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Our Ref: ***10798*** 17th January 2024

An Bord Pleanála,
64 Marlborough Street,
Dublin 1
D01 V902

RE: – Response to Third Party Submissions ABP- 316025-23

Dear Sir/Madam,

I write in response to your letter dated 15th November 2023, confirming that the application would be determined without an oral hearing and inviting a submission to third-party submissions made. This submission relates to the proposed wind farm and associated works (ABP Ref. 316025-23) situated in the townlands of Clogherachullion, Cloghercor, Derryloaghan, Aghayeevoge, Cashelreagh, Glebe, Darney, Drumard and Drumnacross, Co. Donegal.

It is noted that a request for extension of time to submit the response was approved via email by the Strategic Infrastructure Department. The new deadline for submission was extended to 17th January 2024 (see attached email correspondence).

Please find enclosed 1 no. electronic copy of the main response document which will also be delivered as a hard copy to the An Bord Pleanála Office at 64 Marlborough Street, Dublin 1, D01 V902.

I trust the information presented in this response will provide the Board with all the necessary information in the determination of this application. However, should you have any queries or require further information, please do not hesitate to get in contact.

Yours sincerely,

Orla Fitzpatrick

Technical Director (Environment & Planning)

For and on behalf of TOBIN Consulting Engineers

orla.fitzpatrick@tobin.ie

Encl: Email Correspondence with the sids@pleanala.ie
Response to Third-Party Submissions

Eirene Varghese

From: SIDS <sids@pleanala.ie>
Sent: Friday 17 November 2023 15:36
To: Eirene Varghese
Subject: RE: ABP Ref 316025 - 23 - Request for extension on deadline to respond to third party appeals

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Eirene,

I wish to acknowledge receipt of your email dated 17th November 2023.

Please be advised we can grant the extension for submitting a response. The new deadline will be 17th January 2024.

Kind Regards
Ashling Doherty
Executive Officer

From: Eirene Varghese <Eirene.Varghese@tobin.ie>
Sent: Friday, November 17, 2023 1:28 PM
To: SIDS <sids@pleanala.ie>
Cc: Orla Fitzpatrick <orla.fitzpatrick@tobin.ie>
Subject: ABP Ref 316025 - 23 - Request for extension on deadline to respond to third party appeals

To whom it may concern,

We are forwarding our request to this email as suggested by the appeals section at ABP.

Our client (the applicant) has been invited to submit a response to third party appeals received, by 14th December 2023. It is in relation to the wind farm development proposed at Cloghercor, Donegal. See letter attached for reference.
We would like to politely request an extension to this deadline, if possible, since we are pressed for resources.

Hope to hear from you at your earliest convenience.
Thanks in advance for your time and consideration in this matter.

Kind Regards,
Eirene Varghese
Planner

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2022 Engineers Ireland Awards Winner: CPD Employer of the Year
2022 Association of Consulting Engineers of Ireland Awards Winner: Innovation
2020 Association of Consulting Engineers of Ireland Awards Winner: Project Management
2019 Association of Consulting Engineers of Ireland Awards Winner: Design Excellence (Structures)
2018 Engineers Ireland Excellence Awards Winner: Engineering Project of the Year
2018 Engineers Ireland Excellence Awards Winner: Heritage and Conservation

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TOBIN

Cloghercor Wind Farm

Submission to Observations

BUILT ON KNOWLEDGE

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1 INTRODUCTION

1.1 PREFACE

On behalf of the Applicant, Cloghercor Wind Farm Limited, TOBIN hereby submits a response to observations received regarding the proposed Cloghercor Wind Farm, as per correspondence received from An Bord Pleanála dated 23.05.23 and 15.11.23 (Reg. Ref. ABP-316025-23).

1.2 OBSERVATIONS RECEIVED BY AN BORD PLEANÁLA

The following submissions were received by An Bord Pleanála in respect of this development:

Submission made by	ABP Cover Letter date
Colmcille Climbing Club	11th of May 2023
Cumann Iascaireachta Gaoth Beara	15th of May 2023
Finn Valley Wind Action	5th of May 2023
Graffy Environmental Group	3rd of May 2023
Gweebarra Conservation Group	18th of May 2023
Inishowen Wind Energy Awareness Group	5th of May 2023
Adrian Gallagher	11th of May 2023
Alison Goligher	15th of May 2023
Andreas Trautmann	11th of May 2023
Andreas Trautmann	18th of May 2023
Andrew Devennie	11th of May 2023
Ann Marie and John Maguire	18th of May 2023
Anne Brennan	2nd of May 2023
Breezy Kelly	18th of May 2023
Brendan Devenney	9th of May 2023
Brian and Sharon Kirby	11th of May 2023
Caroline Keenan-Jackson	11th of May 2023
Carolyn Robinson	18th of May 2023
Cathy and Peter Meek	16th of May 2023
Ciaran Campbell	11th of May 2023

Ciarán Mac Daibhéid	18th of May 2023
Cllr. Anthony Molloy	18th of May 2023
Colette Molloy	18th of May 2023
Cormac and Ruth McPolin	27th of April 2023
Daniel Devenney and others	9th of May 2023
Daniel J Sharkey	18th of May 2023
Daniel Mc Geehan	18th of May 2023
Dennis Golden	11th of May 2023
Donal Brennan	2nd of May 2023
Dr Daniel Devenney	11th of May 2023
Dr Andrea Redmond	9th of May 2023
Dr. Catherine Histon and Prof. Ezio Vaccari	9th of May 2023
Dr. Padraig O Baoighill	9th of May 2023
Dr. Siobhan Sharkey	15th of May 2023
Eddie and Margaret McGinley	27th of April 2023
Eoin Brennan	2nd of May 2023
Ethna Mc Loone	18th of May 2023
Gerd and Helga Albers	27th of April 2023
Grace McGeehan	18th of May 2023
Helena Devenney	2nd of May 2023
James Deveney	2nd of May 2023
James Gallagher	16th of May 2023
John and Breege Melley	18th of May 2023
Joseph Brennan	11th of May 2023
Joseph Coll	25th of April 2023
Kevin Devenney	9th of May 2023
Kevin Wier	18th of May 2023
Louis and Joan Hanlon	11th of May 2023
Maciej Szczepanski and others	18th of May 2023

Marian Devenney	9th of May 2023
Mary Kelly	18th of May 2023
Mary Mc Devitt	18th of May 2023
Mary McDonald	15th of May 2023
Michael and Louise Melley	18th of May 2023
Michael Boyle	18th of May 2023
Michael Devine	27th of April 2023
Michael McGeehan	11th of May 2023
Michael Quinn	5th of May 2023
Moira Miller	11th of May 2023
Moira O'Donnell	18th of May 2023
Niall Craig	11th of May 2023
Nicola Jackson	11th of May 2023
Patricia Sharkey	11th of May 2023
Patrick Devenney	9th of May 2023
Patrick J. Mc Loone	18th of May 2023
Paul and Violet McHugh	11th of May 2023
Pauline and Alan Butler	3rd of May 2023
Richard Tobin and Heidi Nguyen	11th of May 2023
Robert Ryan	11th of May 2023
Robin Newport	9th of May 2023
Scarlet Fahy	18th of May 2023
Shamus Kelly	5th of May 2023
Shane Brennan	2nd of May 2023
Shaun Melley	18th of May 2023
Suzanne and Martin Bonner	2nd of May 2023
Taru Burstall and David Finlay	16th of May 2023
The McLoone Family	18th of May 2023
Vincent Devenney	9th of May 2023

William and Kim Cunningham	11th of May 2023
William Robinson	18th of May 2023
Peter Sweetman	11th of May 2023
Development Applications Unit (DAU) NPWS	10th of May 2023 29th of June 2023
Donegal County Council	8th of June 2023
Environmental Trust Ireland	11th of May 2023
Irish Peatland Conservation Council	11th of May 2023
Irish Wildlife Trust	11th of May 2023
Mountaineering Ireland	11th of May 2023
Northern & Western Regional Assembly	15th of May 2023
Transport Infrastructure Ireland	5th of May 2023

1.3 BACKGROUND TO APPLICATION (REG. REF. 316025)

Cloghercor Wind Farm Limited submitted a Strategic Infrastructure Development (SID) application to An Bord Pleanála for planning permission for the development of a Wind Farm development (herein referred to as the proposed project) in the townlands of Clogherachullion, Cloghercor, Derryloaghan, Aghayeevoge, Cashelreagh Glebe, Darney, Drumard, and Drumnacross. Under Reg. Ref.: ABP-316025-23, the development, as outlined in the project description chapter (Chapter 2) of the submitted Environmental Impact Assessment Report (EIAR) , consists of:

- Erection of 19 no. wind turbines with an overall blade tip height range from 185m to 200m, a rotor diameter range from 149m to 164m, a hub height range from 112m to 125m, and all associated foundations and hard-standing areas in respect of each turbine;
- Construction of new site entrance with access onto the L6483 local road for the construction phase (operational phase maintenance traffic only), and utilisation of a permitted forest entrance (Pl. Ref. 1951040) to the L6483 as a second entrance to the wind farm for the construction phase;
- Improvements and temporary modifications to 4 no. locations adjacent to the public road to facilitate delivery of abnormal loads and turbine delivery on the R262 and N56 in the townlands of Drumard, Darney, Cashelreagh Glebe and Aghayeevoge, Co. Donegal;
- Construction of an area of temporary hard standing to function as a blade transfer area to facilitate turbine delivery, with associated access to and from the public road R262, in the townland of Drumnacross;
- Construction of 2 no. temporary construction compounds with associated temporary site offices, parking areas and security fencing;
- Installation of 1 no. permanent meteorological mast with a height of 100m;

- 4 no. borrow pits;
- Construction of new internal site access roads and upgrade of existing site roads, to include passing bays and all associated drainage;
- Construction of drainage and sediment control systems;
- Construction of 1 no. permanent 110kV electrical substation including:
    - 1 no. EirGrid control building containing worker welfare facilities and equipment store;
    - 1 no. Independent Power Producer (IPP) control building containing HV switch room, site offices, kitchen facilities, storeroom and toilet amenities.
    - All electrical plant and infrastructure and grid ancillary services equipment;
    - Parking;
    - Lighting;
    - Security Fencing;
    - Wastewater holding tank;
    - Rainwater harvesting equipment;
    - All associated infrastructure and services including site works and signage;
- All associated underground electrical and communications cabling connecting the wind turbines to the proposed wind farm substation;
- All works associated with the connection of the proposed wind farm to the national electricity grid, which will be via a loop-in 110 kV underground cable connection (approximately 4.1km cable length in underground trenches along approximately 3.36km of site road) to the existing 110kV overhead line in the townland of Cloghercor, Co. Donegal, with 2 no. new 16m and 21m high steel lattice end masts at each interface;
- Removal of 13 no. existing wooden pole sets and 1 no. steel lattice angle mast between the 2 no. proposed new interface end masts;
- 2 no. watercourse (stream) crossings on the grid connection route;
- All related site works and ancillary development including berms, landscaping, fencing and soil excavation;
- Forestry felling to facilitate construction and operation of the proposed project and any onsite forestry replanting;
- Development of a permanent public car park with seating/picnic tables at the end of the construction phase of the development with a new entrance on the L6483; and,
- Permanent recreational facilities including marked walking trails along the site access roads, and associated recreation and amenity signage.

The EIAR documented the assessment of the proposed project in addition to the temporary works areas/road widening located within the townlands of Tullycumber, Cloghercor, Shallogan More, Derryloaghan and Straboy, which do not form part of the current application but are part of the proposed project. In addition, approximately 252 ha of biodiversity enhancement lands located over 3 km from the proposed wind turbines, are also part of the proposed project and do not form part of the application. The responses in this report relate mainly to the proposed project.

2 RESPONSE TO OBSERVATIONS

2.1 AN BORD PLEANÁLA REQUEST

This section of the report presents a response to observations received by An Bord Pleanála (the Board), as set out in correspondence received from the Board on 15.11.2023:

'The Board has considered the case and hereby notifies you that it has decided to determine the application without an oral hearing. In this regard, please be advised that the Board has absolute discretion to hold an oral hearing and has concluded that this case can be dealt with adequately through written procedure.

Therefore, the Board hereby considers it appropriate to invite you to make a submission on the observations received in relation to the application.'

In correspondence dated 15.11.2023 the Board stated that any submission must be received no later than 4 weeks from the date of the letter (i.e. 14.12.2023). The Applicant's agent made contact with the Board through email on 17.11.2023 to request an extension of time and this was granted by the Board via email. The new deadline agreed for presenting a response to all observations received is 17.01.2024.

2.2 RESPONSE TO AN BORD PLEANÁLA REQUEST

On 23.05.2023, the Board provided a copy of all observations received for the proposed project for review by the Applicant.

It is noted that there is a significant amount of overlap between concerns and comments received in the observations. To respond effectively to all significant matters raised, this report has reviewed all comments and extracted each one to a project spreadsheet, where they were grouped under a variety of headings similar to those of the EIAR chapters. This allowed the project team to thoroughly address all significant matters raised. The matters raised were grouped as follows:

- Description of the Proposed Project (section 2.3)
- Consideration of Reasonable Alternatives (section 2.4)
- Policy Planning & Development Context (section 2.5)
- Population and Human Health (section 2.6)
- Biodiversity Flora & Fauna (section 2.7)
- Ornithology (section 2.8)
- Lands Soils & Geology (section 2.9)
- Hydrology & Hydrogeology (section 2.10)
- Shadow Flicker (section 2.11)
- Noise & Vibration (section 2.12)
- Landscape & Visual Impact (section 2.13)
- Air Quality & Climate (section 2.14)
- Archaeology & Cultural Heritage (section 2.15)
- Traffic & Transportation (section 2.16)
- Schedule of Mitigation (section 2.17)
- Community Engagement (section 2.18)
- EIAR Issues (section 2.19)
- Requests an Oral Hearing (section 2.20)

The comments and concerns raised in the observations are responded to comprehensively in the following sections.

2.3 DESCRIPTION OF THE PROPOSED PROJECT

This section of the report addresses concerns raised in relation to the Description of the Proposed Project. The main concerns raised relate to the size of the proposed turbines, wind power and grid reinforcement, cumulative assessment, a planning application for an accommodation facility, land cover, sensitive receptors, decommissioning and maintenance, forestry and human rights.

Size of the Proposed Turbines

Eleven submissions received raised concerns surrounding the large size of the proposed turbines.

In response it is noted that the Applicant has assessed a number of potential turbine models ranging from 185m to 200m in tip height. In addition, the proposed wind farm has been designed in line with the setback distances detailed in the 2006 and the 2019 (Draft) Wind Energy Development Guidelines (please refer to Section 2.6 of this report for further details regarding set back distances).

Wind farm development has progressed over the past decade to produce larger turbines when compared to the early wind farm developments located across Ireland. This is a result of technological advances which have created larger rotor diameters to allow wind turbines to sweep more area to capture more wind and produce more electricity. This allows a wind farm to have less turbines and produce more energy. These turbine tip heights have become the industry standard across Ireland. For example, there are four consented wind farm developments at present in Ireland that will have a tip height of 185m (Case Numbers: 309306, 311565, 306706, 315365). There are two 200m tip height wind farms in the planning system at present (Case Numbers: 316178, 316212). Full environmental impact assessments have been carried out for each of the aforementioned consented and proposed wind farm developments.

Wind Power and Grid Reinforcement

A single submission raised a concern regarding the potential requirement for grid reinforcements.

In response it is noted that the publicly available EirGrid document 'Shaping Our Electricity Future Roadmap', published July 2023, recognises that planning for new grid infrastructure alongside utilising existing grid infrastructure will be required to accommodate the future increased energy supply to the grid. However, the Applicant has sought to minimise the requirement for immediate grid reinforcements by tying into existing overhead power infrastructure that runs through the site. Any further grid reinforcement work would be informed by a detailed analysis, which would be carried out by EirGrid. As the grid system is interconnected, EirGrid regularly carry out detailed analysis on a country wide basis and this informs the requirement for reinforcements in an area. The proposed project would only be one aspect of this assessment with demand, system power flows and other generators informing the requirement for system reinforcements. Current EirGrid guidelines stipulate that

a detailed analysis of the proposed project will only be conducted by EirGrid after planning permission is granted and only then can a formal grid application be lodged.

The submission received by the board also claimed that the carbon losses associated with the construction of the proposed project would not be offset sufficiently. This claim is incorrect. As stated in Section 14.5.2 of Chapter 14, Air Quality and Climate, of the submitted EIAR, based on a 35-year lifetime, the proposed wind farm will save between 3,420,585 and 4,925,655 tonnes of carbon equivalent. The estimate of whole life carbon losses to the environment associated with the proposed project is a worst case of 516,079 tonnes. This represents between 10.5% and 15.1% of the volume of carbon offset during the lifetime of the windfarm. This would take between approximately 44 to 63-months (approximately 3.7 to 5.3 years) to be paid back assuming maximum carbon losses.

The Irish Wildlife Trust stated in a separate submission that they do not believe that this project is necessary to reach the Government's 2030 climate targets as there is a large offshore wind potential in Ireland. The Government's Climate Action Plan 2023 states that the Government's target is to generate 5GW of renewable electricity from offshore wind farms and up to 9GW from onshore wind farm by 2030. There are currently approximately 4,350MW's of installed onshore wind capacity in the Republic of Ireland[1]. As noted above the latest climate action plan established a target of 9GW of installed onshore wind capacity, in addition to an offshore wind target. This leaves a gap of approximately 4,650MW's. Evidently there is a lacunae between the targets sets and the current generation capacity and as such the development of onshore wind projects that bolster national generation are critical to achieving such targets. A reliance on offshore wind is not sufficient to meet these targets.

Although Ireland has significant offshore wind potential, currently there is only one operational offshore wind farm in Ireland, known as Arklow Bank, which has a total capacity of 25 MW. The results of the Offshore Renewable Electricity Support Scheme (ORESS) 1 were positive, resulting in over 3GW of capacity[2]. It is important to note that these wind farms are not yet consented and it is uncertain if they will be operational by 2030 which makes the generation of the planned 5GW by year 2030 very uncertain.

Cumulative Assessment

A single submission contended that the proposed project is not suitable due to its proximity to other wind farms in County Donegal.

In response it can be confirmed that a full cumulative assessment has been carried out within each technical chapter of the submitted EIAR (Chapters 4 to 16), which concluded no significant cumulative effects as a result of the proposed project.

Planning Application

A single submission noted that the timber processing plant at Shallogan More is no longer operational and a planning application is being sought there for a glamping site.

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[1] Latest Wind Energy Stats (windenergyireland.com)

[2] https://www.gov.ie/en/press-release/f2ac5-minister-ryan-welcomes-hugely-positive-provisional-results-of-first-offshore-wind-auction/

It is recognised that a change of use planning application for a 16-bed tourist facility (Planning application Ref: 2151846) was not captured in the submitted EIAR. The Shallogan More Timber Processing and Treatment Facility, that is noted in the submitted EIAR as "no longer operational", submitted a planning application to Donegal County Council in September 2021 for a change of use from an industrial sawmill to a 16-bed tourist facility. Planning was granted for this development in January 2022. The consented accommodation facility is located 1.2 km south of the proposed wind farm site outside the setback buffer distance of the proposed wind farm site (see Section 2.6 of this report for additional detail regarding setback distances).

The list below provides an overview of the consented accommodation facility in relation to the proposed project, which concludes there is no material change to the conclusions of the submitted EIAR for the proposed project:

Environmental aspect	Comment
Population & Human Health	There is no anticipated population and human health interactions between the proposed project and the consented accommodation facility.
Archaeology	There is no anticipated archaeological interaction between the proposed project and the consented accommodation facility.
Shadow Flicker	The Applicant will incorporate the consented accommodation facility into its shadow flicker strategy (already part of the submitted EIAR) to ensure no significant negative impact to the property.
LVIA	There will be no notable cumulative effect between the consented accommodation facility and the proposed wind farm. The main effects relate to the marginal intensity of development within the study area, which is slightly diminished by the fact that the proposal is located within an existing decommissioned industrial complex. Overall, no significant negative cumulative impacts are anticipated and no notable interactions have been identified in relation to Landscape and Visual due to the lack of proximity and lack of interaction between the proposed project and the consented accommodation facility.
Traffic and Transport	In relation to traffic, the consented accommodation facility is expected to generate limited traffic movements, due to the nature of the development. Considering the low level of additional traffic movements generated and the existing capacity of the regional road R250, no notable cumulative effect between the consented accommodation facility and the proposed wind farm is anticipated.

Land Cover

One submission stated that there was confusion as to where the 'extensively grazed land' is located on site.

Section 2.1.1 of Chapter 2 (Description of the Proposed Project) of the submitted EIAR states that “the land use/activities on the site of the proposed wind farm are primarily commercial forestry, with some areas of open peatland that is extensively grazed”. The use of the word “extensively” in this context refers to the low levels of grazing, by sheep or deer, on site i.e. the opposite of intensive grazing.

Sensitive Receptors

One submission stated that the derelict cottages referred to within the EIAR, which have the potential to be renovated and lived in, have been overlooked within the assessment.

Any property noted as derelict has been fully considered within the EIAR assessment. The term 'derelict' appears within Section 5.3.1 of Chapter 5 (Population and Human Health) of the submitted EIAR where an assessment of all sensitive receptors within 2 km of the wind farm site is carried out. This section states that although sensitive receptors are categorized into "Other Receptors e.g. derelict or with condition/status unconfirmed" for the purposes of the assessment these receptors were "assumed to be sensitive as in resided in (those that were derelict could potentially be renovated to be habitable)".

Decommissioning and Maintenance

One submission queried how the wind farm infrastructure will be treated at the end of operational life.

Section 11.4.4 of Chapter 11 (Material Assets) of the submitted EIAR provides details that state that the proposed project components will be dismantled and removed using minimal impact, conventional construction equipment and will be recycled or disposed of safely. The decommissioning phase will have the potential to produce municipal waste (site office, canteen), wastewater (site welfare facility) and demolition waste (wood, packaging, metal, etc.) which will need to be processed at local licenced waste processing facilities. The quantities of these wastes are anticipated to be larger than other phases (considering the removal of turbines, met mast and other structures), however these are largely composed of metal and other recyclable materials which will be brought to specialised facilities for processing/recycling. In the EIAR it is stated that "turbine blades (fibreglass based) currently have limited scope for recycling, however technology is expected to advance in the coming years". Since then, technology has advanced and recently it has been announced that recyclable turbine blades have been developed and will be phased in over the coming years. Any other wastes (such as oils) will be collected by an appropriately licensed waste collector.

One submission stated that they were concerned that the wind turbines would need frequent maintenance and have a shorter life span due to the high wind and rainfall in the area.

In response it should be noted that turbines are constructed to operate in various conditions including those present on the west coast of Ireland. With effective maintenance the turbines can outlive their warranted lifespan.

Forestry

One submission raised concern regarding the felling of forestry on site without rewilding the area.

In response, the area of forestry due to be felled as part of the proposed project will be replanted in another location. As Section 2.6.9 of Chapter 2 of the submitted EIAR describes, when applying for a felling license from the Forest Service at least an equivalent size to that which was felled must be replanted.

Human Rights

One submission raised a concern that the construction of the proposed wind farm, due to its size, violates human rights under Article 8 ECHR (i.e. the right to respect for private and family life, home and correspondence).

In response to this statement, it is noted that the planning system is designed to allow for a proportionate interference with private amenity. In any event, it can be confirmed that the assessment undertaken is in line with best practise guidance to ensure the location, layout and design of the proposed project takes full consideration of the local community and population, and no significant residual effects are predicted. Setback distances that have been considered for the design of this wind farm are compliant with the 2006 and 2019 (Draft) Wind Energy Development Guidelines (as discussed in Section 2.5 and 2.6 of this report).

2.4 CONSIDERATION OF REASONABLE ALTERNATIVES

This section of the report addresses submissions received in relation to Chapter 3 of the submitted EIAR, Consideration of Reasonable Alternatives. The main concern raised relates to site suitability.

Site Suitability

Five submissions received raised concerns regarding the suitability of the site for the proposed project.

Section 3.3.2 of Chapter 3 (Consideration of Reasonable Alternatives) of the submitted EIAR details a screening and selection process. The Applicant regularly examined potential project development lands for candidate sites for wind energy development. Both developers have similar screening processes.

As stated in Section 3.3 of Chapter 3 (Consideration of Reasonable Alternatives) of the submitted EIAR, in 2014 and 2017 Coillte Renewable Energy (FEI company formed in November 2021) carried out a detailed screening process on lands under their stewardship. Using Geographical Information Systems (GIS) software, sites with the potential to accommodate wind energy development were identified. Numerous databases were considered during this process, such as forestry data, ordnance survey house location data, transport, existing wind energy and grid infrastructure data, and environmental data such as ecological designations, landscape designations and wind energy strategy designations available at the time.

The three main stages were: Phase 1: Initial Screening, Phase 2: Grid Constraints, Phase 3: Screening. Phase 1 involves discounting lands which are not available for development such as National Parks and Farm Partnerships. At this stage lands that have an average wind speed of less than 7 m/s at 80 metres above ground level as well as contiguous areas with an area of less than 300 hectares were discounted. Phase 2 considered the potential for grid connection for the identified sites by assessing distance to potential connection nodes and grid capacity at the nodes. Phase 3 involved removing lands from further analysis with attributes such as intersections with designated tourist sites/trails or telecommunication masts and links.

Ørsted has a similar screening process, particularly for Phase 2 and Phase 3 Screening as detailed in Chapter 3. For the proposed project, Ørsted identified suitable private lands for development and engagement between Ørsted and Coillte Renewable Energy) also

commenced as their processes identified suitable lands adjacent to these private lands. Further details on the methodology utilized can be found in Section 3.3.2 of the submitted EIAR.

2.5 PLANNING POLICY & DEVELOPMENT CONTEXT

This section of the report addresses concerns raised in relation to Planning Policy and Development Context. The main concerns raised relate to impacts on highly scenic amenity areas, validity of the project, impacts on tourism, compliance with policies, project splitting concerns, and compliance with wind energy guidelines.

Impacts on Especially High Scenic Amenity Areas (EHSA)

Submissions have been made stating that the proposed project should not be allowed in an area classified as having 'Especially high Scenic Amenity' (EHSA).

In response, the relevant Development Plan is the adopted Donegal County Development Plan 2018-2024 (as varied). Under this plan, the entire wind farm site does not fall within an EHSA area according to Map 7.1.1. Instead, the majority of the wind farm site is in fact located in an area classified as having 'Moderate Scenic Amenity (MSA)'. It is the western and eastern strips of the site that overlap with lands classified as EHSA. However, none of the proposed turbines fall within the EHSA zone.

The LVIA submitted with this application assesses the highly scenic landscape within a 20km study area and finds that the proposed project will not result in significant visual impacts at amenity and heritage features within the study area assessed in Chapter 13 (LVIA).

Section 13.7.5 of the LVIA specifically assesses potential impacts of the proposed project within highly scenic landscapes. The assessment takes into account heritage and amenity features within the study area, which are represented by an array of representative viewpoints, including VP1, VP3, VP6, VP7, VP12, VP14, VP15, VP16, VP17, VP20, VP24, VP28 & VP29 (please refer to Table 13-10 of the LVIA). The significance of visual impact on heritage and amenity features within the study area are found to range from ‘Substantial moderate’ to ‘Imperceptible’.

Further to this, Section 2.2.2 of the Planning Statement submitted with this application provides commentary relating to how the proposed project will not result in adverse visual impacts within the surrounding landscape. A summary of key points raised are listed below:

- The site is principally cloaked in extensive commercial conifer forest plantations, which are considered a typical transitional land use and well suited for wind energy development in terms of scale and function.
- The site and wider valley are designated as Moderate Scenic Amenity (MSA) within the current CDP, which are considered to be suitable for accommodating additional development if located, sited, and designed appropriately.
- The proposed development is situated in a remote valley, away from Donegal's sensitive landscape areas, including its coastline and elevated uplands, which are over 5 km away from the nearest turbines.
- The proposed development layout has undergone a series of design refinements to reduce the potential for any strong negative aesthetic effects at the nearest local receptors, such as visually stacked turbines generating a sense of visual clutter.

It is noted that the siting of the proposed project is in a remote contained valley, offset from of Donegal's most sensitive landscape areas, such as the distinctive coastline and some of its most elevated uplands, all of which are located > 5 km from the nearest turbines. In addition, the site is located in a modified part of Donegal's landscape as it comprises extensive conifer forest plantations and existing overhead line infrastructure.

In summary, the proposed project is appropriately sited in a robust forested plateau in a broad landscape context that can absorb the scale and nature of wind energy development.

Environmental Impact Assessment to be Carried Out by the Board

A submission was made requesting the Board to carry out an independent Environmental Impact Assessment (EIA).

In response, as set out in the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Local Government and Heritage, 2018), the Board will independently consider the likely effects on the environment of the proposed development as part of determining the SID application. This assessment will consider the EIAR submitted for the SID application.

Validity of the Proposed Project

Submissions have been received stating that the application is not valid.

In response, it is noted that the application has been fully validated by the Board. Furthermore, the submitted Planning Statement and EIAR demonstrates compliance with international, national, regional and local level policy.

Impacts on the Wild Atlantic Way (WAW)

Donegal County Council and another two submissions state that the proposed project would obstruct key tourism policies such as, TOU-O-3, TOU-O-4 and TOU-O-5, RPO 5.2 and RPO 5.13, all associated with the Wild Atlantic Way (WAW).

In response, it is asserted that the Landscape and Visual Impact Assessment (LVIA) submitted with this application assesses all relevant environmental considerations in line with best practice, including the WAW that may be affected, as a result of the proposed project. The assessment concludes that there will be no significant visual impacts.

The proposed wind farm in northwest Donegal will not significantly detract from the scenic or recreational amenity of the waymarked walking trails, cycling routes, local walking trails, and driving routes within the central or wider study area. The proposed wind farm will not result in significant visual impacts at amenity and heritage features within the study area. Please refer to Section 13.7.5 of the LVIA for further information.

The LVIA refers to the 2012 Fáilte Ireland survey, which finds that wind farms in Ireland elicit a positive response from tourists compared to telecommunication masts and steel electricity pylons. The majority (45%) of survey respondents felt that their presence did not detract from the quality of sightseeing. The assessment of visual impact magnitude for wind turbines is more complex than just the degree to which turbines occupy a view. The LVIA found that clear views of the proposed project from areas like Lettermacaward and the Gweebarra Bridge are preferable.

As such it is established that the proposed project will not result in significant visual impacts at amenity and heritage features within the study area and does not contradict local and regional policies and objectives associated with the WAW.

Compliance with Policy NH-P-13

A submission has been received from Donegal County Council stating that the proposed wind farm is not in accordance with policy NH-P-13 of the Donegal County Development Plan 2018-2024 which states that, it is council policy 'to protect, conserve and manage landscapes having regard to the nature of the proposed project and the degree to which it can be accommodated into the receiving landscape.'

In response, the submitted LVIA assesses the potential impacts of the proposed project across various viewpoints extending up to a 20km radius and concludes that there will be no significant impacts on the receiving landscape.

The LVIA determined that the landscape context in which the proposed project is located is capable of accommodating a wind farm development, stating that:

> 'the site and its immediate surroundings represent a landscape area that should not be excluded from potential wind energy development based on landscape and visual constraints. This is further reinforced by the Moderate Scenic Amenity designation that contains the site and wider valley, which are described as areas with 'the capacity to absorb additional development that is suitably located, sited and designed.'

The assessment further states that:

> 'the subject site is a robust forested plateau in a broad landscape context that can absorb the scale and nature of wind energy development. It is contained by surrounding rolling ridges, influenced by an array of existing anthropogenic land uses and is well offset from some of the most susceptible landscape areas in County Donegal, such as the coastline and the remote, rugged uplands. Based on the assessment herein, it is considered that the proposed Cloghercor Wind Farm is of a notable scale but appropriately sited in a broad-scale landscape context and will not give rise to any significant residual landscape effects, visual effects or cumulative effects.'

Compliance with Project 2040 and the 1987 Habitats Act

Submissions were received stating the 1987 Natural Habitats Regulations[3] prohibits development likely to have a serious impact on SAC's and NHA's of European and international importance and also that it contravenes Project 2040 objectives 59 and 60.

In response, the impact of development on ecological habitats are regulated under the Planning and Development Act 2000 (as amended) and the "Wildlife Act 1976 (as amended). The proposed project has been rigorously assessed for impacts on biodiversity within the submitted EIAR as well as the submitted NIS. The EIAR concludes that there are not likely to be significant adverse ecological effects as a result of the proposed project. The NIS concluded that the proposed project, alone or in combination with any other plan or project, will not result in an

[3] We believe this is referring to the 1997 Natural Habitats Regulations, which are now consolidated into the 2011 European Communities (Birds and Natural Habitats) Regulations.

adverse effect on the integrity of any European Site. We refer the Board to Section 2.7 this report, where the item is fully addressed.

Compliance with E-P-12 of the Donegal County Development Plan 2018-2024 (as varied)*

Donegal County Council provided a submission stating that the proposed project is contrary to section 31(17) of the Planning and Development Act 2000 (as amended) due to its location within lands designated 'not normally permissible' under the wind energy designations and contravenes policy E-P-12 within the Donegal County Development Plan 2018-2024.

In response, as per section 2.1.2 of the submitted Planning Statement the application has been legally made and is not contrary to the Planning and Development Act 2000 (as amended). The submitted Planning Statement and EIAR addresses these matters and concerns. It is noted that the submission made by Donegal County Council has not disagreed with these documents and their respective assessments. Furthermore, the project team have sought continued engagement with Donegal Council throughout the lifetime of the project.

It is noted that under section 37G (6) of the Planning and Development Act, 2000 (as amended), An Bord Pleanála has the power to grant planning permission notwithstanding a material contravention and should grant planning permission in accordance with the matters that the Board is required to have regard to. In this respect section 37G(6) of the Act states:

> 'The Board may decide to grant 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'.

Section 2.2 of the planning statement submitted with this application provides justification of the proposed project taking account the matters that the Board must consider, as set out under Section 37G (2) of the Planning and Development Act, 2000 (as amended).

With respect to the zoning of the proposed project site, the use of the word "normally" within the zoning designation status is an important consideration when considering this planning application. It is noted that the wording does not exclude or rule out renewable energy development at this location. The designation "Not Normally Permissible" is not an absolute prohibition on wind development on such lands. Instead, the wording implies that at least, in special circumstances, a case could be made as to why a specific wind project at a specific location on such lands should be permissible, and those circumstances as set out under Variation No. 2 of the Donegal County Development Plan do not appear exhaustive.

It is noted that the proposed project does not sit squarely within the exceptions set out under Variation No. 2, and may be interpreted as a material contravention to the CDP. However, it is argued that the zoning designation 'Not Normally Permissible' is not absolute nor does it state 'Not Permissible'. For further reasoning in this regard please refer to the submitted Planning Statement which demonstrates that the proposed project is in strong compliance with international, national, regional and local level policy.

Compliance with Policy E-P-23 of the Donegal County Development Plan 2018-2024 (as varied)

Donegal County Council and a separate six submissions state that the proposed project contravenes County Development Plan Policy E-P-23 which relates to areas of especially high scenic amenity, Gweebarra River Basin, Glenveagh National Park, and Fresh water pearl mussel Catchments.

In response, the proposed project has been comprehensively assessed with respect to the Zone of Visual Influence (ZVI) of Glenveagh National Park, fresh water pearl mussel catchments, areas of very high scenic amenity, St. John's Point and Gweebarra River Basin with the outcome of these assessments provided in the specialist chapters (Chapter 6, 13, and 15) of the submitted EIAR.

We would refer the Board to Section 2.2.4.2 of the statement which will assist to address this matter.

The proposed project presents no significant long-term effect on water quality, of the Gweebarra River, due to mitigation measures outlined in Chapter 9 of the submitted EIAR and detailed in the CEMP (Appendix 2-2).

The issues raised in relation the Fresh Water Pearl Mussel catchments and ornithology are addressed under Sections 2.7 and 2.8 of this report respectively.

Project Splitting Concerns

A submission has been received raising concerns relating to project splitting and stating that the Applicant is yet to apply to alter roads along the proposed transport route.

In response, it is confirmed that the proposed project planning application documents as submitted do not involve project splitting. A full description of the proposed project is provided in the submitted EIAR under Section 1.5, which confirms that, 'all elements of the proposed project including the elements which form part of the overall project but are not part of the current planning application such as all works required on public roads to accommodate turbine delivery, have been considered and are assessed as part of this EIAR.'

All remaining elements of the proposed project will be progressed under a separate future consents process, as set out in Chapters 1 and 16 of the submitted EIAR.

Adequacy of Information Provided in the EIAR

A submission has been received stating that the EIAR submitted does not provide sufficient information for a development of this scale. See further information below with respect to the wind energy guidelines and their applicability.

In response, it is stated that the EIAR and NIS submitted with this application is fully compliant with the various Directives and guidelines applicable to the proposed project. Section 1.6 of the EIAR lists all legislative provisions and guidelines considered in preparation of this application.

Please refer to Section 1.1 of the NIS for a description of the legislation applied when preparing the report.

Future Dwelling to be Constructed near F94F2HF

A submission has been made notifying the Board of the individual's intention to seek planning permission for a house at a site within 500m of a proposed wind turbine.

In response, a review of planning application data available on MyPlan.ie indicates that there has been no formal planning application submitted to Donegal County Council for a house at the approximate location near Eircode F94F2HF.

The extent of sensitive receptors is based on currently available information and, without a planning permission in place, it is not sufficiently certain that such a house will be developed. Furthermore cumulative assessment is based on available information and, without an application being lodged or other sufficient information on the house, it is not possible to cumulatively assess any such house.

Proximity of Turbines to Residential Properties

A submission was made stating that the proposed turbines must be located 1000m-1500 away from residential properties and disagrees with the Wind Energy Guidelines 2006 recommendation of 4 times the tip height.

In response, the project is fully compliant with all Wind Energy Guidelines. All proposed wind turbines have been located at least 800 m away from the nearest residential properties which is in compliance with Wind Energy Guidelines 2006 and the Draft Revised Wind Energy Development Guidelines (WEDG) 2019 (both published by the Department of the Environment, Heritage and Local Government), which were considered while designing the layout of the turbines. The closest dwelling is located approximately 925 m away from proposed turbine T16, which is more than 4 times the maximum tip height (in this case 4 x 200m) and in line with setback requirements in the 2006 and Draft 2019 Guidelines.

This has been done in order to minimise potential noise effects and impacts on residential amenity. It was decided early in the design process that a set-back of 800 m would be appropriate. The layout has achieved a high level of separation between dwellings and turbines by providing a minimum separation distance of >800m.

Please refer to section 3.3.4 of the EIAR submitted with this application which lists key environmental considerations made while designing the turbine layout.

Compliance with Transport Infrastructure Ireland (TII) Standards

A submission was made stating that damage to pavement and proposed works to the national road network are to be carried out in accordance with various TII standards and documents.

In response, all proposed works will be carried out in accordance with TII standards. Additionally, the Applicant is willing to accept these terms by way of planning condition to ensure any repair works and proposed works on national roads are in accordance with relevant TII standards and documents.

Validity of the Wind Energy Guidelines 2006

Submissions have been made stating that the Wind Energy Development Guidelines (WEDG) 2006 are out of date and unfit for purpose.

In response, the design of the proposed wind farm was prepared fully in accordance with both the Wind Energy Guidelines 2006 and the Draft 2019 WEDGs.

The following additional guideline documents have also been consulted, with respect to the wind farm design:

- DoHPLG, Draft Revised Wind Energy Development Guidelines (December 2019);
- Irish Wind Energy Association, Best Practice Guidelines for the Irish Wind Energy Industry 2012;
- Irish Wind Energy Association, Community Engagement Strategy March 2018; and
- European Commission, Guidance document on wind energy development and EU nature legislation (November 2020).

The provisions set out in the Draft 2019 WEDGs have been followed in the design of the proposed project in terms of noise, shadow flicker, visual amenity setback, environmental assessment, consultation obligations, community dividend and grid connections. Application of the draft guidelines is discussed in more detail in individual Chapters in the submitted EIAR and in Section 1.6 (Chapter 1). It is possible that a version of the draft guidelines may be finalised during the consideration period for the proposed project. Towards this end, it is anticipated that the design of the proposed wind farm will be capable of adhering to the new guidelines as required.

2.6 POPULATION AND HUMAN HEALTH

This section of the report addresses concerns raised in relation to Population and Human Health. The main concerns raised relate to employment, tourism, property values, depopulation, effects on the Irish language community, the Community Benefit Fund, use of data, construction effects, health effects, accidents and disasters and setback distances.

Population

Employment

A single submission asserted that the construction of the proposed project will not provide work for locals.

Section 5.4.2 of the Population and Human Health Chapter (Chapter 5) of the submitted EIAR states that between 96 to 139 persons will be directly employed during the peak construction period of the proposed project.

The construction of the proposed project will create and support indirect employment, primarily through local construction workforce on site. The EIAR details that an increase in the following construction related activities should be expected in the local area as a result of the proposed project; site monitoring/surveys, site investigations, enabling works such as vegetation clearance.

It is anticipated that local spending by construction employees in the form of accommodation and sustenance will increase for the duration of the planned construction works.

A separate submission stated that they did not believe that long term jobs would be gained in the locality as a result of the proposed project.

Section 2.12 of Chapter 2 (Description of the Proposed Project) and Section 5.4.2.2 of Chapter 5 Population & Human Health of the submitted EIAR which states the proposed project will support an estimated 2-3 full-time long term high quality technical jobs on site during the operation phase. These jobs will be created directly as a result of the maintenance and operational needs of the proposed project. There will be other roles indirectly required for the running of the wind farm, estimated to be between 29 - 47 jobs at this stage (Section 2.12 of Chapter 2).

Tourism

Thirty-four submissions raised concerns regarding the potential adverse effects on tourism. Section 5.3.1 of the EIAR details tourism impacts on the local area. Nine of these submissions related to the effect on tourism from a Landscape and Visual perspective (responded to within Section 2.13 of this report).

In response to submissions received regarding the potential for adverse effects on tourism as a result of the proposed project, Section 5.4.2.2 of the submitted EIAR concludes that the proposed project will have a long-term, slight, positive effect on tourism experience and numbers in the vicinity of the site, as the project proposes the development of permanent marked walking trails, associated recreation and amenity signage with viewing points and a public car park with seating/picnic tables. Furthermore the submitted EIAR references and considers studies carried out on the impact of wind farms on tourism in Ireland and Scotland; and in summary the studies found no evidence of a negative impact on tourism associated with wind farm developments.

In response to the four submissions that raised concerns on potential impact on local walking and hiking trails it is noted that the site of the proposed wind farm is accessible by existing forest infrastructure and is already used by some nearby residents for walking (Section 2.6.13 of Chapter 2 (Description of the Proposed Project) of the submitted EIAR). The proposed project will enhance the current usage of the site by enabling the area to be more accessible to more people from the local area and for visiting tourists by providing walking trails and appropriate signage and parking facilities.

A submission was raised that stated the proposed amenity trails through the wind farm are not wanted by the locals.

This opinion is noted and it is confirmed that the proposed amenity trail was discussed with members of the local community during public consultation events. At the time, interest was expressed in the benefits of an amenity trail by members of the local community as well as a recreation group. The amenity trail element of the project was therefore brought forward as part of the project to complement the proposed wind farm. Details of public consultation are presented in the Community Engagement Report included in Appendix 1-5 of the submitted EIAR. Recent Failte Ireland statistics[4] indicate that the most popular tourist attractions in County Donegal involve outdoor activity. This is detailed in Section 5.3.1 of the submitted EIAR. Tourists' perceptions of wind farms are further discussed in Section 5.4.2 of the submitted EIAR.

[4] https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/Publications/annual-visitor-attractions-survey.pdf?ext=.pdf -

A single submission stated that the submitted planning application did not list tourism assets, locations and amenities in the area.

In response, Section 5.3.1 of Chapter 5 (Population & Human Health) of the submitted EIAR sets the context for the locality of the proposed project in relation to popular tourist sites.

Construction Phase Impacts

Three submissions received raised concerns that the construction of the proposed project would cause local disturbance and annoyance.

In response Section 5.4.2 of Chapter 5 (Population and Human Health) of the submitted EIAR, recognises that the construction phase will likely have a short-term, slight, negative residual effect on the local population as a result of the construction phase traffic and associated noise.

Property Values

Twenty-seven submissions raised concerns around the potential for property devaluation should the proposed project be constructed.

Section 5.4.2.2 of Chapter 5 (Population & Human Health) of the submitted EIAR provides an overview of the various studies carried out across the UK and the USA on any linkage between house property prices and the presence of wind farms. There have been no Irish studies completed to date, and the closest study in terms of locality is the 2016 Scottish study which found no evidence of negative impact from wind turbines on house prices. The location and siting of the turbines has modelled the location of existing houses to maintain a minimum set-back distance of circa 925m from the nearest property based on best practice guidelines.

Depopulation

Five submissions raised concern regarding the potential for depopulation as a result of the proposed project.

There are no notable studies that support this concern of any effect on the population trend for County Donegal, as stated in Section 5.4.2 of the submitted EIAR.

Potential Impact on the Irish Language

Three submissions raised concerns surrounding the potential adverse effects on the Irish language as a result of the proposed project.

In response we refer to Section 5.4.2 of the submitted EIAR which states that no negative effects 'on the use or promotion of Irish language in the area' during any phase of the proposed project are anticipated. Furthermore, during the operational phase of the proposed project the Community Benefit Fund has potential to be used to sponsor Irish language projects if the local community should decide.

Privacy and Data Security

A local group raised a concern surrounding the camera on the existing meteorological mast on site stating that it can view private homes and resident's movements.

In response it is noted that a CCTV camera is present at the existing meteorological mast consented under planning reference PL05E.308008, which is not a subject of this planning application and has no bearing on the submitted EIAR. The camera is present in order to protect against vandalism, and it does not monitor anything beyond the immediate area of the mast.

There are no dwellings in proximity of the mast location, with the nearest dwelling located. c. 1.6 km from the mast location.

A single submission also raised concern surrounding their data security and their permission for being identified. In response the planning application background mapping showing the location of properties is publicly available and no names or addresses are included on any of the submitted planning application documentation.

Community Benefit Fund

Five submissions raised concerns in relation to the Community Benefit Fund. Various concerns related to the potential value of the fund. A submission stated that 'up to €500,000 via RESS over 15 years isn't enough'.

The figure referenced here is incorrect and in fact, as reported in Section 2.2 of the submitted EIAR, an annual community benefit fund of €500,000 per year for the first 15 years of the project will be established which will include funding for both wider community initiatives and a Near Neighbour scheme focused on houses in close proximity to the project. The value of the community benefit fund under the Renewable Energy Support Scheme is dictated by government policy which currently stands at €2/MW hour in accordance with the Renewable Electricity Support Scheme, Good Practice Principles Handbook for Community Benefit Funds (2021).

Community

Three submissions raised concerns surrounding the potential impact on community in the locality.

In response, the proposed project has the potential to bring significant positive benefits to the local community, through the establishment of a community benefit fund, contribution of annual rates to Donegal County Council, creation of a Near Neighbour schemed focused on residents close to the project and construction of a recreational facility for use by the local community.

Human Health

Health Effects

Eleven submissions raised concerns surrounding general health effects.

The health assessment conducted as part of the EIAR concluded, as highlighted in Section 5.4.3 of Chapter 5 (Population and Human Health) that for the construction phase of the proposed project, the potential effects are anticipated to be short term and slight.

Section 5.4.3 of the submitted EIAR also assessed the potential human health effects that may occur during the operational phase. The following areas were assessed; wind turbine health effects, noise induced hearing loss, sleep disturbance, infra-sound, electromagnetic interference, shadow flicker, psychological health. It was concluded for each of these items that no significant, adverse human health effects will occur as a result of the proposed project. In relation to positive health effects the contribution of the proposed project to a decrease in reliance on fossil fuel combustion will have a moderate to significant positive long-term effect on the health and well-being of the general population. The EIAR provided an overview of relevant research.

Numerous studies from the UK, USA, Canada, Europe and Australia have been referenced in Section 5.4.3 of Chapter 5 (Population and Human Health) of the EIAR whereby it was found that there are no direct pathological effects on human health associated with wind farms and any potential impact can be minimised by following planning guidelines. It follows a summary of the main research provided in the aforementioned section which is summarised below.

A study by Knopper from 2014 states that negative attitudes and concerns from individuals about perceived environmental risks have been associated with adverse health symptoms, including headache, nausea, agitation and depression. The study concludes that when sited properly, wind farms do not result in adverse health concerns.

A health study by Health Canada on the effects of wind turbines noise on health and well-being from 2014 found no evidence to support the link between wind turbines noise and self-reported illnesses (such as dizziness or migraines) and chronic conditions (such as heart disease or diabetes). No evidence was found to support an association between wind turbines noise and sleep quality.

A publication from the Ministry of the Environment in the Federal State of Baden Wuerttemberg, Germany, in 2016, concluded that the infrasound levels generated by wind farms lie below the limits of human perception and there is no scientific evidence of negative effects in this range.

Concerns related to potential health effects (such as childhood leukaemia, brain tumours and other cancers) arising from electromagnetic fields (EMF) from overhead lines were addressed in a publication by EirGrid, in 2014. The paper states that from research conducted in the UK, Europe and the US, no association was found between a home near transmission lines and childhood leukaemia. Based on its own review of research, the World Health Organization (2007) concluded that there is no evidence that exposure to low-level EMF's is harmful to human health.

The UK Wind Energy Guidance Note, prepared in the UK for the Renewables Advisory Board and Department for Business, Enterprise and Regulatory Reform (BERR) in 2007, addressed the question whether the shadow flicker from wind turbines can cause effects on human health. It was found that the frequency at which photosensitive epilepsy may be triggered generally is between 2.5 and 30 flashes per second (hertz). Most commercial wind turbines in the UK rotate at between 0.3 and 1.0 hertz, giving health effects arising from shadow flicker little potential to occur.

Underground and Overhead Power Lines

A submission raised a concern surrounding the safety of underground and overhead lines.

In response to this concern the EirGrid website[5] states that "EirGrid operates the transmission grid to stringent safety recommendations. National and international agencies make these recommendations. They do this independently of any grid operator. Several of these recommendations come from the International Commission for Non-Ionizing Radiation Protection (ICNIRP). This is an independent body, funded by public health authorities around the world. ICNIRP has investigated the safety of EMFs for decades, and provides guidance on safe levels of exposure.

[5] Safety Standards | The Grid | EirGrid

Chemicals

Seventeen submissions raised concerns surrounding the potential impacts of the chemical Bisphenol A (BPA) on human health. BPA is a chemical that is used in the production of epoxy resins[6]. Such epoxy resins are used in the production of wind turbine blades and other structural elements. Within the submissions a concern was raised surrounding the chemical BPA and several submissions specified their fear of the release of BPA into the environment as the turbine blades become weathered.

Wind turbines are manufactured and maintained according to internationally accepted methods and in compliance with EU and Irish regulations in relation to chemicals. As discussed in a white paper produced by Epoxy Europe[7] the potential release of BPA from wind turbines is expected to be negligible during service life. Whilst at present BPA is utilised within the production of wind turbine blades, they are designed to withstand severe weather conditions. As stated on the American Clean Power website[8] "wind turbine blades' protective coatings are non-toxic and contain negligible amounts of BPA and the blades are specifically designed to have high resistance to weathering". As such there are no significant effects anticipated in this regard.

Ten submissions raised specific concerns regarding uranium.

In response it should be noted that uranium is ubiquitous in the environment and low quantities of uranium is present in all soils, bedrock and water. While prospecting licences were granted in the area, no significant deposits of Uranium were discovered. The Geological Survey of Ireland's regional scale Tellus geochemical programme[9], which is publicly available, does not indicate elevated uranium in stream sediments across the Donegal granites or elevated soil concentrations within the site.

Health Impact Assessment

A single submission queried why a health impact assessment was not conducted.

As discussed above under 'Health Effects', peer reviewed studies indicate an absence of effects on human health from operational wind farm projects, therefore, a targeted Health Impact Assessment was not considered to be required in understanding the potential effects of the proposed project.

Radon

An individual raised a concern regarding radon gas.

In response we note that radon risk occurs due to the underlying sediments and geology at individual dwellings. Works proposed as part of the proposed project will not affect radon at individual dwellings.

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[6] https://www.echa.europa.eu/hot-topics/bisphenols

[7] https://www.epoxy-europe.eu/wp-content/uploads/2015/07/epoxy_erc_bpa_whitepapers_wind-energy-2.pdf

[8] American Clean Power https://cleanpower.org/resources/microplastics-and-bpa-in-wind-turbine-blades/

[9] https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx

Concrete

A local group raised concern regarding the safety of the use of concrete.

In response we note that concrete will comply with the best practice Irish Standard available, which is I.S. EN 206-1: 2002 (Concrete Part 1: Specification, Performance, Production and Conformity).

Animal Health

Eleven submissions raised concerns regarding the potential health impacts on their animals and livestock.

In response we note that the lands adjacent to and surrounding many wind farms across the country are utilised by animals. There is no scientific evidence that wind turbines have a negative impact on domestic animals grazing in close proximity. Indeed, equestrian trails were provided as part of the recreation plan for the Sliabh Bawn Wind Farm in Co. Roscommon and these are regularly used by horses and includes a specific "Equestrian Trail"[10]. Furthermore, within the scope of the submitted EIAR a biodiversity assessment was carried out in relation to impacts on wild fauna, as noted in Chapter 6, Section 6.1.1 "on habitats and species of conservation importance".

Set Back Distances

Four submissions raised concerns in relation to set back distances generally. Details on setback distances in relation to residential properties are addressed above in Section 2.5 under Proximity of Turbines to Residential Properties. Two submissions were concerned about the proximity of the proposed project to schools in the area, while another submission felt the '800m is not far enough'.

In response we state that the proposed wind farm has been designed in accordance with the Government's 2006 Wind Energy Development Guidelines (WEDG), which are the relevant and available best practice guidelines for wind farm design, and with cognisance of the Draft 2019 WEDGS. The 2006 WEDGs set out a minimum setback requirement of 500 metres for noise. The Draft 2019 WEDGs recommend a minimum setback distance from a turbine to the curtilage of a residential property equal to 4 times the tip height, or with a mandatory minimum setback of 500 metres, whichever is largest. In respect of the proposed project, there is a minimum setback distance of 925 m from the proposed turbine locations to the nearest residential property which is in excess of the minimum setback requirements set out in the 2006 and Draft 2019 WEDGs.

Future Development

A local group raised a concern that the proposed project would impact the potential for housing development in the area.

In response we note that a full review of all submitted applications was undertaken as part of the development of the submitted EIAR, including review of the Donegal County Council planning register, the An Bord Pleanála website and the EIA Portal. All submitted planning submissions within a 10km radius were reviewed (See Appendix 4-3 of the EIAR for details), and this information was used to consider any potential new receptors within the 2006 and

[10] Sliabh Bawn - Coillte

2019 WEDG set-back distance and to establish any projects that are to be considered cumulatively with the proposed project. The Applicant has no influence over the local authority with regard to potential future housing developments.

Risk of Accidents

Two submissions raised concerns surrounding the potential risk of accidents and disasters.

In response to this concern, it is noted that a review of potential hazards that could result in major accidents and/or disasters was carried out as part of the submitted EIAR (see Section 2.10.7) and an emergency response plan is included in the Construction Environment Management Plan (Appendix 2-2).

Six submissions specified their concerns regarding the potential risk of fire.

In response Section 5.3.4 of the EIAR concludes that the potential risk of fires from turbines is very low due to comprehensive turbine base design considerations, safety checks throughout the turbine installation process and turbine suppliers' many years of experience in developing and innovating safety in the wind energy industry. In addition, the turbines will be fitted with lightning conductors to minimise the potential risk of lightning induced fires.

Two submissions raised a concern regarding the potential for turbine blades to fall. The wind turbines will be manufactured by a reputable manufacturer which is controlled under the relevant international standards for safety and quality compliance. Turbines will shut down at wind speeds greater than 25m/s as a preventative measure from excessive wear, although some turbines are designed to operate at up to 30m/s (Section 2.6.2.1 of the EIAR). On construction there will be a maintenance regime that will be followed during the proposed 35 year operational period of the wind farm.

Nine submissions raised safety concerns regarding peat stability/in the event of a potential peat slide/landslide/mudslide occurring.

A third party was instructed to carry out a planning stage peat stability risk assessment (PSRA) as part of the environmental impact assessment for the proposed project. The PSRA was carried out in accordance with Peat Landslide Hazard and Risk Assessments, Best Practice Guide for Proposed Electricity Generation Developments –Second edition (Scottish Government, 2017). The report sets out the methodology used to assess the peat stability risk, the activities undertaken, and the results of the peat stability assessment. The report should be read along with the Land, Soils and Geology chapter (Chapter 8) of the submitted EIAR and its appendices. Following application of mitigation measures, including consideration of the siting of infrastructure to minimise the risk, the findings of the planning stage PSRA indicate a 'low' hazard ranking for instability related to the requirement for excavations on the site, subject to appropriate mitigation measures. Section 2.9, Land, Soils and Geology of this report provides further information on concerns raised in relation to peat.

2.7 BIODIVERSITY FLORA & FAUNA

This section of the report addresses concerns raised in relation to Biodiversity Flora & Fauna. The main concerns raised relate to the local area, peatland habitats, plant species, freshwater pearl mussel, butterflies and other invertebrates, fish, amphibians, reptiles and mammals, and other issues which include Meenmore West Natural Heritage Area, the recreation plan, otter mitigation and Appropriate Assessment screening.

Local area

A submission received criticises the definition of the local area mapped in Figure 6.3 of the submitted EIAR and states that the boundary 'should have been extended to beyond the western bank of the Gweebarra River'.

The definition of the local area in Chapters 6 and 7 of the submitted EIAR was questioned. As recommended by relevant guidance (CIEEM, 2019), the assessments in these chapters used a geographic scale for the evaluation of the importance of the habitats and populations recorded from the wind farm site, and for the assessment of the significance of the predicted impacts. This geographic scale contained four levels: international, national, county and local. While the first three levels are easy to interpret, the local scale is a vague term and is not defined in the National Roads Authority evaluation scheme (NRA, 2009). Therefore, for the purposes of the assessment a local area was defined that could be used for the evaluations at the local scale. This local area was defined as a geographically coherent unit and the total size was roughly equivalent to the size of local areas in other comparable assessments of similar projects.

This submission suggests that a larger local area should have been defined. If this had been done, the evaluation of the habitats and populations within the wind farm site, and the significance of the predicted impacts, may have been downgraded because the wind farm site would have occupied a smaller proportion of the local area.

The local area mapped in Figure 6.3 of the submitted EIAR was not the 'study area' for the ecological assessments in the submitted EIAR and did not restrict the spatial scale of the surveys carried out. The vantage points included viewsheds covering the Gweebarra Estuary, which was outside the local area, while several of the other bird surveys, such as the Golden Eagle survey, extended significant distances outside the local area.

Peatland habitats

A single submission discusses the peatland habitats within and around the wind farm site and criticises various aspects of the evaluation of these habitats and the assessments of potential impacts to them in the submitted EIAR (pp. 58-62 of the submission LDG ref. 063489-23).

The proposed wind farm is located within a large forestry plantation and most of the habitats removed by the development will be conifer plantation (WD4) habitat. While most of the plantation is located on peat soils, there are no plans to restore open peatland habitats in this site. The submitted EIAR can only assess potential impacts to the habitats that currently exist on the site, or which could be reasonably expected to develop on the site over the lifespan of the wind farm.

The evaluation of habitats for the submitted EIAR used the criteria in the National Roads Authority evaluation scheme (NRA, 2009). This evaluation scheme uses a geographic scale as recommended by the *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2019). The NRA evaluation scheme provides the only published criteria for evaluating habitats and species in Ireland and is widely used in ecological assessments for all types of projects (not just road schemes).

The construction of the wind farm will remove a total of around 8.7 ha of open peatland habitats (heath and bog). This is around 0.2% of the total extent of peatland habitats in the

local area, based on the areas classified as peat bogs in the publicly available CORINE landcover mapping[11].

The open peatland habitats that will be removed by the wind farm development are mainly fragmented patches within the forestry plantation along rides and in small clearings. These were evaluated as being of county importance as their fragmented nature meant that they are not "viable areas" as required for higher rankings under the NRA evaluation scheme. The impact of removing these habitats was assessed as a very slight negative impact at the county scale, due to the magnitude of the removal in the context of the amount of the habitat in the local area.

A small area of upland blanket bog will be removed at the southern end of the grid connection route. This is at the edge of a contiguous area of open peatland habitat extending along the ridge from Gaffaretcor to Croaghleheen and down the slopes on the southern and eastern sides of the ridge. Therefore, the overall complex of these habitats can be considered to be a 'viable area', as defined in the NRA Guidelines (NRA, 2009), and qualifies for rating as of national importance. The impact of removing the upland blanket bog habitat along the grid connection route was assessed as a very slight negative impact at the national scale, due to the magnitude of the removal in the context of the amount of the habitat in the local area.

Plant species

A single submission lists 61 plants that they have recorded 'inside and around the proposed wind plant site'. Of these 14 are referred to by imprecise English names that encompass more than one species. The remaining 47 species are mainly common and widespread species. However, they do include three notable species: Field Gentian (*Gentianella campestris*), Frog Orchid (*Coeloglossum viride*) and Heath Cudweed (*Gnaphalium sylvaticum*).

Field Gentian is classified as near-threatened in the Irish Red Data List (Wyse-Jackson et al., 2016). It is not a protected species. It is described as occurring in 'seaside and mountain pastures and damp, sandy places' and as being "frequent near the north and west coasts, rather rare elsewhere; possibly declining" (Parnell and Curtis, 2012). Distribution maps show that it is widespread along the coastline of Donegal, although most records seem to be associated with coastal habitats and there are no records from the 10 x 10 grid squares containing the wind farm site[12].

Frog Orchid is classified as near-threatened in the Irish Red Data List (Wyse-Jackson et al., 2016). It is not a protected species. It is described as occurring in 'heaths, damp pastures and fen margins' and being 'fairly frequent but easily overlooked' (Parnell and Curtis, 2012). It also appears to be widespread along the coastline of Donegal, although most records seem to be associated with coastal habitats and there are no records from the 10 x 10 grid squares containing the wind farm site[13].

Heath Cudweed is classified as endangered in the Irish Red Data List (Wyse-Jackson et al., 2016) and is a protected species. It is described as occurring in 'upland pastures and damp,

[11] National Land Cover Map | Environmental Protection Agency (epa.ie) accessed 24/11/2023

[12] https://bsbi.org/maps?taxonid=2cd4p9h.ynd and https://maps.biodiversityireland.ie/Map, accessed 24/11/2023

[13] https://bsbi.org/maps?taxonid=2cd4p9h.7mm1e8 and https://maps.biodiversityireland.ie/Map, accessed 24/11/2023.

sandy places; mainly in the north' and being "rare and decreasing (Parnell and Curtis, 2012). It appears to have formerly been quite widespread in Donegal, but the most recent records are from 1987-1999[14].

The submission states that Heath Cudweed occurs 'within the proposed site and in the infrastructure buffer zones' but it does not give any details about the location(s) where it occurs or the date(s) when it was recorded. The EIAR noted that 'potential habitat for this species does occur in the infrastructure buffer' but that 'it was not recorded during the detailed habitat and vegetation survey, which was carried out in mid-August, during its flowering period'. It is notable that there are no documented records of this species in Donegal for over 20 years.

The submission also states that 'orchids, mosses and vascular plants, including Shade Horsetail and St. John's Wort are protected under the Flora (Protection) Order 2022'. However, only certain species of orchids, mosses and St. John's-worts are protected, and these do not include any that were recorded in the surveys carried out for the proposed project, or which are reported to occur by the Observer. Shade Horsetail is protected but was not recorded in the surveys carried out for the proposed project or reported to occur by the Observer.

The submission also states that *Sphagnum* moss together with 2 species of bryophytes (mosses and liverworts), and reindeer moss are present on the proposed site and are protected by law from exploitation under Statutory Instruments in the Flora Protection Orders'. *Sphagnum* moss and *Cladonia* lichens (reindeer moss) are not listed in the Flora Protection Order. However, they are listed on Annex V of the Habitats Directive. This annex refers to 'animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures'. Therefore, the listing is not relevant to site protection. The other two species of bryophytes referred to by the submission are not named.

Three submissions state that the EIAR 'completely failed to mention Irish Bryophytes – mosses and liverworts'. Bryophytes were surveyed as part of the survey of the infrastructure buffer and the habitat descriptions in Section 6.3.2 of the EIAR which lists various bryophyte species that were recorded. None of the bryophyte species that were recorded in the infrastructure buffer survey are red-listed or protected species. No details were provided regarding the specific protected bryophyte species but no protected bryophyte species and/or red listed bryophyte species was found to be present in the wind farm site during the extensive surveys conducted.

Freshwater Pearl Mussel

Nine submissions refer to the presence of Freshwater Pearl Mussel populations in catchments in the vicinity of the wind farm site and raise concerns about potential impacts to these populations.

One of these nine submissions states that 'one of the turbine sites and the turbine delivery route watercourses' drains to the Owenea River catchment, which is a Margaritifera Sensitive Area (p. 66). The submission does not specify which turbine site they are referring to. However, as discussed in the EIAR, none of the turbine sites, or other areas within the wind farm site where development of wind farm infrastructure is proposed, drain to the Owenea River catchment, or other catchments with known Freshwater Pearl Mussel populations downstream of the wind farm site (refer Figure 1.1 below sourced from the publicly available mapping on

[14] https://bsbi.org/maps?taxonid=2cd4p9h.7mm3w7, accessed 24/11/2023.

https://www.npws.ie/maps-and-data). All the proposed infrastructure development is within the catchment of the Mulnamin Beg watercourses. These watercourses drain directly from the wind farm site to the Gweebarra Estuary, so there is no potential for Freshwater Pearl Mussel habitat to occur on these watercourses downstream of the wind farm site.

This same submission also states that 'widening the L6363 road would mean potential pollution to the Stranacashel River, a tributary of the Owenea, both Freshwater Pearl Mussel rivers (Gweebarra Conservation Group submission, p. 4)' and that 'proposed road works at Shallogans in the turbine transport route clearly falls within 'the boundary of the Owenea catchment area (Gweebarra Conservation Group submission, p. 66)'. The works referred to are slight widening within the existing curtilage of the road.

This submission also refers to Appropriate Assessment requirements in relation to Freshwater Pearl Mussels and implies that the Natura Impact Statement did not address potential impacts to Freshwater Pearl Mussel Qualifying Interest of the West of Ardara/Maas Road SAC. Section 4 of the Natura Impact Statement considered all the Qualifying Interests of all Special Areas of Conservation within 15 km of the wind farm site, or further than 15 km but with potential impact pathways connecting them to the wind farm site. Section 4.1.2 assessed the potential hydrological connectivity of the wind farm development to impact the Owenea River catchment, which supports the Freshwater Pearl Mussel Qualifying Interest of the West of Ardara/Maas Road SAC. As there were no impact pathways from the wind farm development to this catchment, the Freshwater Pearl Mussel Qualifying Interest was screened out[15].

[15] The Freshwater Pearl Mussel Qualifying Interest was accidentally omitted from Table 4-3 of the Natura Impact Statement, but the relevant screening considerations (hydrological connectivity between the wind farm development and the Owenea River catchment) are covered in the text. Another four Annex II species Qualifying Interests of the West of Ardara/Maas Road Special Area of Conservation that were also screened out were also accidentally omitted from Table 4-3 (*Euphydryas aurinia*, *Vertigo geyeri*, *Najas flexilis* and *Petalophyllum ralfsii*). These were all species for which the Gweebarra Estuary section of the Special Area of Conservation does not contain suitable habitat. Therefore, they were screened out due to the physical separation and lack of hydrological connectivity between the wind farm development and the sections of the West of Ardara/Maas Road SAC to the west of Glenties, which is discussed in the text. All five of these Qualifying Interests were included in Table 4-1 of the Natura Impact Statement.

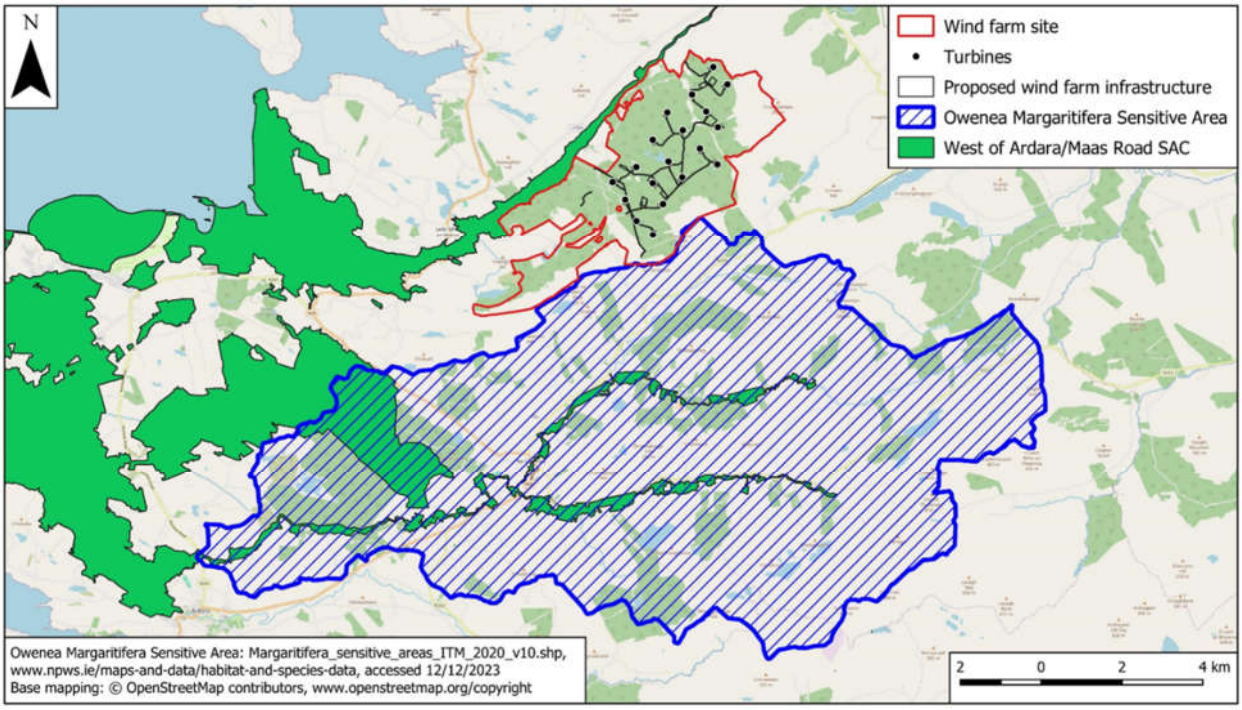


Figure 1.1: The Owenea Margaritifera Sensitive Area and the West of Ardara/Maas Road SAC in relation to the wind farm site and the proposed wind farm infrastructure.

Butterflies and other invertebrates

A submission criticises the EIAR for only mentioning the Marsh Fritillary and not referring to other species of butterflies and moths or other insects and invertebrates (p. 65). A separate submission also criticises the lack of detailed assessment of impacts on insects and invertebrates. In particular, the Gweebarra Conservation Group submission states that 'this is the only area in Donegal where the Silver-washed Fritillary (*Argynnis paphia*) is found in abundance'.

Potential impacts to aquatic invertebrate populations were included in the assessment of impacts to aquatic habitats. Further detail on aquatic invertebrates and aquatic habitats more generally is provided in section 6.3.5.1 and section 6.4.3 of the EIAR respectively.

Due to the small spatial scale at which most invertebrate populations are structured, potential impacts to terrestrial invertebrate populations are usually only relevant where they occur within, or directly adjacent to, the footprint of the development. As stated in the EIAR 'no habitat features that are scarce / rare in the local area, and that are likely to be important for invertebrate biodiversity were recorded in the infrastructure buffer'. Therefore, assessment of potential impacts to other invertebrate species or assemblages was not required.

The Silver-washed Fritillary is a widespread butterfly species that has been recorded from at least 500 hectads in Ireland (NBDC database). It is classified as of least concern in the Irish Red List (Regan et al., 2010). It is generally associated with tall-herb and grassy forest clearings and can also occur in urban parks (Bond and Gittings, 2008). The National Biodiversity Data Centre distribution map shows two concentrations of records in Donegal: one in south / south-west Donegal extending up to Glenties; the other to the north of Letterkenny. Silver-washed Fritillaries are not generally associated with peatland habitats and the open areas within the forestry plantation in the wind farm site are generally not very suitable habitat for this species. More suitable potential habitat occurs in marginal areas along the edges of the forestry plantation where disturbance has created more nutrient-rich soil conditions allowing tall herb vegetation to develop. The wind farm development will open up the forestry plantation and could potentially create additional areas of suitable habitat for this species.

Fish

A submission questions the timing of the fisheries survey and suggests that it was carried out at an inappropriate time for recording eels 'running' and salmon spawning.

Many protected species and habitat surveys are seasonally constrained which means surveys are conducted at certain times of the year when the species are present, active or growing.

The optimal period for freshwater invertebrate survey is between June and August for standing waters (Hill *et al* 2016), and between mid-March and April or September to mid-October for flowing waters (Rosenberg and Resh 1992, Drake *et al.* 2007). The survey season window to conduct fisheries aquatic surveys is generally between June and September as it is non-spawning season and when resident fish will be present within the watercourse, this includes young fry and parr and lamprey ammocete after winter spawning.

Baseline aquatic surveys on the rivers were conducted during base flow conditions as evident in section 6.2.3.2 Aquatic surveys of the EIAR between 20th-22nd of September 2022 and the ecological survey of the Lough Aneans More was conducted on the 18th of August 2022, both conducted within the aquatic survey season. These included surveys such as riverine habitat

survey, fisheries assessment and kick sampling which were all conducted within the watercourse itself. These surveys followed guidelines including Environment Agency's 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (EA, 2003) and the Irish Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000) and Fishery Assessment Methodology (O'Grady, 2006).

Eels and other diadromous fish species such as Sea and river lamprey and salmon, migrate to freshwater habitats. This occurs between early October and late March.

Surveys were conducted during optimal survey windows, outside of the migrating/spawning season as this will not disturb fish during migration and spawning, disturb their habitat (spawning gravels) or damage any possible eggs or alvins that may be present in the watercourse early in the year. It also allows for in-stream macrophyte surveys to be carried out, before they die back in winter.

The study area was defined as surface waters potentially affected by the proposed project, including watercourses within the proposed project site and those downstream. Surveys are conducted known watercourses mapped by the Environmental Protection Agency (EPA)/Ordnance Survey Ireland (OSI).

Due to the topography and nature of the site and proposed turbine locations, the aquatic surveys were carried out on selected assessable streams and rivers nearest the proposed works and downstream. Sites were selected based on their location within and outside the proposed wind farm site boundary, available access, previous Q-Value status from EPA surveys, and stream order, giving a good representation of the overall aquatic ecology throughout the study area.

There was no suitable spawning habitat at any of the survey sites and this is discussed in depth in Section 5.3.1 of Appendix 6-2 of the submitted EIAR.

A submission queries why there was no statement within the EIAR that that there was no sign of European eel. An assessment was made on suitable habitat for this species and it states in Section 5.3.3 of Appendix 6-2 of the submitted EIAR, that many sites were considered sub-optimal or even unsuitable for the species given the often high gradients, high-energy profiles and typically upland nature of the channels.

A submission refers to trout populations in Lough Aneane More and this lake being fished locally for trout (pages 68 and 71 - LDG ref. 063489-23).

While the presence of a trout is not ruled out, based on the site observations, the lakes (Lough Aneane More and Lough Beg and Lough Sallagh) are not suitable for trout. Mitigation measures to manage runoff and sediment are outlined in Chapter 9 (Hydrology and Hydrogeology), Section 9.6 of the submitted EIAR. The lakes were assessed and detailed in Chapter 6 (Biodiversity) of the submitted EIAR.

Amphibians, reptiles and mammals

Several submissions question various aspects of the surveys and assessments of protected amphibian, reptile and mammal species and assert that some of these species are more common in the area than indicated in the EIAR.

The critiques likely partly reflect differences in spatial scales. The surveys for the wind farm project focused on areas where proposed wind farm infrastructure would be located (the

infrastructure buffer) as it is these areas were potential impacts would occur. The observations and comments of one of the submissions appear to be based on a more general assessment of species occurrence in the wider area around the wind farm site.

The Gweebarra Conservation Group submission state that 'there are Otters living along the Gweebarra River and the Gweebarra Estuary between Gweebarra Bridge and Doochary Bridge as well as around the Bay' (p.73). These areas are all over 500 m from the nearest proposed wind farm infrastructure. Similarly, another submission refers to Otters being seen in the Gweebarra River and up to 200 m up a stream on the west bank of the Gweebarra River, which also refer to areas that are over 500 m from the nearest proposed wind farm infrastructure.

A submission also refers to frequently seeing Badgers. However, Badgers generally prefer non-peatland soils, so they are most likely to be seen in marginal areas around the edges of the wind farm site, rather than along the infrastructure buffer in the interior of the wind farm site.

The same submission also criticises the evaluation of the Red Squirrel population as being of county importance. This was a precautionary evaluation given the absence of detailed information on Red Squirrel populations across Donegal. Given the widespread distribution of Red Squirrels in Ireland it is not plausible that the wind farm site could hold 1% or more of the national population, so the choice was between evaluating the population as being of county importance or of local importance. The population was evaluated as being of county importance because the wind farm site holds around 2% of the total extent of potential Red Squirrel habitat in Donegal (Section 7.3.8.5 of the submitted EIAR). The decision to evaluate the population as being of county, rather than local, importance increased the significance of the potential negative impacts to this species assessed in the EIAR.

Other issues

Department of Housing, Local Government and Heritage comments

Two submissions refer to various concerns about biodiversity issues raised in a submission on the project as a result of scoping from the Department of Housing, Local Government and Heritage in August 2021. This submission was a consultation response, which was made before submission of the planning application, and before the Department of Housing, Local Government and Heritage had an opportunity to review the EIAR and Natura Impact Statement. The issues raised in the submission (as detailed in Table 1-4 of the submitted EIAR) were taken into consideration in the design of the further survey work that was carried out after the submission was received and in the preparation of the EIAR and Natura Impact Statement. Most of the issues raised in the August 2021 submission are not raised in the June 2023 submission (See Table 1-4, Chapter 1 of the submitted EIAR) from the Department of Housing, Local Government and Heritage, indicating that these issues were sufficiently addressed in the submitted EIAR and Natura Impact Statement.

Meenmore West Natural Heritage Area

A submission criticises the adequacy of the ecological assessment of the impact of the wind farm on the Meenmore West NHA with particular reference to Flora Protection Order species. While a small section of this Natural Heritage Area extends into the wind farm site, the proposed wind farm infrastructure is over 1 km from the nearest point of the Natural Heritage Area and is in a separate watershed from the Natural Heritage Area. Therefore, there is no

potential for impacts from the wind farm development to habitats and vegetation in the Natural Heritage Area.

Recreation plan

A submission raises concerns about the potential disturbance impact of the proposed recreation plan on wildlife. Fauna such as Red Squirrels, Pine Martens and Red Deer coexist with relatively high levels of recreational usage in many sites in Ireland.

Otter mitigation

A submission criticises the reference to the Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2006) because the 'National Road Authority is not qualified to issue guidance on otters in a wind development. There are no specific guidelines on Otter mitigation for wind energy developments in Ireland. The NRA guidelines are widely accepted as providing the required standards for Otter mitigation in relation to all types of construction work.

Appropriate Assessment screening

A submission criticises the use of impact pathways for Appropriate Assessment screening in the Natura Impact Statement and states that 'this is not the correct test'. The submission then provides some text about the Appropriate Assessment screening process. This text states that 'the possibility of there being a significant effect on the site will generate a need for appropriate assessment'. The identification of impact pathways connecting a project to a Qualifying Interest of a Special Area of Conservation or Special Protection Area is the first step in assessing the possibility of there being a significant effect. If no such impact pathways exist there is no possibility of there being any effects, let alone significant effects. A submission states there is no Table 4-3. This is incorrect. Table 4-3 is included on page 27 of the submitted Natura Impact Statement.

2.8 ORNITHOLOGY

This section of the report addresses concerns raised in relation to Ornithology. The main concerns raised relate to the Golden Eagle, the Whooper Swan, Osprey, birds species recorded by the Gweebarra Conservation Group and other issues which include; survey work, Summer 2022 surveys, Barnacle Goose, Canada Goose, Curlew, Golden Plover, Hen Harrier, Merlin, Gweebarra Estuary flight activity, core foraging ranges, haul routes and second met mast.

Golden Eagle

Golden Eagle population

A number of submissions make statements to the effect that three pairs of Golden Eagles use the wind farm site or breed in the wind farm site, while the submission states that the "wind farm encompasses at least two territories". This is not correct. The wind farm site is entirely contained within the indicative home range mapped for one pair of Golden Eagles. This pair nested, or attempted to nest, at two or three sites within this home range in 2020-2022 (EIAR, Section 7.3.2.3) . All these nest sites were outside the wind farm site, although one site was adjacent to the boundary of the wind farm site (see Table 7.7 in the EIAR).

In 2021, a second Golden Eagle pair was suspected to be holding a territory to the east of the wind farm site. The activity of this pair was focussed around the edge of the 6 km buffer zone used for the Golden Eagle survey, several kilometres from the wind farm site.

In 2022, there were intermittent records of both adult male and adult female Golden Eagles observed to the north-east and south-east of the wind farm site. These birds were thought to be from established territories on the periphery of the 6 km buffer zone.

Forestry management

The Department of Housing, Local Government and Heritage submission refers to the assertion in the submitted EIAR that "the wind farm design has reduced the Golden Eagle collision risk by the placement of all the turbines in forestry habitat, and avoidance of the areas with most suitable topography of Golden Eagle flight activity (areas with high GET scores)". However, the submission then states that "no plans for the future management regime of this forestry, over the 35 year lifetime of the windfarm, has been presented, and therefore and reduction in risk to the eagles cannot be assessed". The submission also states that "the distance of [Golden Eagle] nest sites from forestry plantation and therefore any forestry operations are not presented".

Forestry management plans for the wind farm site

Felling and thinning plans for the forestry in the wind farm site are shown in Figure 2.2-Figure 2.4. It should be noted that these plans refer to the ongoing commercial forestry operations at the wind farm site and are not propsoed as part of the proposed project. The plans are based on a target felling year, or range of felling years, for each managed compartment / sub-compartment in the wind farm site. Thinning will take place throughout the site at various different years according to the yield class. Generally, thinning will take place between 10 and 15 years prior to the indicated felling year. Replanting will take place around two years after each area is felled. Where ranges were given for the felling year the median year was used to produce the felling and thinning plans. There is no felling year specified for some forestry compartments / sub-compartments due to low yield, unsuitable, or Coillte bio-enhancement. These are shown as unmanaged in the maps.

Figure 2.2 shows the potential thinning and felling operations that may take place during the wind farm construction period (2026-2028). Note that, as thinning may take place over a five-year period, the extent of potential thinning operations on this map is likely to overestimate the actual thinning operations that will take place during the construction period.

Figure 2.3 shows the potential distribution of felling operations by five-year periods over the 35-year operational period of the wind farm (2028-2063).

Figure 2.4 shows the potential distribution of thinning operations by five-year periods over the 35-year operational period of the wind farm (2028-2063). As thinning operations may take place over a five-year period, this map uses the median thinning year for each compartment / sub-compartment.

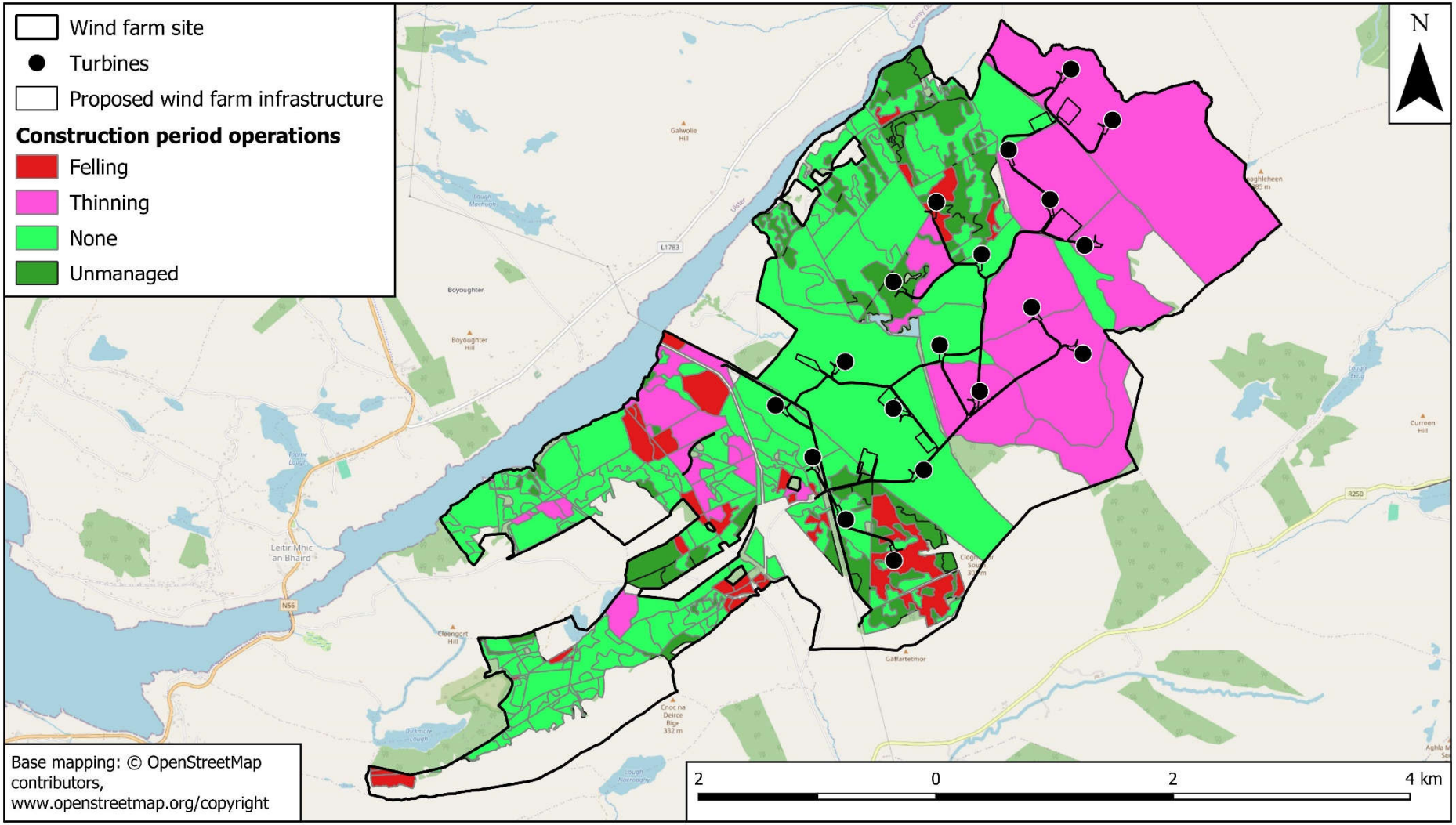


Figure 2.2. Potential forestry management operations during the wind farm construction period (2026-2028).

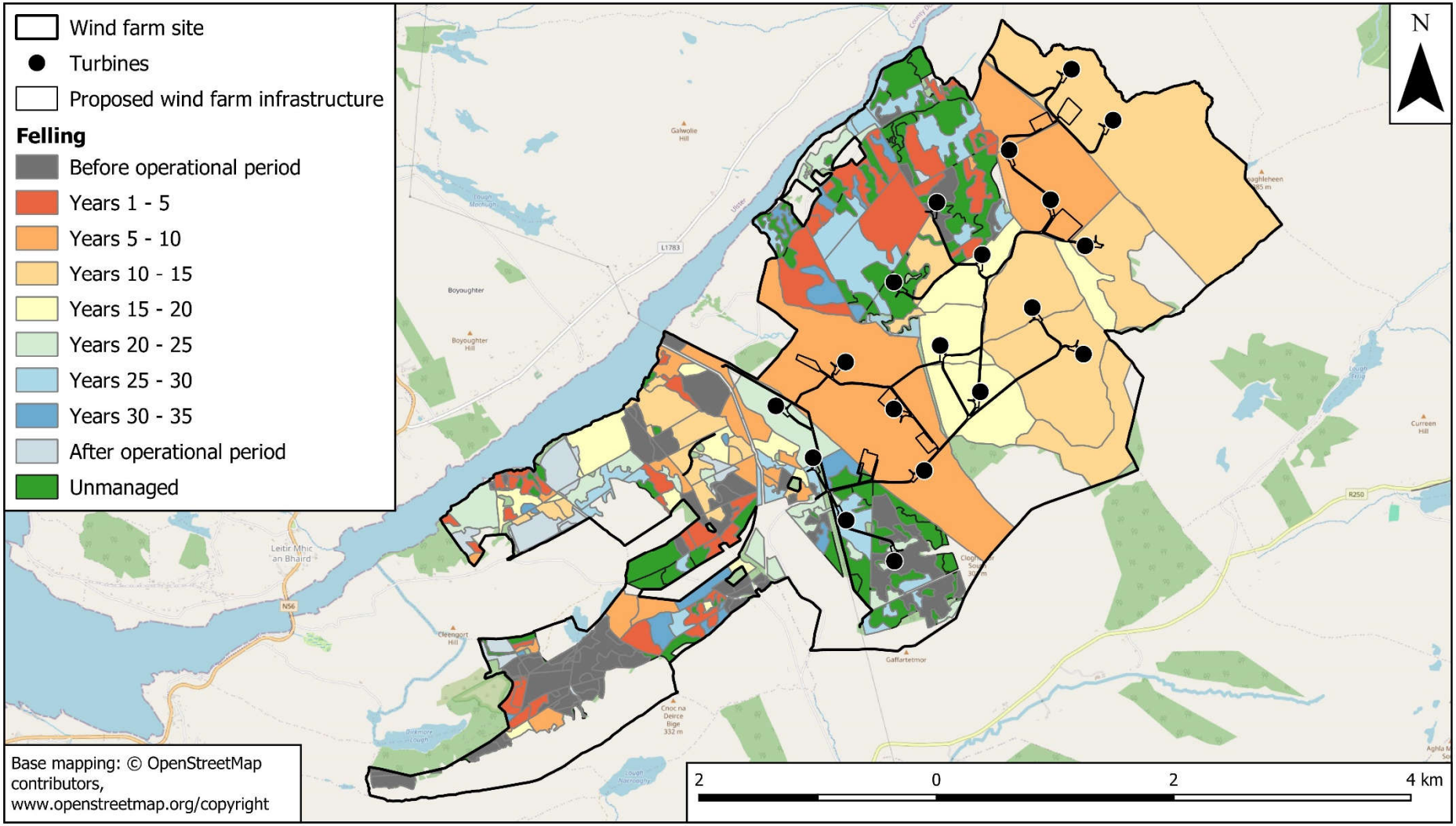


Figure 2.3. Indicative felling plan during the wind farm operational period (2028-2063).

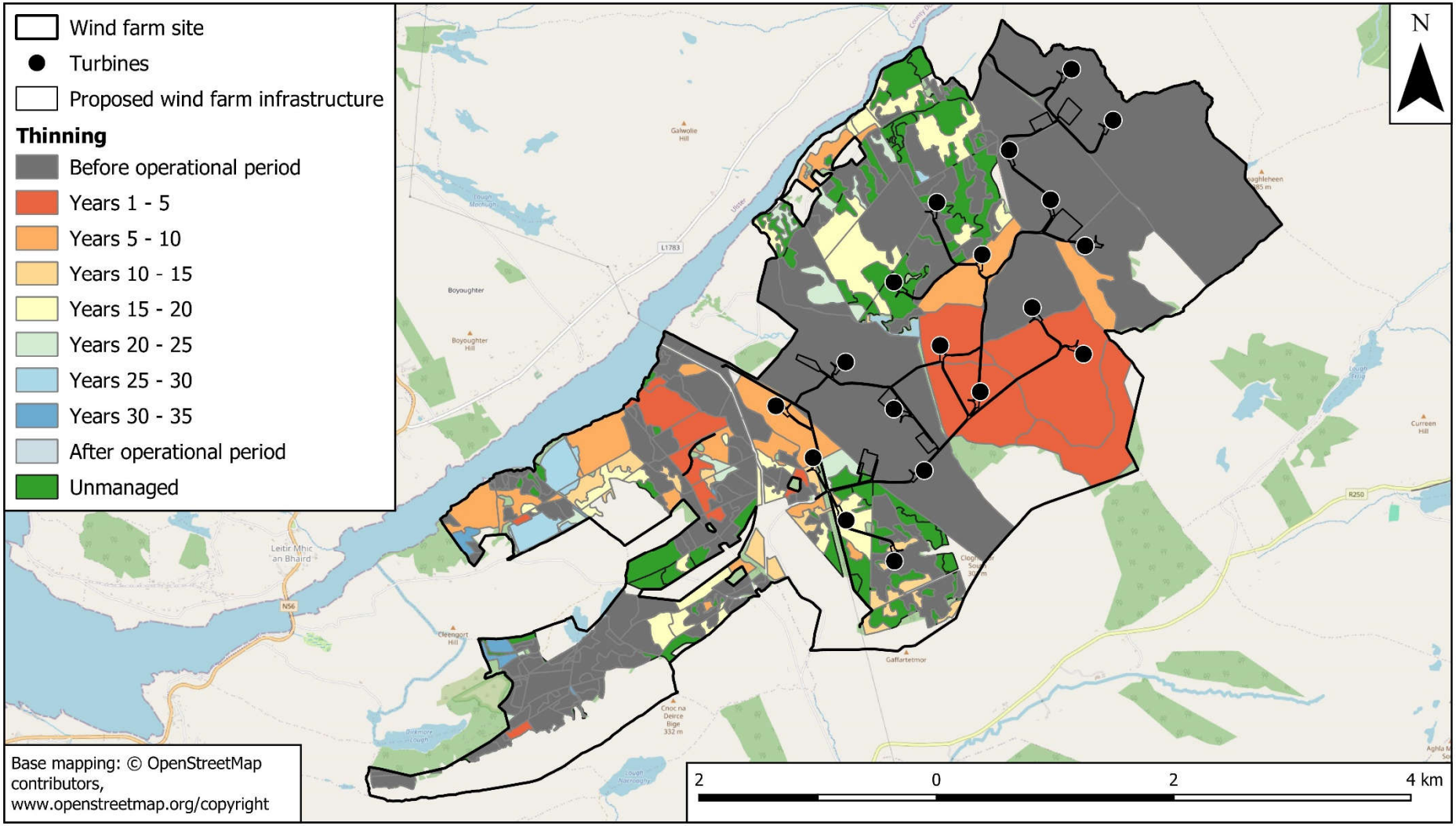


Figure 2.4. Indicative thinning plan during the wind farm operational period (2028-2063).

Effects of forestry management on collision risk

Golden Eagles generally avoid hunting in closed-canopy forestry (Fielding *et al*., 2006). Thinning operations will not remove the canopy, so these operations will not affect the potential suitability of forestry habitats for Golden Eagles. However, clear-felling will remove the canopy, potentially making the forestry more suitable for Golden Eagles. It is possible that Golden Eagles could use clear-felled and/or pre-thicket replanted areas for hunting, particularly if overall prey availability is low. Red Grouse are not likely to occur in clear-felled or pre-thicket second rotation forestry. However, Irish Hares could exploit these habitats, and Golden Eagles could also hunt other potential prey such as young deer in these areas.

Fielding *et al.* (2006) stated that "Golden eagles tend to avoid commercial conifer forests and therefore any effect of displacement of eagles from wind farms will be minimal for proposals in commercial conifer forests". On average, at any one time, around one-third of a forest plantation will have been recently felled or in the pre-thicket stage after replanting. Therefore, Fielding *et al.*'s statement implies that Golden Eagles generally don't make significant use of such habitats for hunting. This is supported by a radio-tracking study of Golden Eagles in Scotland, which found the relative use of low-scrub / pre-thicket forest to be only marginally higher than post-thicket coniferous woodland and over five times lower than the most preferred open habitats (McGrady *et al.*, 1997). No observations of Golden Eagles hunting in clear-felled or/ pre-thicket forestry have been reported by personnel involved in carrying out bird surveys for the proposed project[16].

Site-specific details about the implementation of felling operations may also affect Golden Eagles use of clear-felled and/or pre-thicket replanted areas. In particular, where such areas are contiguous with open areas of Golden Eagle habitat and are in areas with suitable topography for Golden Eagle flight activity, retained patches of mature trees within the felled areas may be used as perches by the eagles.

In the wind farm site, there are large areas of forestry that are scheduled for felling during years 5-20 of the operational period, and these areas contain 13 turbine locations (Figure 2.3). Most of these areas are contiguous with areas of open Golden Eagle habitat along the southern and eastern edges of the wind farm site, so there may be an increased probability of eagle flight activity close to the turbines after felling. There may, therefore, be higher risks of Golden Eagle collisions at these turbine locations (see Figure 1.3) during the period after felling until canopy closure[17], compared to the risks before felling and after canopy closure post-felling.

While the effects of clear-felling may result in an increase in relative risk at particular turbine locations, they are not predicted to materially affect the predicted Golden Eagle collision risk as reported in the submitted EIAR (EIAR Appendix 7.7). The spatially structured models used to calculate Golden Eagle transits for the collision risk model were based on altitudinal bands and the topographical suitability calculated from the Golden Eagle topography model, and did not include the presence or absence of forestry as an explanatory variable. The calculation of the predicted collision risk used the recommended avoidance rate from SNH (2018). This avoidance rate was based on a review by Whitfield (2009) of Golden Eagle collision fatality

[16] Information supplied by Jamie Bliss, Michael Hogan, David Miley, Daniel Moloney, Conor Ryan and John Sherry.

[17] Canopy closure refers to the point in the forest rotation when the trees have grown sufficiently such that there are no significant gaps in the canopy.

rates at four wind farms in North America, all of which were located in open habitats. The recommended avoidance rate of 99% for Golden Eagle is described by Whitfield (2009) as "a precautionary estimate". Avoidance rates are likely to be higher when there is a habitat factor, such as the presence of closed-canopy forestry, that reduces the suitability of the area around the turbines for Golden Eagle. Therefore, the use of the 99% avoidance rate for the Cloghercor Wind Farm collision risk model is likely to overestimate the collision risk at turbines surrounded by closed-canopy forestry, and the collision risk model did not include any additional avoidance factor to reflect reduced risk due to placement of turbines in forestry.

In conclusion, forestry management operations may affect the relative collision risk at individual turbine locations over the lifespan of the wind farm. However, Golden Eagle avoidance of closed-canopy forestry was not included in the design and implementation of the collision risk model. Therefore, the details of the forestry management of the wind farm site will not significantly affect the predicted Golden Eagle collision risk reported in the submitted EIAR.

Effects of forestry management on Golden Eagle nests

The distances of the nearest forestry plantations from the three Golden Eagle nest sites / suspected nest sites discussed in the submitted EIAR are shown in Table 2.1. The potential impacts of forestry management operations in the wind farm site on Golden Eagle occupancy of these nest sites are discussed below. Note that, for the same reasons as discussed in Section 7.3.2.3 of the submitted EIAR , specific details of the nest site locations, or information which could be used to infer the nest site locations (such as timing of forestry management operations), are not included. This information can be presented as a confidential annex to the Board and relevant statutory consultees on request.

Table 2.1 Distances of Golden Eagle nest sites from the nearest forestry plantations in the wind farm site and outside the wind farm site.

Nest site	Distance from	
	Wind farm forestry plantations	Other forestry plantations
2020	170 m	600 m
2021	1600 m	110 m
2022	750 m	380 m

The 2020 nest site is adjacent to the wind farm site and within 200 m of the nearest forestry plantations in the wind farm site. Forestry management operations will take place in the forestry compartments adjacent to this nest site during the lifespan of the wind farm. Therefore, there is potential for Golden Eagle occupancy of this nest site to be disturbed by forestry management operations. Annual breeding Golden Eagle surveys will be carried out throughout the construction and operational periods of the wind farm (see Sections 7.5.1 and 7.5.2 of the submitted EIAR).

Felling licences for forestry management operations are administered by the Forest Service. All activities associated with a felling licence have to comply with the Forest Biodiversity Guidelines (Forest Service, 2000). These guidelines require that that all forest operations should be planned "with due regard to the breeding nesting seasons of important species". To comply with Forest Biodiversity Guidelines, forestry management operations within the wind farm site should be planned to avoid disturbance to any occupied Golden Eagle nest sites. This

will generally mean avoiding carrying out thinning and felling within 1.5 km of the 2020 nest site in years when the site its occupied. However, in some cases where the proposed thinning or felling area is not visible from the nest site (due to topography) it may be possible to carry out operations within the 1.5 km buffer, subject to an assessment of the potential disturbance effects.

The suspected 2021 nest site is over 1.6 km from the nearest forestry plantation in the wind farm site, and that forestry plantation is not visible from the nest site. Therefore, forestry management operations within the wind farm site will not affect any Golden Eagle occupancy of this nest site.

The 2022 nest site is around 750 m from the nearest forestry plantation in the wind farm site. While this is within the potential disturbance distance of 1500 m, the nest site is separated by a steep ridge from the forestry and the forestry is not visible from the nest site. Therefore, forestry management operations within the wind farm site are not likely to affect Golden Eagle occupancy of this nest site.

Nest disturbance

The Department of Housing, Local Government and Heritage submission refers to the disturbance of the Golden Eagle nest site in the south-western part of the survey area in 2022. This is also referred to in two further submissions , which both state that this was due to the installation of a thermal spectrum camera and light on the met mast in March 2022.

The 2022 Golden Eagle nest site was over 5 km from the met mast. Therefore, activity at the met mast would not have had any effect on the Golden Eagles using the nest site. In any case, as documented in the submitted EIAR, the disturbance impact to this nest in 2022 was witnessed during the Golden Eagle survey on 29th March 2022 when two men and two dogs approached the nest site and the dogs were sent to retrieve sheep from under the nest ledge (EIAR Appendix 7.5, pp. 5-6).

One of the two further submissions also questions the evidence for the Golden Eagles being disturbed by “farmers with quads and dogs” (p. 86). This appears to be a reference to an observation on 22/03/22 at VP EA-B in Table A7.5.4 of the submitted EIAR Appendix 7.5. This observation refers to the presence of “2 farmers on quads and 3 dogs in the vicinity of the 2020 nest site gully” but does not state that it resulted in direct disturbance of any Golden Eagles (there were no Golden Eagle flightlines recorded from that vantage point on that date).

Commuting routes

Satellite tracking maps

The Department of Housing, Local Government and Heritage submission states that “the Gweebarra River Valley is a vital commuting route as shown by Golden Eagle satellite tracking maps”. The map referred to in the footnote accompanying this statement shows the movement of two Golden Eagles in 2005 shortly after their release as part of the re-introduction programme. Therefore, it is of limited relevance to assessing movement patterns in the established Golden Eagle population nearly 20 years later. The map shows two clusters of registrations: one in the Glenveagh area and one in the Glencolumbkille / Slieve Toohey area. The nearest registration to the wind farm site was around Doochary and there were no registrations in the wind farm site. The submitted EIAR contains detailed analyses of the patterns of Golden Eagle flight activity around the wind farm site (EIAR Section 7.3.2.3)

Factors influencing commuting routes

The Department of Housing, Local Government and Heritage submission discusses factors that might influence Golden Eagle flight activity and commuting routes and states that "local topography and weather are factors that need consideration as Golden Eagle and other birds' perception of the landscape would be expected to change with the proposed large turbine structures protruding above the forestry and likely covered in low cloud".

The submitted EIAR (Section 7.3.2.3) contained detailed analyses of the patterns of Golden Eagle flight activity around the wind farm site in relation to local topography. These were based on flight activity data collected during vantage point surveys over a period of three years with surveys carried out under a wide variety of weather conditions.

The analyses in the submitted EIAR showed that the Golden Eagle flight activity was strongly associated with higher altitudes and with areas that had high scores in the Golden Eagle Topography model. The Golden Eagle Topography model (Fielding *et al.*, 2020) and is widely used in Scotland to assess Golden Eagle flight activity patterns. It has been described in peer-reviewed publications and has been used in subsequent peer-reviewed publications (e.g., Fielding *et al.*, 2022) to provide covariables in analyses of Golden Eagle distribution patterns. The Department of Housing, Local Government and Heritage submission does not make any specific criticism about the use of the Golden Eagle Topography model, nor the other analyses of Golden Eagle flight activity contained in the submitted EIAR.

The Golden Eagle Topography model uses topographical features as surrogates for the distribution of orographic uplift (Fielding *et al.*, 2020). Orographic uplift refers to the generation of rising air currents by wind striking rising terrain. As part of the work for the submitted EIAR, modelling of orographic uplift was also carried out using methods based on Hanssen *et al.* (2020). This produced similar distribution patterns of areas that are likely to be preferred by Golden Eagles to the Golden Eagle Topography model. However, the results are more complex to report as multiple maps would be required to show orographic uplift under different conditions of wind direction and wind speed. As the results from the Golden Eagle topography model and the orographic modelling were similar, the results from the Golden Eagle topography model were used in the submitted EIAR.

As discussed in the submitted EIAR, the presence of turbines is likely to affect Golden Eagles' perception of the landscape and result in Golden Eagles avoiding the interior of the area occupied by turbines (EIAR Section 7.4.2). However, the Golden Eagle flight activity was concentrated along the ridges outside the area occupied by turbines, and the avoidance effect only appears to extend a short distance out from the outermost turbines (Fielding *et al.*, 2022). Therefore, the construction of turbines in the wind farm site is not likely to significantly affect the suitability of the main commuting routes used by Golden Eagles around the wind farm site.

Collision risk

The Department of Housing, Local Government and Heritage submission states that as the submitted EIAR does not include information on the future management regime of the forestry in the wind farm site the reduction in collision risk from the placement of turbines in the forestry cannot be assessed. As discussed under Forestry Management, the collision risk model in the EIAR did not factor in any reduction in collision risk from the placement of turbines in the forestry cannot be assessed.

Two submissions refer to various papers and reports documenting Golden Eagle and other raptor species colliding with turbines. They state that the submitted EIAR should have referred to these sources and provided "real data" on the collision risk. It is not disputed that Golden Eagle collisions with turbines can occur. The issue that is addressed in the submitted EIAR is the risk of such collisions occurring with the development of the proposed project. The collision risk model presented in the submitted EIAR provides precautionary predictions of the collision risk to Golden Eagles and other sensitive species. The above submissions do not make any specific criticisms of the methodology used for the collision risk modelling.

Golden Eagle Population Model

The Department of Housing, Local Government and Heritage submission states that "the productivity rate of the Golden Eagles over the next 10 years will have a key impact on whether this small population becomes viable or not" and goes on to say that "the importance of the five Donegal productive home ranges should be acknowledged in the continued survival of the National Golden Eagle population".

The Golden Eagle Population Model presented in the submitted EIAR explicitly included the productivity of the Irish Golden Eagle population as a parameter in modelling the growth of the population in relation to the impact of collision mortality. The modelling included assessment of a precautionary doubling of the worst-case predicted collision risk to allow for the uncertainty that is inherent collision risk modelling. The collision risk modelling included a correction factor for under-detection of distant flightlines which increased the predicted collision risk by a factor of around 1.6. Variants of the collision risk model were also examined that excluded data from the 0-250 m distance band around each vantage point and excluded data from 2020, due to potential biases associated with these factors. Therefore, the assessment of the potential impact of the predicted collision risk on the growth of the Irish Golden Eagle presented in the submitted EIAR can be considered to be a precautionary assessment.

A single submission criticises the use of the Golden Eagle Population Model in the submitted EIAR on the basis that it is "guesswork" and for assuming a "1:1 sex ratio and equal levels of flight activity by males and females". As discussed in the submitted EIAR, the Golden Eagle Population Model is an established model that is widely used in Scottish wind farm assessments. The assumption of a 1:1 sex ratio and equal levels of flight activity by males and females is standard practice in the implementation of the Golden Eagle Population Model in those assessments.

Another submission criticises the assessment in the submitted EIAR that the predicted effect on the predicted collision risk on the modelled growth rate of the Irish Golden Eagle population was not considered a significant impact. This assessment was based on comparisons with the interpretation of effects on modelled growth rates in Scottish wind farm assessments. For the reasons discussed in Section 7.4.2.6.4 of the submitted EIAR, the effect on the predicted collision risk on the modelled growth rate of the Irish Golden Eagle population reported was likely to overestimate the likely effects on the Irish Golden Eagle population.

Potential nest sites

The Department of Housing, Local Government and Heritage submission notes that no assessment of potential Golden Eagle nest sites within the Golden Eagle indicative home range was presented in the report. Based on the Golden Eagle survey carried out in 2022 (Appendix

7.5 of the submitted EIAR) and a repeat of this survey carried out by the same survey team in 2023, the only potential Golden Eagle nest sites identified in the indicative home range are the occupied nest sites described in the submitted EIAR.

Some Golden Eagles in Scotland nest in spruce trees at the edges of forestry plantations. These are usually older trees that have been retained beyond commercial maturity, or trees where growing conditions have allowed development of a more open structure. Recently, a similar Golden Eagle nesting attempt in a spruce tree has been reported from Donegal. Tree nesting by Golden Eagles can be encouraged by pruning of potentially suitable trees to provide suitable openings, and/or provision of artificial nests.

Data presentation

A single submission criticises the presentation of data on Golden Eagle flight activity in the submitted EIAR and implies that there was "a deliberate level of murkiness" in the way the data was presented. In particular, the submission criticises the use of recording rates, the presentation of maps of flightline densities, and the graphical analyses of flightline density in relation to altitude and suitable topography. The submission also criticises the editing of the Golden Eagle survey reports.

The rationales for these data presentation choices are presented below.

These methods of data presentation helped to account for potential biases that could affect the interpretation of the data (such as uneven survey effort across vantage points). They also illustrated some of the key patterns in the data that helped to inform the development of spatially structured Golden Eagle collision risk models. Without their inclusion, the submitted EIAR would have been less informative and the rationale behind the impact assessment would have been less clear.

Recording rates

The number of records of Golden Eagles (or any species) generated by a survey is a function of both the activity of the birds and the survey effort. Therefore, simply quantifying the number of records without accounting for survey effort does not tell you very much. This is particularly so when there is variable effort between seasons and/or when the survey effort was more than the SNH minimum requirement (both of which were the case for the Cloghercor Wind Farm project).

The use of recording rates is a way of standardising the number of records to take account of the survey effort. The recording rates were calculated by dividing the number of records by the total number of survey hours across all vantage points within the relevant time period. Because the recording rate per hour is generally a very small number, for presentation the recording rates were scaled up so that they were usually greater than one. The monthly recording rates were scaled up to rates per 36 hours because this represented the standard effort of six hours per month per vantage point for six vantage points (see footnote to Table 7.4). The seasonal recording rates were scaled up to rates per 216 hours because this represented the standard effort of six hours per month per vantage point across six months for six vantage points.

In the examples quoted in this submission:

- The recording rate of 24.09 in 2019/20 means that the number of records represented a rate of 24.09 records over 216 hours of vantage point watches.

- The recording rate of 9.43 in the 2020 breeding rate represented a rate of 9.43 records over 216 hours of vantage point watches.

Flightline density map

It is standard practice in wind farm EIARs to include maps showing all the flightlines recorded in the vantage point surveys. The submitted EIAR includes these maps in Appendix 7.3 of the Ornithology chapter. Contrary to the statement in this submission, this appendix includes maps of all the Golden Eagle flightlines. However, due to the number of flightlines, the Golden Eagle flightlines have to be shown on seven separate maps to allow individual flightlines to be distinguishable. This makes interpretation of overall patterns of Golden Eagle flight activity difficult.

Variations in survey effort also complicate the interpretation of the flightline maps. There were differences between vantage points in the total number of hours surveyed. There was also spatial variation in survey coverage across the site because of overlapping viewsheds. This means that some areas were covered by surveys from multiple vantage points, while other areas were only covered by surveys from a single vantage point.

The flightline density map integrates all the Golden Eagle flightline records on to a single map and accounts for variation in survey effort. The densities are the total length of Golden Eagle flightlines mapped in each grid square divided by the weighted total viewshed area. The latter is the sum of the sections of each viewshed overlapping the grid square weighted by the survey effort in each viewshed.

The simple way to interpret the flightline density map is that the grid squares with darker colours had higher levels of Golden Eagle flight activity.

Graphical analyses

The graphical analyses presented in the submitted EIAR are a scatter graph showing the distribution of Golden Eagle flightline densities by 10 m altitudinal bands, and a boxplot showing the distribution of Golden Eagle flightline densities by distance from the vantage points divided into three classes of Golden Eagle Topography model scores.

The graph types chosen were those that were was most appropriate for the nature of the data. As it was appreciated that boxplots may not be a familiar type of graphical analysis for general readers, a footnote was included explaining how to interpret a boxplot.

These analyses show important patterns in the data that helped to interpret how Golden Eagles used the wind farm site and informed the development of the collision risk model.

The strong association of Golden Eagle flight activity with higher altitudes and areas with high Golden Eagle Topography model scores helped in the selection of turbine locations that reduced the potential collision risk. These associations were also used to develop spatially-structured collision risk models that accounted for variation in Golden Eagle flight activity across the site.

The relationship between flightline density and distance from the vantage point was used to assess whether an avoidance effect resulted in reduced flight activity close to vantage points, and also to provide a further assessment of the effects of distance from the vantage point on detection rates. Based on these analyses, variants of the collision risk model were investigated

which excluded data from the 0-250 m distance band around each vantage point and excluded data from 2020.

Golden Eagle survey reports

The reasons for the editing of the Golden Eagle survey reports are fully explained in the submitted EIAR.

The report on the 2020 and 2021 surveys was compiled by Tom Gittings from draft material, monthly survey updates, and survey data supplied by Nicholas Duff (Environmental Impact Assessment Report Appendix A7.4.1).

The submitted EIAR is a public document. Due to the sensitivity of the Irish Golden Eagle population, specific information on the location of Golden Eagle nest sites, and information that could be used to derive the location of the nest sites, could not be included in the submitted EIAR. Therefore, sensitive information was redacted from both Golden Eagle survey reports.

Construction mitigation

A single submission states that there will be no "mitigation factors during the construction phase that will prevent detrimental impact" to Golden Eagle breeding habitat. It also states that that "no proper study" was carried out on the suitability of the Golden Eagle Habitat Management Plan area for breeding Golden Eagle, Red Grouse or "mountain hare".

The proposed wind farm infrastructure is located within the forestry plantation, so the direct construction impacts on Golden Eagle breeding habitat will be negligible. Mitigation measures to prevent disturbance to breeding Golden Eagle during the construction phase are described in Section 7.5.1 of the submitted EIAR. Section 7.5.3 provides an assessment of the suitability of the Golden Eagle Habitat Management Plan lands.

Natura Impact Statement

A single submission states that the Golden Eagle "is not mentioned in the Natura Impact Statement except in reference to an appendix and the fact that it feeds on Lepus timidus hibernicus (the Isish Hare)" (sic). The role of the Natura Impact Statement is to assess potential impacts on habitats and species that are Qualifying Interests of Special Areas of Conservation and Special Protection Areas. The Golden Eagle is not a Qualifying Interest of any Irish Special Protection Area.

Whooper Swan

A submission states that Whooper Swan was not recorded in the bird surveys carried out for the proposed project (p. 86 of the Gweebarra Conservation Group).. There were 21 records of Whooper Swan during the vantage point surveys and a further two records in the Golden Eagle surveys (Section 7.3.2.1 of the submitted EIAR).

The Department of Housing, Local Government and Heritage submission comments that 'no mitigation measures are proposed in the EIAR for [the predicted collision risk to] Whooper Swan crossing the wind farm site'.

As noted in Section 7.3.2.1 of the submitted EIAR, the Whooper Swan flightlines recorded in the vantage point surveys were not associated with a discrete local population, but instead were primarily focused on birds on direct migration. As Whooper Swans migrating through

Donegal in spring and autumn may be wintering anywhere in Ireland, the only relevant scale at which to consider the significance of the collision risk is the national population.

The predicted collision risk in the submitted EIAR (Section 7.4.1) would result in a negligible increase of 0.04-0.06% to the annual mortality rate to the Irish wintering Whooper Swan population.

The predicted collision risk included a correction for detectability effects (which increases the risk by a factor of around 1.6). This should be taken into account when comparing this collision risk with collision risks from other wind farm projects (which generally may include correction for detectability effects).

The predicted increase in mortality rates overestimated the likely increase as it did not take account of juvenile birds, which have higher annual background mortality rates.

As no significant impacts were identified, mitigation measures are not required.

Osprey

A submission states that the 'only breeding Osprey in Donegal, if not in Ireland, are here in the Gweebarra Valley'.

Osprey is a scarce migrant in Ireland that occurs on spring and autumn passage. In 2023, news was announced of Ospreys nesting in Fermanagh, which was described as the first breeding record for over 200 years[18].

As reported in the submitted EIAR, Ospreys were recorded in the vantage point surveys carried out for the proposed project in the summers of 2020 and 2021. No evidence of Osprey breeding activity was recorded in the surveys reported in the submitted EIAR.

As Osprey does not have an established breeding population in Ireland, it is not a Qualifying Interest of any Special Protection Area in Ireland. Therefore, this explains why there is no reference to Osprey in Table 4-4 of the Natura Impact Statement is not relevant to the proposed project.

Bird species recorded by the Gweebarra Conservation Group

The Gweebarra Conservation Group submission (pp. 64 and 81) lists various bird species that they have recorded in and around the wind farm site. Most of the waterbird and raptor species listed were recorded during the surveys for the proposed project and their occurrence patterns are assessed in the submitted EIAR (see Section 7.3 of Chapter 7 of the submitted EIAR).

Some of the species listed by the Gweebarra Conservation Group submission are described as bird species that "use the site for breeding during summer". Some of these (Peregrine, Great Black-backed Gull, Lesser Black-backed Gull and Herring Gull (see Section 7.3.2.6, 7.3.4.7, 7.3.4.5 and 7.3.4.6 respectively of Chapter 7 of the submitted EIAR)) were regularly recorded during the bird surveys carried out for the proposed project, but no evidence of breeding was found. In the cases of the gull species, breeding in this area would be unlikely (Lesser Black-backed Gull and Herring Gull) or very surprising (Great Black-backed Gull) given their known

[18] https://www.ulsterwildlife.org/news/ospreys-breed-ireland-first-time-over-200-years#:~:text=Ospreys%20are%20thought%20to%20have,Scotland%20their%20UK%20breeding%20stronghold; accessed 28/11/2023

Irish distribution patterns and breeding habitats. The only gull species recorded breeding in the wind farm site by the Cloghercor Wind Farm bird surveys was Common Gull, which is not listed in the Gweebarra Conservation Group submission. The other two species listed as breeding by the Gweebarra Conservation Group submission (Common Tern and Iceland Gull) were not recorded in the Cloghercor Wind Farm bird surveys. As with the gull species above, breeding by Common Tern in this area would be unlikely given its known Irish distribution patterns and breeding habitats. Iceland Gull is a scarce winter visitor to Ireland and has never been recorded breeding in Ireland. In fact, the only Iceland Gull breeding record in the two European Breeding Bird Atlas surveys was from the Novaya Zemlya Archipelago in European Russia (Keller et al., 2020).

Other notable species listed by the Gweebarra Conservation Group submission, which were not recorded in the bird surveys reported in the submitted EIAR, are Black-throated Diver, Dunlin, Barn Owl and Ring Ouzel.

Black-throated Diver is a winter visitor to Ireland. The main centre of its wintering population is Galway Bay, and it is also regularly recorded in Donegal Bay. It is generally a scarce and irregular species elsewhere in Ireland. Great Northern Divers and Red-throated Divers are much more widespread and numerous wintering visitors to Ireland. Great Northern Divers often occur in estuarine habitats and were recorded from the Gweebarra Estuary during the Cloghercor Wind Farm bird surveys.

Dunlin is a rare breeding species of upland and machair habitats in Ireland but is a widespread winter visitor to estuarine areas around Ireland. It was not recorded breeding in the hectad containing the wind farm site in any of the three breeding bird atlas surveys (Sharrock, 1976, Gibbons et al., 1993, Balmer et al., 2003). In the most recent breeding bird atlas survey (Balmer et al., 2003), the nearest breeding records were from hectad B70 (Trawengah Bay) and B91 (Derryveagh Mountains). It was not recorded in any of the proposed project bird surveys. Dunlin breed in open moorland and grassland habitats and none of the proposed wind farm infrastructure is located within, or close to, potential Dunlin breeding habitat.

Barn Owl is a scarce breeding species in Ireland. It was red listed in Birds of Conservation Concern in Ireland (Gilbert et al., 2021) due to large declines in its population. However, in recent years it has been increasing due to the expanding population of the introduced Greater White-toothed Shrew (*Sorex minutus*). The results of the three breeding bird atlas surveys show that it is largely absent from west Donegal (Sharrock, 1976, Gibbons et al., 1993, Balmer et al., 2003). In the most recent breeding bird atlas survey (Balmer et al., 2003), the only records in west Donegal were from hectads B93 (Falcarragh) and G77 (Killybegs).

Ring Ouzel is a summer visitor to Ireland. It breeds in montane habitats but is now a very rare breeding species in Ireland. It is more widespread on migration when it is regularly recorded from coastal headlands. It was recorded breeding in the hectad containing the wind farm site in the second breeding bird atlas survey (Gibbons et al., 1993). In the most recent breeding bird atlas survey (Balmer et al., 2003), the nearest breeding records were from hectads B91 (Derryveagh Mountains) and G98 (Blue Stack Mountains). It was not recorded in the bird surveys reported in the submitted EIAR. During bird surveys carried out after submission of the EIAR, a Ring Ouzel was recorded at VP1 on 27/07/2023; due to the lack of earlier records this is considered to refer to a migrant bird. Ring Ouzel breed in open montane habitats and none of the proposed wind farm infrastructure is located within, or close to, potential Ring Ouzel breeding habitat.

The Gweebarra Conservation Group submission also states that the 'endangered Northern Bullfinch (red list) has been observed in numbers in this part of Donegal in recent years' The Bullfinch (*Pyrhulla pyrhulla*) is a widespread and common species in Ireland. It is green-listed in Birds of Conservation Concern in Ireland (Gilbert et al., 2021) and its population has shown an increasing trend in recent years[19]. The Bullfinches in Ireland, along with British Bullfinches, have been classified as a separate subspecies (*pileata*) from those in continental Europe. The Northern Bullfinch is the subspecies (*pyrhulla*) that occurs across most of northern Europe. This subspecies occasionally makes irruptive movements, which result in influxes to areas outside its normal range, including Ireland (e.g., Pennington, 2006). The Northern Bullfinch was not assessed separately in Birds of Conservation Concern in Ireland (Gilbert et al., 2021). The European and global populations of Bullfinches have been assessed as of least concern (BLI, 2021, 2023) indicating that Northern Bullfinches are not considered to be threatened at international scales.

The submitted EIAR provides a detailed assessment of the survey findings from the proposed project site and surrounds. The submission findings summarised above are noted, however do not provide information that materially changes the findings of the submitted EIAR.

Other issues

Two submissions refer to various concerns about ornithological issues raised in a submission from the Department of Housing, Local Government and Heritage in August 2021. This submission was a consultation response, which was made before submission of the planning application, and before the Department of Housing, Local Government and Heritage had an opportunity to review the EIAR and Natura Impact Statement. The issues raised in the submission were taken into consideration in the design of the further survey work that was carried out after the submission was received and in the preparation of the EIAR and Natura Impact Statement. Most of the issues raised in the August 2021 submission are not raised in the June 2023 submission from the Department of Housing, Local Government and Heritage, indicating that these issues were adequately addressed in the EIAR and Natura Impact Statement.

Survey work

The Gweebarra Conservation Group submission criticises the bird surveys due to them 'being carried out when it is raining or with an unleashed terrier dog'.

The objective of vantage points is to provide representative samples of flight activity. Therefore, it is important that vantage point surveys cover a range of weather conditions, subject to there being adequate visibility of the area being surveyed. This is acknowledged in the guidance (SNH, 2017) which states that vantage point surveys 'can be undertaken on showery days providing showers are not too frequent or prolonged'.

One of the bird surveyors was accompanied by a small border terrier dog on some surveys, which did not interfere with the survey. He was typically not on a leash but was very obedient and very old and did not stray far from the surveyor.

[19] Countryside Bird Survey data: https://c0cre470.caspio.com/dp/4bae30004ae8cd29333b46b2910b; accessed 28/11/2023.

Summer 2022 surveys

The Gweebarra Conservation Group submission refers to apparent discrepancies about whether or not summer bird surveys were carried out in 2022 (p. 84). As stated in Section 7.2.3.2 of the submitted EIAR, surveys were carried out in summer 2022, but, due to data processing time requirements, the assessments presented in the EIAR were mainly based on the data from the first five seasons (winter 2019/20 – winter 2021/22), although the Golden Eagle data from the sixth season (summer 2022) was included.

Barnacle Goose

A submission states the screening out of the Barnacle Goose Qualifying Interest of the Inishkeel SPA, saying that 'the fact that a Barnacle Goose was recorded overflying the site, must be interpreted that the wind turbines may have an effect'. There was a single record of Barnacle Goose during one vantage point watch in October 2020. Barnacle Goose was screened out in Section 4 of the Natura Impact Statement because the lack of regular flight activity across the site, or regular use of habitats in the vicinity of the site, meant that there was no possibility of a significant effect. Barnacle Goose was included in the collision risk model and the predicted collision risk was 0.0005 collisions/year (Table 7-16 of the submitted EIAR).

Canada Goose

A submission states that 'flocks of Canada Goose migrate to the area each year'. Canada Goose is a scarce species in Ireland with a small population that has become established by escapes from wildfowl collections as well as rare occurrences of vagrant birds from North American populations. Canada Goose was not recorded in any of the bird surveys carried out for the proposed project and there do not appear to be any documented records indicating regular occurrence in this area. In any case, as a species that only has a feral population established in Ireland, it is not of nature conservation significance (see Section 7.3 of Chapter 7 of the submitted EIAR).

Curlew

A submission states that Curlew were 'found in large numbers' while another submission states that the 'woodlands and bogs' in the wind farm site are "homes for … Curlew'. Curlew were not found in large numbers and did not occur in the woodlands and bogs. Curlew were recorded in small numbers in the Gweebarra Estuary but there were no records away from the Gweebarra Estuary. The Gweebarra Estuary records were all in the non-breeding season (see Section 7.3 of Chapter 7 of the submitted EIAR).

Golden Plover

The Gweebarra Conservation Group submission states that Golden Plover were only 'surveyed during 1 season (2019/2020)' (p. 86). This presumably refers to the winter walkover surveys, rather than the breeding season surveys (which were carried out in three seasons). The winter walkover survey was carried out in the winter of 2019/20 to assess possible usage of open bog and heath habitat by Greenland White-fronted Goose and Golden Plover. It was not repeated in the winters of 2020/21 or 2021/22 as it was considered that that the vantage point surveys provided sufficient coverage of the open bog and heath habitat within the 500m buffer to assess any usage of the site by Greenland White-fronted Goose and Golden Plover (7.2.3.3.2 of the submitted EIAR).

A submission states that there will be no 'mitigation factors during the construction phase that will prevent detrimental impact' to Golden Plover breeding habitat. The Golden Plover breeding habitat in the wind farm site is the open bog/heath habitat in the eastern corner of the site. There is no proposed wind farm infrastructure located in this habitat and there are no hydrological pathways from the locations of the wind farm infrastructure to this habitat. Therefore, no mitigation measures are required to prevent construction phase impacts to the habitat.

Hen Harrier

A submission states that the landscape 'seems very suitable' for Hen Harrier and 'the absence of actual Hen Harrier sightings requires further scrutiny'. The breeding range of Hen Harrier in Ireland extends to south Donegal, but it is absent from the rest of the county. In the Bird Atlas surveys (Balmer et al., 2013), there were no breeding records of Hen Harrier in the six hectads overlapping the wind farm site. However, Hen Harrier was recorded in the bird surveys carried out for the proposed project with records on single dates in October 2021 and May 2022.

Merlin

A single submission criticises the Merlin surveys for focussing on the 500 m buffer around the site, rather than the 2 km buffer recommended by SNH (2017) (p. 87). The reasons for focussing on the 500 m buffer are fully explained in the Section 7.2.3.3.7 of the submitted EIAR. The submission does not identify any resulting deficiency in the survey data that could have affected the assessment of potential impacts to Merlin populations. The submitted EIAR concluded negligible impact on merlin as 'Overall, across three years of Merlin surveys, breeding season vantage point surveys, and other survey work, no evidence of breeding Merlin was recorded within the wind farm site, or in the 500 m buffer around the site, and there were very low incidences of Merlin bird detections.' (Section 7.3.2.5 of Chapter 7 of the submitted EIAR).

Gweebarra Estuary flight activity

The Gweebarra Conservation Group submission criticises the treatment of flight activity recorded along the Gweebarra Estuary (p. 87).

As explained in the Section 7.2.4.2 of the submitted EIAR, flight activity that was restricted to the Gweebarra Estuary was excluded from most of the analyses because:

> *There were several waterbird species that were recorded in the Gweebarra Estuary, but were not recorded anywhere else within, or adjacent to, the wind farm site. There were other species for which much higher levels of activity were recorded in the Gweebarra Estuary, compared to other areas within, or adjacent to, the wind farm site.*
>
> *Although the wind farm site extends to the southern shore of the estuary, there will be no wind farm infrastructure within 500 m of the estuary, while the nearest turbine location is over 1 km from the estuary. Therefore, the wind farm development is not likely to cause any disturbance or displacement impacts to bird populations in the Gweebarra Estuary.*

The Gweebarra Conservation Group submission does not identify any specific resulting deficiency in the assessment arising from the exclusion of flight activity along the Gweebarra Estuary.

Core foraging ranges

A submission criticises the reference to the Scottish Natural Heritage guidance on *Assessing Connectivity with Special Protection Areas (SPAs)* (SNH, 2016) on the basis that it was 'published after the UK voted to leave the European Union' and that 'it has not been subjected to peer review or Appropriate Assessment'" This guidance is an updated version of a document that was published in 2012. That guidance was, in turn, based on a commissioned report: *Literature Review to Assess Bird Species Connectivity to Special Protection Areas* (Pendlebury et al., 2011). This report contained a detailed review of relevant literature on foraging ranges and movement patterns of 21 species that are of particular concern for wind farm developments in Scotland. This review and the resulting Scottish Natural Heritage guidance on connectivity with Special Protection Areas are widely used in Irish wind farm assessments and are generally considered to represent the best available information for the purposes of screening ex-situ bird populations in the Appropriate Assessment process.

Haul routes

The Department of Housing, Local Government and Heritage submission refers to the 'requirements for the crossing of multiple bridges to reach the proposed site' and raises concerns about the lack of assessment of any 'of the works needed to address bridge integrity on the haul routes protected species' including birds such as Dippers and Grey Wagtails that may use these bridges for roosting and breeding.

There are no required bridge upgrade / maintenance works for the project. No requirement for such works has been raised by traffic engineers working on the project or by Donegal County Council's roads department.

Second met mast

The Gweebarra Conservation Group submission states that the second met mast 'would act as a bird killer' (p. 8). There is no published evidence that met masts create significant collision risks for bird populations.

2.9 LANDS SOILS & GEOLOGY

With relation to the Land, Soils and Geology impact assessment presented in Chapter 8 of the submitted EIAR, the following sections address the key concerns which were raised by the written submissions:

- Soil and peat stability and destruction of peatlands;
- Potential pollution of the aquifer;
- Completion of site investigation works; and
- Presence of geological features.

Soil / Peat Stability

Potential soil/peat instability on site was raised as a concern by Gweebarra Conservation group and eleven individual observations, along with the 'high' landslide susceptibility risk rating assigned by the Geological Survey of Ireland on the online landslide susceptibility map viewer.

Nineteen submissions mention a landslide that occurred during the construction of another wind farm in County Donegal at a site unrelated to this proposed wind farm site. The Meenbog Wind Farm Site is located in a different setting than the proposed wind farm site. The Meenbog

landslide occurred on an area with elevated mountain bog (>250mOD), different landcover/vegetation cover, drainage, underlying geology, intact peat, peat slipped down the mountain during construction.

Numerous peat slippage events have occurred in Ireland both historically and over the last few decades, due to a combination of natural and anthropogenic factors. Site dependent causes of peat slides include, weather, drainage, land use, peat depth, slope, hydrogeology and the interface of the peat and underlying stratum.

The proposed wind farm site is located within a peatland and forested landscape and peat depths around the site are generally shallow. While there are occasional pockets of deeper peat (in general <2.5m) (away from the infrastructure areas), substantial quantities of peat are not anticipated at any of the proposed turbine locations. This information is based on a site-specific ground investigation undertaken across the proposed wind farm site in February 2023, with the full factual report provided as Appendix 8-1 of the submitted EIAR. Site investigations as set out in the EIAR include:

- 21 No. trial pits at proposed turbine locations, potential substation locations, along access tracks and potential construction compounds;
- 600 Peat Probes;
- 35 No. Hand Shear Vane Tests;
- 2 No. rotary core boreholes;
- Geotechnical testing including PSDs, Atterberg Limits, Moisture and Compact Tests;
- Logging of the soil layers and sampling of each stratum encountered; and
- Laboratory analyses of the samples collected during the above investigations.

There are a number of critical differences between the Meenbog site and the proposed project, not least the underlying geology as well as the topography. Furthermore, the proposed wind farm site terrain is rolling and undulating and topographically confined, limiting the potential and scale of peat slide and debris runout distances. Areas of serious risk category locations based on detailed analysis were avoided.

An independent expert carried out an assessment of peat stability on the site (Appendix 2-9 of the submitted EIAR) and found that the locations of the proposed works did not have a significant risk of peat instability, and the site risk factors were unlike those which occurred on other sites where peat slippages occurred (i.e. weather during the construction phase, drainage, land use, peat depth, slope, hydrogeology and the interface of the peat and underlying stratum). The risk of peat instability is considered 'low' at all infrastructure locations with the implementation of design and control measures during construction as detailed in Chapter 8 of the submitted EIAR. There are no significant peat deposits within the footprint of the proposed project.

The Geological Survey of Ireland (GSI) landslide susceptibility map indicates areas of 'Moderately high' and 'high' landslide susceptibility. However, as outlined in the Peat Stability Risk Assessment, Appendix 2-9, the GSI risk assessment landslide susceptibility maps are an initial indicative view, which is useful to highlight areas for further assessment and is taken account of to assess the risk of peat stability at individual infrastructure elements. Further, the GSI risk assessment only accounts for the current site topographic and hydrological conditions.

Detailed information is provided in Appendix 8-1 and Appendix 8-2 of the submitted EIAR, including stability analysis results using characteristic loads and soil strength parameters,

ensuring a high factor of safety at the proposed project. Mitigation measures committed to by the Applicant are detailed in the Construction and Environmental Management Plan (CEMP) in Appendix 2-7 of the submitted EIAR, including all excavation works will be monitored by a qualified geotechnical engineer, avoiding scheduling during severe weather conditions.

Potential pollution of the aquifer

A submission was received in relation to subterranean drainage issues and potential pollution of the aquifer.

In relation to the underlying geology there is no significant folding due to the crystalline structure of the granites. Groundwater flow occurs primarily within the broken and weathered zone in the upper 3 m of the bedrock aquifer. Groundwater flow paths are considered to be short and the main discharges from the soil and bedrock are to rivers and streams. Baseflow to rivers and streams is relatively low. Mitigation measure to manage surface and dewater is included in Chapter 9 of the EIAR. Due to the low permeability of the bedrock and mitigation measures in place, the risk of pollution to the aquifer is low.

Karst features

Two submissions were received concerning the presence of karst prone bedrock underlying the proposed wind farm site.

Section 8.3.11 of the submitted EIAR, states that the wind farm site is underlain by granite, with areas of karst prone rocks located c.1 km to the west of the wind farm site. There are no turbines or significant infrastructure in areas prone to karstification.

Damage to Geological heritage sites

Two submissions were received regarding the potential impact of the proposed project on geological sites of interest.

Section 8.4.2.1 of Chapter 8 of the submitted EIAR, explains that the proposed project does not contain any geological heritage sites, and the project has been designed to avoid any direct impact on such sites. Additionally, detailed in Section 8.5.2.1, there is no need for any project-related activities within geological heritage areas, and consequently, no mitigation measures are necessary for these specific areas.

Seismic Activity

Two submissions raised in relation to seismic activity in the area of the proposed project.

In reference to earthquakes, there is no documented seismic activity in the Donegal granites. As reported in Section 8.4.5 of Chapter 8 (Land, Soils and Geology) of the submitted EIAR, earthquakes of sufficient intensity to be a concern to the proposed project infrastructure do not occur in Ireland.

Borrow Pit Excavation

Four submissions were received in relation to the acreage required for the borrow pit excavation and concerned about the level of destruction.

The excavation of 9.4 acres for the construction of 4 no. borrow pits is a necessary aspect of the proposed project, constituting less than 0.5% of the total wind farm site. This measure aims to minimize the impact on public roads in the surrounding area by sourcing the needed stone volume from onsite borrow pits. This approach aims to reduce the amount of traffic on public roads in the vicinity. After extracting the necessary rock from each borrow pit, the sites will be reinstated using surplus inert material from the project site.

2.10 HYDROLOGY & HYDROGEOLOGY

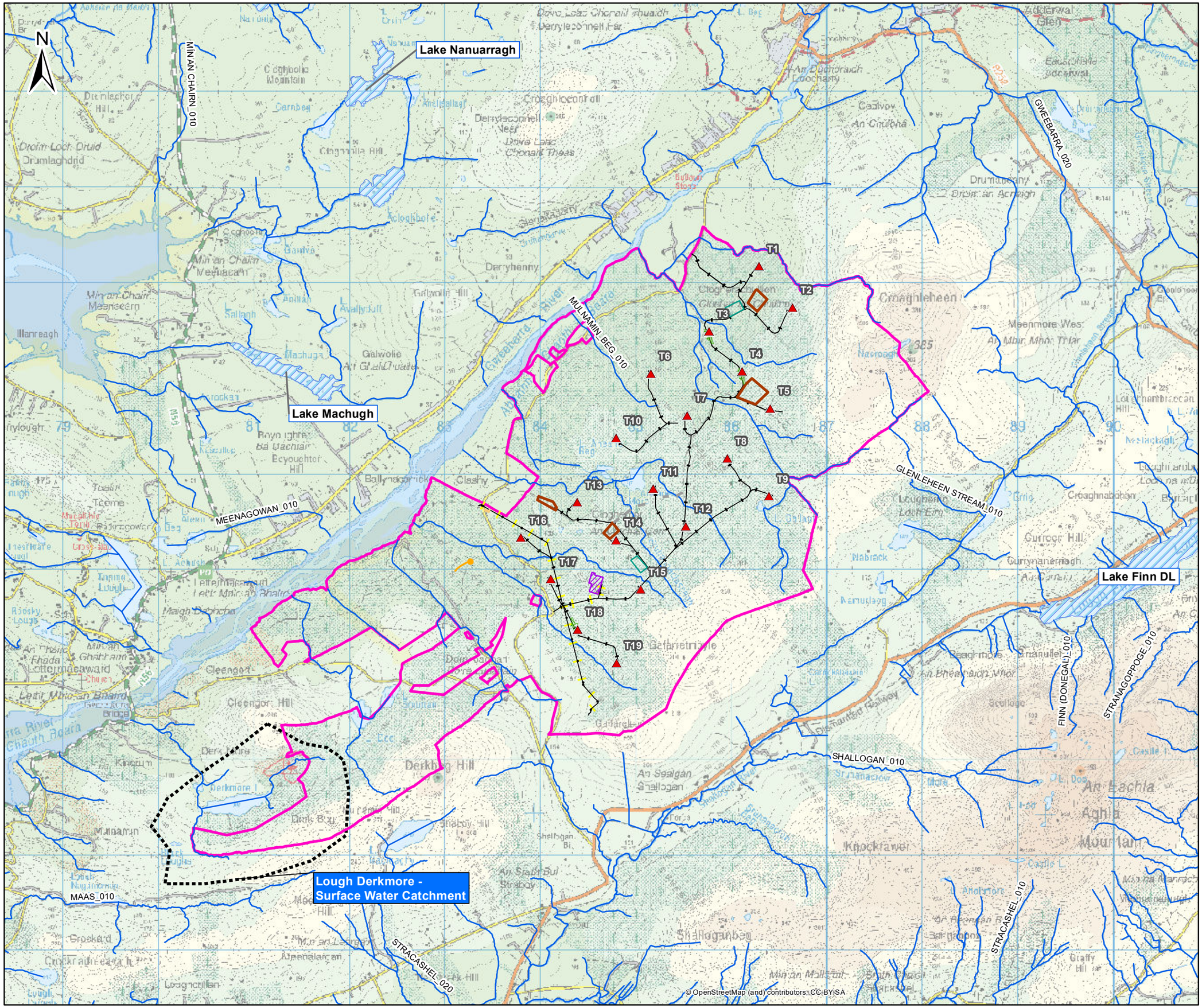
With relation to the Hydrology and Hydrogeology impact assessment presented in Chapter 9 of the submitted EIAR, the following sections address the key concerns which were raised by the Observers in written submissions to the Board. Although comments relating to hydrology and hydrogeology were common in the observations, there was a lot of similarities across these, and they ultimately fell into a small number of categories, as discussed in the sections below, namely:

- Water supply augmentation;
- Surface water runoff and potential water quality and pollution of surface and groundwater;
- Flood risk; and
- Survey methodology.

Water supply augmentation

Concern was raised over the close proximity of Lettermacaward Water treatment plant as a potential pollution source to Lough Derkmore, with several queries raised on the potential damage to Lough Derkmore as public water supply.

There is no hydrological links between the proposed windfarm and Lough Derkmore. There is no infrastructure proposed as part of the project in the catchment area of Lough Derkmore. Two streams identified by EPA segment codes 38_338 and 38_2237, flow into Derkmore Lough as shown on Figure 1.5 below. There is no likely pathway for potential pollutants from the proposed project to affect the water quality of Derkmore Lough.



Legend

- Proposed Wind Farm Site Boundary
- WFD - River Water Bodies
- WFD - Lake Water Bodies
- Derkmore catchment

Site Layout

- Turbine Locations - 19WTG
- Hardstands
- Substation Location
- 3m Access Roads
- Access Roads
- Cable Connection Route
- Temporary Compound
- Temporary Car Park
- Walkway
- 3m Met Mast Track
- Borrow Pit Locations
- Met Mast Location

0 500 1,000 1,500 2,000
Metres

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Issue	Date	Description	By	Chkd.
D01	21/12/2023	Draft issue	S.P	S.N

Client: Cloghercor Wind Farm Ltd.

Project: Cloghercor Wind Farm

Title: Figure 1.5: Lough Derkmore Catchment

Scale @ A3: 1:36,841

Prepared by: S.Pezzetta | Checked: J.Staunton | Date: December 2023

Project Director: D.Grehan

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Draft: D01

10798-01-DM-01

Surface water runoff and pollution of nearby watercourses

Concerns were raised by numerous submissions regarding the removal of the bog and the presence of additional services on the site, with a potential impact on surface water runoff, affecting the quality of the nearby watercourses.

The proposed project is located in an area of coniferous plantations and thorough consideration has been given to the land's soakage capacity, potential runoff and impact on the nearby watercourses. The existing coniferous plantation incorporates forestry drains spaced every 5 meters, establishing a comprehensive drainage network. However, owing to the presence of peat soils, surface water runoff is identified as the primary pathway for potential impact, with limited infiltration to ground due to low permeability bedrock on the site.

By implementation of effective mitigation measures, surface water from the proposed project will be managed on site and treated in accordance with sustainable drainage guidance set out in Chapter 9 of the submitted EIAR. The agreed construction methodology of the drainage design for the proposed project aims to minimize disturbance to hydrological regimes, using clear-span bridges and culverts to be installed during dry periods for stream crossings. A surface water management plan (SWMP) will be implemented during construction and is the primary means of significantly reducing sediment runoff arising from construction activities and controlling runoff rates (copy of the SWMP is available as Appendix 9-1 of the submitted EIAR). Water quality monitoring will be carried out pre/during and post construction to alert the contractor to any issues.

As detailed in the Construction Environmental Management Plan (Appendix 2-2 of the submitted EIAR), the site drainage measures will be installed from the outset, being constructed at the same time as initial civil works, ensuring there is no uncontrolled runoff to the site during proposed works. Excavators will be used to construct the main drainage features (drains, settlement ponds etc.), while small items such as silt/dams will be constructed manually. Silt fences designed to trap suspended particles will be erected manually ahead of civil works on particularly steep ground or near water courses.

In summary, the proposed project presents no significant long-term effect on water quality, hydrology and hydrogeology, provided that the works are designed, constructed, maintained and decommissioned in accordance with the mitigation measures outlined in Chapter 9 of the submitted EIAR and as detailed in the CEMP.

Implications of altered hydrology

A submission raised concern about the threat to the Gweebarra River Basin due to changed hydrology of the site.

Under the Water Framework Directive (WFD), River Basin Management Plans (RBMP) are implemented which comprise a six-yearly cycle of planning, action, and review for each river basin and associated subbasins.

As detailed in section 9.3.3 of Chapter 9 of the submitted EIAR, the Mulnamin Beg_010 subbasin covers an area of 32.4km^2. The construction area comprises <1% of the area within the subbasin. Construction works are for a short-term period and no significant residual effect will occur during the construction phase. Construction works will be minimised to reduce exposed ground that could generate silty water runoff, that once in water bodies could alter the natural composition and structure of the substrate especially during periods of prolonged and/or heavy rainfall. Implementation of the mitigation set out in CEMP (Appendix 2-2 of the

submitted EIAR) will ensure impacts are short-term and localised. Any run-off or water during construction will be treated (e.g., to remove sediment) within the limits of the proposed wind farm and discharged to local drains/swales.

Taking into consideration the impacts of the proposed wind farm on the biological, physico-chemical and hydromophological quality elements, and following the implementation of design and mitigation measures agreed to as part of the submitted EIAR, it will not compromise progress towards achieving Good Ecological Status (GES) or cause a deterioration of the overall status of the water bodies. In conclusion the proposed project will not compromise the qualifying features of protected areas and is compliant with the WFD and other relevant Directives.

There are no operational phase effects that compromise progress towards achieving GES or cause a deterioration of the overall status of the water bodies. It can therefore be concluded that the proposed wind farm is fully compliant with the WFD and therefore does not require assessment under Article 4.7 of the WFD.

In summary, the proposed project presents no significant long-term effect on water quality, of the Gweebarra River or other waterbodies, provided that the works are designed, constructed, maintained and decommissioned in accordance with the mitigation measures outlined in Chapter 9 of the submitted EIAR and detailed in the CEMP.

Pollution caused by road widening.

A submission raised a query about the widening of the L636 and its potential to cause pollution to Stracashel River and a tributary of Owenea, both Freshwater Pear Mussel Rivers.

As detailed in the CEMP (Appendix 2-2 of the submitted EIAR) the site of the proposed wind farm will have both temporary (for the duration of the construction phase) and permanent drainage infrastructure installed as part of the proposed wind farm site. These features include site drains and silt control measures (check dams/silt dams).

The site drainage measures will be installed from the outset, being constructed at the same time as the initial civils works including widening of L636. This will ensure that there is no uncontrolled runoff from the site during proposed works. Excavators will be used to construct the main drainage features (drains, settlement ponds, etc.), while small items such as silt dams/check dams will be constructed manually. Silt fences which trap suspended particles will be erected manually ahead of civil works as required on particularly steep ground, or near watercourses. The construction works will involve some works within 50m of streams (such as site access tracks and clear span bridges). However, no instream works are proposed, and a suite of measures are in place to avoid any adverse effects on streams. During near stream construction work, silt traps and double row silt fences will be placed immediately downgradient of the construction area for the duration of the construction phase. Near-stream construction work will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works according to the Eastern Regional Fisheries Board (2004) guidance document 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites', that is, May to September inclusive. This time period coincides with the period of lowest expected rainfall and, therefore, minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses.

Settlement ponds

A submission raised concern about the size of settlement ponds for increased surface runoff and the treatment of water.

During the construction phase, settlement ponds will be utilised as one part of a treatment system as is standard practice. All temporary and permanent drainage from the wind farm site will be designed to have as a minimum, three stages of treatment, as defined in the best practice SuDS Manual (C753 CIRIA, 2015). Management of runoff will include the following:

- Filtration of water through filter media (sand/stone check dam, silt fence);
- Detention/settlement in settlement ponds or behind check dam in swales; and
- Conveyance of shallow depths of water in vegetated swale.

Settlements ponds will vary in size from 8-12m in length to 1-1.5m width (as per Drawing 10798-2029 in Appendix 1-1 of the submitted EIAR).

Groundwater contamination

A submission raised concern over Creosote polluting groundwater supply along with the impact of the proposed project to well water in a number of residential properties.

One of the monopoles will be constructed with steel (as depicted in Drawing 05725-DR-116), so creosote will likely be used on one telecom pole only (Drawing 05725-Dr-117) located at the proposed substation. Creosote is a common compound utilised in poles for overhead power lines up to 110kV. Creosote is used as a timber preservative in part due to the water repellent properties and low solubility, thereby preserving the timber. There is no evidence from literature to suggest poles which are in place would give rise to significant effects on the water and soil environment. The existing poles to be removed will be disposed of in accordance with the Waste Management Act. Limited flow occurs in the groundwater with surface water the dominant pathway. As detailed in Chapter 9 (Hydrology and Hydrogeology) of the submitted EIAR, flow paths in the groundwater are short and discharge to the local drains and streams. Flow in the bedrock is in small fissures/cracks and there is no potential for large plastic or sediment to mobilise in the groundwater and effect downgradient streams. As detailed in the CEMP Appendix 2.2 of the submitted EIAR, selected private water supply wells at representative locations closest to turbine and borrow pit locations around the site will be monitored for water level and quality pre-construction and during the construction phase.

Water sampling

Several submissions raised concern over the surface water sampling approach as not all locations were shown on the map Figure 9-7 of Chapter 9.

All the locations within the site boundary are shown on Figure 9-7 of the submitted EIAR. As stated in the Chapter 9 of the submitted EIAR, surface water sampling was carried out at various locations along the Gweebarra Estuary. Sampling points SW1- SW5 were taken from streams located within the site boundary while SWA, SWB and SWC were taken at various points along the Gweebarra Estuary. SWA and SWC were completed upgradient of the windfarm at Doochary on the Gweebarra River, 2 km upgradient of the proposed windfarm, just outside the extent of Figure 9-7.

Flood Issues

A submission raised concern that the Applicant has overlooked the risk of pluvial flooding, as they failed to account for the potential overtopping of a large drainage ditch situated directly below the location of numerous turbines, there is concern that this claim of no significant streams or rivers onsite is untrue and may lead to substantial fluvial flooding.

As detailed, in Chapter 9 of the submitted EIAR, there is no record of pluvial flooding at the proposed wind farm site. Surface water from the developed areas will be effectively managed through a dedicated stormwater drainage system adhering to Sustainable Urban Drainage Systems (SUDs) principles. This system is designed to restrict site discharge to greenfield runoff rates. Additionally, the on-site streams identified as first and second order streams are not anticipated to cause significant flooding, owed to the proposed project's topography.

Flood Data

Submissions raised concern that models used to generate flow data are outdated and do not take climate change (increasing rainfall into account) and queries the flow data collected in June and July is not representative of months with heavier rainfall.

The Flood Risk Assessment (FRA) uses the current guidance for flooding (Appendix 2-8 of the submitted EIAR). As detailed in section 2.2 of the FRA, the assessment is compliant with the Donegal County Development Plan and the Planning System and Flood Risk Management Guidelines for Planning Authorities (PSFRM Guidelines), published in 2009 by the Office of Public Works (OPW) and Department of the Environment, Heritage and Local Government (DoEHLG).

As stated in the Flood Risk Assessment (Appendix 2-8 of the submitted EIAR) the Flood Risk Management Climate Change Sectoral Adaptation Plan was published in 2019 by the OPW under the National Adaptation Framework and Climate Action Plan. This plan outlines the OPW's approach to climate change adaptation in terms of flood risk management and accounts for the predicted increase in rainfall due to climate change. The FRA submitted as part of the EIAR took account of this Plan.

Based on research carried out by the Irish Centre for High-End Computing (ICHEC) on behalf of the Environmental Protection Agency (EPA), rainfall increases were modelled for a number of emission scenarios. Even under high emission scenarios, rainfall is predicted to increase <10% in Donegal. Flood modelling undertaken, as part of the FRA for the submitted EIAR, took an assumption of a 20% increase in rainfall (far greater than the high emission scenario).

From site walkover and surveys undertaken across the wind farm site, it is noted that water levels on the site are reflective of climatic conditions. Flow in the streams is flashy due to the limited storage, upland topography and low infiltration rates. High flow can occur at any time of the year due to the flashy runoff. Such streams will exhibit large variations over the short term (i.e. hourly). The FRA approach accounts for predicted flood events and the increase due to climate change.

Silt traps

A submission was made highlighting concern about the effectiveness of silt traps in Donegal region.

Silt traps are only one of the mitigation measures set out in the submitted EIAR. Silt traps are a widely accepted and effective method of silt management, used throughout Ireland on different types of construction projects. They do require maintenance and regular inspection to ensure maximum efficiency as committed to within the submitted EIAR.

Stream crossing for the grid connection

A submission raised concern at the two streams required to be crossed for the grid connection, they further stated that due to the fluctuation of river level, cannot bridge or culvert as needed at access route.

The two streams crossed for the grid connection will be carried out with HDD (horizontal directional drilling), which is a trenchless crossing as set out in Appendix 2-4 and Chapter 8 (Land, Soils and Geology) of the submitted EIAR. HDD drilling under the stream bed will not be affected by river level fluctuations. The bridge over is for access only and will accommodate flood flows.

Dooey Beach

A submission raised concern regarding potential contamination in Gweebarra Estuary directly affecting potential aquifers in Dooey Beach.

There is no hydrogeological connection with Dooey beach located >5km away from the proposed wind farm site.

Naming convention

A submission raised a query that all streams within the site are collectively identified as the Mulnamin Beg 10 sub catchment.

The streams are located in the Mulnamin Beg _010 sub catchment, as per the WFD River Basin Management Plans. The two main streams on the site are identified by name. Smaller streams are unnamed but have been assigned EPA segment codes as evidenced in Table 9-4, Chapter 9 (Hydrology and Hydrogeology) of the submitted EIAR.

2.11 SHADOW FLICKER

The main themes covered in the submissions and responses are:

- Potential effect of Shadow Flicker on health of residents, road users and others;
- Exclusion of certain receptors from the assessment;
- Software used for the assessment and study area; and
- Mitigation measures.

The Impact of Shadow Flicker

Fifteen submissions were received regarding the potential impact of shadow flicker.

The Applicant is committed to minimising any adverse effects from the proposed project on the local community and is committing to ensuring zero shadow flicker at the shadow flicker

receptors identified within 1.64km (ten rotor diameters) of the proposed wind turbine locations. The incorporation of set-back distances from the proposed turbines to properties, which have been considered and implemented in the design of the wind farm layout, means that there are no sensitive receptors located within 800 m of a proposed turbine location. The nearest residential dwelling to any of the proposed turbines is approximately 925 m from turbine T16. This measure, along with the implementation of screening and turbine shutdown mitigation measures as set out in Section 10.5 of the EIAR, will ensure that there are no effects of shadow flicker on the local community.

Impact on Drivers, Pedestrians and Cyclists

A single submission was received that expressed concern regarding the impacts of shadow flicker on drivers, pedestrians and cyclists in the local area.

The dynamic nature of cyclists, motorists, and pedestrians means that they won't experience prolonged exposure to shadow flicker. Regardless of where such mobile receptors might encounter shadow flicker around the proposed wind farm site, there would be no significant effect on them. Shadow flicker is a phenomenon that is most noticeable within a house where light comes from a focused source (i.e. a window) and the shadow is cast over most or all of a window with each pass. This translates to a noticeable dimming of light within the room, however when a person is outside, they receive light from a more diffuse source (i.e. the full sky) so the passing of a shadow would be less discernible.

Exclusion of Non-sensitive Receptors

A single submission questioned the exclusion of farms sheds and garages from the shadow flicker assessment.

As evidenced in Section 10.3.1 of the submitted EIAR, a total of 98 no. sensitive receptors were identified and presented in Table 10-1 of the EIAR. During the verification process, any properties/buildings identified that would not be considered sensitive receptors (i.e. farm sheds, garages etc where people don't reside) were omitted. Only habitable dwellings and planning consented habitable dwellings were found within the study area and included as shadow flicker receptors, as per best practice guidance on undertaking this type of assessment. Planning consented dwellings where the expiry period for development has lapsed and has not been constructed, were excluded.

The Shadow Flicker Software

A singular submission queried the effectiveness of the software used for Shadow Flicker modelling.

The analysis has been undertaken using WindPRO: Shadow – Version 3.3.294 (by EMD International) which is one of the leading industry software packages for carrying out a shadow flicker simulation.

Study Methods

A singular submission questioned the use of the 10x Rotor Diameter as a limit for the study area of shadow flicker effects with regard to effectiveness with modern turbine heights.

As detailed in Section 10.2.2 of the submitted EIAR, a 10x Rotor Diameter is used in common practice as the maximum limit within which significant shadow flicker effects can occur in

accordance with the Wind Energy Development Guidelines (2006) and the Draft Revised Wind Energy Development Guidelines (2019).

Parsons Brinckerhoff Report

A single submission criticised the use of the Parsons Brinckeroff Report due to its use of industry data and an alleged small scope.

The Parsons Brinckerhoff Report was commissioned by the Department of Energy and Climate Change in the UK to carry out a study to advance the understanding of the shadow flicker effect. The report 'presents an update of the evidence base which has been produced by carrying out a thorough review of international guidance on shadow flicker, an academic literature review and by investigating current assessment methodologies employed by developers and case study evidence'. The Parsons Brinckeroff Report formed one part of the best practice guidance used along with the Wind Energy Development Guidelines (2006), the Draft Revised Wind Energy Development Guidelines (2019), and the Irish Wind Energy Association (IWEA) – Best Practice Guidelines for the Irish Wind Energy Industry (2012).

Mitigation Measures

Two submissions were received that questioned the Applicant's commitment to mitigation measures.

As stated in Section 10.6 of the submitted EIAR the Applicant is committed to minimising any adverse effects from the proposed project on the local community. The implementation of mitigation measures to screen shadow flicker effects from sensitive receptors and/or implement wind turbine control measures in accordance with a defined Turbine Shutdown Scheme will ensure that any residual shadow flicker effects from the proposed project will be eliminated at any shadow flicker receptors. This will be the case irrespective of which turbine dimensions are selected within the turbine range.

A singular submission requested details of the turbine shutdown scheme. Details of the Turbine Shutdown Scheme are detailed in 10.5.1 of the submitted EIAR.

2.12 NOISE & VIBRATION

The submitted noise impact assessment is independent, robust and has been carried out in line with current standards and best practice guidelines (i.e. Planning Guidelines for Wind Development 2006, ETSU-R-97 and Good Practice Guidelines). In addition to these guidelines, discussion has been provided in relation to matters such as Low frequency noise, Infrasound and noise related impacts on human health. The submitted EIAR Noise and Vibration assessment demonstrates that the proposed project can operate within the noise criteria derived from the relevant guidance and accordingly will not result in any significant effect on the amenities of any sensitive receptors.

The primary issues raised in respect of noise impact from the proposed project refer to the following topics:

- Background Noise Survey;
- Low Frequency Noise and Infrasound;
- Noise modelling and predictions;
- Vibration; and

- Health effects.

Comment in relation to the issues listed above is provided in the following sections.

Background Noise Survey

Full details of the background noise survey are provided in Section 12.2.3.1 of the submitted EIAR, including the location references, the time periods covered by the survey and photographs of the installed equipment.

Permission from each resident for AWN (the proposed project noise consultants) to install, visit and remove the sound level meters was arranged in advance by the Applicant's local Community Liaison Officer and confirmed by telephone call by AWN in advance of the installation.

Low-frequency Noise and Infrasound

A total of eight submissions state concerns regarding infrasound and low-frequency noise, and a further twenty-four expressed general concerns on noise from the proposed project. Section 12.2.2.5.1 of the EIAR addresses these topics and the following paragraphs are taken from that section:

Low Frequency Noise is noise that is dominated by frequency components less than approximately 200Hz whereas Infrasound is typically described as sound at frequencies below 20Hz. In relation to Infrasound, the following extract from the EPA document Guidance Note for Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3) (EPA, 2011) is noted here:

> 'There is similarly no significant infrasound from wind turbines. Infrasound is high level sound at frequencies below 20 Hz. This was a prominent feature of passive yaw downwind' turbines where the blades were positioned downwind of the tower which resulted in a characteristic "thump" as each blade passed through the wake caused by the turbine tower. With modern active yaw turbines (i.e. the blades are upwind of the tower and the turbine is turned to face into the wind by a wind direction sensor on the nacelle activating a yaw motor) this is no longer a significant feature.'

The section also cites research published in Australia in 2013[20]and Germany 2016[21]. The section concludes:

In conclusion, there is a significant body of evidence to show that the infrasound associated with wind turbines will be below perceptibility thresholds and typically in line with existing baseline levels of infrasound within the environment.

Noise Modelling

Section 12.2.3.3 of the submitted EIAR presents full details of the methodology used to calculate the predicted noise levels. ISO 9613 *Acoustics – Attenuation of sound outdoors, Part 2: General method of calculation*, (ISO, 1996) is the calculation methodology used to model the

[20] https://www.epa.sa.gov.au/files/477912_infrasound.pdf

[21] https://pudi.lubw.de/detailseite/-/publication/91263-Results_from_the_measurement_project_2013-2015.pdf

propagation of sound in outdoor environments. ISO 9163 is a conservative methodology in that it calculates noise reduction with distance in conditions favourable to noise propagation.

It is the methodology prescribed by the document *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (IOA, 2013). It is confirmed that the appropriate choice of input parameters was implemented in the proposed project noise calculations, in particular, a 'soft ground' factor G of 0.5 (see Appendix 12.3 in the submitted EIAR) and that screening effects by terrain are limited to 2dB.

There is a comment in the Gweebarra Conservation Group submission that the assessment 'does not take into account the cumulative effect of the noise produced by more than one wind turbine on a single home'. AWN confirms that the noise model includes the combined effects of all wind turbines proposed as part of the project acting at each property (noise-sensitive location) together.

Vibration

Section 12.6.3 of the submitted EIAR addresses vibration from the proposed project: 'There are no expected sources of vibration associated with the operational phase of the proposed project. In relation to vibration the associated effect is summarised as follows: Neutral, Imperceptible and Long Term.'

Health Effects

Seventeen submissions state concerns in relation to effects on health due to noise. Section 12.2.2.5.3 of the submitted EIAR discusses a number of studies into the potential health effects of wind farm noise. The section concludes:

> *The peer reviewed research outlined in the preceding sections supports that there are no negative health effects on people with long term exposure to wind turbine noise. Please refer to Chapter 5 of the EIAR for further details of potential health impacts associated with the Proposed Development.*

Wind Turbine Syndrome

There is general reference to 'Wind Turbine Syndrome' within a single submission.

In response to the issue of 'Wind Turbine Syndrome' refer to the following published research:

Research by Simon Chapman and Fiona Crichton in Wind Turbine Syndrome, A Communicated Disease, published by the Sydney University Press in 2017, presents critical review of the evidence of Wind Turbine Syndrome. In this book, they present evidence that Wind Turbine Syndrome has evolved through dissemination of false claims accessed via the media or disseminated by anti-windfarm campaigners.

Their hypothesis is that the belief that wind turbine noise can impact on health may in-turn generate anxiety in some individuals causing them to needlessly worry and fear. One of the most interesting findings of this research is that the international pattern of complaints is most frequently reported in English speaking countries, the following text is taken from this book:

> *'The 'individual susceptibility' argument faces its biggest test when we look at the international pattern of complaints. It has been frequently noted that complaining about wind turbines is very obviously an Anglophone phenomenon. Modern multi-megawatt wind turbines have operated since 1978 in the USA and Europe. Today, there are an estimated 314,000 turbines in operation globally. European nations with windfarms include Belgium, Cyprus, Denmark, England, France, Germany, Greece, Ireland, Italy,*

Lithuania, the Netherlands, Poland, Portugal, Romania, Scotland, Spain, and Sweden. The turbines are often located very near cities, towns and villages (see Figures 3.1 and 3.2), thus exposing a huge number of people across Europe to their putative sickening sound emissions on a daily basis. Anyone who has spent time in these nations will have seen many of them. Yet windfarm health complaints have nearly all occurred in English-speaking nations. In Canada, parts of English-speaking Ontario have experienced many complaints while neighbouring Francophone Quebec sees little opposition. In Australia, complaints have been concentrated around farms targeted by anti-windfarm groups, suggesting the phenomenon is a 'communicated disease'.

It is AWN's opinion that these claims are not supported by scientific evidence, Section 11.4.2.2 of the submitted EIAR which presents a discussion on sleep disturbance and human health in relation to wind turbines. It should be noted that the relevant Guidance considered as part of this assessment has been developed with cognisance of guidelines published by the World Health Organisation (WHO).

2.13 LANDSCAPE & VISUAL IMPACT

Given the high number and consistent nature of the issues raised, these will be addressed by way of themes rather than on an individual basis. The themes to be addressed include:

- Impacts on local community receptors within the Gweebarra Valley;
- The height of the proposed turbines and the potential for the proposed turbines to be viewed throughout the wider Donegal landscape, especially from elevated Mountain top summits;
- Impact of the "flashing turbine lights" on the night sky;
- Concerns in relation to the impact of the development on the receiving landscape – "concerned the project will destroy pristine natural landscape" and the proposed project will "detract from the natural beauty of the area". Concerns are also outlined in relation to the landscape designations in the surrounds of the site"; and
- The impact of the proposed project on linear receptors such as hiking trails and scenic driving routes (Wild Atlantic Way).

Impacts on local community receptors within the Gweebarra Valley

As noted in the submitted LVIA, some of the most sensitive receptors in this instance are the local residential receptors located north of the site along the L7183 local road on the south-facing slopes of the Gweebarra River valley. The primary aspect of views from many of these dwellings is to the south in the direction of the proposed wind farm site. As a result, many of the early-stage mitigation measures and design responses were included to mitigate impacts at local receptors along the Gweebarra River Valley in the central study area. Some of the principal mitigation by design measures employed relating to landscape and visual impacts at this early stage are outlined below;

- Reduce scale and extent of the proposed wind farm development.
- Remove the proposed turbines from the highly sensitive and susceptible EHSA designation along the Gweebarra River corridor and along the most elevated southern parts of the site.
- Remove/relocate the proposed turbines visible to the south of Cleengort Hill. These turbines have the potential to generate negative aesthetic impacts, especially from the Gweebarra Bridge designated scenic view.

- Remove turbines from the immediate context of Gweebarra River Valley and offset the proposed project further from the Gweebarra Bridge designated view to reduce its visual presence.

Several working layouts were presented during the initial stages of the project, which implemented many of the mitigation measures proposed at the early stages of this project. Notwithstanding, whilst the turbines in the proposed array achieved the best practice approach in the Draft 2019 Wind Energy Development Guidelines (WEDGs) requirement to have 4 times the tip height setback distances at all dwellings along the southern extent of the Gweebarra River Valley within the study area, it was still considered that the proposed turbines presented in a highly dominant manner at the nearest local receptors, and thus, additional offsets were proposed to further mitigate the potential impacts at surrounding local receptors. A subsequent and final turbine layout with additional offsets from residential dwellings north of the Gweebarra River was then generated and comprised 19 turbines. The nearest residential receptors on the north-western banks of the Gweebarra River area c. 1.4km from the nearest turbines, which is considerably more than the Draft 2019 WEDGs setback distance of 4 times the tip height (800m) for the proposed turbines. The nearest residential dwelling to any of the proposed turbines is approximately 925 m from turbine T16 which exceeds and fully complies with the setback distance outlined in both the current 2006 Guidelines (800m) and the Draft Revised Guidelines (2019). A staggered turbine layout was also implemented to reduce the potential for any strong negative aesthetic effects at the nearest local receptors, such as visually stacked turbines generating a sense of visual clutter. In comparison to the early-stage initial turbine layouts, the final refined layout represents a much more site-specific response to the landscape and visual receptors within the immediate study area.

As identified in Section 13.7.2 of the LVIA (Chapter 13) of the submitted EIAR, 15 of the representative viewpoints (VP6, VP7, VP8, VP9, VP10, VP11, VP12, VP13, VP15, VP16, VP19, VP22, VP23, VP25 & VP26) were chosen to represent the local community as they were deemed to be some of the most sensitive visual receptors in relation to the proposed project. Of the 15 views, the highest significance of visual effect during operation was 'Substantial-Moderate', which typically relates to views in the immediate vicinity of the proposed project or views from the residential receptors along the L1783 local road north of the Gweebarra River.

Viewpoints VP7, VP9, VP10, VP11, VP15 and VP22 during operation were all classified with a significance of visual effect of 'Substantial-Moderate'. The nearest of these views to the proposed turbines is VP10, which is situated just over 700m, slightly downslope from the nearest turbine. Whilst the turbines will present in a prominent manner from this near distance, they do not generate any strong sense of overbearing, nor do they appear over-scaled in this setting. This is principally a consequence of the broad-scale landscape features and extensive areas of commercial conifer forestry, which are the predominant land use here. Despite their scale, the proposed turbines are viewed in a highly legible manner and do not appear out of place in this productive transitional landscape context.

In contrast to VP10, VP22 affords a slightly downhill view of the proposed wind farm. Whilst the turbines are also prominent in this elevated view, they present with a strong sense of visual permeability and do not block the distant views of the rolling uplands in the background. Viewpoints VP7, VP9, VP11 and VP15 represent local residential receptors north of the Gweebarra River corridor. Broad panoramic views are typically afforded from residential

receptors along the L1783 local road. The proposed turbines will be clearly visible from these representative viewpoints and present at a considerable scale, often with a dominant visual presence. Whilst the turbines will be a distinctive feature of these views, they are notably offset from the immediate context of the scenic Gweebarra River corridor and do not appear over-scaled or with any sense of overbearing. The proposed turbines will notably increase the intensity of built development in this enclosed valley context. Nonetheless, they are considered appropriately sited in this modified landscape comprising other anthropogenic land uses such as overhead electricity cable infrastructure on a broad terraced plateau that they will share with commercial forestry.

The significance of visual effect at the remaining local community views ranged between 'Slight' and 'Moderate', with those views within the valley context and its periphery often incurring a significance of visual effect of 'Moderate'. Those local community views classified with a 'Slight' visual effect significance are associated with views south of the site in a neighbouring valley. Whilst glimpses and partial views of the proposed turbines will be afforded from here, the visual presence of the development typically ranges between sub-dominant and minimal as the majority of the turbines will be heavily screened by the elevated rolling ridge immediately south of the site.

Overall, the proposed project will be visually prominent in its immediate surrounds, but not presenting at an overbearing scale from the nearest residential receptors on the south-facing slopes of the Gweebarra River valley. The turbines will be a distinctive feature within the local valley context, however, beyond this, the visual presence of the wind farm tends to diminish rapidly, especially to the south, where the proposed wind farm development is heavily screened. It is not considered that the proposed wind farm development will appear out of place in this broad transitional context influenced by other anthropogenic land uses. Consequently, it is not considered that significant visual effects will occur in respect of local community views.

'The height of the proposed turbines and the potential for the proposed turbines to be viewed throughout the wider Donegal landscape, especially from elevated Mountaintop summits'

Some of the comments included in relation to the impacts on local community receptors are also relevant in relation to the height of the proposed turbines. Whilst the proposed turbines will be some of the tallest turbines in the country consented to date, between 185m and 200m depending on the turbine that is installed, they will be well accommodated in terms of both their scale and function in this broad landscape context that comprises broad-scale landscape features and land uses. Indeed, as highlighted in the submitted Zone of Theoretical Visibility (ZTV) Mapping, the proposed turbines will be considerably screened throughout the wider study area due to the contained nature of the valley setting in which they are situated. Over 62% of the study area will have no view of the proposed turbines, and it is important to note that this figure is based on a bare-ground scenario. Once screening in the form of existing vegetation and surrounding built development is accounted for, this figure will likely increase.

As noted above, it is not considered that the scale of the proposed turbines is excessive in this instance. The turbines will present with little notable sense of over-bearing, even at the nearest surrounding local receptors. Furthermore, the turbines are considerably offset beyond the

typical 4 times the tip height visual amenity offsets outlined in the draft 2019 WEDGs, which aids in diminishing their perceived scale at the nearest local community receptors.

There has been an industry-wide move towards the use of taller turbines over the past decade, and the proposed turbines are consistent with current trends in terms of proposed and permitted wind energy developments in similar landscapes (See Section 2.3 of this report for further details regarding consented and submitted planning application with turbine tip heights of 185.-200m). There is also a landscape and visual trade-off in terms of turbine density and scale to achieve an equivalent output. In other words, an alternative for this development could have been more turbines at a lower tip height, potentially resulting in a higher degree of visual clutter within the valley context and a broader extent of development.

With regard to the wider Donegal landscape, the ZTV identifies potential visibility throughout the 20 km study extent. This 20 km study area is defined in both the 2006 WEDGs and the draft revised 2019 WEDGs.

As per the ZTV map, there is potential to view the proposed turbines from some of the most elevated mountaintop summits within the wider Donegal landscape. Notwithstanding, wind energy development is a characteristic feature of the wider Donegal landscape, and thus, visibility of distant turbines is commonplace from many of the most elevated mountaintop summits in Donegal. As an example, Mount Errigal, one of the most prominent mountains within Donegal, affords views of wind turbines at a distance of c. 7km to the west. In contrast, the proposed project turbines have the potential to be viewed at a distance of c. 18km and will present as distant small-scale background features, resulting in a very minor impact on the degree of visual amenity afforded from here. With regard to the Blue Stack Mountains located in the southwest quadrant of the study area, some of the nearest mountaintop summits, such as Aghla Mountain, have the potential to afford comprehensive views of the proposed turbines, albeit from a distance of c. 5km. Nonetheless, beyond Aghla Mountain, the potential for visibility of the turbines within the wider Blue Stack Mountains is limited to visibility of c. 1-8km of the proposed turbines. Furthermore, there will be extremely limited potential to afford any visibility of the proposed turbines from the principal ridgeline within the Blue Stack Mountains, which comprises Croaghgorm, the second-highest peak in Donegal. Indeed, even if viewed from surrounding mountaintop summits or elevated ridges within the study area, the proposed turbines will not generate significant visual effects. Overall, it is accepted that from further afield along elevated terrain there is greater potential to see the turbines, but this is at distances and within the context of vast panoramas where the proposed project will not have an overbearing influence on the visual amenity afforded.

Impact of the 'flashing turbine lights' on the night sky

It is important to note the visual amenity is at its lowest during dark periods, as views across the landscape are inhibited by the low levels of visibility. Thus, any aviation warning lighting will have a minimal effect on the visual amenity afforded in this landscape context, as the lighting will only ever be visible during periods of darkness. It is also important to note that the proposed turbines will likely have low Intensity Red lighting (to be agreed with the Irish Aviation Authority) located on top of the proposed turbine nacelle, and its principal use is to identify obstacles in the sky for aviation-based receptors. Thus, the lighting included will not cast light down towards the ground, which diminishes the potential for any notable effects to occur at ground-based receptors. Whilst the flashing lights have the potential to be discerned from ground-based receptors, the study area and local surrounds of the site are not located in

a designated dark sky area. It is also worth noting that the central study area is influenced by light spill emanating from existing light sources in residential areas in the villages of Doochary and Lettermacaward, whilst a linear array of rural residential dwellings occurs along the local road immediately north of the site. The N56 national secondary route is also contained within the central study area and is another notable existing source of potential visible lighting.

Concerns in relation to the impact of the development on the receiving landscape and in relation to the landscape designations in the surrounds of the site

In terms of the proposed project's impact on the receiving landscape, there is no question that it will result in some detraction in the scenic amenity afforded from its immediate surroundings. Notwithstanding this, describing the site and its immediate surrounding landscape as 'pristine' is a highly inaccurate statement. The site itself is predominately cloaked in extensive areas of commercial conifer forest and is traversed by overhead electricity cables. Indeed, a landscape described as 'pristine' would typically be one that is unspoiled and has little, if any, influence from anthropogenic features such as built development or productive land uses such as forestry. The current CDP for Donegal classifies much of the landscape of the site as an area of 'Moderate Scenic Amenity' (MSA), which is the lowest of their three-tier classification system, reinforcing the fact that this is not a pristine landscape setting.

As part of the LVIA (Chapter 13) of the submitted EIAR an assessment of the value and sensitivity of the receiving landscape was undertaken. While the central study area comprises some highly susceptible landscape areas and features, such as Lough Finn and its surrounding landscape and the corridor of the Gweebarra River, this is a highly transitional and varied landscape with an array of values and sensitivities. Whilst there is some localised sense of the naturalistic in the immediate Gweedore River environs, the sloping valley terrain that contains the site is cloaked in extensive commercial conifer forest plantations and traversed by corridors of overhead electricity lines and has a notable utilitarian character despite its low population density. As a result, the central study area is considered to have an overriding Medium landscape sensitivity due to its working transitional character, albeit some localised parts of the central study area are much more susceptible to change and are considered to have High and even Very High landscape sensitivity.

With regard to the landscape impact of the proposed project, it is highly evocative to state that the proposed project will 'destroy' the landscape. Indeed, as noted above and in the mitigation section of the submitted LVIA (refer to Section 13.5 of the submitted EIAR), every effort has been made to reduce the impact of the proposed project on some of the more susceptible landscape areas in the surrounds of the site, such as the 'Especially High Scenic Amenity' (EHSA) designation that contains the Gweebarra River corridor and some of the northernmost sections of the site. In this regard, the proposed turbine array was designed around the EHSA designation, with all of the proposed turbines situated within the more robust and less susceptible MSA designation. It is important to note that in the current CDP 2018 - 2024, the MSA designation is described as having '*the capacity to absorb additional development that is suitably located, sited and designed*'. Furthermore, some of the most susceptible landscape areas within the study area include the coastline and Glenveagh National Park, both of which are contained within an EHSA designation. The proposed project will have a limited impact on the coastline due to its contained location, whilst the proposed turbines will be entirely screened

from the principal parts of Glenveagh National Park such as Lough Beagh and Glenveagh Castle.

The impact of the proposed project on linear receptors such as hiking trails and scenic driving routes (Wild Atlantic Way)

As part of the LVIA (Chapter 13) of the submitted EIAR, a full assessment of tourism, amenity and heritage receptors was undertaken within the study area. Heritage and amenity features within the study area are represented by an array of representative viewpoints, including VP1, VP3, VP6, VP7, VP12, VP14, VP15, VP16, VP17, VP20, VP24, VP28 & VP29. The significance of visual impacts during operation on heritage and amenity features within the study area ranges from 'Substantial-moderate' to 'Imperceptible'. The Donegal Way is the nearest linear amenity receptor and traverses just over 1.6 km north of the nearest turbine at its nearest point. Whilst this section of the route will afford some clear visibility of the turbines where they will present in a prominent manner, it is important to note that the Donegal Way comprises over 278 km of trails, which encompass varying sensitivities and values, and the section adjacent to the site is considered one of the less remarkable parts of this route.

With regard to other linear receptors, such as the Wild Atlantic Way and the Eurovelo Cycling route, these both traverse parts of the central and wider study area and have the potential to afford visibility of the turbines. Again, these routes are some of the most extensive linear routes within the country. The proposed turbines will only be visible for very short sections of these routes and will typically be viewed inland from these routes in the opposite direction of the coastline, which is generally the principal aspect of amenity from these linear receptors. Furthermore, views of wind energy development along many of these linear recreational routes is commonplace, and therefore, the proposed project will not appear as an incongruous built feature in this part of northwest Donegal. Overall, it is not considered that the proposed wind farm will significantly detract from the scenic or recreational amenity of the waymarked walking trails, cycling routes, local walking trails, and driving routes within the central or wider study area.

2.14 AIR QUALITY AND CLIMATE

The themes to be addressed in this section include:

- General submissions on the carbon emissions to be produced on the construction and decommissioning of the proposed project;
- Use of peatlands for construction of wind farms which are natural carbon sinks; and
- Dust from the transport of materials.

Carbon Emissions

Three submissions were received that expressed concern regarding the emission of carbon as part of the development of the proposed project.

The proposed construction works will have a short-term imperceptible negative effect on climate due to greenhouse gas emissions.

As evidenced in greater detail in Section 14.7.1.2 of the submitted EIAR, electricity generated by the operational wind farm will result in an avoidance of greenhouse gas emissions that would otherwise occur through generation from fossil fuel sources. The carbon costs to construct the proposed project would take approximately between 44 and 63 months to pay

back (assuming the expected, maximum and worst case of all scenarios assessed within the range - See section 14.5.2 of the submitted EIAR), with the proposed project preventing the emission of a total of between 2,904,506 - 4,409,576 tonnes of carbon over its 35-year lifespan, dependent on whether the minimum or maximum MWs are installed within the range (these figures also assume the worst case carbon loss). The decommissioning phase of the proposed project will likely be similar to the construction phase, albeit at a smaller scale. There is anticipated to be a short-term imperceptible negative effect on climate due to GHG emissions from the decommissioning activities

Overall, the assessment concludes the carbon savings from the operation of the project would far outweigh the emissions from the construction and decommissioning phases.

Bogland and Forestry Impacts

16 submissions were received that questioned the impact on Bogland and Forestry arising from the proposed project as well as the emissions released.

As evidenced throughout Chapter 14 Air Quality and Climate of the EIAR, forestry replanting will occur to ensure there is no net loss of afforested areas. The forestry in question is commercial would have been felled as part of the forestry life cycle. As stated in the Carbon Emissions response above, the carbon savings from the project far outweigh the minor losses of small areas of peat (please refer to the above response).

The proposed wind farm site is located within a peatland and forested landscape. It is important to note at this point that peat depths around the site are generally shallow, and although there are small pockets of deeper (in general <2.5m) peat around the wider wind farm site, it is not anticipated to find notable quantities of peat at any turbine locations. The proposed project has been designed to avoid these areas. Also, most of the wind farm site is used for commercial forestry and is already drained. Given the above, the proposed project will have minimal disturbance to peat.

Quarry Dust Impacts on the Environment

A single submission detailed concerns that the transport of quarry dust associated with the proposed project will result in negative impacts to air, water and habitats.

There is anticipated to be a very localised potential slight, short-term, negative effect on air quality through dust generation and exhaust emissions during the construction stage, following the application of mitigation measures to be implemented as detailed in in the CEMP (Appendix 2-2 of the submitted EIAR).

2.15 ARCHAEOLOGY & CULTURAL HERITAGE

The main themes the submissions relate to are:

- Potential impacts on protected structures;
- Extent of the definition of cultural heritage;
- Perceived gaps in the assessment; and
- Impact on the Irish language and Gaeltacht.

Potential impacts on protected structures along the turbine delivery route, in both Ardara and Glenties

As noted in Section 15.3.6.4 of the Cultural Heritage Chapter 15 (Survey of the Turbine Delivery route and Blade Changeover area) of the submitted EIAR 'there are eight areas where roadside modifications works are planned for the turbine delivery route (TDR) and a blade changeover area. These are located on already built-up roadways and along the N56 Killybegs to Inver Road and the R262 road between Inver and Glenties.

All roadside modification works locations are on already existing roadways: there are no archaeological constraints associated with these locations. The location of the hardstanding for the blade changeover area in Drumnacross townland is in greenfield where peat has been extracted in the past and is therefore of low archaeological potential. Just north of Frosses village in Meenacahan townland roadside modifications will be carried out in the immediate vicinity of a named bridge (Sir Alberts Bridge) which is recorded on the National Inventory of Architectural Heritage (NIAH number 40909326). This Triple-arched bridge carries the main road over the Eanymore Water and was built c. 1780. It is rated as regionally significant. It will not be directly impacted by the roadside modification works. Further north in Tullynaglaggan townland there is a multi-arched bridge carrying the main road also over the Eanybeg Water which was also built c. 1780 and is recorded on the NIAH (NIAH number 40909325). Road modification works will be carried out immediately to the south of this bridge which is rated regional. There will be no direct impact on the bridge. There are notable concentrations of archaeological and architectural sites along the TDR at Inver, Frosses and Dunkineely. These sites will not be directly impacted.'

The 'narrow' definition of cultural heritage and to the historic, cultural, and artistic significance of the Gweebarra estuary

As noted in Section 15.2 of Cultural Heritage (Chapter 15) of the submitted EIAR 'for the purposes of this report the definition of 'cultural heritage' is taken broadly from the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972, which considers the following to be "cultural heritage":

- Tangible cultural heritage.
- movable cultural heritage (artefacts).
- immovable cultural heritage (monuments, archaeological sites, architectural structures, and features, etc).
- underwater cultural heritage (shipwrecks, underwater ruins, and cities); and
- Intangible cultural heritage (oral traditions, folklore etc.).

The phrase 'cultural heritage' is a generic term used to identify a multitude of cultural, archaeological, and architectural sites and monuments. The term 'cultural heritage', incompliance with Section 2 (1) of the Heritage Act (1995), is used throughout this report in relation to archaeological objects, features, monuments, and landscapes as well as all structures and buildings which are considered to have historical, archaeological, artistic, engineering, scientific, social, or technical significance/merit.'

Archaeological features not recorded by the State located at the proposed project site

As noted in Section 15.2 of Cultural Heritage (Chapter 15) of the submitted EIAR 'the evaluation of impacts upon the archaeological, architectural, and cultural heritage resource is based on a desktop study of published and unpublished documentary and cartographic sources, followed by a field survey.' This review included all relevant statutory sources, including historic maps and aerial photography. Fieldwork carried out comprised walkover and windscreen surveys of the location of proposed turbines, hardstanding, access tracks, the grid connection cable route, blade changeover area, the turbine delivery route and recorded heritage sites in the surroundings of the project area.

As noted in Section 15.3.5 of Cultural Heritage (Chapter 15) of the submitted EIAR 'The review of historic maps identified a small number of formerly standing buildings, which within the study area consist of four building clusters and two isolated buildings. Two of the clusters are situated along the south/east bank of the river Gweebarra. The southern of these, in Cloghercor, is labelled as 'Clashy'; the northern cluster, in Clogherachullion, is not labelled. A third cluster is in the south of the area and a fourth is in the centre of the area. Recent aerial photographs show ruined buildings at all four of these locations and only one of the locations appears to still have habitation nearby.

Nothing of significance was noted at the locations of temporary site compounds, borrow pits, the substation location or along the areas where roadside modifications are required.'

As noted in Section 15.3.6.3 of Cultural Heritage (Chapter 15) of the submitted EIAR (Vernacular heritage features in the study area) 'during the survey, numerous heritage features were recorded, some of which were identified using historic maps and some of which do not appear on the consulted historic maps. These features do not necessarily have statutory protection under heritage or planning laws, though their preservation is required as part of Donegal County Council's Development Plan.'

None of these sites will be directly impacted and no other previously unknown cultural heritage sites were identified.

Omission of a dolmen monument adjacent to the site at Clogherachullion

Section 15.3.3.3. of Cultural Heritage (Chapter 15) of the submitted EIAR notes the following relating to a megalithic structure at Clogherachullion:

'One recorded monument is located within the study area: a megalithic structure (DG058-005) in the north of the area. This monument will not be directly impacted upon.'

The review of Duchas.ie being flawed

As noted in Section 15.3.3.5. of Cultural Heritage (Chapter 15) of the submitted EIAR 'the online database of the Irish National Folklore Schools Collection (www.duchas.ie) was reviewed and it does not contain entries for any of the townlands within the study area.' It is noted there are entries in the area outside of the study area.

The use of 'Record of Protected Structures' and Brian Lacy's 'Archaeological Survey of Donegal' (1983)' which list only known sites and do not represent a complete field study of Couty Donegal

It is acknowledged that the sources do not represent a complete field study of Couty Donegal. Section 15.2 of Cultural Heritage (Chapter 15) of the submitted EIAR notes that 'Throughout the process of the appraisal the authors were mindful that these inventories do not contain all structures that may be worthy of protection and were vigilant for new structures worthy of protection.'

As noted in Section 15.2 of Cultural Heritage (Chapter 15) of the submitted EIAR 'the evaluation of impacts upon the archaeological, architectural, and cultural heritage resource is based on a desktop study of published and unpublished documentary and cartographic sources, followed by a field survey.' This review included all relevant statutory sources, as well as historic maps and aerial photography. Fieldwork carried out comprised walkover and windscreen surveys of the location of proposed turbines, hardstanding, access tracks, the grid connection cable route, blade changeover area, the turbine delivery route and recorded heritage sites in the surroundings of the project area.

No assessment was done on the impact the development will have on the Irish language or the culture and heritage in the Gaeltacht

As noted in Section 15.4.1.7 of Cultural Heritage (Chapter 15) of the submitted EIAR 'The proposed project is located within the Donegal Gaeltacht area for the most part. While the construction phase will see the arrival of construction workers to the area, this will be short-term and will not result in permanent settlement of the area by non-Irish speakers. The project is, therefore, predicted to result in a negligible, indirect, not significant impact on the Irish language during the construction phase.'

2.16 TRAFFIC & TRANSPORTATION

The main themes the submissions relate to are:

- Traffic volumes;
- Potential pollution from construction traffic;
- Excavation and transport of materials
- The Turbine Delivery Route (TDR) and haul route;
- Impact on the road network; and
- Compliance with road policy and guidance.

Traffic Volumes

Seven submissions have been received raising concerns regarding the increase in traffic and the general safety of locals using roadways for cycling and walking, and that local roads cannot support large machinery.

In response, it is important to highlight that construction traffic volumes will occur during construction working hours for a temporary period, and the traffic volume varies according to the proposed project's construction programme.

It is expected that during peak construction activity, a total of 70 Light Vehicles (LGV) per day will travel to and from the construction site. This traffic is formed by the construction staff that will arrive in the morning and depart in the afternoon, and it is also expected that 79 Heavy Goods Vehicles (HGV) per day will travel to and from the construction site. This traffic will be distributed during construction working hours.

The impact of the proposed project on traffic is expected to be minimal on the existing road network. Table 16-7 of Chapter 16 (Traffic and Transport) of the submitted EIAR presents the impact that the construction traffic will have on the R252 /L6483 T-Junction located northeast of the site. It is predicted that the delay at the junction will increase to a maximum of 10 seconds during the construction phase, with this result, the traffic effect will be slightly adverse for the short term.

Regarding two submissions which raised safety as a concern, potential traffic disruption and health and safety have been considered in the submitted EIAR, and mitigation measures have been proposed to alleviate the potential impact. A temporary speed limit for construction vehicles has been proposed. In speed zones greater than 60 km/h, drivers of construction vehicles / HGVs will be instructed that vehicular movements in sensitive locations, such as schools and local community areas, shall be restricted to 60 km/h. Legal speed limits will be emphasised to all staff, suppliers, and contractors during induction training. Such advisory speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users. As such, potential traffic disruption and health and safety have been considered in the EIAR, and mitigation measures have been proposed to alleviate the potential impact.

At the operational phase, it is expected that 2 or 3 individuals will commute daily to the proposed wind farm site by LGV. The effect of this traffic will be imperceptible.

Regarding the eight submissions which raised concern on the condition of the roads with the increase in traffic, it is important to highlight that the Applicant will undertake pre-construction and post-construction visual pavement surveys on the haul roads. Where the surveys conclude that damage to the roadway is attributable to the construction phase of the proposed project, the Applicant will fund appropriate reinstatement works to bring the road back to pre-construction condition as a minimum, details for which will be agreed upon with the Donegal County Council Road Department.

Potential Pollution from Construction Traffic

Concern has been raised about traffic and pollution in the area from the construction site.

In response, it is important to highlight that construction traffic will be temporary and will vary according to the proposed project's construction programme.

Prior to the commencement of construction work, the contractor will agree to a Construction Environment Management Plan (CEMP) with Donegal County Council. The CEMP details the procedures prescribed to prevent, control, and mitigate potential environmental impacts from the construction of the works and details procedures and method statements for the management of specific issues.

Excavation and Transport of Materials

A submission has been received in relation to gravel and hardcore being excavated and transported by large distances over poor-quality roads.

As presented in Section 16.8.2 of the EIAR, by sourcing the majority of the required stone volume from onsite borrow pits , the volume of traffic that will occur on public roads in the area will be significantly reduced. Once the required rock has been extracted from each borrow pit, they will be reinstated using any surplus inert material from the site (including peat) and made secure using permanent stock proof fencing. There will be short-term residual effects on the national and local road network during the construction phase, as reported in Section 16.15 of the submitted EIAR.

Bridge Access

A submission has been received raising concern about an incident that happened on a local bridge approximately 20 years ago, and the local resident is concerned it could occur again.

It is important to highlight the construction haul routes that were presented to the Donegal County Council Roads Department. There is no indication of a weight restriction on the bridge on R252. In addition, a pre- and post-construction pavement survey will be undertaken by the Applicant. Where the surveys conclude that damage to the roadway is attributable to the construction phase of the proposed project, the Applicant will fund the appropriate reinstatement works to bring the road back to pre-construction condition as a minimum.

Turbine Delivery Route (TDR)

Twelve submissions have been made raising concerns about the Turbine Delivery Route (TDR), especially regarding its origin in Killybegs Port, the width of the roads, and the vertical transportation of the wind turbine blades through Glenties town and roads R250, L6363, and L6383.

As presented in Section 16.5 of the submitted EIAR, the TDR for the longest Abnormal Indivisible Load (AIL) has been assessed using swept path analysis. The swept path analysis used an 82-metre blade length, which is the maximum blade length to be used in the windfarm. The tower sections are considerably shorter than the blade sections, and therefore, the 82-metre blade was used as a worst-case scenario. Temporary works for the transportation of the turbines were identified, and those works range from hedgerow trimming/clearing, temporary removal of fencing, telephone poles, and road signage to facilitate oversail to the temporary placement of hardcore to allow the oversize vehicles to pass.

A swept path analysis was also carried out for the blade lifter from the changeover location on Regional Road R262 to the wind farm site. It was determined that there will be no oversail or land required for this section of the route. It is important to note that the works along the TDR will be temporary, and after the transportation of turbines, pre-construction conditions will be reinstated.

Regarding the vertical transportation concern raised by a submission, it has been proposed that the turbine blades be mounted on a vertical blade transporter on Regional Road R262, and it will be transported lifted for the rest of the route (i.e., L6363 and L6483). It is important to highlight that the transport of those blades will consider the vertical alignment, especially cabling and light poles near Glenties town.

Haul Route

Four submissions have been made regarding the road width of the local network, with concern raised that the roads are not wide enough for construction vehicles. Other submissions argue that widening the roads will take away the scenic amenity of the area and some locals are concerned with the L6483 being widened and bends removed, which would disrupt locals and increase traffic.

In response, the consenting process describes the temporary works that are required for the transportation of turbines from Killybegs Port to the wind farm site. Advanced works have been identified along the TDR, including approximate areas requiring temporary hardstanding, relocation/demountable street furniture, utility diversions, and cutting back vegetation to facilitate the delivery of the abnormal turbine component loads. It is important to note that these works will be temporary and at the end of the construction phase, any areas, road verges, and field boundaries that were given temporary hardcore surfaces will be reinstated, covered in topsoil, and reseeded.

In addition, due to the width of the roads in the area, a one-way system has been proposed for the construction traffic of the proposed project. This system will include Regional and Local Roads R252, R250, L6363, and L6483. The one-way system will be in place to avoid conflict between delivery vehicles and minimise the number of opposing-direction vehicles. With the one-way system, opposing traffic will have a suitable opportunity to pass opposing vehicles at regular intervals, ensuring the efficient flow of materials and vehicles in the area. Local users will continue commuting as normally, and the opposing traffic will have a suitable opportunity to pass opposing vehicles at regular intervals, ensuring the efficient flow of materials and vehicles in the area.

Compliance with Transport Infrastructure Ireland (TII) standards and Road Safety Audit

A submission has been received stating that any proposed works to the national road network must comply with TII publications and be subject to Road Safety Audit.

In response, the proposed project complies with the relevant TII publications, as listed:

- Traffic and Transportation Guidelines (TII PE-PDV-02045 May 2014);
- Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions) (TII DN-GEO-03060 June 2017);
- Rural Road Link Design (TII DN-GEO-03031 April 2017);
- Guidance on Minor Improvements to National Roads (including Erratum No. 1, dated April 2013 and Erratum No. 2, dated June 2013 (TII DN-GEO-03030 March 2013);
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (TII PE-PAG-02017 October 2016);
- Road Safety Audit (TII GE-STY-01024 December 2017); and
- 'Purple Book' – Guidelines for Managing Openings in Public Roads (Second Editions April 2017 DoTTS).

A Stage 1 Road Safety Audit was undertaken between 26th of January and 15th of February 2023, as noted in Section 16.7.4 of the submitted EIAR. The RSA report highlighted issues with the existing road layout and site accesses. The RSA addressed issues relating to road width,

road surface, carriageway drainage, gradient, swept path, road widening, signage, and vehicle restraint barriers. The RSA included both construction and operational stages, and recommendations have been incorporated into the proposed project design submitted as part of the planning application.

Traffic Management Plan (TMP) and Impacts on Locals

Concerns have been raised in a submission regarding the content of the Traffic Management Plan (TMP) and the impact of traffic on the local community. A TMP has been included as Appendix 2-7 of the submitted EIAR, which will be updated by the principal contractor (on appointment) and agreed upon with Donegal County Council prior to the commencement of construction in the event of a grant of permission.

Section 4.2 of the submitted TMP outlines the measures to reduce impacts on local communities and residents adjacent to the proposed site.

Furthermore, along the regional and local roads, drivers of construction vehicles / HGVs will be advised that vehicular movements in sensitive locations, such as schools and local community areas, shall be restricted to 60 km/h or other speeds as requested by Donegal County Council (Section 4.5.2). In addition to this, due to the low levels of construction-generated traffic, the traffic impact at the proposed project access location is considered to have minimal impacts on existing traffic levels, provided the measures in the TMP are adopted in the development of the Construction Site Traffic Management Plan (CSTMP) and are adhered to.

Illegal Road Works

A submission has been received claiming that “illegal” road works has begun in the area. It is important to clarify that the proposed project is in the planning process with no works commenced, and the “illegal” road works stated are not related to this project.

Widening of L6483

Four concerns have been raised regarding the widening of Local Secondary Road L6483. Submissions have claimed that bends will be removed for construction vehicles, disrupting locals.

It is important to clarify that sections of L6483 and L6363 will be widened within the road corridor to facilitate the delivery of abnormal loads/turbines in the townlands of Cloghercor, Shallogan More, Derryloaghan, and Straboy.

As presented in Section 16.7.4 of the submitted EIAR, the consenting process describes the temporary works that are required for the transportation of turbines from Killybegs Port to the site. Advanced works have been identified along the TDR including approximately 6 areas requiring temporary hardstanding, and additional areas requiring street furniture relocation, demountable road signage, utility diversions, hedgerows, and vegetation cuttings to facilitate the delivery of the abnormal turbine component loads. These works will be temporary, and at the end of the construction phase, any areas, road verges, and field boundaries that were given temporary hardcore surfaces will be reinstated.

Other works that will take place on local road L6483 will be the construction of new site entrances for the construction phase. As presented in Section 16.11 of the submitted EIAR, the proposed wind farm access tracks approaching the L6483 site accesses will be widened to

7m over a distance of 50m to allow for the passing of construction vehicles. In addition, the gate has been positioned to allow for a large vehicle to wait clear of passing traffic on the L6483 to avoid a potential collision between a passing vehicle and one stopped at the site access. During the construction phase, one access will be used as a main entrance point during the early stages of construction until the internal access roads are constructed. At that stage, access point two will be the main site exit, and access point one will be the main site entrance. It has also been proposed to have a one-way system for construction traffic on the local road network. Those measures are proposed to minimise impacts on existing traffic.

Lack of Information on TDR Map

A submission has been received stating that Figure 2.3 – Turbine Delivery Route does not mark villages or towns on the map or L6483, which has two entrances.

The mentioned map shows the proposed TDR with the road numbers, approximate distance travelled on each road, and points where temporary works are required for turbine delivery. To confirm, Killybegs, Dunkineely, Inver, Frosses, Drumnacross, Mullantyboyle, Glenties, Straboy, Shallogan More, Derryloaghan and Cloghercor are some towns, townlands and villages that the proposed TDR will pass through during a nighttime period.

In Section 16.7.4 of the submitted EIAR, the TDR is also described. The route heads north from the port in Killybegs on the R263 to the N56 where, it turns eastward. The route then continues generally eastwards on the N56, passing through Dunkineely and Inver villages to the junction with the R262, where it makes a northerly turn in the direction of Frosses. The route continues northwards to a proposed temporary blade changeover in Drumnacross. It then runs north to re-join the N56, where it turns eastwards to Mullantyboyle and Glenties. In the town of Glenties, the route joins the R250 and continues travelling in a north-easterly direction until turning to the northwest onto the local road L6363, passing through the townlands of Straboy, Shallogan More, Derryloaghan and Cloghercor. It then turns onto the L6483, where it continues to the site entrance of the proposed project.

Regarding the two entrances on local road L6483, during the construction phase, one access point will be the main site entrance, and the second access point will be the main site exit. Those measures were proposed to minimise impacts on existing traffic.

2.17 SCHEDULE OF MITIGATION

The main themes the submissions received relate to are as follows:

- The adherence to the mitigation measures and mitigation measures for suspended solids; and
- Response rates to the scoping and consultation.

Adherence to Mitigation

The developer's adherence to mitigation measures was the subject of a submission received. The schedule of mitigation measures are agreed for full implementation by the Applicant. Should the proposed project be approved, the Board will apply any conditions they deem necessary.

Cumulative Effects

A submission received queried the cumulative negative effects of the proposed project across Maas, Graffy, Dungloe and Gweebarra and stated that this is not considered in the application.

A full cumulative assessment has been carried out within each technical chapter of the submitted EIAR.

Poor Response Rates

Poor response rates to the scoping and consultation of the proposed project was discussed in one submission received.

Section 1.8 of Introduction (Chapter 1) of the submitted EIAR details the Scoping and Consultation exercise undertaken for the proposed project and the results. In relation to letters sent to statutory bodies, a full list of consultees and a summary of their response is laid out in Table 1-4 of the EIAR, which shows that 14 no. of these responded. In addition, a copy the Scoping Report, with a standard cover letter is provided in Appendix 1-3 and all responses received from consultees are provided in Appendix 1-4.

Based on previous experience with numerous other projects, some consultees will not respond unless they have concerns with the project, and therefore the response rate can vary for each project.

Mitigation Measures regarding Suspended Solids

A submission was received that stated that the mitigation measures for the interception of suspended solids have not been designed and therefore do not exist.

A Surface Water Management Plan (SWMP) has been prepared (Appendix 9-1) and the Hydrology and Hydrogeology chapter of the submitted EIAR is appended to the NIS (Appendix 3). The SWMP includes detail regarding interceptor drains, swales and settlement ponds along with other mitigation measures. The design of the drainage system is available to a level suitable for planning, with all drawings submitted as part of the planning application, available within Appendix 1-1 of the submitted EIAR:

- 10798-2029 Road swales and settlement pond details;
- 10798-2030 culvert details; and
- 10798-2060 to 2065 (6 no. sheets detailing the drainage design).

The purpose of the SWMP is to ensure that all site works are conducted in an environmentally responsible manner so as to minimise any potential adverse impacts from the proposed project on surface water quality. Erosion and sediment control measures which will be implemented will include, but will not be limited to:

- Minimisation of soil exposure, by controlling, in so far as is practical, the locations where vegetation/soil is stripped and when vegetation/soil is stripped;
- During the excavation of peat/soils, silt fences, straw bales and/or biodegradable geogrids will be used to control surface water run-off from material storage areas; and
- All surface water run-off from the development (including during construction works) will pass through either temporary or permanent settlement ponds.

To maximise the erosion and sediment control benefits of natural vegetation soil cover, stripping of soil is to be kept to a minimum and confined to construction areas only. Where

practical, construction works will be staged to minimise the extent and duration of disturbance, e.g., plan for progressive site clearance, only disturbing areas when they are scheduled for current construction work.

2.18 COMMUNITY ENGAGEMENT

The main themes the submissions received relate to are:

- The consultation process of the proposed project; and
- The inclusion of Irish in the submitted documentation.

Consultation process

Thirteen submissions highlighted dissatisfaction with the consultation process in their respective submissions, with two of the thirteen in relation to consultation during the Covid-19 pandemic.

An extensive engagement process with stakeholders occurred at various times between April 2021 - December 2022, as detailed in Section 2.2 of the Community Engagement Report (Appendix 1-5) of the submitted EIAR and available on the project website (https://cloghercorwindfarmplanning.com/).

The project was first introduced to the community during the spring of 2021, when Government measures were in place during the Covid-19 pandemic. Therefore, whilst it was not practically possible to hold an in-person exhibition or a public meeting during the initial round of consultation on the first design iteration, the Applicant has sought to ensure that key stakeholders and the local communities were aware of the proposals and given multiple opportunities to view, and discuss the proposals in a Covid-secure setting. As soon as public health guidelines allowed for face-to-face interaction to form part of the community engagement approach, the Applicant undertook efforts to provide opportunities for the community to view, discuss and comment on the subsequent design iterations of the proposal in both a virtual and an in-person setting to allow for maximum community participation. In-person information events were held at multiple venues in proximity to the site for both Design Iteration 2 Stage and Design Iteration 3 Stage, prior to the submission of planning permission.

In advance of Community Engagement on the first design iteration for the proposed project the Applicant prepared a newsletter which was delivered to the immediate population whose properties are within 5km of the boundary of the proposed project. A pdf copy of this newsletter was sent to a range of active, local community groups in early April 2021.

A dual language (English and Irish) Community Liaison Officer (CLO) visited homes within 2km of the proposed project on several occasions to ensure they were informed about the project, as outlined:

- June 2021 - To provide residents with a copy of the June 2021 newsletter and invite participation in public consultation sessions;
- November 2021 - To provide residents with postcard invite to November 2021 community engagement webinar and to invite their participation in the event;
- June 2022 - To provide residents with a copy of the June 2022 newsletter and invite participation in public consultation sessions;
- October 2022 - To provide residents with a copy of the October 2022 newsletter and invite participation in public consultation sessions.

Consultation events centred around the three design iterations of the proposed project.

Design Iteration 1

The first design iteration for Cloghercor Wind Farm was presented to the community in the form of a 'virtual consultation room' which was available to access online at the dedicated project website, www.cloghercorwindfarm.com from 00:01 on Monday 28th of June 2021. Members of the public were given prior notice of the virtual public consultation in the two weeks prior to the virtual room going 'live'. Members of the public were invited to submit their concerns and opinions.

To maintain dialogue with the local community, a community information webinar was hosted by the Applicant on 29th of November 2021 from 18:00-20:00.

Design Iteration 2

Consultation on design iteration 2 was launched in June 2022. Cloghercor Wind Farm organised two public exhibition events which were held in two locations close to the proposed wind farm site. The exhibitions took place on Monday 13th of June and Tuesday 14th of June 2022. Both events were held from 12:00-20:00. The public consultations were held in the following venues: Monday 13th of June - Halla Naomh Bride, Madavagh, Lettermacaward and Tuesday 14th of June - Teach Gleann Ceo, Main Street, Doochary. In addition, an updated virtual consultation room being added to the dedicated project website. Feedback was invited at both the in-person and online events.

Design Iteration 3

Consultation on design iteration 3 was launched in October 2022. The consultation was rescheduled following a fatal incident at Cresslough, Donegal. The rescheduled public consultation took place in-person and virtually from 2nd of November 2022.

Cloghercor Wind Farm organised two public exhibition events which were held in two locations close to the proposed wind farm site. The exhibitions took place on 2nd of November and 3rd of November 2022. Both events were held from 14:00-20:00. The public consultations were held in the following venues: Wednesday 2nd of November - Gweebarra Bar, Meenagowan, Lettermacaward and Thursday 3rd of November - Teach Gleann Ceo, Main Street, Doochary. The updated virtual consultation room went 'live' at 00:01 on 2nd of November 2022. A digital feedback form was provided within the virtual consultation room, and attendees were also given the option to download and return feedback forms at a later date.

Throughout the pre-planning stage the Applicant continued to engage with the community on an ongoing basis though written communications (via the dedicated project email address), discussions over the phone (via the dedicated project phone number, managed by the CLOs). At the request of individuals, the Applicant also facilitated a number of meetings with individual residents to discuss the proposed project and their queries. Representatives from Cloghercor Wind Farm Ltd. have met with and maintained an open dialogue with Tír Chonaill GAP Cycling Club about the potential to create a recreational amenity at the site after construction of the proposed wind farm.

Landowner within Boundary

A submission was received that stated that a landowner within the boundary opposed the wind farm and did not give their respective consent.

All land within the boundary of the application site of the proposed project is under ownership of the Applicant or under third-party agreement with the landowner. The submission received with the above complaint was not received from the respective landowner in question. Due process was followed for the development of this proposed project and all landowners directly affected by the proposed works have been fully engaged with.

2.19 EIAR ISSUES

The main themes the submissions relate to are:

- The structure of the EIAR;
- Turbine size and model;
- The source of aggregate for the proposed project; and
- Consideration of Inland Fisheries Ireland recommendations.

EIAR Structure and Accessibility

Two submissions were received which stated that they were either unhappy with the EIAR structure or felt it would be inaccessible for those without an academic background.

The EIAR is laid out as per best practice guidelines from the Environment Protection Agency (EPA) 2022 Guidelines on the Information for Preparing EIARs, with a full project description and associated plans presented in Chapter 2 of the submitted EIAR. There is also a supporting Non-Technical Summary (NTS) provided in both English and Irish. The NTS is in non-technical language and covers the main points of the proposed project and the significant effects. It is 34 pages long and summarises each respective chapter of the EIAR.

Aggregate Sourcing

A submission received requested clarification on the source of aggregate for the proposed project due to potential dust impacts.

The source of the aggregate is dependent on the need as stated in Section 2.6.3.2 of the submitted EIAR. Material will be sourced from the proposed onsite 4 no. borrow pits to provide the required base material for internal roads. The final graded surface material may be sourced from local quarries (such as Glenstone Quarry, Drimkeelan Sandstone Quarry and Mountcharles Sandstone Quarry all located to the south of the site). An assessment of the potential effects of dust emissions is included within Chapter 14 (Air Quality and Climate) in Section 14.5.3.

Ecologists and Scientists

The request for information to be provided by state funded ecologists and scientists was raised in a singular submission.

The submitted EIAR and associated documents have been composed by competent experts in their respective fields with significant industry knowledge regarding impact assessment and mitigation. For further details regarding the competent expert's experience and qualifications please refer to 'Table 1-3: List of Competent Experts Contributing to the EIAR', available in Chapter 1 of the submitted EIAR.

Cumulative Effects

Several submissions were received that question whether the cumulative effects of the project were considered together and whether the project considered cumulative effects with other projects.

Chapter 17 of the EIAR, Interaction of the Foregoing details the interactions between environmental aspects both positive and negative associated with the project. For specific interactions and further detail, please refer to the same chapter.

In addition, each Chapter within the submitted EIAR has a dedicated section to Cumulative Effects within which the proposed project is considered alongside other projects in the surrounding area.

Cleengortin

A submission received stated that Cleengortin was referred to as a townland in the submitted EIAR and the Photomontages within Volume 4.

Cleengortin is not referenced in the photomontages or the submitted EIAR.

Pylons

A local group stated in a submission that the planned lattice steel pylons were omitted from photomontages.

Drawings of the end masts are available in Appendix 1-1 of the submitted EIAR on sheet number 05725-DR-107.

Inhabited Houses

A submission received stated that inhabited houses have been omitted from Figure 2.1 of the submitted EIAR.

Figure 2.1 is a map of the site layout only. Figure 5-3 displays the locations of sensitive receptors and the proposed Wind Farm Boundary. Dwellings were identified using the methodology set out in Section 5.3.1 of the EIAR under the heading "Property/Receptors".

Details of turbine model and size and foundation size

A submission received is concerned that the size of the turbine foundation is not stated in the EIAR. Similarly, concern is also expressed regarding the explicit model and size of the turbines associated with the proposed project not being stated.

As detailed in Section 2.6.2.4 of the submitted EIAR, the exact size of the foundation will be dictated by the turbine manufacturer, and the final turbine selection will be the subject of a competitive tender process. It is anticipated to be between 20-26m in diameter with thickness of 3m at the centre tapering towards the edge. Different turbine manufacturers use different shaped turbines foundations, ranging from circular to hexagonal and square, depending on the requirements of the final turbine supplier. For the purposes of assessing the turbine range for this EIAR, a maximum volume of 1000m^3 of concrete and a minimum volume of 550m^3 has been assumed.

As detailed further in Section 2.6.2 of the submitted EIAR, the proposed turbines will have a tip height of between 185-200m. Detailed drawings, which accompany the submitted planning

application, show the parameters of the turbine that may be used for the proposed project, however, the exact make and model of the turbine will be dictated by a competitive tender process of the various turbines on the market at the time, which will have dimensions within the size range set out within the proposed project description (i.e. overall blade tip height of between 185-200m, a rotor diameter of between 149-164m, a hub height of between 112-125m).

Wastewater Alarm System

A submission received states that there were no specific details on the substation waste water alarm system provided.

Section 2.6.4.1 of the submitted EIAR provides details regarding the wastewater storage tank and its function related to the onsite electricity substation.

Figure 2-4

A submission received stated that Figure 2-4 omits local houses from map, land and homes within boundary of proposed site.

Figure 2-4 is a map of the proposed grid connection route only. Figure 5-3 displays the locations of sensitive receptors and the proposed Wind Farm Boundary.

Consideration of Alternatives

Two submissions received made several points regarding the consideration of alternatives. Initially one submission questioned whether the quote from the EPA regarding the consideration of alternatives contravenes the law and does not make sense. The submission also claims that the 'do-nothing option' did not consider doing nothing in the local area while erecting turbines in the Phoenix Park. The second submission questions whether the EIAR meets basic qualifying criteria regarding identifying an alternative site.

As per the EPA quote in question, the proposed project does not analyse high level or sectoral alternatives as it is a project level EIAR, reasonable alternatives should be considered. Such considerations are detailed further in Chapter 3 of the EIAR (Consideration of Reasonable Alternatives), which details the methodology used for site selection and determining reasonable alternatives. In response to the alternative site query, Section 3.3.2 of the submitted EIAR details the proposed project site selection process. The alternative to the proposed project site screening process would be to bring forward a site that does not pass one or all of the above phases of screening.

Piling

A submission was received that requested clarity on whether piling will be required as part of the proposed project.

In response, it is noted that conditions on site are suitable for gravity foundations. Piling is not anticipated however in the unlikely event piling is undertaken it is assessed in the EIAR (Section 12.5.1.2).

Peat stability

The assumptions used for the assessment of Peat Stability were raised in a submission.

The Peat Stability Risk Assessment (Appendix 2-2) was undertaken by an experienced, competent, and highly qualified geotechnical engineer in line with best industry practice. All key assumptions made are described and backed up with references to literature where relevant. The literature cited is considered credible and the best available. In particular, the peat stability models used are well established, being in use for over 35 years.

In addition, several site visits were carried out, high quality topographical data were analysed, and a significant quantity of site-specific investigation data were used to minimise the number of assumptions present in the analysis. It is considered the PSRA was undertaken based on a minimum number of assumptions and, where assumptions are made, they are conservative and well-grounded in literature or experience from practice.

EIAR Maps

A submission received claimed that the EIAR maps are illegible.

The maps included as part of the EIAR are available on the project website and were reviewed for legibility and it was confirmed that the maps are legible.

In addition, a hard copy of all planning application documentation as submitted can be accessed at the offices of An Bord Pleanála and Donegal County Council.

Measurement of Distance to each house

One submission stated that the EIAR should supply measurements from each turbine to each house.

Chapter 5 of the EIAR, Population and Human Health, table 5-3 presents a summary of the identified receptors. The closest sensitive receptor is located925 m from the nearest proposed turbine location which is in excess of the minimum setback requirement of 500m set out in the 2006 and Draft 2019 WEDGs.

Regarding Inland Fisheries Ireland

A submission queried if responses received from Inland Fisheries (received 23/06/21 and 06/10/22) as part of the EIAR scoping were adequately addressed in the design. Comments raised by Inlands Fisheries were primarily regarding hydrological mitigation and remote sensing.

Hydrological mitigation measures are detailed in Section 9.5 of the submitted EIAR. Fisheries are specifically addressed in Section 9.5.3.6 where it is stated that 'Runoff will be maintained at Greenfield (pre-development) runoff rates. The layout of the development has been designed to collect surface water runoff from hardstanding areas within the development and discharge to associated surface water attenuation lagoons adjacent to the proposed infrastructure. It will then be managed by gravity flow at Greenfield runoff rates'.

For further detail refer to section 9.5.3.6. All works will be carried out in accordance with the IFI 2016 Guidelines 'Guidelines on Protection of Fisheries during Construction Works in and adjacent to waters'.

It is noted that Inland Fisheries Ireland included remote sensing as a recommendation rather than a condition, the Applicant will comply as required with any conditions deemed necessary by the Board as part of the decision-making process.

Ownership of Cloghercor Wind Farm

A submission received stated that Cloghercor Wind Farm is half owned by the Irish state, in relation to this statement it is noted that Coillte's website https://www.coillte.ie/coillte-faqs/coillte-involved-wind-energy/ states that "Coillte is involved in wind energy because we are committed to the development of sustainable energy in Ireland, as we move towards a sustainable future with enhanced energy security. As the largest provider of high-quality sites to the renewable energy sector, Coillte has made a significant contribution to Ireland's 2020 target of achieving 40% of its electricity consumption from renewable sources." To further add from the Coillte website "Coillte is fully aligned with government and EU policy in terms of the role it plays in relation to wind energy development in Ireland. Coillte supports proper planning and sustainable development, and it believes that wind energy has an important contribution to make to the social, environmental, and economic pillars of sustainability."

2.20 REQUESTS AN ORAL HEARING

The submissions received include a request for an Oral Hearing to be held in relation to the current application.

In relation to this request, the board have stated the following:

> *"The Board has considered the case and hereby notifies you that it has decided to determine the application without an oral hearing. In this regard, please be advised that the Board has absolute discretion to hold an oral hearing and has concluded that this case can be dealt with adequately through written procedure."*

3 CONCLUSION

This response to observations is submitted on behalf of the applicant, Cloghercor Wind Farm Limited, in relation to the proposed project on a site in the townlands of Cloghercor, Clogherachullion, and Derryloaghan, with improvement works planned along the turbine delivery route in the townlands of Drumnacross, Drumard, Agahayeevoge, Cashelreagh Glebe and Darney.

It is considered that the above information in conjunction with the submitted Planning Application and EIAR documents provides a full, justified and evidence-based rebuttal to the issues raised in the observations received.

We trust the response will be considered in full in determining this planning application. Should there be a requirement for further clarification, please do not hesitate to contact the Applicant or TOBIN.

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