archaeological features to facilitate preservation in situ or by record. Therefore, it is considered that the scope of archaeological surveys informing the EIAR is satisfactory and is appropriate to identify any issues raised during the construction phase and in accordance with applicable guidance. It is further noted that no concerns have been raised by DAU and Cork County Council's Archaeologist regarding the scope of survey work which have informed the EIAR.

11.17.4.4. **Ancient road (an old funeral route), 200-year-old house of a famous poet, a megalithic tomb**

The EIAR does not identify any archaeological records relating to an ancient road or funeral route within the site. The Beara to Breifne Way, a long-distance way-marked walking route, passes through the middle of the site on its northward journey. This route is open to the public and the visual impact on the route by the proposed development is assessed in Chapter 12 LVIA, Section 12.4.3.5 and the visual impact assessment at viewpoints in Appendix 12.1. There are historical connotations relating to the development of the Beara Breifne Way, however, it is considered that there are no recorded archaeological or cultural heritage interests associated with this route situated within the site.

There is no designated cultural heritage structures identified within the site. As outlined above, the EIAR identifies a small number of farm buildings within site which are shown on the first edition 6-inch Ordnance Survey (OS) map (1830s-40s series). It is considered that there are no construction works proposed at the locations of these buildings.

As outlined above, the EIAR identified two megalithic tombs (CO069-003---- and CO069-093----) within the site. The proposed development avoids these and as outlined above, buffer zone/exclusion zone during construction will be required and no direct effects are predicted. As outlined above, it is considered that the proposed

development would not result in significant indirect effects on these sites during construction, operation and decommissioning phases.

11.17.4.5. **Impact on a Gaeltacht area**

The EIAR notes that the site is located within the Múscraí Gaeltacht area and identifies a number of townlands within the assessment study area. No townlands are located within the site or within 1 km of the site. The region's association with intangible cultural heritage resources such as music, including Sean-nós singing, poetry and dance traditions is also noted in the EIAR. From review of databases and plans, the EIAR does not identify any recorded intangible cultural heritage assets within the study area. In terms of impact on linguistics, the EIAR concludes that the influx of non-Irish speakers during the construction phase will be temporary and staff requirements during the operational phase will be low and intermittent. Any signage erected within the public realm during the construction phase will include Irish and English text. Therefore, it is considered that the proposed development would not have a significant negative effect on the Gaeltacht area in terms of intangible cultural heritage resources including linguistics.

11.17.5. **Conclusion: Direct and Indirect Effects**

Having regard to the examination of environmental information in respect of cultural heritage, in particular the EIAR, submission from prescribed bodies and the observations received from members of the public in the course of the application, it is considered that potential direct effects on known and unknown archaeological features would be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. It is considered that there is no potential for significant negative environmental indirect effects on the setting of archaeological sites and cultural heritage receptors or significant effects on intangible cultural heritage resources. In reaching this conclusion regard has been given to the cumulative impact of the wind farms in the study area.

11.18. Traffic and Transport

11.18.1. Introduction

Chapter 15 deals with Traffic and Cultural Heritage. This chapter is informed by Figures in EIAR Volume III and Appendix 15.1 Collett Route Survey Reports and 15.2 Swept Path Analysis Drawings in EIAR Volume IV.

11.18.2. Issues raised

The main issues in the third party submission on traffic and transport relate to the impact of the land take needs for the access junction and roads and the general disturbance on wildlife, habitats and the landscape. The removal of hedgerows is considered to have a negative impact on the wildlife of the area. Concerns regarding impact on local access.

A submission from TII noted the haulage route along the N22, N28 and N40, the temporary access off the N22 and the impact of the proposal on the national road, which was the responsibility of the council to maintain. Works for the grid connection also noted. It is requested that all works are undertaken in compliance with TII publication with a condition for same recommended. TII request that a condition requiring a load assessment of the impact of abnormal weight loads is included in any grant of permission.

Cork County Council's Area Engineer noted that the access road layout is acceptable. The access road coincides with a section of public road L-34011-20 for c. 2km, and it is noted that this road shall remain public and that the T7 foundations shall not impact on the public road. Construction traffic shall not use the L-34011-20 outside of this section, and for the grid connection route no traffic shall pass through Coolea Village. A number of conditions relating to works within the public road and bonds relating to such works.

11.18.3. Evaluation of the EIAR

11.18.3.1. Context

The relevant legislation and guidance that informs the chapter is set out. The study area is noted to comprise the site and the three haul routes and any road widening proposed. The three haul routes for construction include:

- Turbine and electrical components delivery route.
- Civil construction route includes import of crushed stone, concrete, substation components and other materials. The route in reverse is used for removal of wood from felling and waste.
- Grid connection construction route.

Swept path analysis has been carried out for the turbine delivery haul route, and for a blade length of 76m. It is noted that a swept path analysis for a shorter 73m blade would be marginally different and effects similar.

The EIAR sets out that there are no requirements for a Road Safety Audit (RSA) based on the works proposed.

11.18.3.2. **Baseline**

The site is noted to be generally served by the N22, located 6km to the north of the site. The routes for the three haul routes are summaries in the table below along with a summary of the works proposed to the routes in order to facilitate construction access for the proposed development.

The EIAR references the N22 Macroom Bypass to be under construction. The haul route assessment in the EIAR has however, assumed that the bypass will be completed ahead of any construction and as such, it forms part of the proposed three haul routes.

The bypass was completed in November 2023, and the route was driven during a site visit.

Haul Routes	**Summary of proposed works**
Turbine delivery haul route (EIAR Figures 15.1 & 15.2)	

• From Ringaskiddy Port, N28, N40 and N22 to Cummeenavrick (north of Ballyvourney).	Temporary works within the road including localised widening, removal of street furniture, signage and bollards, and tree pruning.
• N22 at Cummeenavrick, temporary access to facilitate turning.	Remove earth bounding and construct temporary junction and access track. Appendix 15.2, drawing 6225-PL-256
• N22 to Ballyvourney junction, R618 to temporary junction, bridge across Sullane River and merge with L3400-79.	Construct temporary bridge and new track on either side of bridge. Existing three arch masonry bridge at Ballyvourney (L3400-79 junction unsuitable for abnormal loads. Appendix 15.2, drawings 6225-PL-810, 6225-PL-811, and 6225-PL-251
• L3400-79 to L3405, left turn at Y-junction.	Road widening, tree removal and trimming of vegetation, and temporarily removal of street furniture and signage. Appendix 15.2, drawings 6225-PL-252
• L3405 to L7405, merge to the right at Y-junction.	Road widening (c. 2.8m to 4.5), tree pruning and ducting of telecommunication lines. Appendix 15.2, drawing 6225-PL-252
• L7405 to Coolea, left turn onto private road.	Road widening (c. 2.8m to 4.5). Appendix 15.2, drawing 6225-PL-253
• Private road to Site (northeast entrance).	Work to existing tracks (250m) and construction of new tracks to substation location (c. 1km). Appendix 15.2, drawing 6225-PL-253 to 255
Civil Construction haul route (EIAR Figure 15.3)	

• Via local roads from quarries (5 identified to the southeast and 1 to the northeast) to the N22.	No upgrades required.
• N22 Toonlane junction, return along R618 to Lissacresig junction with L3402, follow L3402 to the Site (southeast entrance).	No upgrades required.
• L3400-79, existing bridge over Sullane River	Route to be used for civil works for the temporary bridge construction.
Grid connection haul route (EIAR Figure 15.4)	
• Access via the Site to L7405. • Access via L3400 to L7404, 7400, and L401. • Access via N22 at Cummeenavrick to existing forest tracks (east and south).	C. 6.8km of trenching within L7405, L7404, L3400-32, L7400, L7401 and the former N22. Remaining 21.59km of the route is within private land and forestry tracks.
Other routes	
• Disposal routes, L3400 or L3402 in reverse to N22 and onwards to disposal locations.	EIAR Figure 15.5
• Tree felling route, L3402 in reverse to N22 and onwards to sawmills.	EIAR Figure 15.6
• Staff likely to travel via N22 and local roads to site.	

Sensitive receptors along the haul routes are identified in EIAR Tables 15.7 to 15.9. Sensitive receptors within the site include walkers on the Beara Breifne Way, EIAR Table 15.10.

Baseline traffic data is compiled from traffic counts (7th October 2021) at L3400/L3405 junction and the site junction with L3402, and TII's traffic count data on the N22 at Slievereagh Cross, northwest of Ballyvourney (2017 to July 2022). In addition, the EIAR references traffic count data from Grousemount Wind Farm on the L3400 at Derrylahan (June 2015), but these are not relied on in the assessment. Existing traffic flows and predicted future traffic on the local road network along with estimated capacity are provided. Available accident statistics for the local road network has also been reviewed.

11.18.3.3. Likely Potential Effects

Table 15.18, 15.19 and 15.24 provides the estimated HGV and abnormal load deliveries for the civil construction works, turbine delivery, and grid connection. A total of 8,294 load deliveries are estimated for the full construction phase, generating 16,588 movements (two-way). The peak months for deliveries are 6 to 12, coinciding with concrete pours for rubine foundations. Peak HGV delivery movements per day is noted as 300. Staff are assumed to generate 90 movements per day at its peak.

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	Not considered in the assessment.
Construction	• The magnitude of change on the N22 and the local road network as a result of the increase in HGVs during construction is assessed as very low to low. Based on the methodology in Table 15.6, it is noted this gives a negligible to moderate effect based on the sensitivity of the receptors along the route. • Road closures are likely on narrow local roads where works have been identified to facilitate the delivery of turbine component and grid connection works. The magnitude of change for these sections of road are increased to high. High sensitivity of receptors is noted along the route. The predicted effects on these local roads are short

	term, direct and high. Applying the methodology in Table 15.6, a major and significant effect is predicted. • Works within the national roads to facilitate turbine deliveries are anticipated to cause some short term disruption but are not predicted to have a significant effect. • Following completion, the works to widen and resurface the L3405 and L7405 are assessed to be of benefit to road users and have a positive effect. • Increase in traffic as a result of staff is as predicted to have a negligible to low effect. • As a result of increases in traffic movements, an imperceptible effect on air quality and not significant effect on noise and vibration are concluded. • A short term high impact on walkers of the Beara to Breifne Way during periods of high traffic volumes is predicted. As above, a high effect would be major and significant. Potential significant effects on the school located along the L3402 and the school route re also predicted. • Potential for moderate/high effects on driver delay during abnormal loads delivery, and during works to the local road including widening and construction of grid connection. As above, a high effect would be major and significant. • Minor severance and nuisance effects are predicted. • The overall potential effect on the local roads is predicted as moderate, negative, short term and of high probability.
Operation	• Regular visits for maintenance and routine inspections by car or van, once or twice per week predicted to give rise to imperceptible effects. • In the event of a major fault, larger machinery may be required on site. For a replacement wind turbine blade, the bridge over Sullane

	River including access tracks would need to be re-erected. Slight temporary short term effects on the local road network predicted should major turbine components need to be replaced. • The grid connection will be handed over to EirGrid as the Transmission System Operator.
Decommissioning	• Less traffic than construction with access tracks and turbine hardstands left in situ. Phase anticipated to last 12-24 weeks. Imperceptible effect on traffic predicted.
Cumulative	• Potential for cumulative effects with two consented smaller wind turbine developments (Coolae and Coolknoohil) on N22 and L3400-79. Predicted cumulative effect is low/moderate, negative, direct and short term. • Three other proposed wind farms (Inchamore, Cummeennabuddoge and Knocknamork) with likely grid connection to Ballyvouskill substation. Routing overlap noted to be limited to forestry tracks which are noted to be within the control of the developer. Potential for slight traffic increase on the N22, predicted cumulative effect is negligible/minor, negative and short term. Forestry tracks are. In the event of a grid connection construction overlap, the access and works would need to be scheduled to avoid queuing onto the N22. • Cumulative operational and decommissioning effects are considered unlikely to arise given low traffic levels and varying decommissioning timeframes.

11.18.3.4. **Mitigation**

Construction:

- The main mitigation is the layout design utilising existing forestry tracks and thereby minimising material requirements. Minimising disposal by retaining

surplus excavated materials on site for reinstatement works. Cables installation in pre-laid ducks to reduce the extent of trenches to remain open during the works.

- A Traffic Management Plan which will form part of the CEMP. Measures to ensure compliance with speed limits, avoiding peak traffic times including school times, awareness of location of sensitive receptors. Regular tool box talks with HGV drivers. Construction warning signs along the local roads. Warning lights on site vehicles and a speed limit of 25km/h within the site. Procedures and timing of abnormal load deliveries.
- CEMP including measures relating to dust generating activities and wheel cleaning facilities at the two entrances, construction hours, signage at entrances and site access and induction procedures. Abnormal load deliveries and concrete pouring for turbine foundations are likely to take place outside standard construction hours.
- Pre-construction condition surveys of L3400 and L3402 roads and bond to be lodge with Cork County Council. Weekly inspections of roads during construction and repair works of defects. Post-construction condition survey and any further defects to be remedied.
- Prior to commencement survey of the turbine component haul route to identify any changes including new overhead lines and broadband lines.
- Road Opening Licences will be obtained for works within the public roads. Works on public roads will be strictly in accordance with Guidance for the Control and Management of Traffic at Road Works (2010) and Chapter 8 of the Traffic Signs Manual 2010.
- Road closures and diversions on L3405, L3400-32, L7405, L-7405, L7400, L-7404 and L-7401-1 to be phased to facilitate local access and diversion. Local access to be maintained, all access points (domestic, business, farm) will be considered when finalising the proposed road closures and diversions. Additional measures such as local road widening, traffic shuttle systems and ‘Stop-Go’ systems will also be considered subject to agreement.

- Walkers of the Beara to Breifne Way to be transported through the site during times of high construction traffic. The Beara to Breifne Way shall be kept open to walkers during the operational period.
- Forest tracks to be used for grid connection works are within the control of the applicant, and construction activities will be scheduled to avoid cumulative effects resulting in access restriction and tailback onto the N22.

Operation:

- Warning lights on site vehicles and a speed limit of 25km/h within the site.
- Signage in place during operation and road surface will be inspected.

Decommissioning:

- All decommissioning traffic will use the L3402. All above ground turbine components will be separated, cut into manageable lengths and removed off-site for recycling.
- A Traffic Management Plan will be developed for the decommissioning phase with similar measures to construction including site signage, scheduling of traffic, warning lights on site vehicles, and speed limit of 25km/h within the site. Also, walkers on the Beara to Breifne Way will be transported through the site during high traffic.
- Turbine foundations will remain in place underground and will be covered with earth and allowed to revegetate or reseeded as appropriate. Access tracks to remain in situ for other and future uses.

11.18.3.5. **Residual Effects**

The predicted construction residual effects on national and local roads as a result of the temporary increase in traffic volumes remains slight to minor, negative and short term. Taking account of mitigation measures, the residual effects on the local roads will be minimised and predicted to be not significant. The resurfaced roads will produce a slight positive residual benefit.

No operational residual effects have been identified. A slight, negative, short term residual effect on road network is predicted during decommissioning.

11.18.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Chapter 15 of the EIAR, all of the associated documentation and submissions on file in respect of traffic and transport has been examined, analysed and evaluated. It is considered that the applicant understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on traffic and transport, as a consequence of the development have been identified.

Parties to the application have raise a number of issues in respect of traffic and transport which I address below.

- Impact on vegetation along routes.
- Works within national roads.

Local roads and access.

Impact on L-34011-20

Impact on **vegetation** along routes: The grid connection works are noted to be within the local roads, and no vegetation removal has been identified. Appendix 15.1 identifies that pruning of vegetation and the removal of two trees are required to facilitate the proposed widening of junctions and local roads which forms part of the turbine delivery haul route. No hedgerow removal has been identified. Having travelled the local roads for the turbine delivery route, it is noted there is generally a wide road verge present along the route, and this is overhung by vegetation in places. The full development description as per Chapter 2 of the EIAR forms part of the assessments in Chapter 5 Terrestrial Ecology, Chapter 6 Aquatic Ecology and Chapter 7 Ornithology. Mitigations and monitoring outlined within these assessments and summarised in Appendix 17.1 are applicable to the grid connection route and areas where physical works are proposed along the turbine delivery route. These include supervision by an ecologist/ECoW of vegetation, scrub and hedgerow removal, tree felling survey, and species-specific pre-construction surveys are noted.

Therefore, it is considered that potential effects on vegetation along the local road network are limited and would be managed and mitigated by the measures which form part of the proposed scheme.

Works within **national roads**: It is considered that the recommendations by TII do not alter the conclusions of the EIAR and can be conditioned as part of the CEMP.

Submissions have raised concern in relation to **local access**. The mitigation measures as outlined above, include maintaining local access during construction including temporary road closures. Consideration of diversions and the phasing of works within the road network have had regard to local access requirements. Regard has also been had to sensitive users along the routes and potential conflict between pedestrians and construction traffic. All access points (domestic, business, farm) will be considered when finalising the proposed road closures and diversions. Beara Breifne Way will also remain open, but temporary transporting of walkers through the site during periods of heavy onsite construction traffic is proposed. There are no constraints on access during the operational phase. The mitigation measures including Traffic Management Plan included in Appendix 2.1 CEMP are noted. Whilst it is noted there may be delays on local access during the construction stage, it is considered that local access will be maintained and taking account of mitigation measures that the effect will be temporary and not significant.

Impact on **L-34011-20**: Cork County Council's Area Engineer has noted that the access road follows the L-34011-20 (which forms part of the Beara Breifne Way) between T3 and T7 and that the foundations for T7 impacts on the public road. Having reviewed Figure 15.7, it is considered that the foundations for T7 overlaps with the existing public road, although the overlap is noted to be minor. It is further noted that the development description includes for the upgrading of the L-34011-20 road to include passing bays and all associated drainage infrastructure. There are, however, no proposals to reroute the road to facilitate the proposed development, and the alignment of L-34011-20 is to remain as existing adjacent to T7 which will remain public. In this regard and taking account of the assessments in Sections 11.7 to 11.15 above, it is considered that T7 and associated foundations and access

tracks can be shifted south to remove the impact on the public road. This can be included as a condition on any grant of permission.

11.18.5. Conclusion: Direct and Indirect Effects

Having regard to the examination of environmental information in respect of traffic and transport, in particular the EIAR and submission from the planning authority, prescribed bodies, and observations received from members of the public in the course of the application, it is considered that the main significant direct effects on traffic and transport are, and will be mitigated as follows:

- Road closures of local roads and diversions of traffic which will be mitigated by maintaining local access, phasing of road closures and diversions and traffic management plan.

In reaching this conclusion regard has been given to the cumulative impact of the wind farms in the study area.

11.19. Vulnerability of the Project to Major Accidents and Natural Disasters

11.19.1. Introduction

Chapter 16 deals with Major Accidents and Natural Disasters.

11.19.2. Issues raised

Submissions received from Geological Survey Ireland (GSI) refers to the potential impact of landslides and that information available from GSI on the potential of landslides. This has been addressed in Section 11.21 above under Geology and Soil.

Submissions received from Uisce Éireann and the Department of Housing, Local Government and Heritage (DAU) have been addressed in Section 11.22 above under Hydrology and Hydrogeology.

11.19.3. Evaluation of the EIAR

11.19.3.1. **Context**

This chapter looks at the vulnerability of the proposed development in terms of the likelihood for major accidents to occur during development phases and/or natural disasters. The potential for such accidents and/or disasters, if any, to result in likely significant adverse environmental effects and how these can be mitigated to prevent such effects.

The relevant legislation and guidance is outlined within the EIAR.

11.19.3.2. **Baseline**

Identified hazard categories include natural, transportation, technological and civil and a number of sub-categories. These are based on the HSE Emergency Management: Emergency Plans (EIAR Table 16.4). The ones relevant to the proposed development include:

Meteorological: Ireland is noted to have a temperate, oceanic climate resulting in mild winters and cool summers. Weather forecasts and weather warning systems will inform day to day works programme. In the case of extreme weather event, works will be suspended. Chapter 10: Air and Climate is referenced.

Hydrological: There are no records of flooding within the development areas. Recurring flooding noted at distances of 4km downstream. There will be an increase in surface water run-off from the site. It is noted that with proposed drainage measures and attenuation at greenfield run-off rates, there is no increased risk of flooding elsewhere within the catchment and the risk of contributing to downstream flooding is also very low. Chapter 9: Hydrology and Hydrogeology is referenced.

Peat Stability: Peat Stability Assessment has been completed and informed the design. Intrusive ground investigation works including peat depth probing, shear strength testing, ground coring and trial pitting have been carried out. Chapter 8: Soils and Geology is referenced along with Appendix 8.1 Site investigation reports include the Stability and Geotechnical Assessment.

Additional information was sought from the applicant with regard the geotechnical stability risk and hydrogeological assessment as detailed above in Section 8.9 and addressed in Section 11.21 above.

Traffic: The proposed development will utilise the existing road network with some upgrading required. Chapter 15 Traffic and Transport and Traffic Management Plan (TMP) included in Appendix 2.1 Construction Environmental Management Plan (CEMP) are referenced.

Industrial Accident: The site is not located in proximity to a SEVESO sites. Potential for onsite gas explosions and fuel fires during works and operation.

Loss of critical infrastructure: Electricity production is monitored nationally and to customer demand. Localised failure on site will not impact on this. The proposed development will be connected to Ballyvouskill 220kV Substation.

Contamination: Potential to cause contamination and pollution of groundwater and surface water from the release of hydrocarbons, earthworks and excavations. Environmental controls are set out in Appendix 2.1 CEMP, Section 3 and Emergency Response Plan (ERP). Chapter 2 Project Description is also referenced for further details.

Health and safety: Adherence to relevant Health & Safety Authority's guidelines during construction is applicable. ERP provides details of procedures to be adopted in the event of an emergency and is included in Appendix 2.1 CEMP.

Turbine Safety: No threat to the health and safety identified. Build-up of ice on the blades is unlikely. The anti-vibrations sensor will detect any imbalance of the blades and stop the turbines. No likelihood of increase in lightning strikes given the materials of the blades. Lightening protection conduits will be part of the development.

Electromagnetic Interference: Standard capacity underground cables to be installed. Extremely low frequency (ELF) electric and magnetic fields (EMF) comply with applicable guidelines. No treat to health and safety identified. Reference to

Chapter 13 Material Assets and Other Issues which deals with potential electromagnetic interference to telecommunications and aviation.

11.19.3.3. **Likely Potential Effects**

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	Commercial forestry operations, existing land-use practices and recreational amenities would continue at the Site.
Construction	• **Severe weather** is considered unlikely based on prevailing weather conditions including weather records. Minor consequence predicted and localised effects. A low risk scenario is concluded. • **Flooding** during periods of heavy rainfall. The risk of flooding is considered unlikely. Minor consequences predicted and localised effects. A low risk scenario is concluded. • **Peat Stability**. The risk has been minimised through design and further minimised through mitigation measures outlined in Appendix 8.1. The risk of peat instability is considered unlikely and with limited consequence predicted should it do so, a low risk scenario is concluded. • **Traffic incident.** Driver negligence or TMP not implemented or not adhered to. Limited vehicles on site during construction. The risk of a traffic incident is considered unlikely and minor consequence is predicted. A low risk scenario is concluded. • **Contamination.** Potential risk of contamination from the release of hydrocarbons during construction activities. Mitigation measures identified to limit the risk as per Chapter 2 Project Description and Chapter 9 Hydrology and hydrogeology. The risk of contamination is considered unlikely and with limited consequence predicted should it do so, a low risk scenario is concluded. • **Industrial accident, fire/gas explosion**. The proposed development will be designed, built and operated in line with current

	best practice. It will be subject to a fire safety risk assessment which will assist in the identification of any major risks of fire on site. The risk is considered unlikely and with limited consequence predicted should it do so, a low risk scenario is concluded.
Operation	• **Contamination.** Similar to construction. • **Industrial accident, fire and gas explosion.** Similar to construction. • **Collapse/damage to structures.** Consideration of earthquake, traffic collision and peat stability, and potential for significant infrastructure collapse or damage have not been identified. Minor consequence predicted to a small number of people and localised effects of short duration. A low risk scenario is concluded. • **Traffic incident.** Small number of vehicles on site during operation. Minor consequence predicted. A low risk scenario is concluded. • **Loss of Critical Infrastructure**. National control of electricity production, no affected by on site failures. Localised effects of short duration. A low risk scenario is concluded.
Decommissioning	• Potential risks include sever weather; flooding; traffic incident; contamination; industrial accident, fire and gas explosion; and loss of critical infrastructure. Similar effects to construction and construction, all considered low risk scenarios.
Cumulative	• A potential increase in risk as a result of cumulative developments has not been identified.

11.19.3.4. **Mitigation**

- The main mitigation is the layout design in accordance with best practice measures.

- Accompanied by a CEMP, Appendix 2.1. This sets out details of the environmental controls to be implemented on site and Emergency Response Procedure.

11.19.3.5. **Residual Effects**

A low risk of a major accident and/or disaster is predicted. There are no significant residual significant effects.

11.19.4. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

Chapter 16 of the EIAR, all of the associated documentation on file in respect of major accident or natural hazard has been examined, analysed and evaluated. It is considered that the applicant understanding of the baseline environment is comprehensive. Having regard to this, following concerns are raised with regard to the assessment:

- Peat stability
- Hydrological

Peat stability: Peat stability has been considered as part of EIAR Chapter 8 above. Significant adverse effects have not been concluded for turbines located within medium risk area when taking account of mitigation measures. However, T12 is noted to be located in a peat area with a high-risk and no evidence base have been submitted to suggest that the location of T12 in an areas of high peat stability risk is acceptable. In this regard, it is considered that the position of a turbine within a high risk stability area would alter the risk prediction for peat stability during construction, operation and decommissioning. Based on the methodology provided in Table 16.3 to 16.5, it is considered the likelihood classification to increase from very unlikely (2) to unlikely (3). Depending on the potential environmental effect, the consequence could change from limited (2) to serious (3). The revised risk factor would increase from 4 to 6 or 9 depending on the potential environmental effects and the potential for these to be more widespread and of a longer duration. This would result in a low

risk scenario or potentially a medium risk scenario. It is considered that by omitting T12 the risk scenario would remain low as concluded in the EIAR.

Hydrological: As outlined in Section 11.22 above, a technical assessment by the Board's environmental scientist (attached appendix to this inspector's report), has regard to the applicant's information and confirms the use of these measures are acceptable controls for the surface waters.

Pollution: As outlined in Section 11.22 above, mitigation measures and monitoring will ensure necessary protection.

11.19.5. **Conclusion: Direct and Indirect Effects**

Having regard to the foregoing, It is considered that the potential risks to the proposed development should a major accident or natural disaster occur have been clearly identified. It is considered that the main potential for significant direct and indirect effects on the environment, after the application of mitigation measures are:

- Peat stability around Turbine 12, which can be mitigated by omitting the turbine.

This can be lifted into the reasoned conclusion.

11.20. Interactions

11.20.1. Chapter 17 details the interactions between the environmental topics, based on a matrix developed by the Environmental Protection Agency (EPA) (2022). Table 17.1 provides the matrix outlining potential interactions and a summary of the main interactions during construction and decommissioning is provided in Table 17.2. Mitigation measures as outlined within the technical assessments and summarised in Appendix 17.1 are also considered.

11.20.2. The main positive interactions arise between population and Human Health and Air and Climate, due to the offset of greenhouse gas emissions provided a net positive effect on the climate. This is considered a moderate positive effect and cumulative significant positive effect. Other interactions identified include biodiversity and

hydrology and hydrogeology and soils and geology; soils and geology, landscape and visual and cultural heritage and archaeology; and noise and traffic and transportation. None of the interactions identified at construction or operational stages, taking account of mitigation measure, are considered significant.

11.20.3. It is considered that the interactions capture the construction and operation impacts between the EIAR topics. It is considered that any such impacts, taking account of my assessment above, can be avoided, managed and mitigated by the measures which form part of the proposed development and any recommended planning conditions.

11.21. Reasoned Conclusions on significant effects

Having regard to the examination of environmental information contained above, to the EIAR and supplementary information provided by the applicant and the submissions received, the contents of which have been noted, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows.

- **Population and Human Health:** Negative impacts on human health and population arising from construction and operation including noise, traffic and dust disturbance to residents of neighbouring dwellings can be adequately mitigated through the implementation of the construction environmental management plan, best practice construction methods, installation of shadow flicker systems on the turbines and noise levels within level recommend in the national wind energy guidelines. There will be a long term significant positive effect on population and human health due to the displacement of CO^2 from the atmosphere arising from fossil fuel energy production and from the implementation of the Community Benefit Fund.
- **Biodiversity:** The removal of habitats on site, including wet heath and blanket bog will have a moderate long term negative impact on biodiversity which can be mitigated through the delivery of mitigation measures including the inclusion of a Habitat Enhancement Plan within the site. The impact on peat

habitats will not have any effect the nature or range of any habitats or the conservation objectives of any European Sites. Negative impacts on **species** within the site, including the Kerry Slug and bats, which are likely to arise in the construction and operational phase can be mitigated through a conservation management plan and the careful design of the turbines and are not considered to be significant. The watercourse crossing will not impact on water connectivity or movement of fish or result in the loss of instream habitat. Negative effects on aquatic species and habitat which are likely to arise from potential release of sediments and other pollutants into watercourses can be adequately mitigated by measures outlined in the application.

- **Land, Soils, Water, Air and Climate**: Negative effects on **surface water and ground water** as a result of accidental spillage of hydrocarbons, increased sedimentation, including any release of organic carbon, and any other contaminants entering the drainage system can be adequately mitigated by measures outlined in the application. The proposed development will not impede the ability of surface waters to achieve good or high status and the Water Framework Directive and the removal of Turbine T12 will ensure that any risk from unstable peat is removed.
- **Landscape and Visual** and **Cultural Heritage:** Negative Landscape and Visual and Cultural Heritage impacts arise during the operational phase of the development given the placement of significant structures within the local landscape thereby changing the existing visual context in a slight to substantial-moderate magnitude. The impacts have been mitigated where possible by the proposed layout and the use of the existing landscape contours. Potential construction impacts on cultural heritage interest can be adequately mitigated through pre-construction surveys and buffer zones.
- **Material Assets**: Negative **traffic** impacts arise during the construction phase of the proposed development, these impacts will be mitigated through the implementation of a traffic management plan. Impacts arising from traffic can be appropriately mitigated. Potential negative effects on **other material**

assets, telecommunication links and aviation, during operation can be adequately mitigated.

12.0 Appropriate Assessment

12.1. Introduction

12.1.1. The requirements of Article 6(3) as related to Appropriate Assessment (AA) of a project under part XAB, section 177U of the Planning and Development Act 2000 (as amended) are considered fully in this section.

Screening

12.2. Background on the Application

12.2.1. The proposed development is for 14 No wind turbines, a meteorological mast, an on-site substation and all ancillary works, along with a turbine delivery route and an underground grid connection (27.8km) connecting the site to the Ballyvouskill 220Kv substation. The proposal is for a 10-year permission and a 35-year operational life from the date of commissioning of the entire wind farm. The submitted Natura Impact Statement (NIS) is informed by a number of experts in ecology, aquatic ecology, bats and Kerry slug and has been prepared having regard to the national and European guidelines, in respect of appropriate assessment.

12.2.2. The environmental context of the site is set out, including the geology and hydrogeology of the site. The applicant's NIS notes the location of the site across three sub-catchments, all tributaries of the Lee. The main part, north, includes three tributaries of the Douglas which flows into the Sullane River downstream of Ballyvourney. The Sullane then flows into the River Lee at the Inniscarra Reservoir downstream of Macroom. In the southeast, the site drains to the headwaters of the Toon River, flowing directly into the Lee. Watercourses within the site are small 1st order tributaries with high gradients and do not provide suitable habitats for fish or larger aquatic organisms.

12.2.3. The grid connection route extends into the catchment of the Clydagh River, which becomes the River Flesk in the lower reaches downstream to the Lee River. In terms of sub catchment, the Flesk River sub-catchment (Flesk (Kerry)_SC_020) and flows downstream along the north of the grid connection route, from east to west. In the River Lee sub catchment, the site is in the Foherish_SC_010 (c. 5.5km downstream) and Sullane_SC_010 sub catchment (c. 4.5km downstream) both to the south of the proposed development.

12.2.4. **Proposed development**

12.2.5. The proposed site access is via Entrance 1, for the turbine delivery route, and entrance 2, the construction haul route. A proposed temporary bridge is required at the Sullane River for the turbine delivery and will remain in place until the turbine commissioning is complete. There will be seven service crossings, 130 no culvert crossings and seven watercourse crossings by horizontal directional drilling for the grid connection route. There are seven proposed crossings of land drains and natural stream/flushes along the internal site access roads. Bridges are constructed with reinforced concrete and join gravel site accesses. An overview of the works proposed is provide below:

- The met mast is located to the north-west for the site and is linked to the 110Kv substation.
- One electricity substation is provided on the site linking to the grid connection which is mostly along the site of public road or forestry tracks with 0.4km located off road in third party lands. Trenching and ducting will be used for most of the grid connection route.
- Seven watercourses are required, and Directional drilling will be sued for laying cable.
- Two borrow pits will be constructed and will provide 59,053m^2 of excavated material to fill for roads etc. Rock and fill will be used for the turbine foundations material first.
- Rock breaking and blasting is required for the access roads and turbine hardstands.

- Surface water throughout the site will be treated in natural and artificial channels including streams and river waterbodies, and mitigation measures include stilling ponds, sediments traps and attenuation ponds. Surface water will be discharged to watercourses at greenfield rates.

12.3. Submission and Observations

Observation Appropriate Assessment notes the threshold for assessments has been set out in numerous legal cases (Kelly-v- ABP, People over Wind and Peter Sweetman v Coillte Teoranta and CJUE case 258/11) and permission cannot be given if it is not met. It is noted that the proposal is within an area of highly sensitive species and habitats including the Fresh Water Pearl Mussel.

Cork County Council submission notes the lack of robust scientific assessment in the NIS to establish beyond any reasonable scientific doubt that there will be no adverse effects on the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and the Mullaghanish to Musheramore Mountains SPA.

The **Department of Housing, Local Government & Heritage** notes the location of the site within the catchments which have downstream wetlands of conservation value and concern this issue was not fully addressed in the EIAR and should have been addressed in the NIS. Concern is raised in regard to the impact of increased drainage efficiency on downstream wetland erosion. The location of the site access road and turbines in catchments of the Toon River and the T3 and associated access road within the catchment of the River Lee of which both have downstream wetlands of conservation value.

12.4. European Sites

Table 2 of the applicant's report include the relevant European Sites, reasons for designation and distance from the site have been included below.

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
Special Area of Conservation (SAC)			
Mullaghanish Bog SAC [001890] Mullaghanish Bog SAC | National Parks & Wildlife Service (npws.ie) 632m north of grid connection route	[7130] Blanket bogs (* if active bog)	No – there is no complete source-pathway-receptor chain between the site and the blanket bog and along the GCR, runs 632m from the edge of the SAC and utilises existing forestry tracks.	N.
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365] Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC | National Parks & Wildlife Service (npws.ie)	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Northern Atlantic wet heaths with Erica tetralix [4010]	Y-Approximately 20km of the grid connection route is located along an existing forestry road, parallel to the Clydagh River and 41m beside the SAC at the closest point. The proposed wind farm is 8.65km south of the SAC and is considered outside normal foraging range for the lesser horse-shoe bat to fly.	Y- Based on a hydrological pathway and connection via the Clydagh River.

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
c. 41m north of the grid connection route	European dry heaths [4030] Alpine and Boreal heaths [4060] Juniperus communis formations on heaths or calcareous grasslands [5130] Calaminarian grasslands of the Violetalia calaminariae [6130] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the Rhynchosporion [7150] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Taxus baccata woods of the British Isles [91J0] Geomalacus maculosus (Kerry Slug) [1024]		

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
	Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Euphydryas aurinia (Marsh Fritillary) [1065] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Salmo salar (Salmon) [1106] Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303] Lutra lutra (Otter) [1355] Trichomanes speciosum (Killarney Fern) [1421] Najas flexilis (Slender Naiad) [1833] Alosa fallax killarnensis (Killarney Shad) [5046]		
The Gearagh SAC (site code:000108)	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	Y- The SAC is 11km to the east of the site. The Sullane River, drains much of the wind farm site and enters into the River Lee at	Y- hydrological connection to the River Lee which

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
The Gearagh SAC | National Parks & Wildlife Service c. 11km to the Southeast of the site	Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation [3270] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Lutra lutra (Otter) [1355]	Reservoir 2km downstream of the Gearagh SAC. The extreme southwest sector of the site drains to the Bunsheelin River, which joins the River Lee at Ballingeary	connects with the SAC.
St. Gobnet's Wood SAC [000106] St. Gobnet's Wood SAC | National Parks & Wildlife Service (npws.ie) c. 3.67km to the northeast of the wind farm site.	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	N- The wind farm site is 3.67km southwest of the SAC and the temporary bridge crossing at the Sullane River is within c. 33m of the SAC, although the proposed development and the SAC may be hydrologically linked there is no potential impact on the QI of this SAC.	N

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
Blackwater River (Cork/Waterford) SAC [002170] Blackwater River (Cork/Waterford) SAC | National Parks & Wildlife Service (npws.ie) c. 12km north of the wind farm site and c. 3.7km north of the grid connection route.	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Austropotamobius pallipes (White-clawed Crayfish) [1092] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Alosa fallax fallax (Twaite Shad) [1103]	N- There is no hydrological connection between the proposed development and the SAC.	N

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
	Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355] Trichomanes speciosum (Killarney Fern) [1421]		
Derryclogher (Knockboy) Bog SAC (site code: 001873) Derryclogher (Knockboy) Bog SAC | National Parks & Wildlife Service c. 12km southwest of the wind farm site.	Blanket bogs (* if active bog) [7130]	N- No hydrological connection	N
Glanlough Woods SAC (site code: 002315) Glanlough Woods SAC | National Parks & Wildlife Service 13.5km, west of the wind farm site.	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	N- The site is c. 13.5km from the SAC, outside the foraging range for lesser horse-shoe bats, therefore there is no source - pathway-receptor.	N
Old Domestic Building, Curraglass Wood SAC [002041]	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	N- The proposed development is located outside the foraging range of the Lesse Horseshoes Bat,	N

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
Old Domestic Building, Curraglass Wood SAC | National Parks & Wildlife Service (npws.ie) c. 12km, northwest of the wind farm site. c. 8.8km, west of the grid connection route.		therefore there is no source - pathway-receptor.	
Kilgarvan Ice House SAC [000364] Kilgarvan Ice House SAC | National Parks & Wildlife Service (npws.ie) c. 14.5km, west of the wind farm site.	Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	N- The proposed development is located outside the foraging range of the Lesse Horseshoes Bat, therefore there is no source - pathway-receptor.	N
Great Island Channel SAC (site code 001058) Great Island Channel SAC | National Parks & Wildlife Service 59km	Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Y- The SAC is located 59km downstream and due to the connection to the Sullane, to the River Lee which flows 40km before entering the Cork Harbour, a hydrological connection is present.	N- the distance will prevent any effects.

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
Special Protection Areas (SPA)			
Mullaghanish to Musheramore Mountains SPA [004162] Mullaghanish to Musheramore Mountains SPA | National Parks & Wildlife Service (npws.ie) 5km	Hen Harrier (Circus cyaneus) [A082]	Y- The SPA is 5km from the wind farm site which has habitats with the potential to support foraging Hen Harriers. A portion of the grid connection is located to the north of the SPA (170m at the closest point).	Y
The Gearagh SPA [004109] The Gearagh SPA | National Parks & Wildlife Service (npws.ie) 11km	Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Mallard (Anas platyrhynchos) [A053] Coot (Fulica atra) [A125] Wetland and Waterbirds [A999]	Y- A hydrological connection has been established between the wind farm site and this SPA via the Sullane River and the River Lee. There is no evidence the site supports any habitats used by the species listed	Y.

European Site (Code) and distance to site	List of Qualifying Interest/Special Conservation Interest	Connections (Source, pathway, receptor)	Considered further in screening. Y/N
Cork Harbour SPA (code 004040) Cork Harbour SPA | National Parks & Wildlife Service c. 50km, east of the wind farm site.	Little Grebe (Tachybaptus ruficollis) [A004] Great Crested Grebe (Podiceps cristatus) [A005] Cormorant (Phalacrocorax carbo) [A017] Grey Heron (Ardea cinerea) [A028] Shelduck (Tadorna tadorna) [A048] Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Anas clypeata) [A056] Red-breasted Merganser (Mergus serrator) [A069] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Gull (Larus canus) [A182] Lesser Black-backed Gull (Larus fuscus) [A183] Common Tern (Sterna hirundo) [A193] Wetland and Waterbirds [A999]	Y- The SPA is located 50km downstream and due to the connection to the Sullane, to the River Lee which flows 50km before entering the Cork Harbour, a hydrological connection is present.	N- the distance will prevent any effects

12.5. Potential Impact on European Sites

12.5.1. **Hydrological connections** between the site and a number of European Sites have been identified. The activities associated with the construction and decommissioning of the wind farm and the grid connection are considered to be the principal reason for potential effects on any qualifying interest and Special Conservation Interests of the European Sites. These works include the removal of commercial forestry trees and the cut and fill of lands along the side of the roads, cutover bog for the new borrow pits and turbine stands. These works have the potential to have direct and/or indirect impact on the European Sites due to:

- Risk of nutrient release as a result of clear-fell of conifers.
- Risk of pollutants entering the local watercourse, due to soil run-off from unvegetated surfaces, spillage of hydrocarbons and other pollution and the risk of peat slippage.

12.5.2. In general, the proposal has the potential to cause deterioration of water quality in surface water flowing downstream into the European sites via on-site tributaries, through the release of suspended solids and hydrocarbons.

12.5.3. Five sites have been identified as having hydrological connections. The Great Island Channel SAC and the Cork Harbour SPA are c. 59km and 50km downstream from the site and having regard to this distance and the presence of both the Carrigadrohid and Inniscarra dams between the site and these European Sites, even with the most extreme scenarios and without mitigation, it is considered dilution, dispersal and settlement would occur before the surface water reach the European Sites.

12.5.4. Three sites have been screened in, having regard to presence of a hydrological connection, and a source-pathway -receptor to the European Sites as follows:

- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365]
- The Gearagh SAC [000108]

- The Gearagh SPA [004109]

12.5.5. The lesser horse-shoe bat is the qualifying interest of both the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and three other SACs although the applicant's screening notes no preferred habitat such as hedgerows and treelined and the distance of the European Sites and any potential effects can be screened out.

12.5.6. The **Hen Harrier** is a species of interest of the Mullaghanish to Musheramore Mountains SPA. Reference to Chapter 7 of the EIA (Ornithology) indicates the Hen Harrier is an occasional winter species although there is no evidence of winter roosting on the site. The grid connection route passes close to the SPA and could have a significant effect on the Hen Harrier.

12.5.7. The remaining sites within the identified Zone of Influence for the proposed development have been screening out as listed below. Regard has been given to the qualifying interest for each of these European Sites and associated conservation objectives.

- Mullaghanish Bog SAC (code 001890)
- St Gobnet's Wood SAC (code 00106)
- Blackwater River (Cork/Waterford) SAC (code 002170)
- Derryclogher (Knockboy) Bog SAC (code 001873)
- Glanlough Woods SAC (code 002315)
- Kilgarvan Ice House SAC (code 000364)
- Old Domestic Building, Curraglass Wood SAC (code 002041)
- Great Island Channel SAC (code 001058)
- Cork Harbour SPA (code 004030)

12.6. Screening Determination

The proposed development was considered in light of the requirements of Section 177U of the Planning and Development Act 2000, as amended. Having carried out Screening for Appropriate Assessment, it has been concluded that the proposed

development individually or in-combination with other plans or projects would not be likely to have a significant effect on Mullaghanish Bog SAC (code 001890), St Gobnet's Wood SAC (code 00106) , Blackwater River (Cork/Waterford) SAC (code 002170), Derryclogher (Knockboy) Bog SAC (code 001873), Glanlough Woods SAC (code 002315), Kilgarvan Ice House SAC (code 000364), Old Domestic Building, Curraglass Wood SAC (code 002041), Great Island Channel SAC (code 001058), Cork Harbour SPA (code 004030), in view of the sites' Conservation Objectives, an Appropriate Assessment (and submission of a NIS) is not therefore required. This determination is based on the following:

- The qualifying criteria of each of the European Sites.
- The distance from the application site and study area.
- The absence and lack of meaningful ecological connections to those sites.

This screening determination is not reliant on any measures intended to avoid or reduce potentially harmful effects of the project on a European Site.

12.7. Appropriate Assessment Stage II

12.7.1. The grid connection route runs along the south of and is hydrologically linked to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365]. There are a range of tributaries which flow into the Clydagh River and the Lough Leanne Catchment Area. The location of the site, adjacent to the Mullaghanish to Musheramore Mountains SPA [004162], which lists the Hen Harrier as a qualifying species, as the potential to be used as foraging by this species. The Sullane River flows into the River Lee which connects into The Gearagh SAC (000108) and SPA (004109) downstream. Likely significant effects on the following European Sies could not be excluded.

- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (code 000365)
- The Gearagh SAC (code 000108)
- The Gearagh SPA (code 004109)

- Mullaghanish to Musheramore Mountains SPA (code 004162)

12.7.2. The AA Screening Assessment, above, could not rule out any potential impacts on either of these European Sites, having regard to the nature and scale of the proposed development, the proximity of the project to the European sites, to the nature of the qualifying interest habitats and species, and the special conservation interest species, and the conservation objectives of the European sites, and the potential impact and surface water pathways between the proposal and the European sites.

12.7.3. The AA Screening Assessment submitted with the planning application had the same determination and considered that mitigation measures must be implemented to ensure no significant impact on either European Site. The planning application was accompanied by a Stage II assessment, Natura Impact Statement (NIS)

12.7.4. The NIS provides a summary of the AA Screening Report, provides a description of the proposed development, the characteristics of the receiving environment and details the potential effects on both European Sites, the associated mitigation measures which are intended to avoid and/or reduce any negative impact and provides an overview of any residual effects.

12.7.5. The NIS is informed by the best available data on the above European Sites (NPWS), European and national information on the habitats and species within the European Sites, and surveys by experts as detailed above in relation to the screening for AA.

12.7.6. **In-combination effect**

12.7.7. The applicant's AA and EIAR were submitted to the Board in 2022. The **cumulative impact of** other wind farm projects within a 20km radius is included and noted in the EIAR as the study area (as defined above). Due to the passing of time, additional wind farms and/or other works, have been permitted. To the best of my knowledge these include.

- ABP 313261-22 (PA ref 21/5372) permission granted for 3 No. turbines.
- ABP 312606-22 - SID wind farm permitted for 16 No. turbines.

- ABP 319216-24 (PA ref 23/5145) permission pending for the grant of 5 No. turbines.
- ABP 308885-20 - SID wind farm permitted for 22 No. turbines.
- ABP 314275-22 and 317406-23 - 110 kV and 33 kV Grid connection permitted by the Board.

12.7.8. Regard as been given to proposal ABP 321029-24, a SID application currently before the Board for a wind farm consisting of 17 No. turbines.

12.7.9. The applicant's "in-combination" effects have regard to 32 wind farms within 20km^2 radius of the site. Detailed and assessed in both the EIA and the AA. It has been concluded in the AA that there are c. 279 turbines either operational, permitted or proposed. The applicant states that with mitigation in place, the proposed development will not have any adverse effects on any European Site.

12.7.10. Regard has been given to the in-combination works, in particular the grid connection close to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC and the wind farms closer to the Mullaghanish to Musheramore SPA, and It is considered that the information, including those potential impacts and mitigation measures, detailed in the AA remain relevant to my assessment.

12.8. Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365]

12.8.1. The AA notes that there is an identified hydrological pathway between the grid connection and the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC. This link is via minor tributaries which link the subject site with the Clydagh River which is located within the Lough Leane Catchment. The construction works and horizontal directional drilling of watercourses has the potential for the proposed development to impact the water quality of these tributaries which would result in a negative impact on those qualifying interest which are water dependant as follows:

- [1095] Sea Lamprey (Petromyzon marinus)

- [1096] Brook Lamprey (Lampetra planeri)
- [1099] River Lamprey (Lampetra fluviatilis)
- [1106] Salmon (Salmo salar)
- [1355] Otter (Lutra lutra)
- [1833] Slender Naiad (Najas flexilis)
- [3110] Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)
- [3130] Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea
- [3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
- [5046] Killarney Shad Alosa fallax killarnensis
- [91E0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)

12.8.2. Chapter 9 of the EIAR sets out, in detail, proposed works which may affect hydrologically connected sensitive receptors. The majority of the grid connection works are along forestry racks and existing public roads. Works to the grid connection which may affect this SAC include horizontal directional drilling locations for Stream 1, Stream 2, Stream 3 and the N22 crossing within JB-04-JB-21. EIAR Figure 9.8 (i) illustrates the grid connection route works along Stream 1, 2 and 3.

12.8.3. The AA includes an assessment of the impact on the above species and habitats having regard to the nature and scale of the proposed development, the location of the site and the site-specific pressures and threats to each of the qualifying interests. Four habitats are Annex I habitats (Oligotrophic waters, Oligotrophic to mesotrophic waters, Water course of plain to montane levels and Alluvial Forests (priority)).

12.8.4. **Potential impacts**

12.8.5. The potential sources of effects as listed in the NIS are from construction and decommissioning and are summarised below:

- Crossing of watercourse.
- Effects of tree feeling on water quality as a result of sediment and nutrient release.
- Placement and storage of material arising from infrastructure works.
- Access to construction equipment, including access away from the proposed infrastructure location.
- Potential for accidental spillage of hydrocarbons and other pollutants including concrete laitance.
- Potential of peat spillage or failure.
- Removal and restoration of existing infrastructure at decommissioning stage.

12.8.6. In general, the impact of an increase silt loads, and associated nutrient could negatively impact the water quality, resulting in adverse effects on the water quality, aquatic habitats, such as salmonid spawning habitat, and species such as the Freshwater Pearl Mussel (FPM).

12.8.7. **Mitigation Measures**

12.8.8. Mitigation measures are required to prevent any impact on the identified qualifying features of interest in the European Sites. Details of all mitigation measures are included in Section 4 of the NIS. These have also been detailed throughout the EIAR and included in the CEMP and the Surface Water Management Plan (SWMP). Specific mitigation measures are proposed during construction and operation.

12.8.9. Mitigation measures to minimises the impact on the QI and SCI of the site include:

- Implementation of the Construction and Environmental Management Plant (CEMP), Surface Water Management Plan (SWMP), a Water Quality Monitoring Plan and Watercourse Crossing Plan (WQMP) and a Waste Management Plan (WMP).
- Use of buffer zones along watercourses (65m).
- Design of the drainage proposals to prevent sediments and other pollutants entering the watercourse and the treatment of surface water on-site during construction works:

    - Open constructed drains for development run-off collection.
    - Collection drains for upslope “clean” water collection and dispersion.
    - Filtration check dams.
    - Settlement ponds, lagoons and buffered outfalls with storage and pump to discharge at greenfield rates.
    - Total suspended solids shall not exceed 25 mg/l in line with Inland Fisheries Ireland guidance.
- No direct run-off to water body.
- Dewatering through “silt socks” etc.
- No instream works undertaken and no tracking of machinery across any watercourse.
- Control of refuelling of vehicles and use of fuel and onsite.
- Use of an Ecological Clerk of Works during construction works.
- Culverting works will be managed during dry weather.
- Concrete pouring will be managed.

12.8.10. Those mitigation measures proposed are noted which are considered appropriate to prevent an increase in sedimentation and pollution in the surface waters. The proposed mitigation measures in relation to construction and protection of water quality are well established and in line with best practice development and the protection of water courses. It is also considered that the proposed construction methodologies and details supplied are sufficiently comprehensive to remove any lack of clarity regarding the potential for adverse effects to arise.

12.8.11. Further information received from the applicant included the location of 5 temporary stockpile areas away from any hydrological connections and Appendix F: Schedule of Ecological Mitigation Measure sets out specific mitigation measures to prevent any adverse effects on bats, all aquatic species and Kerry slug.

Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365] Source content: (accessed 29th of November 2024) Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC | National Parks & Wildlife Service (npws.ie)					
Qualifying Interest Feature	Conservation Objectives Targets and Attributes	Potential Adverse effects	Mitigation measures	In-combination effects	Can Adverse effects on integrity be excluded?
Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	To **restore** the favourable conservation condition of……:	Y- Pathway between the site and habitat via surface water. Pressures such as eutrophication, overgrazing, forestry and peat-cutting may have reduced vegetation depth in some lakes. Dissolved and organic carbon (OC) can increase the DOC.	Y- The prevention of sedimentation of the watercourse will prevent a negative impact on the water quality. A summary of the mitigation measures is listed above.	None arising post mitigation.	Yes
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]	To **restore** the favourable conservation condition of……:	Y- Pathway between the site and habitat via surface water. Pressures such as eutrophication, overgrazing, forestry and peat-cutting may have reduced vegetation depth in some lakes. Dissolved and organic carbon	Y- The prevention of sedimentation of the watercourse will prevent a negative impact on the water quality. A summary of the mitigation measures is listed above.	None arising post mitigation.	Yes

		(OC) can increase the DOC.			
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	To **maintain** the favourable conservation condition of……:	Y- Pathway between the site and habitat via surface water. These habitats support those aquatic species of qualifying interest listed in the SAC. The rivers require good hydrochemistry and the maintenance of the concentration of nutrients.	Y- The prevention of sedimentation of the watercourse will prevent a negative impact on the water quality and reduce water pollution. A summary of the mitigation measures is listed above.	None arising post mitigation.	Yes
Northern Atlantic wet heaths with Erica tetralix [4010]	To **restore** the favourable conservation condition of……:	No pathway between the site and no potential for adverse effects to this habitat due to the location on hills sides of the SAC combined with the nature of the QI and character of the proposed development.	N/A	None arising – no likely significant in-combination effects.	Yes
European dry heaths [4030]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Alpine and Boreal heaths [4060]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes

Juniperus communis formations on heaths or calcareous grasslands [5130]	To **maintain** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Calaminarian grasslands of the Violetalia calaminariae [6130]	To **maintain** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Blanket bogs (* if active bog) [7130]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Depressions on peat substrates of the Rhynchosporion [7150]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat. The loss of c. 1-2 m^2 of this habitat type at turbine T2 will have no significant effect on the nature or range of the habitat or the conservation status at this SAC.	N/A	None arising – no likely significant in-combination effects.	Yes
Old sessile oak woods with Ilex and Blechnum	To **restore** the favourable	No direct habitat removal from the site or	N/A	None arising – no likely significant in-	Yes

in the British Isles [91A0]	conservation condition of……:	likely indirect impact on the habitat.		combination effects.	
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	To **restore** the favourable conservation condition of……:	No direct pathway. Potential indirect impact on the water quality.	Mitigation measures will ensure no decline in the woodland structure or the hydrological regime necessary for the maintenance of the forest.	None arising – no likely significant in-combination effects.	Yes
Taxus baccata woods of the British Isles [91J0]	To **restore** the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	N/A	None arising – no likely significant in-combination effects.	Yes
Geomalacus maculosus (Kerry Slug) [1024]	To **maintain** the favourable conservation condition of……:	A Kerry Slug Survey Report and Management Plan was submitted as part of a further information request. No species was detected, and the proposed development will not have an indirect impact on this species.	N/A	None arising – no likely significant in-combination effects	Yes
Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]	To **restore** the favourable conservation condition of……:	As per Map 8 of the SSCOs (updated 2023), the Conservation Objective population is located in a separate catchment (Caragh River catchment) all	N/A	None arising – no likely significant in-combination effects.	Yes

		lands along the watercourse have been mapped with no overlap area. No SPR identified.			
Euphydryas aurinia (Marsh Fritillary) [1065]	To **restore** the favourable conservation condition of……:	Map 9 of the SSCOs (NPWS 2017).	N/A	None arising – no likely significant in-combination effects.	Yes
Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Salmo salar (Salmon) [1106]	To **maintain** the favourable conservation condition of……:	Yes - Potential for effects on juveniles, spawning habitat and water quality arising from excessive sedimentation and discharges during construction activities in relation to Sea Lamprey, Brook Lamprey, River Lamprey and Salmon.	Y- The prevention of sedimentation of the watercourse will prevent a negative impact on the water quality. A summary of the mitigation measures is listed above	None arising post mitigation.	Yes
Rhinolophus hipposideros (Lesser Horseshoe Bat) [1303]	To **maintain** the favourable conservation condition of……:	No- As per Map 10 of the SSCOs (NPWS 2017), the EIAR Study Area is located outside the core foraging range (2.5km) of Lesser Horseshoe Bat (NPWS, 2013).	N/A	None arising – no likely significant in-combination effects.	Yes
Lutra lutra (Otter) [1355]	To **maintain** the favourable conservation condition of……:	N- No instream works are proposed and there will be no impact on any connectivity	N- only those relating to the protection of water quality.	None arising – no likely significant in-combination effects.	Yes

		along the watercourse. Construction will be restricted to daytime hours.			
Trichomanes speciosum (Killarney Fern) [1421]	To **maintain** the favourable conservation condition of……:	No pathway for effect was identified.	N/A	None arising – no likely significant in-combination effects.	Yes
Najas flexilis (Slender Naiad) [1833]	To **maintain** the favourable conservation condition of……:	No pathway for effect was identified.	N- only those relating to the protection of watercourses.	None arising – no likely significant in-combination effects.	Yes
Alosa fallax killarnensis (Killarney Shad) [5046]	To **restore** the favourable conservation condition of……:	No pathway for effect was identified.	N/A	None arising – no likely significant in-combination effects.	Yes
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, either alone or in-combination is European site, and no reasonable doubt remains as to the absence of such effects.					

12.8.12. **Assessment and Conclusion**

12.8.13. Regard has been given to the information contained in the submitted NIS, the NPWS Site Synopsis for each site and the threats and pressures to the habitats and species and it is considered that there would be no direct impacts on the SAC because of the proposed works. The potential for indirect effects because of water pollution from the unmitigated release of fine sediments in runoff during construction work and hydrocarbons by way of accidental spillages from machinery; can be adequately mitigated using surface water and drainage management and the appointment of an Ecological Clerk of Works (ECoW) to oversee works.

12.8.14. Following the implementation of mitigation for the construction and operation of this proposed development It is considered the proposed development will not adversely affect the integrity of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, either alone or in-combination, and no reasonable doubt remains as to the absence of such effects.

12.9. **Mullaghanish to Musheramore Mountains SPA [004162]**

12.9.1. The Mullaghanish to Musheramore SPA is located c. 5km to the northeast of the site with the connection grid passing 170m from the SPA. This European Site lists the Hen Harrier as the only qualifying species of interest. A Stage II assessment was undertaken having regard to the location of the site beside the subject site. Bird Surveys undertaken in the EIAR study area recorded the species during the winter survey, possibility foraging or just flying and no evidence of winter roosting on site. Section 11.19 of the EIAR includes an analysis of the impact on the Hen Harrier, informed by the information from the Board's ecologist. It was concluded that and those mitigation measures comprising restricted work zones around identified nest areas and seasonal restrictions, which will reduce impacts to non-significant levels for these species.

12.9.2. The information in the Section 3.3.4 of the NIS reiterates the information from the EIAR surveys and notes the Hen Harrier as an occasional winter visitor. The

construction of the grid connection could potentially have an impact on breeding hen harrier, if works are carried out during breeding season. Those grid connection works along this section of the SPA, are restricted to works within a forest track. This cable laying works will be undertaken outside Hen Harrier breeding season, to avoid any risk of disturbance to Hen Harrier.

12.9.3. The conservation objectives for this European Site and the location, nature and scale of the works proposed are noted and it is not considered there is a potential for any impact on the Hen Harrier. The NIS includes an assessment of the potential residual impacts and considers in-combination impacts. There was no pathway identified for adverse effects on the conservation condition of the hen harrier associated with the proposed development. It is not considered there is any potential for either direct or indirect impacts as a result of the proposed development.

12.9.4. **Assessment and Conclusion**

12.9.5. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in-combination with other plans or projects would not adversely affect the integrity of the Mullaghanish to Musheramore Mountains SPA [004162], or any other European site, in view of the site's Conservation Objectives. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

12.9.6. This conclusion is based on:

- A full and detailed assessment of all aspects of the proposed project in relation to the Conservation Objectives (Hen Harrier) of the Mullaghanish to Musheramore Mountains SPA [004162]
- Detailed assessment of in-combination effects with other plans and projects including historical projects, current proposals, and future plans.
- No reasonable scientific doubt as to the absence of adverse effects on the Hen Harrier or the integrity of the Mullaghanish to Musheramore Mountains SPA [004162]

Mullaghanish to Musheramore Mountains SPA [004162]
Source content: (accessed 11th of August 2023): Mullaghanish to Musheramore Mountains SPA | National Parks & Wildlife Service (npws.ie)

Qualifying Interest Feature	Conservation Objectives Targets and Attributes	Potential Adverse effects	Mitigation measures	In-combination effects	Can Adverse effects on integrity be excluded?
Hen Harrier (Circus cyaneus) [A082]	To **restore** the favourable conservation condition of the Hen Harrier in Mullaghanish to Musheramore Mountains SPA	N- The site is located entirely outside the subject site. The grid connection runs c. 180m from the edge of the SPA. No potential adverse effects are envisaged as the works once cable laying is carried outside breeding season.	None required	None identified.	Yes

Overall conclusion: Integrity test
Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the Mullaghanish to Musheramore Mountains SPA, either alone or in-combination is European site, and no reasonable doubt remains as to the absence of such effects.

12.10. The Gearagh SAC [000108] and The Gearagh SPA [004109]

12.10.1. The Gearagh SAC and SPA are located to the east of the proposed wind farm site and are connected via the Sullane River which enters the River Lee downstream. The Gearagh SAC extends for about 7km along the river and occupies a wide, flat valley of the River Lee. The NIS references the connection between the site, the River Lee and the connection to The Gearagh SAC.

12.10.2. The potential impacts relate to the impact of construction and decommissioning on the water quality of the SAC and SPA as detailed above in section 12.8.4 above. Aquatic habitats potentially at risk from pollutants are as follows:

- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho.
- Batrachion vegetation [3260] Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation [3270].

12.10.3. The mitigation measures are intended to prevent the increase flow of nutrients and sedimentation into the waterbodies, which eventually lead to the SAC. These mitigation measures are the same as those listed above in Section 12.8.7 above.

12.10.4. The bird species listed as species of conservation interest within The Gearagh SPA are dependent on the wetland habitat to ensure the favourable conservation status, as specifically referenced in the NPWS data. The ornithology information in the EIAR did not identify any adverse effects from the operation of the windfarm on any wetland waterbird species and it has been concluded that subject to mitigation measures, the proposed operation will have no impact on the water quality, therefore no adverse effects on habitats. The impact on these species has not been raised in any submissions.

12.10.5. Assessment and Conclusion

12.10.6. Regard has been given to the information contained in the submitted NIS, the NPWS Site Synopsis for each site and the threats and pressures to the habitats and species

and it is considered that there would be no direct impacts on the SAC and SPA because of the proposed works. The potential for direct or indirect effects because of water pollution from the unmitigated release of fine sediments in runoff during construction work and hydrocarbons by way of accidental spillages from machinery; can be adequately mitigated using surface water and drainage management and the appointment of a ECoW to oversee works.

12.10.7. Following the implementation of mitigation for the construction and operation of this proposed development It is considered the proposed development will not adversely affect the integrity of The Gearagh SAC [000108] and The Gearagh SPA [004109], either alone or in-combination with, or any other European site, and no reasonable doubt remains as to the absence of such effects.

The Gearagh SAC [000108]
Source content: (accessed 11th of August 2024): The Gearagh SAC | National Parks & Wildlife Service

Qualifying Interest Feature	Conservation Objectives Targets and Attributes	Potential Adverse effects	Mitigation measures	In-combination effects	Can Adverse effects on integrity be excluded?
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	To maintain the favourable conservation condition of…….:	Y- Pathway between the site and habitat via surface water. These habitats support those aquatic species of qualifying interest listed in the SAC. The rivers require good hydrochemistry and the maintenance of the concentration of nutrients.	Y- The prevention of sedimentation and polluted run-off into the watercourse will prevent a negative impact on the water quality and reduce water pollution. A summary of the mitigation measures is listed above and considered acceptable.	None arising from in-combination effects.	Yes
Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation [3270]	To maintain the favourable conservation condition of…….:	Y- Pathway between the site and habitat via surface water. These habitats support those aquatic species of qualifying interest listed in the SAC. The rivers require good hydrochemistry and the maintenance of the concentration of nutrients.	Y- The prevention of sedimentation and polluted run-off into the watercourse will prevent a negative impact on the water quality and reduce water pollution. A summary of the mitigation measures is listed above	None arising from in-combination effects.	Yes

			and considered acceptable.		
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	To maintain the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	n/a	None arising from in-combination effects.	Yes
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	To maintain the favourable conservation condition of……:	No direct habitat removal from the site or likely indirect impact on the habitat.	n/a	None arising from in-combination effects.	Yes
Lutra lutra (Otter) [1355]	To maintain the favourable conservation condition of……:	N- No instream works are proposed and there will be no impact on any connectivity along the watercourse. Construction will be restricted to daytime hours.	n/a	None arising from in-combination effects.	Yes
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of The Gearagh SAC, either alone or in-combination is European site, and no reasonable doubt remains as to the absence of such effects.					

The Gearagh SPA [004109]
Source content (accessed 29th of November 2024) The Gearagh SPA | National Parks & Wildlife Service

Qualifying Interest Feature	Conservation Objectives Targets and Attributes	Potential Adverse effects	Mitigation measures	In-combination effects	Can Adverse effects on integrity be excluded?
Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Mallard (Anas platyrhynchos) [A053] Coot (Fulica atra) [A125] Wetland and Waterbirds [A999]	To maintain or restore the favourable conservation condition of the wetland habitat at the Gearagh SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.	Y- Pathway between the site and habitat via surface water. These habitats support those bird species of qualifying interest listed in the SPA.	The prevention of sedimentation and polluted run-off into the watercourse will prevent a negative impact on the water quality and no water pollution. A summary of the mitigation measures is listed above and considered acceptable.	None arising from in-combination effects	Yes.

Overall conclusion: Integrity test
Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of The Gearagh SPA, either alone or in-combination is European site, and no reasonable doubt remains as to the absence of such effects.

12.11. Submissions

12.11.1. Issues have been raised by third parties, Cork County Council and the Department of Housing, Local Government & Heritage in relation to the standard of information in the NIS. It is requested that the Board asses the effects of the proposed development on any European Sites, not just in relation to the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

12.11.2. The Board will note that the effects have been assessed having regard to both the information in the NIS but also other detailed information in the EIAR, where relevant. Having regard to this information, and the additional report of the Board's Environmental Scientist, it is considered that there is sufficient information and mitigation measures to ensure no release of suspended solids or hydrocarbon contamination of run-off waters so that no pollution of surface waters can occur.

12.11.3. As stated above in both the planning assessment and the EIA on terrestrial ecology, Cork County Council have also raised concern with regards the removal of peat to accommodate the proposed development, the overall ecological impact of the loss of this habitat which they consider will have a significant ecological impact, therefore, contrary to the policies of the development plan. Blanket Bog and peat habitats are listed as qualifying interest for Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment. My analysis in Section 11.21 concludes that having regard to the condition of the habitats on site, the location of these peat habitats within a mosaic habitat and the survey undertaken by the applicant's expert ecologist, the removal of peat on site will have no significant effect on the overall network of Annex I habitat at European Level or local level.

12.11.4. The submission by the NPWS raised concern in relation to the downstream wetlands of conservation value and that this issue was not fully addressed in the EIAR and should have been addressed in the NIS. The impact of increased drainage efficiency on downstream wetland erosion was noted. As part of the FI submission the applicant was requested to provide information on the impact of the proposal on the assimilative capacity of the drinking waters downstream. In general, the applicant

referred to the mitigation measures planned to control the rate of run-off from the site, including the attenuation pends etc., discharge at greenfield rates and the treatment of sediment and pollution on site. The Board's Environmental Scientist was satisfied with the applicant's information and concluded that the proposal would not have any negative impact on the WFD objectives. This is dealt with in detail in Section 11.12 above.

12.12. Appropriate Assessment Conclusion

12.12.1. The proposed development including the wind farm site, turbine delivery routes and grid connection and all associated works have been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act 2000 as amended. Having carried out screening for Appropriate Assessment of the project, it was concluded that it may potentially have a significant effect on Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (000365), Mullaghanish to Musheramore Mountains SPA (004162), The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109). Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of these sites in light of their conservation objectives.

12.12.2. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in-combination with other plans or projects would not adversely affect the integrity of the European site Code No. 000365, No. 004162, No. 000108 and No. 004109 or any other European site, in view of the sites' Conservation Objectives. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

12.12.3. This conclusion is based on:

- A full and detailed assessment, including the information presented in the Environmental Impact Assessment Report, of all aspects of the proposed project including proposed mitigation measures and ecological monitoring in

relation to the Conservation Objectives of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365], Mullaghanish to Musheramore Mountains SPA [004162], The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109).

- Detailed assessment of in-combination effects with other plans and projects.
- No reasonable scientific doubt as to the absence of adverse effects on the integrity of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC [000365], Mullaghanish to Musheramore Mountains SPA [004162], The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109).

13.0 Recommendation

Recommendation that permission for the development be **granted** subject to conditions detailed below.

14.0 Reasons and Conclusions

In coming to its decision, the Board is consistent with the:

- Climate Action and Low Carbon Development Act 2015, as amended.
- Climate Action Plan 2024.

The Board has had regard to:

a) National policy with regard to the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouse gases.

b) The provisions of the Wind Energy Development Guidelines – Guidelines for Planning Authorities issued by the Department of the Environment, Heritage and Local Government in June 2006, and the Draft Revised Wind Energy Development Guidelines 2019 issued by the Department of Housing in 2019.

c) The policies set out in the Regional Spatial and Economic Strategy of the Southern Region 2020.

d) The policies and objectives in the Cork County Development Plan 2022-2028 and the Kerry County Development Plan 2022-2028.

e) The character of the landscape in the area of the site and in the wider area of the site.

f) The pattern of the existing and permitted development in the area.

g) The distance between the turbines and surrounding dwellings and other sensitive receptors from the proposed development.

h) The Environmental Impact Assessment Report submitted.

i) The Natura Impact Statement submitted.

j) The submissions and observations made in connection with the planning application.

k) The report of the Inspector.

l) The report of the Board's ecologist.

m) The report of the Board's Environmental Scientist.

Proper Planning and Sustainable Development

It is considered that the proposed development would accord with European, national, regional and local planning and that it is acceptable in respect of its likely effects on the environment and its likely consequences for the proper planning and sustainable development of the area.

Appropriate Assessment: Stage 1

The proposed development was considered in light of the requirements of Section 177U of the Planning and Development Act 2000, as amended. Having carried out Screening for Appropriate Assessment, it has been concluded that the proposed development individually or in-combination with other plans or projects would not be likely to have a significant effect on Mullaghanish Bog SAC (code 001890), St Gobnet's Wood SAC (code 00106) , Blackwater River (Cork/Waterford) SAC (code 002170), Derryclogher (Knockboy) Bog SAC (code 001873),Glanlough Woods SAC (code 002315), Kilgarvan Ice House SAC (code 000364), Old Domestic Building,

Curraglass Wood SAC (code 002041), Great Island Channel SAC (code 001058), and Cork Harbour SPA (code 004030), in view of the sites' Conservation Objectives, and Appropriate Assessment (and submission of a NIS) is not therefore required. This determination is based on the following:

- The qualifying criteria of each of the European Sites.
- The distance from the application site and study area.
- The absence and lack of meaningful ecological connections to those sites.

This screening determination is not reliant on any measures intended to avoid or reduce potentially harmful effects of the project on a European Site.

Appropriate Assessment: Stage II

The proposed development including the wind farm site, turbine delivery route and grid connection route and all associated works have been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act 2000, as amended. Having carried out screening for Appropriate Assessment of the project, it was concluded that the proposed development may potentially have a significant effect on Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (code 000365), Mullaghanish to Musheramore Mountains SPA (code 004162), The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109). Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of these sites in light of their conservation objectives.

Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in-combination with other plans or projects would not adversely affect the integrity of the European sites Code No. 000365, No. 004162, No. 000108 and No. 004109 or any other European site, in view of the sites' Conservation Objectives. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

This conclusion is based on:

- A full and detailed assessment, including information presented in the Environmental Impact Assessment Report, of all aspects of the proposed project including proposed mitigation measures and ecological monitoring in relation to the Conservation Objectives of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (code 000365), Mullaghanish to Musheramore Mountains SPA (code 004162), The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109).
- Detailed assessment of in-combination effects with other plans and projects.
- No reasonable scientific doubt as to the absence of adverse effects on the integrity of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (code 000365), Mullaghanish to Musheramore Mountains SPA (code 004162), The Gearagh SAC (code 000108) and The Gearagh SPA (code 004109

Environmental Impact Assessment

An Environmental Impact Assessment of the proposed development has taken into account:

a) The nature, scale, location and extent of the proposed development.

b) The environmental impact assessment report and associated documentation submitted with the application, including the further information.

c) The submissions received during the course of the application.

d) The Inspector's report, which includes reports from the Board's Ecologist and Environmental Scientist.

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to date and complies with the provisions of EU Directive 2014/52/EU amending

Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below.

The main significant effects, both positive and negative, are:

- **Population and Human Health:** Negative impacts on human health and population arising from construction and operation including noise, traffic and dust disturbance to residents of neighbouring dwellings can be adequately mitigated through the implementation of the construction environmental management plan, best practice construction methods, installation of shadow flicker systems on the turbines and noise levels within level recommend in the national wind energy guidelines. There will be a long term significant positive effect on population and human health due to the displacement of CO^2 from the atmosphere arising from fossil fuel energy production and from the implementation of the Community Benefit Fund.
- **Biodiversity:** The removal of habitats on site, including wet heath and blanket bog will have a moderate long term negative impact on biodiversity which can be mitigated through the delivery of mitigation measures including the inclusion of a Habitat Enhancement Plan within the site. The impact on peat habitats will not have any effect the nature or range of any habitats or the conservation objectives of any European Sites. Negative impacts on **species** within the site, including the Kerry Slug and bats, which are likely to arise in the construction and operational phase can be mitigated through a conservation management plan and the careful design of the turbines and are not considered to be significant. The watercourse crossing will not impact on water connectivity or movement of fish or result in the loss of instream habitat. Negative effects on aquatic species and habitat which are likely to arise from potential release of sediments and other pollutants into watercourses can be adequately mitigated by measures outlined in the application.
- **Land, Soils, Water, Air and Climate**: Negative effects on **surface water and ground water** as a result of accidental spillage of hydrocarbons, increased

sedimentation, including any release of organic carbon, and any other contaminants entering the drainage system can be adequately mitigated by measures outlined in the application. The proposed development will not impede the ability of surface waters to achieve good or high status and the Water Framework Directive and the removal of Turbine T12 will ensure that any risk from unstable peat is removed.

- **Landscape and Visual** and **Cultural Heritage:** Negative Landscape and Visual and Cultural Heritage impacts arise during the operational phase of the development given the placement of significant structures within the local landscape thereby changing the existing visual context in a slight to substantial-moderate magnitude. The impacts have been mitigated where possible by the proposed layout and the use of the existing landscape contours. Potential construction impacts on cultural heritage interest can be adequately mitigated through pre-construction surveys and buffer zones.
- **Material Assets**: Negative **traffic** impacts arise during the construction phase of the proposed development; these impacts will be mitigated through the implementation of a traffic management plan. Impacts arising from traffic can be appropriately mitigated. Potential negative effects on **other material assets**, telecommunication links and aviation, during operation can be adequately mitigated.

15.0 **Conditions**

1	The development shall be carried out and completed in accordance with the plans and particulars lodged with the planning application, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to the commencement of development and the development shall be carried out and complied in accordance with the agreed particulars. **Reason:** In the interest or clarity.
2	The mitigation measures contained in the submitted Environmental Impact Assessment Report (EIAR) and the applicant's further information on the 29th of September 2023, shall be implemented. Details of a time schedule for implementation of mitigation measures and associated monitoring shall be submitted to the relevant planning authority. In addition to the mitigation contained in the EIAR the following shall be submitted: a) The annual bird survey and bird monitoring programme shall include for general breeding birds, all species listed in the EIAR and the Hen Harrier to establish presence and abundance of bird species including possible prey species. The survey and monitoring shall include an audit and review of the all species and the results of monitoring shall be made submitted to Cork County Council and to the NPWS Reason: To protect the environment and to ensure appropriate monitoring of the impact of the development on the avifauna of the area

3	The mitigation measures contained in the submitted Natura Impact Statement (NIS), shall be implemented. Details of a time schedule for implementation of mitigation measures and associated monitoring shall be submitted to the relevant planning authority Reason: To protect the integrity of European Sites.
4	The proposed development shall be amended as follows: a) Turbines referenced as T12, together with associated hardstands and access tracks, shall be omitted from the development hereby permitted. b) T7 together with associated hardstands and access track shall be relocated to avoid impact on the public road, L-34011-20. For clarity, the permitted wind farm shall relate to thirteen wind turbines only. Revised drawings showing compliance with these requirements and showing the final turbine design and layout shall be submitted to, and agreed in writing with, the planning authority prior to commencement of construction. Reason: In the interest or clarity and to ensure the protection of the environment and the public road.
5	This permission shall be for a period of 35 years from the date of the first commissioning of the wind farm. **Reason:** To enable the planning authority to review its operation in the light of the circumstances then prevailing.
6	The operation of the development, by itself or in-combination with any other permitted wind energy development, shall not result in noise levels, when measured externally at nearby noise sensitive locations, which exceed: (a) Between the hours of 7am and 11pm:

	i. the greater of 5 dB(A) $L_{90,10min}$ above background noise levels, or 45 dB(A) $L_{90,10min}$, at standardised 10m height above ground level wind speeds of 7m/s or greater ii. 40 dB(A) $L_{90,10min}$ at all other standardised 10m height above ground level wind speeds (b) 43 dB(A) $L_{90,10min}$ at all other times. Prior to the commissioning of the development, the developer shall submit to and agree in writing with the planning authority a Noise Compliance Monitoring Programme (NCMP) for the subject development, including any mitigation measures such as the de-rating of particular turbines. The NCMP shall include a detailed methodology for all sound measurements, including frequency of monitoring (initially six months, with confirmatory monitoring in the third year post commissioning) and recording of results, which shall be made publicly available. The results of the initial noise compliance monitoring shall be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm. **Reason:** In the interest of residential and/or amenities
7	a) The Habitat Enhancement Plan (HEP) shall be implemented in accordance with the commitments outlined therein for a period of at least fifteen years following first commissioning of the wind farm hereby permitted. Prior to commencement of development, the applicant shall enter into a written agreement with the planning authority under Section 47 of the Planning and Development Act, 2000 to this effect. b) Within six months prior to the expiry of the Section 47 planning agreement mentioned in paragraph (a), the applicant shall provide details in relation to HEP lands for the remainder of the duration of the permission. The details provided shall be commensurate in area to those

	contained within the HEP submitted with the application and subject to the provisions of paragraph (a). The applicant shall enter into a further written agreement with the planning authority under Section 47 of the Planning and Development Act, 2000 to this effect prior to expiry of the initial agreement mentioned in paragraph (a). This condition shall not affect the sale of land or buildings by a mortgagee in possession or the occupation of such land or buildings by any person deriving title from such a sale. Reason: In the interests of biodiversity.
8	An updated Construction Environmental Management Plan (CEMP) containing site specific details of all on-site construction works, post-construction reinstatement, drainage, mitigation and monitoring measures, together with details of their timetabling, shall be submitted to, and agreed in writing with the planning authority prior to commencement of development. The development including the grid connection route and delivery haul route shall be carried out in strict accordance with the CEMP, which shall be implemented in full, unless otherwise approved in advance in writing by the Planning Authority Reason: To ensure that all construction operations are carried out in a manner that minimises their impact on road safety, amenity and the environment, and that the mitigation measures contained in the EIAR and the NIS accompanying the application, or as otherwise agreed, are fully implemented.
9	Water supply, wastewater treatment and surface water attenuation and disposal shall comply with the requirements of the planning authority for such works and services. **Reason:** In the interest of public health.

10	The following design requirements shall be complied with: (a) No Development shall commence unless and until full details of the proposed wind turbines (including, but not limited to, the power rating and sound power levels, the size, type) have been submitted to and approved in writing by the Planning Authority. (b) The wind turbines including masts and blades, and the wind monitoring mast, shall be finished externally in a light grey colour. (b) Cables within the site shall be laid underground. (c) The wind turbines shall be geared to ensure that the blades rotate in the same direction. (d) No name, logo, sign or advertisement (other than health and safety signage) material shall be placed on or otherwise be affixed to any structure on the site without a prior grant of planning permission. (e) The wind turbines shall be constructed and operated in accordance with the approved details and maintained in the approved colour, free from external rust, staining or discolouration, until such time as the wind farm is decommissioned. **Reason:** To ensure that the environmental impacts of the turbines forming part of the development conform to the impacts assessed in the EIA Report and in the interests of the visual amenity of the area.
11	(a) No development shall commence unless and until a Construction Traffic Management Plan (CTMP) has been submitted to, and approved in writing by, the planning authority in consultation with TII. The CTMP shall include (but is not limited to: details of pre-start road condition and condition monitoring surveys; arrangements to ensure that any damage to the road infrastructure as a result of the works is repaired; measures to ensure that the specified traffic routes are adhered to (including monitoring procedures); details of abnormal loads including a load assessment of the route; details of all signage and lining arrangements, and notification arrangements. The

	development shall be carried out in strict accordance with the approved CTMP which shall be implemented in full, unless otherwise agreed in advance in writing with the Planning Authority. (b) Any works to the local roads including strengthening and widening works shall be carried out in accordance with a specification and timescale agreed in advance with the planning authority. (c) Works on or adjacent to national roads including the N22 shall be carried out in compliance with TII's requirements and to the agreement of the planning authority and TII. (d) The temporary bridge of the Sullane River and associated access road and road junctions shall be removed and the land reinstated prior to the commissioning of the wind farm. The development shall be carried out in strict accordance with the approved Construction Traffic Management Plan which shall be implemented in full, unless otherwise agreed in advance in writing with the Planning Authority. **Reason:** In the interests of traffic safety and public safety.
12	The developer shall agree with the Transport Infrastructure Ireland (TII) a strategy for the proposed directional drilling under the N22. **Reason**: In the interest of environment protection and traffic safety.
13	There will be no shadow flicker at any existing nearby dwelling or other relevant existing affected sensitive property and the necessary measures outlined in the EIAR submitted with the application, such as turbine shut down during the associated time periods, should be taken by the wind energy developer or operator to eliminate the shadow flicker. Reason: In the interest of residential amenity.
14	Details of aeronautical requirements, including any necessary lighting on the tower, crane and stacks, shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development and provide 30 days notification of same. Subsequently, the developer shall

	inform the planning authority and the Irish Aviation Authority of the as constructed tip heights and co-ordinates in WGS84 format of the as constructed positions of the turbines. **Reason**: In the interest of air traffic safety.
15	(a) Details of measures to address interference with the 2RN FM link from Mullaghanish to Bantry shall be agreed with the planning authority in consultation with the provider/operator, and thereafter, be installed and tested at the developer's expense prior to the commissioning of the wind turbines and maintained for the lifespan of the development, unless otherwise agreed. (b) In the event that the development causes interference with telecommunications signals, effective measures shall be introduced to minimise interference with telecommunications signals in the area. Details of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing with, the planning authority in consultation with relevant provider/operator and thereafter installed, tested and maintained for the lifespan of the development, unless otherwise agreed. **Reason:** In the interest of protecting telecommunications signals and of residential amenity.
16	The developer shall ensure that all plant and machinery used during the works should be thoroughly cleaned and washed before delivery to the site to prevent the spread of hazardous invasive species and pathogens. **Reason:** In the interest of the proper planning and sustainable development of the area.
17	The developer shall retain the services of a suitably qualified and experienced Environmental Clerk of Works (ECoW) prior to the commencement of the development and retain their services to fulfil the mitigation and monitoring measures as specified EIAR including Appendix

	17.1. The role of the ECoW is applicable to the construction of the development including the grid connection route and turbine delivery route (including removal works), and to the operation of the wind farm. To assist the ECoW in carrying out their role, the developer shall retain services of technical experts as necessary to the tasks required. **Reason:** In the interest of protecting ecology, the environment and European sites.
18	The developer shall retain the services of a suitably qualified and experienced bird specialist to undertake appropriate annual bird surveys of this site. Details of the surveys to be undertaken and associated reporting requirements shall be developed following consultation with, and agreed in writing with, the planning authority prior to commencement of development. These reports shall be submitted on an agreed date annually for five years, with the prior written agreement of the planning authority. Copies of the reports shall be sent to the Department of Housing, Local Government and Heritage. **Reason:** To ensure appropriate monitoring of the impact of the development on the avifauna of the area.
19	The developer shall facilitate the preservation, recording and protection of archaeological materials or features that may exist within the site. In this regard, the developer shall – (a) Notify the planning authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development, (b) Employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works, and

	(c) Provide arrangements, acceptable to the planning authority, for the recording and for the removal of any archaeological material which the authority considers appropriate to remove. (d) Ensure a buffer zone of at least 25m if retained around any recorded site and/or standing stone. (e) The road section at Gortnabinna contains a number of Devonian trace fossils, construction work should identify and avoid these sections, or where necessary provide appropriate mitigation measures to minimise potential impacts. (f) The planning authority and the National Monuments Service shall be furnished with a final archaeological report describing the results of any subsequent archaeological investigative works and/or monitoring following the completion of all archaeological work on site and the completion of any necessary post-excavation work. All resulting and associated archaeological costs shall be borne by the developer. In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination. **Reason:** In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.
20	(a) The curtailment measures for the wind farm in relation to bat activity shall be reviewed annually and provide for adaptive monitoring, reviewed by a competent expert for the first five years of the operation of the wind farm, and thereafter, every three years for the operational life of the wind farm, unless otherwise required arising from the adaptive monitoring programme. The results of the monitoring will be reported to the regional staff of the National Parks and Wildlife Service. (b) The developer shall review usage by birds and bats of the wind farm site and document bird and bat casualties through an annual monitoring

	programme, which shall be submitted by the developer and agreed in writing with, the planning authority prior to commencement of development. This programme shall be developed in consultation with the National Parks and Wildlife Service and shall cover the entire period of the operation of the wind farm. Reason: To ensure appropriate monitoring of the impact of the development on the birds and bats of the area.
21	Details of the materials, colours and textures of all the external finishes to the proposed buildings, including details of any signage, shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. Reason: In the interest of the visual amenities of the area.
22	Construction operations including HGV movements to and from the site shall be restricted to between 08:00 hours and 19:00 hours Monday to Friday and 08:00 hours to 14:00 hours on Saturdays, save for any necessary deviations required. These deviations shall be agreed in advance with the relevant planning authority. Reason: In the interest of local amenity.
23	Facilities shall be installed to minimise interference with radio or television reception in the area. Details of the facilities to be installed [which shall be at the developer's expense] shall be submitted to, and agreed in writing with, the planning authority prior to commissioning of the turbines [and following consultation with the relevant authorities]. **Reason**: In the interest of residential amenity.
	Decommissioning
24	On full or partial decommissioning of the turbines or if the turbines cease operation for a period of more than one year, the mast and the turbine concerned shall be removed and all decommissioned structures shall be

	removed, and foundations covered with soil to facilitate re-vegetation, within three months of decommissioning. **Reason:** To ensure satisfactory reinstatement of the site upon cessation of the development.
25	(a) An updated decommissioning plan incorporating an environmental management plan, transport management plan and a waste management plan shall be submitted to the planning authority, for its written agreement, 12 months before the decommissioning of the wind farm, unless a further permission has been obtained for the continuation of the wind farm. The plan shall incorporate a programme and scheduling of the decommissioning works. (b) The developer shall retain the services of a suitably qualified and experienced Civil Engineer and Ecologist for the duration of the decommissioning works in order to prevent damage to the integrity or stability of the peatland environment. Reason: In the interest of protecting the environment and traffic safety.
	Financial
26	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the planning authority to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination. Reason: In the interest of traffic safety and the proper planning and sustainable development of the area.

27	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the satisfactory reinstatement of the site upon cessation of the project, coupled with an agreement empowering the planning authority to apply such security or part thereof to such reinstatement. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination. **Reason:** In the interest of orderly development and visual amenity and to ensure satisfactory reinstatement of the site.
24	The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme. **Reason:** It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to this permission

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Karen Hamilton
Assistant Director of Planning
23rd of December 2024

16.0 **Appendix 1: Report from the Board's Ecologist**

17.0 **Appendix 2: Report from the Board's Environmental Scientist**