Inspector's Report
ABP-308806-20

Development	Construction of a windfarm (12 turbines) with associated works
Location	Various Townlands including Tooslenagh, Treankeel and Aughkeely, Co. Donegal
Planning Authority	Donegal County Council
Applicant(s)	Drumnahough Windfarm DAC
Type of Application	Application under provisions of Section 37E of the Planning and Development Act, 2000 (as amended
Observer(s)	1. Department of Housing, Local Government and Heritage 2. Northern & Western Regional Authority 3. Irish Water 4. Irish Aviation Authority 5. Transport Infrastructure Ireland
Date of Site Inspection	7th July 2021
Inspector	Donal Donnelly

Contents

1.0 Introduction

1.1. An application was received by the Board on 30th November 2020 for the construction of a windfarm under the provisions of Section 37E of the Planning and Development Act, 2000 (as amended). The application is being made by Drumnahough Windfarm DAC and includes 12 no. turbines, a meteorological mast, internal service roads, underground electric cabling systems, tree felling, upgrade works to road junctions and all other associated works.

1.2. Pursuant to Section 37B of the Planning and Development Act, 2000 (as amended), the Board held pre-application discussions with the applicant on 24th October 2019 and 15th January 2020 (ABP-305260-19). The Board issued a Direction on 20th April 2020 that the proposed windfarm with an output in excess of 50MW, and a 110kV substation that would form a new node on the transmission network, would fall within the scope of Sections 37A and 182A of the Act, and that a planning application should be made directly to the Board.

1.3. The applicant has now decided not to pursue the proposed 110kV substation element as part of the current application and instead it is proposed to connect to the consented Lenalea 110kV substation via a medium voltage underground connection. The alternative 110kV substation proposal is nonetheless assessed for the purposes of EIA and Appropriate Assessment. The current application is for a 10 year permission with a 30 year operational life.

2.0 Site Location and Description

2.1. The subject site is located in mid Co. Donegal in a rural upland setting approximately 11km south-west of Letterkenny and 10km north-west of Ballyboffey. The site extends over an area of 611 hectares across the townlands of Meenadaura or Drumnahough Mountain, Treankeel, Carrickalangan, Tooslenagh, Cark, Killymasney, Meentycat and Meenalaban.

2.2. Cark Mountain, the highest peak (364m OD) in the area of the proposed development, is located to the south-east of the proposed turbines. Elevations range across the main part of the site from 341m OD at Cronaglack to the north-west down to 220m OD along the Elatagh River to the south. The site also includes existing

and proposed access roads and alignments to the south-east at the Cark Windfarm and Meentycat Windfarm.

2.3. The site is mostly covered by transitional woodland scrub including forest and semi-natural areas. The part of the site to the north at Cronaglack between woodland consists of peat bog. NPWS mapping shows that there are areas of Wet Heath, an Annex I habitat, in this part of the site.

2.4. Lough Deele is to the east of the main part of the site and the Lowna River flows north from this lake to the River Swilly, a Salmonid River, which is approximately 1.7km north of the site. The Deele River, a tributary of the River Foyle, flows east from Lough Deele. The River Foyle commences at the confluence of the River Finn and River Mourne at Lifford/ Strabane. The Elatagh River is a tributary of the River Finn, which is approximately 4.5km south-west of the site. The main part of the site is mostly within the River Foyle catchment and a part to the north is in the Swilly catchment. The Finn catchment is a Freshwater Pearl Mussel sensitive area.

2.5. The River Finn SAC adjoins the subject site to the south and the Meentygrannagh Bog SAC is approximately 140m west of the site. The Cloghernagore Bog and Glenveagh National Park SAC and the Derryveagh and Glendowan Mountains SPA are situated approximately 5.8km west of the site. Tullytresna Bog pNHA and Meentygrannagh Bog pNHA are to the south and west of the site, respectively.

2.6. Access to the site is from two local roads to the west and south-east. These roads continue between the R252 and R250 Regional Roads. There is a network of existing forestry tracks and windfarm roads through the site. The surrounding area is sparsely populated. The site is in the Cark Mountain Uplands Landscape Character Area and in an Area of High Scenic Amenity. There is an Area of Especially High Scenic Amenity immediately to the south. The nearest protected view in the direction of the site is at Stralongford approximately 7km to the east. The western part of the site is within the Donegal Gaeltacht.

3.0 Planning History

3.1. Subject site

Donegal County Council Reg. Ref:08/50687

3.1.1. Airtricity Developments Ireland Ltd. and Coilte Teoranta were granted permission in February 2009 for the construction of windfarm of 15 wind turbines of up to 3MW capacity each, up to 85m hub height and up to 100m blade diameter with a total height not exceeding 135m, a permanent meteorological logical lattice mast 85m high, a substation and associated equipment, a borrow pit, internal site tracks, site drainage and associated works.

3.1.2. An extension of duration of permission was granted under Reg. Ref: 13/51609. However, the development was not implemented, and permission expired on 29th March 2019.

3.2. Recent Nearby Windfarms

Donegal County Council Reg. Ref: 17/50543 (PL05E.248796)

3.2.1. A 10 year planning permission for development consisting of (1) a 110kv electricity substation which includes 2 no. control buildings, associated electrical plant and equipment, underground electricity cabling, fencing and ancillary works in the townland of Cark to replace two substations previously permitted as part of the Drumnahough Wind Farm (Reg. Ref: 08/50687 and extended under Reg. Ref: 13/51609) and the Lenalea Wind Farm (Reg. Ref: 09/50116); (2) 33kv underground electricity cabling and ancillary works from the permitted Lenalea Wind Farm to the proposed substation in the townland of Cark; (3) 110kv underground electricity cabling and ancillary works from the proposed substation at cark through the townlands of Culliagh, Meenbog (ED Cloghan), Lettershanbo, Corlacky, Kinnaderry, Welchtown, Aghaveagh, Meenagrauv, Altnapaste, Ballykergan, Carrickmahon, Magheracloigh, Loughsallagh, Cashelnavean, Croaghonagh, Tawnawully Mountains, Keadew Upper, Friarbush, Ardinawark, Keadew Lower, to the existing Clogher substation in the townland of Cullionboy, Co. Donegal; (4) the demolition of an existing shed and its replacement with a new shed, both in the townland of Cullionboy, relocated to facilitate the proposed underground cabling works. the

planning application is accompanied by an Environmental Impact Statement (EIS) and Natura Impact Statement (NIS).

Donegal County Council Reg. Ref: 09/50116

3.2.2. Airtricity Developments (Ireland) Ltd. and Coillte Teoranta were granted permission at Lenalea to the east of the proposed development site for a wind farm, consisting of 9 wind turbines of up to 85m hub height and up to 100m blade diameter with a total height not exceeding 135m, a permanent meterological lattice mast 85m high, a substation and associated equipment, a borrow pit, internal site tracks, drainage and associated works.

3.2.3. Under Reg Ref: 18/50312, SSE Renewables (Ireland) Ltd. was granted permission for installation of approximately 580m of overhead electrical cable, 2 no. twin wooden pole-sets and 2 no. steel end masts and the decommissioning of approximately 203m of existing overhead electrical cable, on site area of 5.72 hectares, from the proposed electrical substation at Lenalea wind farm (previously granted permission ref. 09/50116 and 12/40091) to the existing Letterkenny to Binbane 110kv overhead line.

3.2.4. An extension of duration of permission for the 9 turbine windfarm was granted in November 2019 (Reg. Ref: 19/51521).

3.3. Nearby windfarm applications considered for cumulative assessment

3.3.1. The following windfarms are located to the south-east and south extending as far as 6km from the main part of the proposed development site:

- Cark Wind Farm including Cark/Stranorlar and extension – 25 turbines
- Cark Wind Farm Extension – 4 turbines
- Cark/Largymore WindFarm – 9 turbines
- Culliagh Wind Farm including extension – 21 turbines
- Meenbog Wind Farm – 3 turbines
- Ballystrang Wind Farm – 6 turbines
- Meentycat Wind Farm – 9 turbines

- Meenlaban Wind Farm – 7 turbines
- Meenahorna Wind Farm – 7 turbines
- Meenanilta Wind Farm – 6 turbines
- Meenagrauv Wind Farm – 4 turbines

4.0 Proposed Development

4.1. Planning permission is sought for the construction of a windfarm, which includes the following:

- 12 no. wind turbines with turbine tip height of 167.5m and associated foundations and crane hardstand areas.
- 1 no. permanent 110m high meteorological mast and associated foundation, hardstand area and ancillary main crane hardstand area.
- 3.2km of existing forest tracks to be upgraded and 7.1km of new internal access tracks to be constructed.
- Underground medium voltage electric cabling systems between turbines within the wind farm site and between the windfarm site and the grid connection point at the permitted Lenalea substation (5.3km).
- Minor upgrading of existing site entrance on the L-10142 and new junction off the L-10142 to facilitate construction and access to Turbine 1.
- Localised upgrading/ widening along existing access roads within Meentycat Windfarm.
- 2 no. temporary construction site compounds (100m x 50m & 55m x 25m).
- 3 no. borrow pits to source stone material during construction (estimated 306,680m^3) and to store excess excavated peat materials.
- 3 no. peat/ spoil deposition areas (at borrow pit locations).
- Associated surface water management system.
- Tree felling to facilitate site development (c. 33.8 ha.).

4.2. The application is for a 10-year permission, under Section 37E of the Planning and Development Act, 2000, as amended. It follows a Board Determination under Section 38B (ABB-305260-19) that the proposed windfarm, with output in excess of 50MW and including a 110kV substation, falls within the scope of Sections 37A and 182A of the Act. The pre-app included two options for connection to the national grid. The applicant, however, has decided not to pursue the proposed 110kV substation option at present and this element does not therefore form part of the current planning application. It is proposed instead to connect to the consented Lenalea 110kV substation via medium voltage unground cables. The alternative grid connection option comprising the construction of a new 110kV substation on site with new loop in/ loop out connection to the existing Binbane to Letterkenny 110kV overhead line is nonetheless assessed for the purposes of EIA and Appropriate Assessment.

4.3. The proposed 12 no. turbines will have a potential installed capacity of c. 60 to 70 MW and the expected lifetime of the windfarm is 30 years. The proposed turbines would be approximately 32.5m higher than the tip height of 15 no. turbines on site that were permitted in 2009 (now expired). The turbine delivery route will be from Killybegs Port and north-east to Lifford before turning north-west to Letterkenny then south towards Ballyboffey.

4.4. An Environmental Impact Assessment Report and Natura Impact Statement (Stage 2 Appropriate Assessment) have been prepared in respect of this application. A full list of documents submitted with the planning application is set out below.

4.5. **Accompanying documents:**

4.5.1. The application is accompanied by the following information:

- Completed application form
- Landowner consent letters
- Planning application drawings
- Statutory notices
- Schedule of prescribed bodies

- EIA Portal confirmation notice
- Environmental Impact Assessment Report (EIAR):
    - Volume 1: Non-Technical Summary
    - Volume 2: Main EIAR
    - Volume 3: Appendices
    - Volume 4: Photomontages
- Natura Impact Statement (NIS)
- Standalone website: www.drumnahoughwindfarmplanning.com

5.0 Policy Context

5.1. National Framework Plan, 2018

5.1.1. The National Planning Framework provides policies, actions and investment to deliver 10 National Strategic Outcomes (NSO) and priorities of the National Development Plan. Transitioning to a low carbon and climate resilient society is the main NSO that pertains to the proposed development. It is stated that new energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system.

5.1.2. Chapter 9 of the NPF: Realising Our Sustainable Future recognises the need to accelerate action on climate change for a low carbon energy future. In this regard, National Policy Objective 54 seeks to *"reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions."*

5.1.3. The transition to renewable sources of energy is an integral part of Ireland's climate change strategy as a means of reducing reliance on fossil fuels. Reflecting this, National Policy Objective 55 will *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."*

5.2. Regional Spatial & Economic Strategy for the Northern & Western Region, 2020

5.2.1. This document is a 12-year strategic regional development framework that will facilitate the delivery of the NPF. A key issue for the Strategy is climate change and its impact on land-use change and demands on natural resources. It is recognised that in future energy will have to be low carbon and ultimately zero carbon.

5.2.2. Objective (RPO 4.18) seeks to "*support the development of secure, reliable and safe supplies of renewable energy, to maximise their value, maintain the inward investment, support indigenous industry and create jobs."*

5.2.3. The Assembly will also support the necessary integration of the transmission network requirements to allow linkages with renewable energy proposals at all levels to the electricity transmission grid in a sustainable and timely manner (RPO 8.3).

5.3. Donegal County Development Plan, 2018-2024

5.3.1. In Judicial Review proceedings between Planree Limited and Donegal County Council certain provisions of the County Donegal Development Plan 2018-2024 relating to wind energy standards including Map 8.2.1 – Wind Energy were ordered to be deleted and/or removed.

5.3.2. A proposed Variation has been prepared which identifies areas designated as (a) 'Acceptable in Principle'; (b) 'Open to Consideration'; and (c) 'Not Normally Permissible' for wind energy development, as well as a new policy framework relating to same. Most of the proposed development site is within the area not normally permissible; however, there are also small areas within the site that are open to consideration. It is unclear if these areas coincide with the location of the proposed turbines and windfarm infrastructure.

5.3.3. The public consultation period for the proposed Variation ended on 3rd June 2022 and the Chief Executive's Report on public consultations will be submitted to the Council Members on 20th June 2022. The Development Plan (as varied) is expected to be published following the Council Meeting of 18th July 2022.

5.3.4. Section 8.2 of the Development Plan pertains to Energy. It is the overall aim *"to facilitate the development of a diverse energy portfolio by the sustainable harnessing*

of the potential of renewable energy including ocean energy, bioenergy, solar, wind and geothermal, along with the sustainable use of oil and gas, and other emerging energy sources in accordance with National Energy policy and guidance. It is also an aim to facilitate the appropriate development of associated infrastructure to enable the harnessing of these energy resources and to promote and facilitate the development of Donegal as a Centre of Excellence for Renewable Energy."

5.4. Climate Action Plan, 2021

5.4.1. This plan puts in place a pathway for taking decisive action to half emissions by 2030 and reach net zero by 2050, as set out in the Climate Act, 2021. It lists the actions for delivering climate targets and sets indicative ranges of emissions reductions for difference sectors including electricity, enterprise, homes and buildings, transport, agriculture, land use, the circular economy, public sector and governance. The Plan will be updated annually to ensure alignment with legally binding economy-wide carbon budgets and sectoral ceilings.

5.4.2. It is noted that electricity accounted for 17% of Ireland's greenhouse gas emissions in 2018; however, 33.7% of electricity produced in 2018 was from renewable sources. One of the most important measures in the Plan is to increase the proportion of renewable electricity up to 80% by 2030, and to reduce emissions from electricity by 62% – 81% from 2018 levels. It is also recognised that the decarbonisation pathway for electricity is challenging given the rapid growth in demand for power. The Climate Action Plan therefore provides a pathway to more rapid build out of renewable generation capacity (wind and solar), increased storage, and the deployment of zero-emissions gas.

5.5. National Adaption Framework, 2018

5.5.1. The Framework was developed under the Climate Action and Low Carbon Development Act, 2015. A number of Government Departments are required under this Framework to prepare sectorial adaptation plans to reduce the vulnerability of the country to the negative effects of climate change and to avail of the positive impacts. The Climate Change Adaptation Plan for Electricity and Gas Networks Sector has been prepared under the National Adaption Framework to identify the

potential impacts of climate change on energy infrastructure, assess associated risks and set out an action plan for adapting to those impacts.

5.6. Wind Energy Guidelines, 2006

5.6.1. These guidelines still constitute the official strategy guidance on wind farms under the provision of Section 28 of the Planning and Development Act 2000 (as amended). Advice is set out in relation to the design, siting, spatial extent, and height of turbines in various landscape character types. Details are also included for best practice for wind farm development on peatlands and flatland areas, and guidance is also provided on matters such as noise, shadow flicker, natural heritage, archaeology, architectural heritage, ground conditions, aircraft safety, wind take and potential cumulative effects.

5.7. Draft Wind Energy Guidelines, 2019

5.7.1. The Board will note that these guidelines are still in draft form and have not been officially adopted as official guidance. The Supreme Court held in Balz & Anor v An Bord Pleanála [2016] IESC 134, that while statutory guidelines (in this instance the 2006 guidelines) still in force and may be out of date was not an irrelevant planning consideration, and the Board in setting out its reasons and considerations in determining the application, should have its given reasons for not accepting the guidance set out in the 2019 Wind farm Guidelines.

5.8. Natural Heritage Designations

5.8.1. The following designated sites are within 5km of the proposed wind farm:

Site Name	Site Code	Distance (nearest point to wind farm)
Meentygrannagh Bog pNHA	000173	150m north-west
Tullytresna Bog pNHA	001870	Adjoining site to south
River Swilly Valley Woods pNHA	002011	4.5km north-east
River Finn SAC	002301	Adjoining site to south and to the south-west
Meentygrannagh Bog SAC	000173	150m north-west

6.0 Submissions

6.1. Donegal County Council

6.1.1. The following points were raised within a submission dated 23rd April 2021 by the Planning Authority:

- Development is consistent with national and regional policy frameworks set out in the National Planning Framework, Climate Action Plan, Wind Energy Development Guidelines, 2006 and the Regional Spatial and Economic Strategy.
- There are anomalies in local planning policy relating to wind farm developments arising from a Judicial Review ruling following adoption of the Donegal County Development Plan, 2018-2024.
- Court ordered that certain policy provisions relating to wind farm developments in the adopted Development Plan be omitted – this has resulted in a policy vacuum in relation to favoured/ unfavoured geographical locations of wind farm developments in the county and the heights of proposed turbines within wind farms.
- Council will be initiating a variation to the Development Plan this year; however, it is not in a position to adequately assess the proposed SID application in the policy context of the current Development Plan as it would be premature and contrary to proper planning and sustainable.
- Planning Authority can advise that the proposed development is located in an area designated in the 2018-2024 Development Plan as being an Area of High Scenic Amenity – these areas have a capacity to absorb development that can be located to enable assimilation into the receiving environment (Policy NH-P-7).
- Planning Authority is satisfied that the subject site is not impacted by designated views or prospects illustrated on Map 7.1.1 ‘Scenic Amenity’, which Policy NH-P-17) seeks to preserve.
- Planning Authority would ask the Board to assess the visual impact of the proposed development from the Glendowan to Doochary Road, and the Churchill to Termon/ Dunlewey Road.

- Consideration of visual impact of proposed development should include long-range views from the Mountain Top area of Letterkenny, particularly on the N56 approach road between the Mountain Top roundabout and the IDA roundabout.
- Permission was granted under Reg. Ref: 08/50687 for the construction of a windfarm of 15 turbines with overall height of 135m within the confines of current application site.
- Proposed development is sited within an area that was open to consideration for wind energy developments in the 2012-2018 Development Plan.
- There is an existing permission under Reg. Ref: 09/50116 for 9 no. turbines and a 110kV substation (Lenalea) within the general vicinity of the proposed development and a more recent approval under Reg. Ref: 18/50116 was amended under Reg. Ref: 20/50835 with an expiry date of 24th January 2025.
- Planning Authority welcomes the provision of borrow pits in the vicinity of the site which will provide 80% of aggregates for the proposed development. Implications arising from associated blasting will need to be fully assessed in the SID application.
- Planning Authority concurs that there are no risks of significant transboundary effects.
- Planning Authority is satisfied that the EIAR is in compliance with relevant legislation requirements and guidelines, including the Environmental Impact Assessment of Projects: Guidance on the preparation of the EIA Report.
- Planning Authority in general agreement with NIS that the integrity and conservation objectives of habitats within the zone of influence of the wind farm proposal will not be adversely affected subject to precautionary mitigation and monitoring measures.
- Following recent Meenbog peat slip at the end of 2020 and the varying peat depths throughout the site, Planning Authority requests that a full Peat Stability Assessment is carried out by the Board, and that the location of all proposed hard infrastructure and areas for storage of excavated overburden should avoid areas of deep peat identified within the Peat Survey.

- Any peat assessment should also examine any development that has the potential to impact on or change the hydrology of the site such as temporary settlement ponds or silt fencing.
- Board should consider applying conditions for a drainage system/ surface water monitoring programme throughout the site and further afield in close proximity to selected watercourses.
- Conditions should be attached to any grant of permission to mitigate against operational noise and shadow flicker that may affect the small number of dwellings within 2km of the site.
- Board should consult with IAA to ensure that the proposed development will not impact on aviation in the area.
- Planning Authority is not in a position to adequately assess the wind energy proposal until such times as a variation to the Development Plan has been made to address the current deficiencies in the wind energy policy framework.
- Planning Authority has been unable to submit a report to Council to seek the views of members on the proposed development.

6.2. **Prescribed Bodies**

6.3. A total of five submissions were received on the application from prescribed bodies. Submissions were also invited from BirdWatch Ireland. The main points raised are summarised as follows:

Department of Housing, Local Government and Heritage

Screening (stage one) for Appropriate Assessment:

- Concern that screening may be inadequate to identify the Natura 2000 sites that may be affected.
- Screening out of potential significant effects arising to Lough Swilly SPA is a concern because bird survey results recorded Whooper Swan in both winter count periods and records from surveys from 2006-2008 indicate that Greenland White-Fronted Goose migrate through the proposed development area.

- Whooper swan and Greenland White-Fronted Goose are Special Conservation Interests for Lough Swilly SPA – records indicate that proposed development site is located adjacent to or within a migratory corridor used by SCI populations for Lough Swilly SPA.
- Some projects or plans that do not directly affect Natura 2000 sites may still have a significant effect if they cause a barrier effect or prevent ecological linkages.
- Department recommends that Lough Swilly SPA is screened in for consideration in the NIS.
- Specific focus should be given to any in-combination barrier effect of the windfarm with regards to migratory routes to and from the Lough Swilly SPA and/ or between the site and supporting satellite sites (Lough Deele) that seasonally support SCI populations of the SPA.
- Turbine delivery route must be considered within the screening for AA report and/ or NIS, and if appropriate, European Sites that are likely to be significantly affected should be screened in for consideration in the NIS. Any improvement or reinforcement works required for access and transport along the proposed haul route must be sufficiently detailed in the EIAR and NIS.

Scope of Assessment and Potential Lacunae:

- Scientific basis for delineation and areas involved in the Zone of Influence concept used in NIS and EIAR are insufficiently clear.
- Disposal location for soils and other unsuitable material encountered in trenches for the proposed for grid connection should be stipulated in the NIS (licenced facility, distance away and transport route).
- Source and pH of imported stone should be stipulated in the NIS and EIAR – statement that *"where possible, similar stone to that of the site will be used"* does not provide sufficient certainty to allow AA to be undertaken.
- Design and alignment of 38kV overhead line is required to allow Appropriate Assessment of the risks arising from the proposed development.
- Reinstatement or restoration plans for proposed borrow pits are inadequately detailed.

- Impacts and implications of tree felling should be assessed in EIAR – extent of tree felling should be mapped, and future use and management of all cleared areas should be clearly specified. Impacts of tree felling on wildlife, habitat and surface waters should be assessed fully, including risk of phosphate mobilisation from peat soils as a result of tree clearance and ground disturbance.
- No scientific assessment of risks associated with operational phase of the proposed development to populations of bird species that support potentially affected European Sites.
- Scope of planning applications considered in the in-combination assessment is limited to the townlands encompassing the proposed development site – assessment of developments within Zone of Influence should be included. There are 11 windfarms in close proximity to the proposed development site.
- Agriculture, forestry and wind energy are ongoing activities that can act in-combination to adversely affect water quality.
- EPA has identified excess nutrients as a dominant issue in river bodies in the Foyle catchment (including River Finn SAC). Poor habitat quality is also a significant issue due to high levels of fine sediment, channelisation, land drainage, forestry activities, peat harvesting, erosion and embankments.
- EIAR indicates that the water catchment within and to the south-west of the proposed development site is currently experiencing difficulties from forestry activities – standard forestry mitigation may not be sufficient to protect watercourses. More comprehensive mitigation measures are recommended to prevent further release of stored silt, nutrients, etc. when forestry operations are undertaken to prepare the site during construction and/ or operation.
- Collision Risk Assessment should be undertaken in combination with existing and proposed windfarms within the Zone of Influence with specific considerations for the QI species for Derryveagh and Glendowan Mountains SPA and Lough Swilly SPA.

Peat Excavation and Management:

- NIS and Peat Stability Assessment do not specifically assess the risk of the proposed development, with regard to the integrity of European Site affected and

habitats and species supporting them, with scientific data and information that supports conclusions.

- More consideration should be given to determining the hydrological connectivity of protected peat based habitats to the development site – effects of altering upslope watercourses, groundwater and surface water flows in close proximity to the protected peat based habitats in the River Finn SAC (e.g. T1 & T4) should be assessed in more detail.
- Concern that the methods for and volume of peat to the excavated, stored and disposed/ recovered are insufficiently detailed – excavated or exposed peat pose a threat to surface waters and water quality and require adequate detailed mitigation.

Context for effects to Species and Habitat:

- Loss of habitat and/ or disturbance of species should be considered in the context of the Habitats Directive Article 17 reports, and the report on Article 12 of the Bird Directive.

Effects on European protected sites and species:

- River Finn SAC and Meetygranagh Bog SAC:
    - There are multiple watercourses and riparian receptors that flow from the development into the River Finn SAC – potential for catastrophic impact arising from peat slippage, mobilisation of silt and stored nutrients in forestry lands are significant and require additional consideration.
    - T1 is 0.21km from the River Finn SAC and Tullytrasna blanket bog and T4 is 0.23km from Cark blanket bog – these peat based habitats are particularly vulnerable to hydrological impacts that may result in drainage and/ or compression of underlying peat.
    - Cumulative impact must be considered of alteration of hydrology by forestry, roads and complex network of forest drains between the bog and proposed windfarm elements.
    - Hydrologically connected habitats occurring downslope in the River Finn SAC may be impacted as considerable distances from the source of pollution and/

or alteration of surface and groundwater flow and volume – length of forest drain is not a sufficiently robust measure to ensure that risks arising from proposed development are sufficiently mitigated.

- River Finn is failing to meet its management targets for Salmon. Records indicate a loss of half of the biological diversity in the river catchment area. Concerns regarding the cumulative effect of locating further development in peat based habitats in the upper reaches of the River Finn that is already under significant pressure from existing development. A more thorough in combination and cumulative impact assessment is recommended to inform the Appropriate Assessment process.

River Foyle and Tributaries SAC (NI)

- NIS assumes the dilution of pollution over a distance of 40km sufficiently mitigates potential risks to European Sites – recent evidence from Meenbog Windfarm (ABP-300460-17), peat slippage incident (November 2020) indicates that silt mobilisation can impact habitats and species at considerable distances downstream (60km+).
- Further consideration should be given in the NIS to providing detailed methods to sufficiently mitigate risks to the site. NIS should include scientific rationale for assuming no impact to base habitat (e.g. blanket bog, wet heath) in this site.

Lower River Shannon SAC

- Consideration should be given to switching the replanting proposal to an entirely native species afforestation option with a view to continuous forest cover management as the outcome (i.e. not clear felling).

Lough Corrib SAC

- Consideration should be given to using an alternative site for replanting or it is recommended that an establishment plan and management plan for the proposed plantation is included within the NIS.
- Use of native woodland as a buffer is proposed; however, no width and/ or quantification of this buffer is given.

- Proposed replanting has the potential to adversely affect the lower Lough Corrib SAC – given the extent of issues outlined in the NIS with regard to commercial forestry in water catchments, best practice would indicate that short rotation conifer plantations should not be located within the water catchment of sensitive species and habitat. Replanting will be accompanied by drainage and consideration should be given to using a humped planting method without drainage channels.

Adequacy of data and interpretation of results:

- Not possible if single sighting of otter on site is significant without number and timing of surveys – raw survey data should be made available in appendices. Otter survey data should be presented in map or table format and assumptions regarding the level of significance of otter records with robust scientific rationale.
- There is excellent and clear presentation of survey data within the bird survey reports. However, breeding bird transects were focused primarily on areas that are afforested and open upland blanket bog in the north-east of the site appears to have been neglected.
- Several winter vantage point surveys were conducting during periods of heavy rainfall or wet weather suggesting visibility may have been a consideration in the accuracy of data – applicant should outline proportion of survey time that was conducted in clear visibility.

Effects on protected bird species:

- Concerns regarding the effects of noise disturbance to breeding bird species given proposed method of burrow pit extraction.
- Noted that Golden Eagle, Merlin, Hen Harrier, Peregrine and Golden Plover were all recorded foraging and/ or transiting the proposed development site during breeding season.
- An in-combination assessment that states that *"there is plenty of suitable foraging areas to the north, east and south of the development"* is inadequately detailed to allow an AA to be undertaken.

Golden Plover

- Concern that this species has not been adequately accounted for in mitigation as eastern part of the site appears to be a perennial high use area. Baseline ecological information presenting in NIS and EIAR may not be sufficient to provide a comprehensive assessment of risks to this species.

Curlew

- Appears that no dedicated surveys for Curlew were undertaken – there is breeding site in close proximity to the northern boundary of the site. Recommended that consideration is given to specifying that the northern access point is only used outside breeding season. Noted that breeding productivity in Donegal has not been enough to maintain a stable population – cumulative pressures need to be carefully considered.

Merlin

- Indications are that the development site is an inter-annual breeding site and parts of the site form the central core of the breeding territory. Site is also a winter foraging area.
- Assessment of potential effects on Merlin is inadequate and it follows that proposed mitigation is also inadequate
- Modelling of local and regional populations and habitat is considered to provide certainty around connectivity, significance and site use for this species. Habitat management plan should be considered to create attractive habitat away from the risk zone (collision risk).

Mitigation measures outlined in NIS and EIAR:

- Mitigation of silt via the channelisation of silty water into suitable vegetation and percolation areas requires more detail.
- Recommends that a more comprehensive description of the complex network of channels within the forested area is provided to support claims of its efficacy in mitigating silt.
- Details of proposed seed mixes should be provided, and an outline of which seeds will be used in what soil types and when they will be used.

- Proposed levels of qualifications and experience required for Ecological Clerk of Works should be given in NIS and EIAR if it is to be considered mitigation.
- Dedicated concrete washout area should be identified in NIS and design and scale stipulated. No concrete pours should be undertaken within 24 hours of predicted 10mm/ hr rainfall.
- Details of peat management plan are required to be included in the NIS in order to allow for a full AA – there can be no lacunae or post consent assessment.

Monitoring:

- Provision of robust monitoring protocols for important bird species should be considered as a condition of permission (e.g. tracking technologies).
- Plan of action needs to be agreed at planning stage with Planning Authority if results in future show a significant mortality rate of bird and/ or bat species.
- Additional aquatic survey site should be in place on the River Deele to the west of the proposed development.
- Monitoring results should be made available to competent authority and copied to the Department.

Northern & Western Regional Authority

- Growth Ambitions set out in the Regional Spatial and Economic Strategy for the Northern and Western Region need to be considered within the context of the overarching environmental objectives (Section 1.5 of the RSES).

Growth Ambition 1 – Vibrant Region:

- Strategy is to ensure that potential adverse impacts on local communities, archaeology, built heritage, landscapes and habitats are minimised while at the same time ensuring economic benefits accruing to local economies are maximised.
- It is vital that key tourism assets are protected. Proposed development is to the south-east of Glenveagh National Park.

- RSES acknowledges the opportunity for the Region to grow its potential for renewable energy in all forms and it supports the sustainable development of secure, reliable and safe supplies of renewable energy (RPO 4.17-4.22).

Growth Ambition 2 – Natural Region:

- Strategic actions need to be cognisant of our natural resources, landscape and heritage, and measures must be put in place that can protect, conserve and manage our landscape, and its natural, built and cultural assets.
- Need to protect, manage and conserve the quality, character and distinctiveness of our landscapes is specifically enshrined within RPO 5.2 – impact of the proposal upon the landscape is a critical consideration, particularly upon the setting of Glenveagh National Park.
- Proposed development is supported by an EIAR and NIS, which will require careful consideration. Novel concept for replacement forestry at a remove from the site is incorporated within these documents.
- Assembly notes a previous application in close physical and visual proximity (PL05E.241596) was refused permission in November 2013 for reasons relating to (1) safeguarding of amenities and views surrounding and within Glenveagh National Park and (2) the combined impact of the proposed turbines when taken in conjunction with the existing pattern of turbines further to the east /south-east.
- RPO 4.16 of RSES seeks to co-ordinate the identification of potential renewable energy sites of scale in collaboration with local authorities and other stakeholders within 3 years based on numerous site selection criteria including environmental matters.
- Proposal is consistent with the objectives of the RSES to develop secure, reliable and safe supplies of renewable energy; however, it is unclear if the proposal is consistent with the landscape and tourism objectives of the RSES.
- Board should consider the potential significant impact on landscape and particularly the setting and amenity of Glenveagh National Park including its potential visibility from the approaches to/ from the Park and potential effect upon vantage points, and trails within the Park itself.

Irish Water

- No objection in principle to the proposed development; however, any grant of permission should be conditioned as follows:
    - Applicant must sign a connection agreement with Irish Water where connection to public water and wastewater infrastructure are sought.
    - All developments to be carried out in accordance with Irish Water standards, codes and practices.
    - Irish Water must assess feasibility of any proposals to build over or divert existing water or wastewater services.
    - Separation distances as per Irish Water standards, codes and practices must be achieved.
    - It is a requirement of the Water Framework Directive that waters used for abstraction of drinking water are protected so as to avoid any deterioration of water quality – applicant shall ensure there is no negative impact to any Irish Water drinking water sources.
    - Developer shall ensure that groundwater sources are protected so as to avoid deterioration in quality arising from the proposed development and to comply with the Groundwater Directive (80/68/EEC).

Irish Aviation Authority

- In the event of planning permission being granted, the applicant should be conditioned to contact IAA to:
    - Agree an aeronautical obstacle warning light scheme for the wind farm development,
    - Provide as constructed co-ordinates together with ground and tip height elevations at each turbine location,
    - Notify the Authority a minimum 30 days in advance of intention to commence crane operations.

Transport Infrastructure Ireland

- No specific observations to make; however, where any works to the national road mainline or associated junctions are required, such works shall comply with TII Publications and shall be subject to Road Safety Audit as appropriate.

6.4. Observation

6.4.1. An observation on the application was received from Birdwatch Ireland. The main points raised in this submission are summarised as follows:

- Recommends that the planning application be refused due to the scale of threat to breeding Curlew at this site and in consideration of the treat to Slender Green Feather-Moss which is a qualifying interest of the Meentygrannagh Bog SAC.
- BirdWatch Ireland as a project partner in the Cooperation Across Borders for Biodiversity (CABB) project, is designing conservation objectives for the Meentygrannagh Bog SAC to restore natural habitat.

Inadequately assessed threats to Curlew

- BirdWatch Ireland has been advocating on conservation of the Curlew on foot of survey and monitoring which highlighted the very serious decline in this species.
- Curlew Task Force (CTF) set up in 2016 recommends *"in the planning system, safeguard Curlew sites from inappropriate development by providing Curlew locational data and Ministerial Guidelines to Planning Authorities."*
- Concerned that the proposed development will impact on one of the last three remaining pairs of breeding Curlew in Co. Donegal.
- Population extinction of breeding Curlew in Ireland is projected by 2030 in the absence of conservation actions (NPWS, 2019).
- Recommendation from CTF is that the area within 3km around curlew territories should be protected from adverse development, including windfarms.
- Appropriate Assessment only records curlew 5km to the north-west during summer, 2019 and Ornithology section of EIAR incorrectly concludes that there is no evidence of Curlew at the site.

- Apparent deficiencies in the Curlew surveys and lack of adequate research by consultants.
- Curlew are generally faithful to their breeding grounds, and habitat loss and degradation are major causes of concern.
- Annex I of the Birds Directive dates back to 1978 when curlew were not considered threatened. However, Article 4(2) of the Birds Directive states that member states shall take similar measures for regularly occurring migratory species and pay particular attention to wetlands. Article 4(4) requires member states to avoid pollution or deterioration of habitat or any disturbances affecting birds.
- Curlew is a highly migratory species in need of coordinated conservation action. Proposed windfarm is a direct threat to breeding curlew and the habitats they require and should not proceed. Data provided by consultants is inadequate, incomplete and not of sufficient substance or granularity for the Board.

Inadequately assessed threat to Slender Green Feather Moss

- Slender Green Feather Moss is a qualifying interest habitat of the Meentygrannagh Bog SAC.
- Plant was not recorded in Appropriate Assessment surveys; however, NPWS most recent monitoring report shows that the moss is only metres away from the planning application red line boundary.
- Threat of hydrological changes altering peat habitat has not been adequately assessed or quantified in the Appropriate Assessment for Meetygrannagh Bog SAC – this could threaten the qualifying criteria of the SAC due to the exceptional closeness to habitats of great sensitivity to changes in water level.
- T12 appears to be upslope of, and potentially draining into, the moss location. Potential impacts to moss have not been considered adequately and potential risks have not been assessed or quantified.
- Threats to the moss include, but are not limited to, forestry felling, new site access roads and other new hard surfaces contributing to an increase in surface water run-off and sediment release.

- Appropriate Assessment should more clearly quantify the impact of construction and operation on one of the most sensitive and rare specimens of protected moss in the country, which is a qualifying designating criterion for the SAC.
- NIS states that the SAC is located 1km to the north-west of the subject site and most of the SAC is a neighbouring hydrological catchment. There is a windfarm access point 350m away from SAC and red line boundary is 180m.
- Alkaline Fen is the closest habitat to the proposed development and impact on other Annex I habitat such as Blanket Bog and quaking mires should also be quantified.
- Flooding with surface water can be particularly harmful for species-rich fens and flooding of previously drained fen may result in significant transformation of iron from a trivalent form to a bivalent form under anaerobic conditions. This form is toxic to many plant species.
- Meentygrannagh houses Alkaline Fen that has previously suffered damage due to drainage in some areas but is recovering slowly under natural conditions. Risk of flooding represents a serious threat to Alkaline Fen habitat. Hydrological balance of Alkaline Fen is easy to disturb and once disturbed, it cannot be restored.
- Development which has a boundary of less than 200m away from such a sensitive habitat, which could be irrevocably and irreversibly impacted, must have those impacts clarified in the Appropriate Assessment.

7.0 Further Information

7.1. On 4th August 2021, the Board, in accordance with Section 37(F)(1) of the Planning and Development Act, 2000 (as amended), requested the applicant to furnish the following further information in relation to the proposed development:

1. Provide a comprehensive and detailed response to each of the issues raised in submissions received by the Board from the Planning Authority, prescribed bodies, and the observer (copies attached). In the preparation of the response, the applicant shall consult with the planning authority/ prescribed bodies as necessary, to ensure that matters raised are adequately addressed.

2. It is noted that the development description as set out in the statutory notices refers to a maximum turbine tip height of 167.5m and associated foundations and crane hardstand areas. To enable the Board to determine the application, please confirm the nature and extent of the development for which permission is sought, by reference to plans and particulars which describe the works to which the application relates, in compliance with the relevant provisions of the Planning and Development Regulations 2001 as amended.
3. If the development for which permission is sought incorporates a range of options, please indicate clearly in the application documentation the detail of all such options and confirm that each option has been fully assessed within the application documentation including within the Environmental Impact Assessment Report and/or Natura Impact Statement as appropriate.
4. In addition to responding to the issues raised in submissions relating to peat stability, the applicant is invited to consult further with the Irish Peatland Conservation Council in view of recent peat slides and to assess if there are similar issues pertaining to the subject site that occurred at other peat slide incidents, including that at Meenbog. As noted in the Draft Wind Energy Guidelines, the peat stability assessment should include, but not necessarily be limited to the following:

    - A thorough ground investigation, including hydro- geological investigations where appropriate, and a detailed evaluation of the nature of the peat, its geotechnical properties and the associated risk of instability and habitat loss or disturbance during construction and operation of the wind energy development, to be carried out where the depth of peat is in excess of 50cm.
    - Where blasting is being used in or near a peatland area for borrow pits, foundations etc., the possible effect on the peat stability should be assessed.
    - A geotechnical analysis for each turbine base into the method of excavation and the location for placing and storing excavated material to ensure that these operations do not give rise to slope or site instability.

- Each turbine base should be assessed on an individual basis for stability purposes.
- A landslide and slope stability risk assessment for the site for all stages of the project, with proposed mitigation measures where appropriate (this should also consider the possible effects of storage of excavated material).

The peat stability assessment of the proposed development shall include a cumulative assessment of peat conditions and their changing nature over time arising from other plans and activities in the area. Detailed procedures and thresholds for dealing with periods of prolonged rainfall during the construction phase of the project shall also be provided.

An assessment shall be carried out of the effectiveness of mitigation measures in the event of a peat slide, together with full details of emergency procedures in the event of monitored peat movement. Exact locations of monitoring showing distances from turbines, etc. of monitoring post shall be provided, together with a detailed programme for recording of any movement.

5. Having regard to the following:
   - The presence of breeding Curlew to the west of the site,
   - Bird flight path surveys showing the presence of flight paths over Cronaglack,
   - The gradient and the low-moderate risk of peat slide at Turbines T9, T10 & T11,
   - The requirement to serve the north-eastern part of the site with new access roads and the extent of excavations for the roadway from Turbines T8 to T9,
   - The visual impact and the finding in the EIAR of moderate visual clutter from Viewpoint 8,
   - Residential properties to the north of the site that may be affected by shadow flicker, noise, and visual impacts,
   - The elevations at the highest part of the site.

The applicant shall consider omitting Turbines T9, T10, T11 and T12 from the proposed development. The full impact of any omission of some or all of these turbines shall be fully reflected in an amended EIAR and/ or Natura Impact Statement.

6. An additional Viewpoint of the proposed development shall be prepared along the local road to the north-west of the proposed development. This viewpoint shall illustrate the visual impact arising from any omission of Turbines T9 to T12 as suggested above.

7. There are areas of Wet Heath, an Annex I habitat, in close proximity to the proposed locations for Turbines T7 and T8 (Source: https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17/2019). The applicant shall consider relocating these turbines away from this habitat and any such relocation shall be fully reflected in an amended EIAR and Natura Impact Statement for the proposed development.

8.0 Applicant's Response to Further Information Request

8.1. A response to the further information request was received by the Board on 25th February 2022. The Board decided that the response contains significant additional information, and the applicant was invited to publish new notices advertising same.

8.2. The response to the further information request sets out clarifications and amendments arising from the request and third party submissions before detailed responses to each further information item. Amendments to the proposed development include the non-usage of the site access point to the north-west via an existing forestry track; biodiversity enhancement measures instead of replacement forestry lands at Pollacorragune, Co. Galway and Craghera, Co. Clare; redesign of section of site access road between Turbines T8 and T9 to reduce the extent of excavation and fill; and utilisation of a 14.1 hectare area within the River Finn SAC as ecological enhancement for merlin.

8.3. A revised Appropriate Assessment Screening Report and revised Natura Impact Statement have been prepared as part of the further information response. Notwithstanding the proposed amendments to the proposal outlined above, and any

additional information provided in response to the request for further information and third party submissions, the applicant concludes that the findings presented in the submitted EIAR remain unchanged.

8.4. Item 1 - Applicant's Responses to Submissions Received by the Board

8.4.1. Under **Item 1** of the further information request, the applicant has provided the following responses to each of the submissions received by the Board:

8.4.2. Response to submission by NPWS

- NPWS has not indicated any concern in relation to the proposed development to the degree that might merit refusal. Meeting held with NPWS on 14th September 2021.
- ***Response to Department's concern regarding the omission of Lough Swilly SPA:***
- Lough Swilly SPA now screened in for Appropriate Assessment:
    - No foraging records for special conservation interest species Greenland white-fronted geese and whooper swan at the proposed development site and site is not a flyway for either of these species – based on three recent surveys seasons (2018/19, 2019/20 and 2020/21).
    - Proposed development site is not indicated by NPWS or Bird Watch Ireland as being a habitat for the SCI species.
    - Proposed development site does not present any significant collision, displacement or barrier effect risk.
    - Lough Swilly supports internationally important population of Whooper Swan - foraging distance is generally <5km from roost sites and proposed development site is situated c. 13km from Lough Swilly.
    - Whooper swans recorded near proposed development site early in the season in 2019 were considered to be birds in transit from further south and not linked to the Lough Swilly flock.

- Small numbers of Whooper swan were recorded using Lough Deele, likely for roosting and foraging.
- Flocks of Greenland white-fronted geese were recorded flying at a much greater height than the tip heights of turbine blades, so no collision or other effects are envisaged.
- Results of surveys do not suggest that the proposed development is located on an important migratory route for Greenland white-fronted geese.

- ***Response to Department's regarding turbine delivery route:***

- Turbine delivery route has been considered in the AA process – greatest ecological impact relates to minor road widening works at pinch points associated with roundabouts and bends on roads.
- Turbine Delivery Route Assessment Report is appended to EIAR. This report was relied upon to determine whether the proposed works could potentially have significant effects on European Sites.
- Potential for significant effects to European Sites along the turbine delivery route as a result of the minor works was ruled out – works will be localised and will not result in any emissions to air or water that could significantly affect nearby European Sites such as St. John's Point SAC, Donegal Bay SAC, Donegal Bay SPA, Lough Eske and Ardnamona Bog SAC, Croaghonagh Bog SAC, River Finn SAC, Lough Swilly SPA or Lough Swilly SAC.

- ***Response to Scope of Assessment and Potential Lacunae:***
- *Zone of Influence* for the project is defined in the CIEEM (2018) as follows:
  - Avifauna – 20km from proposed development.
  - Aquatic biota (fish, macroinvertebrates, flora) – all watercourses downslope.
  - Bats – 10km from proposed development.
  - Otter – 10km downstream from proposed development (Otter surveys to 2km).
  - Other mammals – 0.5km from proposed development.

- Amphibians, reptiles and terrestrial macroinvertebrates – within the proposed development site.
- Natura 2000 sites – 15km radius, 40km downstream in the case of the River Foyle and Estuaries SAC.

- *Disposal location of spoil along grid connection* – all wastes generated by the proposed project will be managed in accordance with the Waste Management Acts. Distance and transport route cannot be determined at this stage.
- Extent of grid connection along the public road covers a distance of 750m and worst-case volume of excavated material would be 585m^3 generating a maximum of 30 truck movements – significant effects on European Sites would not arise from the movement and disposal of this waste stream.
- *Source of imported stone* will be 3 no. borrow pits within site and cut and fill – 306,680 m^3 of aggregate will be won on site and 76,670 m^3 will be imported. Off-site materials will be sourced from local quarries – all rock types in the area are similar in terms of pH and use of imported stone would not cause a further drop in pH surface water draining the proposed development site as their pH will be higher than that of the peat soils that currently dominate the areas where new infrastructure is required.
- Two options for diversion of *38kV overhead line* at T1 (undergrounding along current alignment or overhead flowing new alignment) do not present a significant ecological risk.
- Underground option will require directional drilling under Elatagh River and also excavation, trenching, backfilling and resurfacing. Overhead option will include excavation for new poles and can be adequately managed by standard best practice construction techniques.
- *Reinstatement/ restoration plans for borrow pits* include filling with peat and other inert materials sourced at site, capped with peat and eventually converted to peatland habitat. End result will be an improvement over existing sitka spruce.
- Vegetated turf will be stored and watered in dry periods. During storage, the living and peat forming layer will be separated from the lower dead non-peat forming layer and the former will be stored as turves and the latter stored in wet areas.

During reinstatement, the top layer will be placed on top of stone and surplus peat.

- Profile drawings of borrow pits show that they will be bound by engineered berms constructed of rock designed to withstand the equivalent hydraulic loading of stored materials. It will be landscaped to tie in with contours and drainage and erosion prevention measures will be put in place.
- *Tree felling* - impacts and future use of felled areas:
    - 33.8 hectares to be felled with some felling required along watercourses where riparian planting with native trees will take place.
    - Impact of felling per se is insignificant in ecological terms at the time of felling with long term positive ecological effects.
    - Conifer plantation only selected as key ecological receptor where it occurs as a mosaic with upland blanket bog – this habitat lies outside the footprint of the proposed development.
    - Loss of conifer habitat may result in reduced feeding and nesting opportunities for birds like stonechat, redpoll, common crossbill, chaffinch and siskin. More forestry verge habitat may favour birds of prey such as kestrel and merlin. Not expected to be any significant change in biomass of potential prey items as more conifer verges will be available to passerines.
    - No protected mammal dwellings or important foraging habitat will be directly affected by felling.
    - Proposed development site is not a favoured habitat for bats.
    - Felling could potentially result in water quality changes that affect aquatic fauna in watercourses downslope; however, the fact that felling is taking place at a remove from watercourses and riparian areas minimises this risk.
    - Reduced conifer cover and increased linear length of conifer verges created by felling may benefit mammals and birds by providing more insect life and access to cover.

- Phosphorus mobilisation – during clear-felling and harvesting, the forest soil surface can be disturbed resulting in soil erosion, and suspended sediment and nutrients in run-off.
- All felled trees, with the exception of some used for floating roads, will be removed off site, effectively eliminating the risk of most of the sources of phosphate reserve held in tree trunks and brash.
- Quick execution of site restoration plan comprising of silt traps and water management will negate excessive nutrients and suspended solids export to the adjoining watercourse – incorporated into proposed development via surface water management plan and enhancement of riparian areas to prevent nutrient loss to watercourses and retain nutrients on-site.
- Suite of mitigation measures set out in the EIAR will also reduce the incidence of phosphate release. Riparian buffer zones are among the most important.
- There are risks of episodic inputs of nutrients and sediment associated with existing forestry operations from tree harvesting, windrowing and replanting.
- Standards for Felling and Reforestation (DAFM, 2019) will be adopted at the proposed development site.
- Proposed felling is in areas categorised as moderately susceptible to phosphorus near the surface from EPA catchment management tool. For reasons relating to phosphate mapping, small felling areas, ground conditions, distance from streams, and mitigation, the proposed development is not considered a significant phosphate risk.
- Once forestry operations have been completed, the subject areas (hard stands, reinstated borrow pits) will no longer be afforested.
- Excavated peat and spoil will be reused for backfilling, landscaping and restoration around the windfarm site – order of priority for excavated peat is (i) 3 no. borrow pits, (ii) berms along floated roads, and (iii) felled areas around the turbines.
- Reinstatement of areas of borrow pit in areas previously under conifer plantation amounts to c. 6.2 hectares – commitment reinstatement habitat will be ‘cutover bog’.

- Permanent felling for swept areas around turbines amounts is 95m to protect foraging and commuting bats – keyhole areas will not be accessed following felling unless for restoration purposes. Eventual reversion to peatland habitat dominated by heather is anticipated.
- Approximately 7.22 hectares of conifer plantation can be expected to revert to peatland habitat around turbine areas where keyhole felling is proposed.
- Riparian set back zones will not be used for any purpose which might undermine its protective purpose for which could damage the aquatic zone.
- Tree felling mitigation includes establishment of a water exclusion zone; silt and sediment control; measures for water crossing (tributary of Elatagh River west of T6); measures for crossing forest drains (throughout the site); managing extraction; timing; and other measures including whole tree harvesting and grass seeding and retention of broadleaf trees where possible.
- Harvesting Activity Pack will be required, and this will include an environmental risk assessment.
- Cessation of felling operations during and after periods of heavy rainfall and minimisation of machinery crossing internal drains.
- Monitoring to include checking of silt traps and watercourses, assessment recovery of bog vegetation, assessment of hydrological recovery of peat, and removal of self-seeded conifers.

- *Scientific assessment of risks associated with the operational phase* on Lough Swilly SPA now screened in for Appropriate Assessment.
- *In-combination impact of all surrounding development* – all relevant planning applications in the sub-catchment 'Finn [Donegal]_SC_010' have been considered in a new Appendix D attached to the updated Appropriate Assessment Screening Report.
- Design and mitigation philosophy of the proposed development is for retention of soils and nutrients on site, so water quality is preserved, and significant cumulative effects are not predicted.

- Proposed development will not have an in-combination impact on any other water quality pressures (forestry, peat loss) – activities at the proposed development site must themselves cause a water quality impact.
- Significant cumulative impacts are not predicted within plans listed in Appendix D of the Appropriate Assessment Screening Report as each plan has environmental and natural heritage policy safeguards in place.
- Shared watercourses – 8 out of the 11 neighbouring wind farms are in the Deele catchment. Only ancillary components of the proposed wind farm are in the Deele catchment.
- Existing operating windfarms in the Deele catchment are not adversely affecting water quality – Deele rated unpolluted Q5-5.
- Any wind energy developments currently under construction can be expected to be completed by the time the proposed development is at construction stage – this removes the risk of cumulative water quality impacts.
- Peat habitats – no direct impacts on peatland within European Sites.
- Hydrological changes brought about by the proposed development are imperceptible and any ecological effects on peat habitat within the Natura 2000 network due to hydrological changes are assessed in the EIAR as imperceptible/ none.
- Wind farms – predicted that the operational cumulative effect on raptors will not be significant based on multiple raptor records for numerous species within adjacent operational wind farm sites, where these birds continue to forage and commute.
- Proposed development and adjacent wind farm sites do not contain particularly sensitive habitat or key populations of vulnerable bird species.
- Significant cumulative population level impacts on birds also not envisaged due to the siting together of turbines; their colour scheme; no regular flight lines between nesting and foraging areas; absence of corpse search at Meenbog windfarm; usage of Cark Mountain and environs in recent years by merlin; and

the non requirement for overhead transmission lines eliminating this avoidance collision risk.

- Even at a local scale context, the footprint of the proposed development is minute, so cumulative habitat loss and associated reduction in animal carrying capacity is very small with regard to neighbouring windfarms.
- *More comprehensive mitigation measures to prevent further release of stored silt, nutrients, etc during felling:*
    - Operations to cease during and after periods of heavy rainfall.
    - Minimisation of machinery crossing internal drains and only undertaken with use of appropriate log bridges. Temporary crossings shall avoid localised wet and/or hollow banks.
    - Daily water monitoring where and when weather, operation and topographical conditions warrant.
    - Supervision by EcOW and careful delineation of areas required for felling and access.
    - Hydromorphological pressures have been identified as significant pressures in some rivers draining the proposed development site – proposed development will not involve any instream works or any activity that negatively affects the physical character of rivers.
    - Forestry felling will be carried out following best practice guidance. Site specific surface water management system designed to avoid and minimise impacts to water quality based on surface water features, soil type, condition and depth, gradient and other landscape features. Felling will also be set back from watercourses and all of these measures will prevent deterioration in the watercourses draining the site.
    - Machinery will not be used for any felling and extracting any trees planted next to watercourse verges. Environmental effects of forestry can be expected to reduce into the future as buffer zones, setback distances and other measures are introduced.

- Numerous pressures from peat impacted habitats on watercourses in the Elatagh catchment are widespread in the study area. Proposed turbines are located well away from watercourses and are largely within coniferous forestry.
- Proposal will not alter habitat within the Natura 2000 network and impacts on habitat will be confined to the locality within the red line boundary. Western extents of the site near ridge of hill where indirect impacts on peatland habitat are assessed as being not significant in the local context.
- Activities outside the control of the developer are impacting on the Elatagh catchment – background water quality in the Elatagh and tributaries as well as the Finn are already unsatisfactory and therefore less sensitive to change; however, cumulative impact of proposed development will not be significant and with mitigation, the impact of the proposed development is assessed as short-term, imperceptible negative on macroinvertebrates, salmon, brown trout and other fish.

- *In combination Collision Risk Assessment:*
  - Large amount of data and details would be required including two years of bird survey data, turbine specifications and viewshed analysis - acquisition of this data is not possible.
  - Bird survey data collation at most of the earlier wind farms in the vicinity took place when Collision Risk Assessments were not common practice.
  - Section 5.9 of NIS assessed the potential for significant cumulative effects of the SCI of Derryveagh and Glendown Mountains SPA with other wind farms – concluded that the project would not have significant cumulative effects on the 5 species of SCI in terms of their population viability, distribution, supporting habitats or disturbance.
  - Desk top information for NIS included previous bird surveys on site between 2006 and 2008; breeding bird surveys in 2018/ 19 and winter bird surveys in 2018/ 19 at site and nearby Lenalea windfarm; ongoing breeding survey at site in 2020; and survey and ongoing monitoring at Meetycat, Culliagh and Cark.

- Results of surveys suggest that site is not on an important migratory route for species of interest in Lough Swilly SPA or on an important flyway between roost and foraging sites for SCI species.

- ***Response to Department's concerns regarding peat excavation and management:***

- Based on the conclusion of the peat stability assessment report, and on hydrological rationale, the proposed development will not affect the integrity of European Sites.

- Additional collection and analysis of data on peat depth and strength which confirms the following:

  - Original Peat Stability Risk Assessment and additional analysis completed in line with industry standards and is multi-staged, conservative and technically sound.

  - Analysis of additional data confirms understanding of site geology.

  - Slope stability analysis of additional data indicates same results as original analysis.

  - Proposed windfarm layout was derived using iterative and conservative constraints-driven approach.

- There is no proposal within the windfarm layout to alter or change in any significant manner the existing hydrology of the site – all existing drainage pathways will be maintained.

- Drainage design will intercept water upslope, by-pass works areas and follow natural flow paths downslope of works areas. Drainage from works areas will be directed by gravity to water treatment ponds and water from these will be dispersed to vegetated areas away from surface water features.

- Rate of run-off from proposed development will be the same as baseline flow conditions.

- Possible that peat could dry out to a certain extent either side of an excavated road or hardstand – even where steep cuts have been made at hardstands in the adjacent Cark windfarm, peatland vegetation has not changed within 1m of

directly affected habitats. No observable changes to plant community of peatland habitat outside works footprint at Cark windfarm.

- Proposed development does not present a significant risk to peatland habitat within any European Site due to separation distances.
- Some peat habitat and the proposed development site are already impacted by historical damage associated with commercial forestry, and presumably historical grazing between T9 and T10 resulting in eroding blanket bog.
- Effects on peat habitat are limited to less than 5m – no likely effects on River Finn SAC from potential water volume or water quality are predicted.
- Methods for the volume of peat to be excavated, stored and disposed/ recovered – CEMP includes minimum site management controls on:
    - Soil stripping
    - Excavation works
    - Dewatering
    - Storage and stockpiles
- Water quality changes related to pollution or siltation could incur fluvial habitat impacts on watercourses which drain the proposed development site and form the boundary of the pNHA – standard construction measures such as silt traps/ fences, diverting clean water around works areas, strict control of works relating to concrete and other pollution control measures will be followed.
- Site drainage system was designed integrally with the windfarm layout as a measure to ensure that the proposal will not change the existing flow regime across the site, will not deteriorate water quality and will safeguard the existing water quality status of the catchments from windfarm related sediment run-off.
- ***Response to Department's issue relating to context of effects to species and habitat:***
- Habitats and birds of European importance have been assessed as Key Ecological Receptors in EIAR. Information below considers loss of habitat and disturbance to birds in the context of Habitats Directive Article 17 reports and reports on Article 12 of Birds Directive:

- Article 17: Part of the site mapped as ‘wet heath’ by NPWS is not classified as such in the EIAR. Subject area was classified as ‘upland blanket bog’ and ‘conifer plantation’, ‘eroding blanket bog’ and ‘cutover bog’ with some mosaics of these habitats. For the purposes of EIAR, ‘upland blanket bog’ and ‘wet heath’ have equal conservation status.
- Proposed track to north and east of turbine T07 traverses Article 17 mapped wet heath – area of overlap is 0.379 ha. Some of areas mapped as wet heath are under commercial forestry, e.g. at turbine T08. NPWS mapped wet heath outside of commercial forestry was mapped as upland blanket bog in EIAR – both are in peatland category and total loss of upland blanket bog was assessed as significant negative.
- Total area of mapped wet heath within the proposed development site is 44.1 ha – area of 0.88 ha of blanket bog as mapped by consultants would be lost under the footprint of the proposed development (<2%).
- Apart from wet heath/ upland blanket bog, there are no other Article 17 mapped habitat within the proposed development site.
- Threats and pressures on floating river vegetation include forestry activities and surface water pollution – such activities during construction and operation will not result in significant effects.
- Biodiversity Enhancement Plan will be implemented on site under the guidance of ECoW.
- Conifer cover will be reduced and can be expected to revert to peat habitats and other habitats of greater ecological value.
- Proposed development will not affect the natural range, specific structure and functions and conservation status of any habitat at local or national level.
- Proposed development is not expected to negatively affect the conservation status of any species requiring Article 17 reporting or the status and trends of bird species Article 12 reporting.
- Article 12: Birds subject to reporting under Article 12 have been thoroughly assessed in EIAR, which provides a description of habitat loss, and

disturbance and displacement impacts during construction and operation (collision risk).

- ***Response relating to Effects on European protected sites and species:***
- *River Finn SAC* - There is no hydrological connectivity between the proposed windfarm infrastructure and blanket bog within the River Finn SAC – water from the proposed development will not influence water within peat habitat in the River Finn SAC.
- Contour data and computer generated flow paths substantiate that water from proposed development site would need to flow down to the Elatagh River, then back up the opposite river bank and uphill to Tullytrasna Bog.
- There are two area of peatland habitat, mainly blanket bog, that could potentially be affected at Carrickalangan and Cark – highly likely that all blanket bog within the SAC is across a stream or preferential pathway, effectively separating the land mass of the proposed development from the blanket bog of the SAC.
- Intermediate low ground flow from Cark Bog drains to the north-west and isolates this pocket of the SAC from the proposed development.
- There is hydrological connectivity to blanket bog habitat in the SAC at the new road between T7 and T8; however, overland distance is in excess of 1.1km; windfarm infrastructure will be drained by constructed drainage, surface water management plan will be in operation; and only a short section of road drains to this sub-basin.
- Surface water management system will be implemented for the construction phase of the project to control pollutants, principally silt.
- Project will not have a negative effect on the hydrology of the peatland habitat within the River Finn SAC. Suspended solids pollution as a result of earthworks and exposed soils will be controlled through the surface water management system – this will prevent any significant water quality effects on the Elatagh River and will not negatively affect the conservation objectives of the qualifying interests of the SAC. No possibility of effects on blanket bog in the SAC.
- Deterioration of ecological quality of upper Finn catchment in recent decades:

- Proposed development not expected to contribute to the decline of salmon population in the Finn catchment – no direct impacts on salmon habitat or any significant indirect impacts.
- Water quality will be preserved in watercourses that support salmon during construction and operation.
- Watercourses within the proposed development site are too small to support salmon (only trout were found in the 1st order streams draining the site).
- Proposed development will not reduce water quality for salmon or freshwater pearl mussel due to the highly effective mitigation measures proposed.
- Permanent removal of forestry and provision of aquatic buffer zones will assist in improving water quality in the long-term with indirect positive effect on salmon downstream.
- Based on assemblages on instream macroinvertebrate life, generally good juvenile salmon food supply exists in the headwaters of streams draining the proposed development site. Proposed development has been designed to avoid watercourses insofar as possible and mitigation will prevent water quality deterioration and aquatic ecology effects.
- Proposed development will not interfere with the aims of the CatchmentCare project to improve freshwater quality in basins in three cross-border catchments including the Finn.
- Atlantic Salmon Trust believes that sea lice, farm escapes and disease and pollution risk from salmon cages are the major sources of risk from the aquaculture industry to wild salmon and sea trout stocks.
- There are lots of unknowns about salmon farming, but it is widely accepted that the forestry industry is having a serious negative impact on wild stocks. Proposed development is not expected to act in any significant cumulative manner in terms of salmon stocks in the Finn catchment.

- *River Foyle and Tributaries SAC (NI)* – not at risk from the proposed development on the basis of several criteria, including peat stability assessment and comparison of the subject site to the site where the peat slide took place at Meenbog.

- Distance and dilution do not mitigate the risk in this case, rather the design of the proposed development (avoiding insofar as possible direct impacts on salmon habitat) and the implementation of measures to preserve water quality.
- Emergency mitigation measures in the event of peat slide include emergency containment measures; barrages, settlement ponds and slit traps to contain peat slurry; and stockpiling of rockfill on or off site.
- Peat slide has potential to effect spawning beds in SAC and ultimately food for otter. River Foyle and Tributaries SAC is designated for otter, salmon and floating river vegetation – it is not designated for peatland habitats such as blanket bog and wet heath and no such effects are possible.
- *Lower River Shannon SAC* – biodiversity enhancement will take place within the proposed development site to offset felled conifer. Shessiv site will no longer be used as a replant site for Drumnahough windfarm.
- *Lough Corrib SAC* – Pollacorragune site will no longer be used as a replant site.
- **Adequacy of data and interpretation of results:**
- As per NPWS recommendation, otter survey data is presented which shows survey extents, location of otter sighting, spraint locations and otter freshwater habitat length.
- Streams within proposed development site are not likely to be used regularly by otter for foraging as they are too small to support fish in numbers. Stream within proposed development site is outside the NPWS mapped length of otter freshwater habitat.
- Otter selected as key ecological receptor – mitigation is related to water quality preservation given that food source in the study area most likely comprises a high proportion of salmonids and frogs.
- Overall conservation trend and assessment for otter is 'improving' and 'favourable' respectively (NPWS, 2019). Proposed development not expected to change the behaviour of otter or the occurrence of the species, nor its conservation status at a local level.

- Level of surveying completed is deemed adequate for the proposed development – no significant effects are predicted for otter.
- Further to NPWS concerns, walked transects and point counts were completed through the peatland monthly during summer of 2021 – species captured were the same species captured during vantage point surveys.
- Level of detail and spatial extent of surveys carried out during vantage point surveys are sufficient for the purposes of EIAR and NIS.
- Target species can be recorded using the site during poor weather conditions and results obtained from poor weather searches are as relevant as those obtained from good weather watches.
- ***Effects on protected bird species:***
- Any blasting would not have any significant effects on birds. Optimisation of blasting will be designed with references to EPA (2006) to mitigate vibration and air overpressure.
- If rock blasting proves to be necessary, a detailed blasting design will be undertaken by a suitably qualified and experienced specialist for each borrow pit to ensure peak particle velocity (PPV) of 10mm/s is not exceeded at a distance greater than 20m from the blast hole.
- Potential impact of blasting on birds is unlikely to be anything other than highly localised (spatially and temporary).
- "Fright-flight" impact would be considered to be of minor effect significance.
- Bird surveys recorded golden eagle, merlin, hen harrier, peregrine and golden plover transiting or foraging in the site and surroundings during breeding season.
- No evidence of golden eagle, peregrine and golden plover breeding within the site or wider area.
- Merlin observed breeding within the site and a suite of mitigation measures are proposed including the following:
    - Footprint on least ecologically sensitive areas.
    - Buffer or setback from for new infrastructure from successful merlin nest.

- Avoidance of barrier effect on birds – turbines at least 500m apart.
- Minimisation of access roads and hardstandings and upgrading of existing tracks to reduce habitat loss.
- Plant and equipment to conform to relevant regulations and legislation.

- Proposed development infrastructure and merlin nest are screened by conifer plantation and the nest site is at greater elevation than the nearest proposed development components. 350m buffer used.
- Pre-construction and construction phase bird surveys and monitoring of merlin will be carried out.
- Noise mitigation measures will be sufficient to reduce to insignificant the effects of noise disturbance to breeding birds.
- Scientific basis for abundance of suitable foraging area to the north, east and south – increasing variability of habitat available to birds away from the proposed development site offer more in terms of ecological diversity.
- SPA lies outside the core foraging range of breeding merlin associated with the Derryveagh and Glendowan Mountains SPA (5km), and the nearest turbine is 6km.
- There are considerable areas of open peatland suitable for foraging merlin within a 5km range bordering the site boundary particularly to the west and north – unlikely that breeding merlin recorded at the proposed development site forage within or close to the SPA.

Golden Plover

- Bird Atlas 2007-11 has no recorded breeding within the hectad (10km x 10km) encompassing the site. Hectad to south-west has confirmed breeding and this lies over 7km away at the nearest point.
- It is likely that golden plover observations in 2018 were passing through the area on further migration north to breeding grounds in Iceland. No golden plover observations during breeding seasons of 2019, 2020 or 2021.

- Wintering golden plover were recorded during bird surveys completed on site between 2018 and 2021 – it is evident that golden plover use suitable habitat within the greater area in winter and spring.
- Golden plover have also been recorded using Lenalea Windfarm to the east (flying over Lough Deele).
- Most of the proposed windfarm site is not suitable for wintering golden plover given the cover of commercial forestry plantation. Only suitable area is to the north-west in the vicinity of T9 & T10 – no feeding golden plover were recorded in this area.
- Wintering golden plover and flocks returning to breeding grounds in March and April fly over the site and wider landscape and use Tullytresna bog to the southwest and the peatlands around Lough Deele.
- Impact assessments in the NIS and the EIAR were based on two years of bird surveys as recommended by Scottish Natural Heritage (2017). Two further years of data were collected between 2006 and 2008 presented in the original Drumnahough EIS, and an additional 1 ½ years of bird data was collected between April 2020 and September 2021 since the completion of assessments. Data collection is considered more than adequate to determine the likely significant effects of the project on bird populations including golden plover.

Curlew

- Curlew do not seem to venture east of the local road (L-1622-1) and may have preference for uninterrupted open habitat.
- Information provided by NPWS and BWI indicate that the breeding or nesting area for curlew is outside of the windfarm site boundary to the west – feeding areas or curlew movement do not overlap with the site boundary and rarely occur even east of the local road (L-1622-1).
- Open areas within the site were not deemed suitable for breeding curlew given the proximity to conifer plantations.
- Curlew were not recorded at the site between summer 2018 and winter 2019/20 and after this period covering summer 2020, winter 2020/21 and summer 2021.

Not surprising given the mainly closed afforested nature of the site – curlew favour open landscapes with wide visibility and clear uninterrupted views of surrounding areas.

- Reasonable to assume, for energy conservation purposes, that curlews generally do not fly high given that their movements are localised and probably do not exceed 20m.
- Development footprint in proximity to the nesting site (NW access road, T12 and T11) are all within, or at the edge, of conifer plantation, a habitat unsuitable for breeding or foraging curlew.
- Only possibly suitable habitat within the development footprint is the open peatland habitat south and east of T9 and T10 - these open peatland areas are enclosed or fragmented by conifer plantation and thus unlikely to be suitable curlew breeding habitat.
- There is no overlap between the curlew breeding habitat in Meentygrannagh Bog SAC and the proposed development site, and curlew habitat loss within this breeding territory will not occur as a result of the project.
- Given intervening distance between nest and nearest windfarm infrastructure, the location of the proposed development site outside of the curlew breeding territory and the fact that the nearest proposed turbines are in forestry, it is reasonable to conclude that breeding curlew will not be displaced by operating turbines.
- Habitat within this area has not been selected by curlew as evidenced by survey data. Peatland habitat within site is of limited suitability due to its proximity to forestry and fragmented and enclosed nature.
- Applicant has decided to exclude the proposed second site access point in the northwest from the project description in response to the concerns raised by BWI in their submission in relation to the breeding curlew, and the potential for disturbance of feeding birds during the breeding season. Primary access for construction and operational phases will be via the existing forestry entrance from the local road (L-10142) at the south-west of the site.

- To minimise any potential noise or visual disturbance to breeding curlew, the construction of turbines T11 and T12 or the associated access roads, will not be constructed during summer months of the breeding period.
- Construction of windfarm will not result in any habitat loss of curlew breeding territory (nesting and feeding areas) or the disturbance of curlew within nesting and feeding areas, nor will it result in the disturbance/ displacement of any birds during the operation of the turbines.

Merlin

- Merlin specialise in catching small birds that they hunt over open ground, along forest edges, or sometimes over the canopy - habitats at the proposed development site are widespread in the locality and in the county context.
- There is continuity of land use between the proposed development site and the Derryveagh and Glendowan Mountains SPA and merlin will move in and out of this SPA to forage and find new territories.
- The proposed development is likely to be outside of the core foraging range of breeding merlin associated with the SPA.
- Core foraging area of breeding merlin population associated with the SPA is outside of the proposed development site, and the sightings of merlin within the proposed development site relate to the nesting pair.
- At pre-construction monitoring, should merlin be present within 350m of proposed works, then construction works within this zone will be restricted to outside the breeding season (i.e. October - February inclusive). Vehicular movement along roads within the 350m buffer will be permitted once they have been constructed/widened, with agreement from NPWS.
- If merlin nest is detected within 350m of construction works, the following will be carried out:
    - Project ornithologist will immediately notify NPWS,
    - Location of nest will be treated as ecologically sensitive area,
    - All high impact works will be suspended,

- Project Ornithologist/ECoW will monitor the ecological sensitive area and liaise with NPWS

- Merlin habitat enhancement plan has been developed as ecological compensation – 14.1 hectare of area currently under commercial forestry.
- ***Mitigation measures outlined in the NIS & EIAR:***
- Surface water quality management system has been prepared in order to control erosion and prevent sediment runoff during the construction phase.
- Drainage layout comprises the watercourses and other smaller drainage features generated from contour data that currently exist at the proposed development site.
- Treatment system comprises the following:
  - Primary treatment consisting of 3-stage settlement pond with overtopping weir at each stage.
  - Secondary treatment system in the form of graded gravel filter bed.
  - Tertiary stage involves the dispersal of outflow across a wide area of vegetation.
- Other measures include natural vegetation left in situ and undisturbed between silt ponds and watercourses/ drainage paths, and use of stakes, terram and straw bales downslope of silt ponds. There will be a buffer zone of at least 50m from watercourses and silt ponds.
- No silty water will be released untreated, and three stage treatment is highly effective and well proven in many years of windfarm construction in Ireland. ECoW will adapt measures if so required.
- Proposed turbines and associated infrastructure are all located away from watercourses. Drainage from the proposed development does not rely on existing forestry drains to mitigate silt.
- Where topsod is not available, a seed mix will be used on bare soils to assist in revegetation. Fast growth of vegetation on bare areas is desired, especially on slopes, so a grass and wildflower seed mix will be used in all situations.

- All seeds have been sourced from native plants, and before sowing, soil will be firm or rolled and lightly raked to create a freshly moved soil.
- ECoW will be suitably qualified and experienced in relevant disciplines.
- Appropriate measures will be put in place for the handling of concrete.
- The Peat and Spoil Management Plan for the proposed development site is presented in the EIAR. A Peat Stability RFI Response document has been prepared relating to peat stability and the geotechnical assessment of the site have also been carried out. Wind farm site as proposed represents a negligible risk from a geotechnical and peat stability perspective.

Monitoring

- Pre-construction and operational phase avian monitoring is proposed, and bird surveys will continue during the operational phase at the Vantage Point (VP) locations used pre-construction.
- Detailed Operational Avian Monitoring Programme will be prepared for the operational phase of the project to include the following:
    - Breeding bird surveys,
    - Winter bird surveys,
    - Targeted bird collision surveys.
- Tracking technology not proposed in the EIAR but the project proponents will implement a tracking programme and will adopt any advice/ guidance from NPWS and/ or BirdWatch Ireland on the species to track.
- Alternatively, project proponents are willing to provide funding for NPWS and or Birdwatch Ireland regarding bird conservation projects in the study area.
- Plan of action will be agreed at planning stage and if results in future show a significant mortality of birds and/ or bats, the plan will be implemented.
- Specialist software will control turbine operation and curtailment, having regard to wind speed (time of night, bat activity) and meteorological data.

- Additional biological sampling was carried out on the River Deele (Site 12) on 11th October 2021 – based on the relative abundance of various pollution sensitive groups, biological water quality was equivalent to WFD high status.
- All monitoring results will be made available to the competent Authority (Donegal County Council) and copied to NPWS - primary purpose of post-construction surveys are to measure bird displacement due to the wind farm.

8.4.3. **Response to submission by TII**

- Works on national road infrastructure principally comprise the temporary removal of crash barriers, lighting poles, telecoms poles, signs and other street furniture.
- Any works on national road network will not result in significant adverse effects on the environment, will comply with TII publications and will be subject to RSA, as appropriate.

8.4.4. **Response to submission by Bird Watch Ireland (BWI)**

- Windfarm (Reg. Ref: 08/50687) was previously considered capable of being constructed without harm to Meentygrannagh Bog SAC and its habitat – this has not changed, albeit a change in layout includes turbine T12 in a sub-basin that contains slender green feather-moss.

  <u>Curlew</u>

- (See response to NPWS above)
- The proposed development is deemed too far away from known curlew activity locations to be of concern to this species - core foraging distance during breeding season is given by SNH (2016) as 1km, with maximum range usually within 2km. During monthly surveys from April 2018 to March 2021, there was no evidence of curlew within the proposed development site.
- Nearest part of site boundary is not relevant since there is no infrastructure or construction activities any further west than T12.
- Western access road no longer features as part of the proposed development.

- Closest occurrence of curlew to the proposed development site is an outlier and was a single movement. Reasonable to deduce that the likely curlew nest is well outside the core foraging range.
- Curlew activity is over open habitat to the west and not within or near conifer plantations. Proposed development not expected to attract curlew away from their known breeding territory – typical fragmented terrain within site is unsuitable.
- Feeding areas or curlew movement do not overlap with the site boundary and rarely occur even east of the local public road (L-1622-1).
- Curlew were not recorded during bird surveys at the site between summer 2018 and winter 2019/20, and during summer 2020, winter 2020/2021 and summer 2021.
- Reasonable to conclude that breeding curlew will not be displaced by operating turbines given the intervening distance between the nest and the nearest wind farm infrastructure, the location of the proposed development site outside of the curlew breeding territory and that the nearest turbines are in forestry.
- Curlew avoid fragmented and edge-rich landscapes which harbour fox, mink, magpie and hooded crow, known predators of curlew.

<u>Slender green feather-moss and alkaline fen</u>

- Concerns of BWI wholly misplaced – there will be no hydrological change to the alkaline fen habitat with Meentygrannagh Bog SAC, either by water quality or quantity.
- Proximity of the proposed development has been vastly overstated and there is no potential for connectivity between the windfarm and the mosses.
- Based on the October 2021 survey, alkaline fen habitat to the east of the Meentygrannagh Stream is deemed stable.
- Closest part of the proposed development to Meentygrannagh Bog SAC and the slender green feather-moss therein, is proposed turbine T12 and associated infrastructure – All surface drainage from the area where turbine T12 and associated infrastructure are located, is to the Tooslenagh Stream which flows

into the Meentygrannagh Stream downstream of the alkaline fen habitat supporting slender green feather-moss.

- All water flowing into the alkaline fen that supports slender green feather-moss comes from an area upslope that does not include any part of the proposed development. T12 is located within ‘sub subbasin B’ which drains to the Meentygrannagh Stream below the slender green feather-moss habitat.
- Following the exclusion of the proposed second site access along the existing forestry track, there will be no wind farm infrastructure, within the catchment of the habitat supporting the population of slender green feather-moss within the SAC.
- The proposed development will not result in any effects on slender green feather-moss related to unregulated activity, nor is there any potential for in-combination effects.
- There are no gaps in the surveys undertaken to inform the NIS. The NIS has comprehensively covered all receptors listed as qualifying interests of Meentygrannagh SAC. There is no doubt that the wind farm could have any impact whatsoever on the qualifying interests of Meentygrannagh SAC.

Consultation with BWI

- BWI were made aware of this application early in the project design process and prior to submission to the Board for planning consent.

8.4.5. The further information response is accompanied by a Breeding and Wintering Report 2020-2021 which presents the findings of additional bird surveys. A total of 37 species were recorded in summer 2020 of which 9 no. were target species, including Kestrel, Buzzard, Sparrowhawk, Merlin, Hen harrier and Snipe. Similar target species were observed in the summers of 2019, 2020 and 2021 but with some variation.

8.4.6. A total of 39 species were recorded during winter 2020-2021 of which seven were target species including Sparrowhawk, Great black-backed gull, Golden eagle, Merlin, Buzzard and Lesser black-backed gull. Golden plover was also heard calling. Similar target species were observed in the 2019-2020 and the 2020-2021 seasons with some variation.

8.4.7. Transect and point count surveys were also undertaken during the 2020 and 2021 breeding seasons. Overall, the species captures in these surveys were the same and those recorded during vantage point surveys.

8.4.8. **Response to submission from Donegal County Council**

Visual Impact

- Glenveagh National Park four approach roads assessed for visual impact – wireframe views produced for each road where visibility is most likely. Photomontages also produced at views of high sensitivity.
- Whole Lough Inshagh trial considered by applicant to be within the park boundary.
- Theoretical visibility illustrated of some or all of turbines T9-T12 only, and some or all of turbines T1-T12 only for both tip height and hub height.
- *Glendowan to Doochary* Road - extent of theoretical visibility extremely limited (0.6km out of 21km). Magnitude of change is considered negligible – two blade tips are barely visible and difficult to distinguish in photomontage. Overall character of the road is not affected.
- *Churchill to Termon/ Dunlewey Road* – extent of theoretical visibility occurs in two main areas north of Gartan Lough (300m) and north of the junction of the L-6262 (1.8km).
- No theoretical visibility from the section of this road to the north which is the more scenic section. Approaching Glenveagh National Park, no views of the proposed development will be available.
- Theoretical visibility at townlands of Losset and Whitehill is in the opposite direction to the national park, and at Tirargus visibility is likely to be limited (12.5km).
- View to south from road north of Lough Akibbon – several turbines would be visible behind the ridgeline in the distance (13.5km). Mature trees line the road and are likely to restrict the view.

- Area of theoretical visibility of approximately 2.1km out of a total of 6.9km – experienced when travelling away from national park and at considerable distance. The visual effect is considered to be slight.
- *Dunlewey to Termon Road* – three areas with theoretical visibility of the turbines at Derrylahan (200m), Ballybunninabber (1.3km) and south of Termon (200m).
- Photomontage produced for Derrylahan section on R251 – two blade tips can be seen, and magnitude of change is considered negligible.
- Magnitude of change within Ballybunninabber view considered to be low-medium – turbines clearly visible across ridgeline but are not considered prominent. Turbines are seen in the context of other turbines and are relatively distant. Proposed development increases the horizontal extent of turbines.
- *Termon* – areas of theoretical visibility make up a total of approximately 1.7km of road length of 26km. Overall magnitude of change considered to be negligible. Overall character of the road remains the same.
- *Muckish Gap to Cabiber Bridge* – road not within ZTV so no visibility will occur.
- *Mountain Top area of Letterkenny town* – this area, while elevated and having some extensive distant views to the south, is an urban edge environment. View is assessed under Viewpoint 6 and cumulative effect with other turbines is imperceptible.

<u>Blasting</u>

- Infinite slope stability factor of safety analysis has been carried out at 19 locations within and around the proposed borrow pits/ material storage areas.
- Peat Stability Risk Assessment around proposed borrow pits shows there is a negligible risk, which will be further reduced by mitigation measures.
- Land and Soils chapter concludes that “the proposed development does not constitute a significant effect on the land and soils environment, either alone or in cumulation with other existing and/or approved projects.”. Blasting of rock is included in this assessment.
- Mitigation measures included in the land and soils chapter associated with blasting, e.g. locating borrow pits within areas of thin peat cover; no blasting after

heavy rainfall; detailed blasting design where rock blasting proves necessary; compliance with Explosives Act, 1875; and consultation with NPWS.

Impact of noise and shadow flicker on residential amenity

- Operational noise levels from the proposed development will be within levels deemed, by national guidance, to be acceptable for wind energy schemes.
- Considering the separation distance between the proposed development and nearest residential receptors, the local population is unlikely to experience significant negative effects from noise.
- Operational phase will be managed to minimise the impact on the human environment and the local residents - independent acoustic consultant to assess the level of noise emissions from the wind farm at the complainant's property, and should it be required, turbines will be operated in a noise reduced mode at specific wind speeds.
- Shadow flicker assessment indicates that the proposed development has the potential to give rise to shadow flicker impacts on 5 no. surrounding dwellings - where meteorological conditions and the presence of screening are taken into consideration, the model concludes that the guideline limits will not be exceeded.
- Applicant will programme turbines to shut down to ensure that zero shadow flicker will occur at all residential receptors as a result of the proposed development.

8.4.9. **Response to submission from Northern and Western Regional Assembly**

- There are no tourism facilities or attractions located on or in the immediate vicinity of the proposed replanting lands.
- Closest part of Lough Inshagh Walk is within 11km of the proposed development – this is the only trial within the ZTV of the proposed turbines. Upper sections of the walk would have views of the proposed turbines in good weather conditions.
- The area around Lough Beagh, Glenveagh Castle and the visitor centre and car park and entrance will not have visibility of the proposed development.

- Wireframe image shows proposed Drumnahough turbines in the distance, along with other existing turbines to the left. Represents 'worst case scenario'.
- There are panoramic views in several directions on the Lough Inshagh trial and not just in the direction of the proposed development.
- The High sensitivity of the visual receptors and the Low overall magnitude of change on the trails within the Park would result in an overall Slight effect on the trails within the Park.
- Impacts on the character and setting of the National Park as a whole will not result in significant adverse effects.

8.4.10. **Response to Submission by Irish Water**

- No requirement for connection to public water or wastewater infrastructure to service the development and no requirement to build over or divert existing water or wastewater services.
- Nearest private well and source protection areas are not located in the same groundwater body as the proposed development.
- Mitigation and controls for the protection of groundwater resources are detailed in the EIAR and CEMP.

8.4.11. **Response to Submission by Irish Aviation Authority (IAA)**

- Submission to the Board is essentially seeking notification by the developer in advance of construction taking place. Necessary information will be made available to IAA at least 30 days in advance of construction.

8.5. **Item 2 - Applicant's Response regarding Nature and Extent of Development**

8.5.1. The applicant confirms that planning permission is being sought for turbines with tip height of 167.5m, hub height of 95m, rotor diameter of 145m and blade length of 71m. Details of site layout and infrastructure including turbine dimensions, foundations and hardstands are provided in application drawings.

8.6. Items 3 - Assessment of Range of Options

8.6.1. The applicant confirms that a range of turbine options are not sought and the submitted EIAR and NIS has assessed the wind turbine model as described above.

8.7. Item 4 - Peat Stability Assessment

8.7.1. The further information response in relation to peat stability includes the following:

- Technical review of original Peat Stability Risk Assessment.
- Review of site conditions relative to Meenbog Windfarm and other locations where peat instability has occurred.
- Collection and analysis of additional site data on peat depths and strength, as well as further infinite slope stability analysis.
- Liaison with Irish Peatland Conservation Council.
- Review of design of access track between T8 & T9.

8.7.2. The detailed response to each point under Item 4 of the Board's Request for Further Information can be summarised as follows:

- Conclusion (of negligible risk) is based on the entire peat stability risk assessment process, not the preliminary screening stage of the process.
- *Consultation with Irish Peatland Conservation Council* carried out on 16th August 2021 – specific concerns raised and addressed below.
- *Comparison of subject site to previous peat slides (e.g. Meenbog):*
    - Location of the peat slide at Meenbog had a flat wet body of soft deep peat, at or close to a convex break in slope upstream of the infrastructure alignment.
    - Conditions of deep peat, steep slopes and convex breaks in slopes were avoided when selecting the proposed infrastructure locations.
    - Applicant has specifically designed the site infrastructure to avoid the conditions manifest at the historical slide at Slieve Bearnagh and Meenbog. Conditions identified as contributing to these recent slides and have been addressed in the PSRA.

- Nature of the site and the peat land at T9, T10 and T11 is very different to that encountered at sites where landslides have occurred. Peat material is fibrous, well drained and standing vertically, indicating strong competent material unlikely to slip. Fibrous peat at T9 T10 & T11 is underlain by rough and undulating rock rather than a smooth planar surface. Very little peat is located upslope of T9, T10 & T11 and peat is discontinuous in nature with average depths of between 1.2m and 2.1m. Average depth of peat upstream of the landslide at Meenbog was 3-3.5m.

- As part of the detailed assessment and in order to define the developable area of the windfarm the following were included:
  - Suitable offset buffers to watercourses, designated areas, areas of high conservation forestry and areas of ecological interest.
  - Analysis of high resolution LiDAR data and aerial photography to avoid areas of high ground slope, headwater streams and areas of peat cover at convex breaks in slope.
- Areas of deeper peat leading to breaks in slope were avoided for new infrastructure
- Iterative approach using ground slope as one of the primary considerations to ensure that infrastructure location would be suitable subject to peat depth-shear strength determination and infinite slope stability analysis.
- 597 peat probes undertaken – maximum depth was 4.5m and minimum was 0.1m. Rock outcrops at the surface are frequent around T9, T10 & T11.
- Peat shear strengths at 301 probe locations range from 7kPa to 60kPa.
- No proposal within windfarm layout to alter in any significant manner the existing hydrology on site – all existing drainage pathways will be maintained.
- Wind farm is designed to utilise the existing forestry roads and drainage network as much as possible - beneficial effect of reducing the peat stability risk associated with construction of new infrastructure in areas of peat.

- Groundwater will flow around these turbine structures during construction and operation, and this very local and slight alteration of shallow groundwater flow at each turbine base will not cause ground instability.
- Slope Stability Analysis provides information on the stability of peat upslope and downslope of the proposed infrastructure.
- *Content of Peat Stability Risk Assessment Report* including ground investigation and risk assessment:
    - Ground investigation includes Peat Stability Risk Assessment Report and additional peat data has been collected and reviewed which confirms the initial understanding of geotechnical conditions on site.
    - 9 additional peat probes at T9 to T12 area showed factor of safety well above 1.3 which represents and negligible risk of peak instability.
    - With regards to water and geotechnical conditions, wet areas and flushes and headwater streams are avoided and there are no alterations to natural drainage patterns. No peat pipes or subsurface water flows recorded during site visits.
    - Both qualitative and quantitative (Infinite Slope Stability Factor of Safety Analysis) risk assessment has been carried out, with very conservative approach taken with both methodologies.
- *Blasting at borrow pits and foundations:*
    - Infinite slope stability factor of safety analysis carried out at 19 locations within and around the proposed borrow pits/ materials storage areas. Average factor of safety was 7.4.
    - Mitigation measures are included in the Land and Soils chapter of the EIAR for blasting.
    - Proposed borrow pits have been located within areas of thin peat cover and low susceptibility to landslide. Blasting mitigation measure including threshold for peak particle velocity is key mitigation that minimises peat stability risk associated with blasting.

- *Geotechnical analysis for each turbine base:*
    - Geotechnical analysis of the risk of instability has already been completed for all areas of proposed infrastructure within the site, including each turbine base location and each proposed material storage areas.
    - Factors of Safety for each turbine base location and material storage areas are comfortably in excess of the minimum required by “BS 6031:2009 Code of practice for earthworks” (i.e. all FoS values are >1.3).
    - Locations for the placing and storing of excavated materials avoid areas of higher risk of peat stability risk.
    - Peat Stability Risk Assessment concludes that all infrastructure is placed on areas of negligible risk.
    - Mitigation for the placing and storage of material is included in the Peat Stability Assessment Report.
- *Landslide and Slope Stability Risk Assessment for All Stages of the Project:*
    - Landslide and slope stability risk assessment has been presented in the Peat Stability Risk Assessment (PSRA).
    - Construction stage of the project is the highest risk stage in terms of landslide and slope stability risk - application of a surcharge within the stability assessment, combined with the selection of conservative design parameters has yielded a factor of safety greater than that required by BS 6031 (Note the minimum required FoS by “British Standards Institute (2009). BS 6031:2009 Code of practice for earthworks” is 1.3. Table 3-1 shows FOS>2 for each turbine and borrow pit/material storage area.
    - During operation and maintenance phase of a wind farm, movement of machinery will be confined to the roads and crane hardstands - there will be no surcharging of peat during these stages of the project life.
    - During the decommissioning phase, it is envisaged that the turbines will be removed but the foundations and roadways will be left in place.

- *Proposed mitigation measures:*
    - Scottish Guidelines outline a mitigation hierarchy for landslides to (i) avoid by design, (ii) engineer (drainage, construction management) and (iii) control slide (cast walls, catch ditches, i.e. emergency response).
    - Design approach at Drumnahough Windfarm has actively avoided areas with peat stability risk.
    - Prevention of peat slide and bog burst through implementation of procedures, e.g placement of materials in designated storage areas and not downslope or upslope of adjacent peat; battering back of sides within excavated peat to 3-degrees; ensure that edge of excavation does not undermine any adjacent access road; suspension of works if weather poses risk of slippage; checking of floated roads; support and checking of slopes for tensions cracks; following of method statements; regular monitoring; and staff training.
    - Excavated soil management – minimisation of production of spoil and treating of glacial subsoils, peat soils and rock separately.
    - Good practice for peat excavation works including excavating of turves in intact blocks as feasible; avoidance of uncontaminated peat turves where possible; and employment of macro-turfing where possible.
    - Permanent disposal of excavated spoil will adhere to principles relating to drainage, siltation control and retention berms; subdivision of large storage areas into cells bounded to prevent material slippage; prevention of water build up in storage areas; profiling of deposited spoil; and consultation with geotechnical engineer.
    - Management of excavated material will involve separate storage of excavated mineral and peat soils; stockpiling of materials at low angles; sealing of glacial subsoils to minimise sediment laden run-off; maintenance of vegetative layer in moist state for reuse; reinstatement of excavated peat as soon as possible after excavation; and avoidance of spreading of excavated material over heath, bog or rough grass.

- Temporary storage of excavated material – no temporary stockpiles left on site after completion of construction. Spoil to be disposed within 30m of each structure and to a depth of no greater than 0.5m in designated areas.
- Reinstatement works will commence at early stage of construction identifying areas that can benefit from reinstatement of peat. Excess stone and spoil to be placed in material storage area.
- Control measures will be enforced during construction including no side casting of excavated materials; no stockpiling of materials or parking of plant on peat; minimisation of tracking machinery on peat; delineation of exclusion zones; toolbox talks; minimisation of length of unsupported excavations in peat; no work to be carried out down slope of peat excavation; avoidance of water build up in excavations and no uncontrolled discharges to peat; peat excavations are not to be left unsupported for extended periods; upslope cut-off drains will be installed in advance of construction; and existing drainage patterns in the peat will be maintained.
- Contractor competence – only competent contractors experienced in working within peat areas will be employed and as a minimum, the contractor will implement all the requirements of the CEMP. Full time Ecological Clerk of Works will also be employed.

- *Cumulative impact and thresholds for periods of prolonged rainfall:*
  - Other local wind farms have no potential to impact on peat stability at the Drumnahough site and vice versa - they are located on the other side of significant hills and in separate drainage catchments.
  - Wind farms local to Drumnahough, which have similar ground conditions, have been successfully completed without occurrence of peat instability.
  - Areas where peat slide could be instigated by heavy rainfall have been avoided in the design layout.
  - Weather forecasting systems to be used include general forecasts, MeteoAlarm, 3-hour rainfall maps, rainfall radar maps and Met Éireann consultancy service.

- Earthworks will be suspended if forecasting suggests >10 mm/hr, >25 mm in a 24-hour period or, >half monthly average rainfall in any 7 days.
- Measures will be put in place prior to any suspension of earthworks including sealing of open peat/ spoil excavations and temporary emergency drainage.

- *Mitigation measures in the event of a peat slide:*
  - Emergency response procedures to protect the health and safety of workers and to implement containment procedures for remoulded peat slurry on or off site.
  - Identification of potential flow paths of peat slides to determine accessible intervention points on or off site to construct barrages, settlement ponds and silt traps to contain the peat slurry and to prevent downstream contamination of watercourses.
  - Stockpiling of rockfill on or off site to use in the construction of emergency containment barrages in the event of a slide.
  - Monitoring of sightlines – early discovery of stress in peat will give the developer an opportunity to implement emergency procedures.
  - Rolls of proprietary silt fences will be available onsite at all times should emergency siltation control measures be required.
  - Mobile emergency lighting will be stored on site so that any required emergency works can be completed safely during hours of darkness should this be required depending on the time of day the landslide event occurred.
  - Appropriate plant will be maintained onsite through the project so that it is available in the event of a landslide. This will include bog master excavators and dumper trucks.
  - The Contractors Safety Plan shall include for a training day and mock emergency response drill (similar to a fire drill). This will train and prepare the onsite team to implement the emergency plan quickly and effectively
- Gradient and low-moderate risk of peat slide at T9, T10 & T11 and extent of excavations for roadway from T8 to T9.

- Slope gradients along the approach tracks to T9, T10 and T11 are not considered excessive or abnormal slopes. In Civil Engineering terms these slopes are not excessively steep, and construction at many built wind farms have been completed on similar and often steeper slopes. The slopes have been accounted for in the Infinite Slope Stability Analysis (ISSA) Factor of Safety Analysis and acceptable values have been calculated.
- The Low-Moderate Peatslide Hazard Rating System (PHRS) apparent risk score identified for T9, T10, and T11 in the PHRS was for the Stage 1 – Qualitative Assessment. Assessment should be made on the final outcome, not one screening step within the process.
- The important issue to consider is that the Stage 2 – Quantitative assessment using ISSA indicates peat stability along these proposed access tracks are all determined to have Factors of Safety that demonstrate negligible peat stability risk.
- The majority of the excavation (between T8 and T9) in the cut sections of access track will be in bedrock, and this creates no additional peat slope stability risk. However, the road level will be raised so that there is a reduction in peat disturbance in this area.
- All rock excavated along this section of cut will be used elsewhere during construction of the wind farm.
- Gradient of road between T8 &T9 will be increased from 12% to 16% meaning that turbine delivery vehicles are now proposed to be towed. Updated earthwork drawing shows that extent of cutting and earthwork along this section of roadway is greatly reduced.
- Slope gradients along the approach tracks to T9, T10 & T11 are not considered excessive and many built wind farms have been completed on similar and often steeper slopes.
- There is no peat stability or engineering reason to omit Turbines T9, T10, T11 and T12 and alternative proposal will reduce the extent of the excavation between T8 & T9. Peat slope stability has a negligible risk in either scenario.

- Detailed Response to IPCC Consultation Letter

- Peat stability risk at Drumnahough Wind Farm is negligible - turbines and infrastructure are located in areas of negligible risk for peat slides and also environmentally sensitive areas have been avoided.
- Existing forestry drainage helps strengthen the in-situ peat and aids peat stability.
- Peat on higher ground on site is fragmented, with frequent outcropping of bedrock between peat hags. The in-situ peat in these eroding areas stand vertically.
- Peat Stability Risk Assessment completed for Drumnahough Wind Farm site is multi-staged, conservative and technically sound.
- A conservative assessment has been carried out which assumes a surcharge (an additional load) is applied to the peat to represent construction machinery and to consider the effects of storage of excavated material on landslide and slope stability.
- Surcharge can mimic additional load, or it can represent additional water (i.e. a future climate change scenario) on the slopes during construction or operational phase of the wind farm - in either scenario, slope stability risks at the Drumnahough Wind Farm site pose a negligible risk.
- Other local wind farms (e.g Cark, Lenalea, Meentycat) have no potential to impact on peat stability at the Drumnahough site and vice versa as they are located on the other side of significant hills and in separate drainage catchments.
- There is a 12 fold gain on CO_2 offset from constructing the Wind Farm - site is highly modified and has been drained to facilitate commercial forestry.
- Theoretical worst case 194,638 tonnes of CO_2 that will be lost due to the Drumnahough Wind Farm construction and operation will be recovered in just over 2 years. Over the lifespan of the Drumnahough Wind Farm 2,409,480 tonnes of CO_2 will be offset.

8.8. Item 5 – Consideration of Omitting Turbines T9 to T12

- Turbines T9, T10, T11 and T12 are projected to be the best performing turbines on the site and are critical to the overall success of the proposed development – no reasonable necessity to omit them.
- Presence of breeding Curlew to the west of the site:
    - Feeding areas or curlew movement do not overlap with the site boundary and rarely occur even east of the local public road (L-1622-1).
    - To minimise potential noise or visual disturbance to breeding curlew, turbines T11 and T12 or the associated access roads, will not be constructed during the breeding curlew period (March-August).
    - Construction of proposed windfarm will not result in any habitat loss or disturbance to curlew breeding territory, nor will it result in the disturbance displacement of any birds during windfarm operation.
- Bird flight path surveys showing presence of flight paths over Cronaglack:
    - Bird surveys, collision risk and barrier assessments do not support concerns that the proposed development presents a significant risk to avian species such as to warrant the omission of Turbines T9, T10, T11 or T12.
- Gradient and low-moderate risk of peat slide at Turbines T9. T10 & T11:
    - 2-stage peat stability risk assessment completed as part of the original application in 2020. Low-to-moderate risk finding from Stage 1 screened in the need for a more detailed assessment. Stage 2 final determination for the proposed Drumnahough Wind Farm determined a negligible risk of peat landslide.
- Requirement to serve north-eastern part of the site with new access roads and the extent of excavations for the roadway from Turbines T8 to T9:
    - Detailed design of the wind farm driven by a process of mitigation by avoidance as well as a principle of using existing infrastructure to the maximum possible extent. Iterative design process used preliminary design as a basis for more detailed site assessment and investigations.

- New excavated roads will be constructed using site won stone aggregate obtained from the proposed on-site borrow pits and placed over a layer of geogrid, where required, after all organic and soft subsoil material is excavated to formation level. Floating roads will be required in areas of deep peat, and this will minimise excavation of peat and interference with drainage.
- Most excavations (between T8 and T9) in the cut sections of access track will be in bedrock, and this creates no additional peat slope stability risk. Alternative proposal to increase the design slope from 12% to 16% will reduce the extent of excavation.

- Visual impact and finding in EIAR of moderate visual clutter from Viewpoint 8:
  - Visual receptors at Viewpoint 8 are not of high sensitivity. Sensitivity is medium and view is along a regional road at Meenboll Hill, an area of considerable forestry and few dwellings.
- Residential properties to the north of the site that may affect shadow flicker, noise and visual impacts:
  - Applicant is committed to the implementation of additional turbine management measures and to programme turbines to shut down during periods when shadow flicker is predicted to occur, and to operate in a noise reduced mode at specific wind speeds to ensure that specified limits are met.
- Elevations at the highest part of the site:
  - Proposed development designed to minimise potential environmental impacts and to maximise wind potential.
  - Site infrastructure layout was selected and optimised such that areas of minimum gradient were utilised.

8.9. Item 6 – Landscape and Visuals

- New photomontage prepared along local road to the north-west with all 12 turbines and only turbines 1-8.
- Visual receptor sensitivity in an area of some scenic qualities and remoteness and in an area of High Scenic Amenity is considered medium to high.

- Magnitude of change is considered medium for turbines 1-12 and low for turbines 1-8. Significance of visual effect is significant and adverse in quality for turbines 1-12 and moderate-slight for turbines 1-8.
- Visual effects are likely to be significant in this area; however, they are localised, and do not represent views along the entire length of this road.
- Section of the road closest to the turbines has few dwellings and is a relatively remote, narrow local road in an area of High Scenic Amenity (HSA). There are some dwellings north but few dwellings to the south along the local road, and therefore viewers would be mainly those travelling along this road.
- Any visual impact of the full array of Turbine T1-12 versus that of just T1 to T8 is very limited in extent and to the numbers of potentially affected sensitive visual receptors.
- Conclusions of the EIAR remain unchanged with regard to effect on landscape character.

8.10. **Item 7 – Wet heath**

- Not all areas at and in proximity to Turbines T7 or T8 mapped as Wet Heath in the NPWS maps actually fall within this habitat classification.
- Relocating any turbines or re-routing tracks to avoid what is classified/deemed 'Wet Heath' habitat as per the NPWS maps, would only increase the footprint and loss of another, and equally important peatland habitat.
- Peatland habitat mapping for the EIAR was based on both the flora / vegetative community (above ground) and the peat depth (data available from probing investigations linked with geotechnical assessment). These are the factors to consider when distinguishing between 'wet heath' (HH3) and 'upland blanket bog' (PB2).
- Much of the wet heath areas mapped by NPWS within footprint of T8 are under commercial coniferous forestry - it has been drained and planted with Sitka spruce.

- Given conditions at T7, it is more correctly classified as cutover bog rather than wet heath because the top layer of peat has been removed.
- 'Upland blanket bog' and 'wet heath' are both peatland habitats that have equal conservation status and both the loss or impact is the same in terms of the extent of the affected area and the significance.

9.0 Other Reponses

9.1. The following is a summary of the responses received by the Board after the further information response was deemed as significant:

Donegal County Council

- Planning Authority notes the additional visual impact assessment reports and accepts the greatest ZVI will be from the R250 heading west from Letterkenny to Finntown.
- ZVI on the Churchill to Termon Road, Dunlewey to Termon Road, and the Glendowan to Doochery Road is considered not significant – there will be distant views of turbines from a few short stretches and these locations have been detailed in photomontages.
- Board asked to have regard to the impact of undergrounding of grid connection within confines of existing road infrastructure; the existing hydrology of the site and avoidance of peat becoming buoyant by ensuring that all on-site drainage remains in situ to relieve any build-up of pressure; and proper application of security bonds and development contributions.

Inland Fisheries Ireland

- Northern section of the site drains to river systems that eventually joins the River Swilly and these provide habitat and spawning habitat for various species of freshwater fish.
- Although some of the streams may be small and of limited fisheries value for Atlantic Salmon, all play a significant role in providing aquatic habitat for species like eel and trout. Small streams can also become vectors for invasive species or

water pollution with negative impact to water quality, invertebrates, plant life and all life stages of fish.

- Guidance must be followed throughout the duration of the development with respect to bunding for oil/ fuel, roadside drainage, culverting, floating roads, piling for turbines, intercepting trenches/ terracing, slopes for embankments/ cuttings, silt traps/ settlement ponds, cement/ wet concrete, management of peat stockpiles, monitoring of surface water flows, identification of attenuation measures, buffer zones and invasive species management and implementation of mitigation measures.
- Suitably qualified person should be on site for duration of works to ensure implementation of mitigation measures; continual assessment to ensure effectiveness of mitigation measures; cessation of works should slippage indicators develop; reinstatement of peat; and contact protocol for relevant statutory bodies.

Irish Aviation Authority

- The Irish Aviation Authority (IAA) Air Navigation Services Division (ANSD) does not get involved in the planning process. IAA ANSD is to be notified hereafter of any erection of a manmade object in excess of 45m and intended crane erection at least 30 days in advance.
- Electronic terrain and obstacle data shall be surveyed by OSi and data shall be supplied to the airspace team to include WGS84 coordinates for each turbine; height above ground level and elevation above sea level to each blade tip; whether it's a standalone windfarm or merged with others; rotor diameter and blade length; and lighting of windfarm and what type of lighting.

Transport Infrastructure Ireland

- Position remains the same as per submission of 5th January 2021.

10.0 Assessment

10.1. Having regard to the requirements of the Planning and Development Act, 2000 (as amended), this assessment is divided into three main parts, the planning assessment, environmental impact assessment and appropriate assessment. In

each assessment, where necessary, reference is made to issues raised by all parties. There is an inevitable overlap between the assessments, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In the interest of brevity, matters are not repeated but such overlaps are indicated in subsequent sections of the report.

11.0 **Planning Assessment**

11.1. Planning permission is sought for the construction of 12 no. wind turbines, a meteorological mast, internal service roads, underground electric cabling systems, tree felling, upgrade works to road junctions and all other associated works. This application follows an earlier permission on site for 15 turbines that expired in March 2019 without commencement.

11.2. The Board sought further information on the current application and a detailed response was provided by the applicant amending the proposed development to include the non-usage of the site access point to the north-west via an existing forestry track; biodiversity enhancement measures instead of replacement forestry lands at Pollacorragune, Co. Galway and Craghera, Co. Clare; redesign of section of site access road between Turbines T8 and T9 to reduce the extent of excavation and fill; and utilisation of a 14.1 hectare area within the River Finn SAC as ecological enhancement for merlin. The applicant was asked to consider omitting certain turbines within the further information request but chose not to.

11.3. Having regard to the above, and in view of national, regional and local policy guidance, and the submissions/ observations received, I consider that the main issues arising in this case can be addressed under the following headings:

- Development Principle/ Policy context
- Main issues
- Environmental Impact Assessment
- Appropriate Assessment
- Overall Conclusion

11.4. Development Principle/ Policy Context

11.4.1. A detailed sectoral roadmap has been set out in the Climate Action Plan, 2021 that includes an aim to increase the proportion of renewable electricity up to 80% by 2030. It is recognised that this will require very substantial new infrastructure including wind and solar farms, grid reinforcement, storage development and interconnection. The proposed 12 turbine windfarm with potential installed capacity of c. 60-70 MW complies with an overarching aim of the Climate Action Plan of tackling climate breakdown by reducing greenhouse gas emissions and by contributing towards the provision of 12GW of renewable energy capacity over the period 2021 to 2030.

11.4.2. Transitioning to a low carbon and climate resilient society is a National Strategic Outcome of the National Planning Framework. Reflecting this, National Policy Objective 55 will seek to *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."* It is therefore recognised that the transition to a low carbon energy future requires a shift from predominately fossil fuels to predominately renewable energy sources.

11.4.3. At a regional level, the Regional Spatial & Economic Strategy for the Northern and Western Region, 2020 supports the delivery of the NPF and implementation of the Climate Action Plan. Objective RPO 4.18 seeks to "*support the development of secure, reliable and safe supplies of renewable energy, to maximise their value, maintain the inward investment, support indigenous industry and create jobs."*

11.4.4. At the local level, there is currently a policy vacuum in relation to favoured/ unfavoured geographical locations for wind farm developments in County Donegal and the heights of proposed turbines within wind farms. A proposed Variation has been prepared which identifies areas designated as (a) 'Acceptable in Principle'; (b) 'Open to Consideration'; and (c) 'Not Normally Permissible' for wind energy development, as well as a new policy framework relating to same. Most of the proposed development site is within the area not normally permissible; however, there are also small areas within the site that are open to consideration.

11.4.5. Notwithstanding this and in the absence of local policy on wind farms, it is reasonable for the Board to be guided by regional and national policy. As

highlighted above, there is clear support for on shore wind farm development and therefore each application should be assessed on a case by case basis having regard to impacts on the surrounding environment and the proper planning and sustainable development of the area. It should also be noted that planning permission was previously granted on site for 15 turbines and this permission expired in 2019. There is also clear precedent for wind energy development in the area.

11.4.6. Overall, I consider that the proposed windfarm is in compliance with the strategic objectives of the national and regional policy on renewable energy. The proposed development will deliver a significant increase in renewable energy production and an associated reduction in CO_2e emissions, thereby helping to address climate change at a local level. The proposal would therefore be acceptable in principle and in accordance with the proper planning and sustainable development subject to an assessment of the issues addressed hereunder.

11.5. Main Issues raised in submissions

11.5.1. A number of issues raised within submissions to the Board are summarised hereunder and are dealt with, both in a broad sense and specifically within the relevant sections of the EIA and Appropriate Assessment. I consider that the most significant issues arising from the proposal are the potential for landscape and visual effects; impacts on peatland habitat and peat stability risk; impacts to bird species most notably Merlin; impacts on European Sites; and other issues arising. All matters are addressed briefly below and referenced in the relevant sections of the EIAR and Appropriate Assessment.

Landscape and Visual Effects

11.5.2. The visual impact of the proposed development in its landscape setting is analysed in Section 12.10 (Cultural Heritage and the Landscape) of the EIA. Further information on landscape and visuals provided by the applicant is summarised under Section 8.10 of this report. This included an extra photomontage of the proposed development from the local road to the west and a visual assessment of 12 turbines vis-à-vis 8 turbines on site.

11.5.3. Donegal County Council and the Northern and Western Regional Assembly in their submissions emphasised that the Board should carefully consider the visual impact of the proposed development from Glenveagh National Park. Notwithstanding this, the Planning Authority is satisfied that the proposed development is located in an area that has the capacity to absorb development and that the subject site will not be impacted by designated views or prospects.

11.5.4. I accept that the proposed development will increase the number of turbines in the area rather than introduce a new element to the landscape. At a local level, new turbines will be viewed against a backdrop of existing turbines, and within more distant views, proposed turbines will be difficult to distinguish from existing turbines. In particular, the turbines will appear well into the distance from Glenveagh National Park from certain trails where they are visible. I would therefore be satisfied, having visited the site and surroundings, and studied the photomontages, that the proposed turbines will not appear over-scaled or incongruous in the context of the landscape or existing turbines in the vicinity.

Impacts on Peatland Habitat and Peat Stability Risk

11.5.5. The impact of the proposed development on peatland habitat is assessed under the Biodiversity section of the EIA (12.6). Impacts on land and soil including peat stability are addressed within Section 12.8. Northern Atlantic wet heaths with Erica tetralix; Blanket bogs (* if active bog); and Transition mires and quaking bogs are among the qualifying interest habitat for the River Finn SAC that are assessed in the Appropriate Assessment. In addition, the qualifying interests of the Meentygrannagh Bog SAC are Blanket Bogs (Active)* Transition Mires, Alkaline Fens, and Slender Green Feather-moss.

11.5.6. The NPWS in its submission to the Board noted that there are impacts associated with altering upslope watercourses, groundwater and surface water flows in close proximity to the protected peat based habitats. There is potential for catastrophic impact arising from peat slippage and mobilisation of silt and nutrients. It is highlighted that Turbine T1 is 0.21km from the River Finn SAC and Tullytrasna blanket bog and T4 is 0.23km from Cark blanket bog, and these peat based habitats are particularly vulnerable to hydrological impacts that may result in drainage and/ or compression of underlying peat.

11.5.7. The proposed development will result in the direct permanent loss of c. 6.71 ha of four types of peat habitat (upland blanket bog, eroding blanket bog, cutover bog and wet heath), including 1.35 ha of Annex I upland blanket bog. However, this will be offset through habitat reinstatement and a biodiversity enhancement plan where 6.2 hectares of conifer plantation at keyhole felling locations would be rehabilitated to peatland and 7.2 hectares of upland blanket bog will be restored, resulting in a net gain of 6.69 hectares of peatland habitat. The applicant also proposes as part of the further information response to carry out forest to bog peatland restoration over an area of 14.1 hectares within the River Finn SAC as ecological enhancement for merlin.

11.5.8. A Peat Stability Report concludes that there is a low risk of peat slide given mitigation by avoidance of high risk areas. The proposed development has been designed to minimise the footprint of the proposed development on more sensitive habitat, taking account of peat depths, habitat value and the area potentially impacted. Infrastructure will be located in areas of shallower peat, and away from watercourses and steep slopes.

11.5.9. As part of the further information response, the applicant's consultants conducted a technical review of the Peat Risk Assessment and a geotechnical assessment of the Drumnahough windfarm site. Extensive peat probing was conducted initially and additional data on peat depth and peat strength around the T9 to T12 area of the site was collected and slope stability analysis was carried out at these locations. The new data confirmed the original geological understanding of the site that the proposed development presents a negligible slope stability risk.

11.5.10. The Appropriate Assessment in Section 13 of this report reaches a conclusion of no significant adverse effects to Special Conservation Interest habitat of River Finn SAC and Meentygrannagh Bog SAC following the application of mitigation measures. There will be no direct loss or changes to the habitat distribution of wet heath, blanket bog or transition mire and quaking bog habitat within the River Finn SAC, and given the intervening distance and complex network of forestry drainage, together with the siting of windfarm infrastructure, it is considered that the proposed development will not directly or indirectly affect the ecosystem function, vegetation composition, or vegetation structure of wet heath or blanket bog or transition mire and quaking bog habitat. It has also been determined, beyond all reasonable and

reliable scientific doubt, that there is no hydrological connection with the qualifying interest habitat of the Meentygrannagh Bog SAC.

11.5.11. Overall, I consider that the applicant has provided enough evidence to demonstrate that the proposed development will not present a significant risk in terms of peat instability and that appropriate measures will be put in place for excavation, storage and disposal/ recovery of peat. In addition, emergency procedures have been outlined by the applicant to prevent the onset of bog burst or localised peat slide. I note that the site drainage system forms an integral part of the windfarm layout. In this regard, the existing flow regime across the site will not change and standard measures will be put in place such as silt traps/ fences, diverting clean water around works areas, strict control of works relating to concrete and other pollution control measures.

Potential Impact on Merlin and Other Bird Species

11.5.12. A full assessment on ornithology is carried out in Section 12.7 of the EIA below. Habitat loss and disturbance/ displacement are the main potential impacts during construction and the main operational effects are displacement due to barrier effects and collision. Species evaluated as key ecological receptors include Annex I merlin, peregrine, hen harrier and golden plover. These species were observed flying at collision risk height during the survey period. Merlin were observed nesting within the site in 2018 and 2020 and close to/ within the site in 2019.

11.5.13. Notwithstanding this, the proposed development site harbours a seemingly stable passerine population, and this provides adequate food supply for raptors with a primarily passerine diet. Merlin ambushes its prey near to the ground and will fly under the area swept by the proposed turbine rotors. The Collision Risk Report did not record comparatively high collision rates for key ecological receptors. A buffer of 350m from a Merlin nesting site is incorporated into the layout of the proposed development and works will be restricted to outside of the breeding season should merlin be present within 350m of the works area.

11.5.14. Overall, it can be concluded that impacts on bird species will be minimised to non-significant levels with proper implementation of mitigation measures and environmental commitments under the CEMP. Further assessment of the impact of

the proposal on ornithology is carried in Section 12.7 and within the Appropriate Assessment section of this report.

Impact on European Sites

11.5.15. A full assessment of the impact of the proposed development on European Sites is contained in the Appropriate Assessment under Section 13 below. The Appropriate Assessment is informed by the NIS and Appropriate Assessment Screening Report submitted with the planning application. Meentygrannagh Bog SAC was screened out within the Appropriate Assessment Screening Report; however, I have decided that a Stage 2 Appropriate Assessment should be carried out for this European Site. I consider that sufficient information is also available for Appropriate Assessment of this European Site, and other screened in European Sites, to be carried out.

11.5.16. It is concluded that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC or any other European site, in view of the sites' Conservation Objectives, and that no reasonable scientific doubt remains as to the absence of such effects.

Other

11.5.17. Other issues raised in submissions include the potential for impacts on nesting curlew; zone of influence concept and in-combination assessment; grid connection; materials disposal; stone sourcing; reinstatement/ restoration of borrow pits; tree felling; design and alignment of 38kV route; assessment of turbine delivery route; and operational phase impacts to birds.

11.5.18. In my opinion, the applicant has adequately addressed these concerns within documentation submitted with the planning application and in the further information response submitted to the Board in February 2022. A submission from BirdWatch Ireland noted the presence of a **curlew** nesting site to the west of the proposed development site. In response, the applicant has chosen to omit a site access in proximity to this location and has determined that the closest development infrastructure is sufficiently distant so as not to cause any disturbance.

11.5.19. The **zone of influence** for the proposed development is defined within the further information response for different ecological features. This response provides clarity on the rationale for determining the area over which ecological features may be affected by biophysical changes as a result of a proposed project and associated activities. It was also recommended by the NPWS that **in-combination** assessment should be carried out within the Zone of Influence. The applicant confirms that all relevant planning applications in the Finn [Donegal]_SC_010 sub-catchment have been considered in an updated Appropriate Assessment Screening Report. Other significant pressures identified by the EPA in downstream watercourses have been taken into account in cumulative assessments. Nearby windfarms have been considered in cumulative assessment on peat habitats and bird species. Overall, I am satisfied that the proposed development has been adequately assessed in-combination with other relevant plans, projects and activities.

11.5.20. It is confirmed in the EIAR that excavations along the public road associated with the **grid connection** will be removed off site to a suitably approved waste facility. Most of the **stone** required for construction will be sourced at the proposed development site from borrow pits and 'cut and fill'. Any imported materials will be from local quarries which contain similar rock types.

11.5.21. Further clarity is provided in the further information response on **reinstatement/ restoration** of borrow pits with reference to the relevant sections of the EIAR and CEMP. Borrow pits would be dug out to provide rock/stone, filled in with peat and other inert materials, capped with peat and converted to a peatland habitat. These areas are currently occupied by Sitka spruce and the end result is an improvement compared to the existing situation in terms of habitat provision.

11.5.22. Procedures for **tree felling** are set out in detail with the further information response. The extent of tree felling is mapped at 33.8 hectares (originally stated to be 37.2 ha), and impacts of felling on wildlife, habitats and surface water are assessed. Mitigation measures are set out in the EIAR as part of a harvest plan to include water exclusion zoning, silt and sediment control, water and drain crossing procedures, extraction management, timing and other measures including whole tree harvesting and retention of any mature trees. In general, the proposals for tree felling are sufficiently detailed and mitigation and monitoring arrangements appear to be adequate.

11.5.23. Two options are provided for the **38kV** overhead line at turbine T1 to including undergrounding along its existing alignment and overhead along an alternative alignment. I agree that neither of these options present a significant ecological risk. The design and alignment of the options are adequately described in the further information response to allow for proper assessment of both.

11.5.24. The further information response provides additional detail for the **turbine delivery route** to be considered within the screening for Appropriate Assessment. Any works along the turbine delivery route will be minor, localised and will not result in any emissions to air or water that could result in significant effects to nearby European Sites.

11.5.25. Operational phase impacts to **birds** are considered in the EIA and AA sections of the report below. Lough Swilly SPA is now screened in for Appropriate Assessment and a full assessment is provided of the implications of the proposed development on the Special Conservation Interest species of the Derryveagh and Glendowan Mountains SPA. Collision risk modelling and migratory routes have also been considered within the Appropriate Assessment.

11.5.26. Finally, the applicant was invited to submit further information to clarify the dimensions of the proposed turbines. It is confirmed that the chosen turbine has a hub height of 95m, rotor diameter of 145m and overall height of 167m. It is also confirmed that the EIAR and Appropriate Assessment Report both describe a turbine of these dimensions and that a range of turbine options are not sought.

12.0 Environmental Impact Assessment

12.1. Introduction

12.1.1. Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) sets out development for the purposes of Part 10 and includes *"installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts."* The proposed 12 turbine windfarm with potential installed capacity of c. 60-70 MW is therefore a prescribed class of development for the purposes of EIA.

12.1.2. It is proposed to connect the proposed windfarm to the national grid via underground medium voltage collector circuit cables to the consented loop in connection at Lenalea windfarm to the east (Reg. Ref: 18/50312). An alternative grid connection method is considered in the EIAR that involves the windfarm's underground medium voltage collector circuit cables connecting to a new 110kV substation within the site, with loop in / loop out connection to the existing Binbane to Letterkenny 110kV overhead line.

12.1.3. Having regard to the nature of the proposed development and alternative options, and pursuant to the criteria set out under Schedule 5 of the Planning and Development Regulations, 2001 (as amended), an Environmental Impact Assessment Report has been prepared for the proposed development, which assesses the cumulative impact of the proposed windfarm and grid connection, together with the alternative grid connection and any other relevant existing and permitted plans and projects in the surrounding area.

12.1.4. Directive 2014/52/EU amending the 2011 EIA Directive was transposed into Irish legislation on 1st September 2018 under the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018. The EIAR was submitted to the Board on 30th November 2020 and is therefore assessed under the provisions of the new Directive.

12.1.5. An examination has been carried out of the information presented by the applicant, including the EIAR, and the submissions made during the course of the application for approval. A summary of the results of the submissions by prescribed bodies and other observers has been set out at Section 6 this report. The main issues raised specific to EIA can be summarised as follows:

- Impacts on biodiversity including ornithology and peatland habitat
- Impacts on soils and water bodies;
- Cultural heritage and landscape impacts.

12.1.6. These issues are addressed below under the relevant headings, and as appropriate in the reasoned conclusion and recommendation including conditions.

12.1.7. I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality, and that the information contained in the EIAR and

supplementary information provided by the applicant, adequately identifies and describes the direct and indirect effects of the proposed development on the environment, and complies with article 94 of the Planning and Development Regulations 2000, as amended.

12.2. EIAR Content and Structure

12.2.1. The EIAR is presented in four volumes comprising the non-technical summary, the main report, figures and appendices. In general, I consider that the content and scope of the EIAR is acceptable and in compliance with the EIAR Directive and the Planning and Development Regulations, 2001 (as amended).

12.2.2. The non-technical summary gives a concise synopsis of the EIAR and is written in language that can be easily understood. I am satisfied that the EIAR adequately describes the proposed development to include information on the site, design and size of the site and proposed development. The applicant has also carried out an assessment of reasonable alternatives relevant to the proposed development and its specific characteristics. A baseline scenario with and without the proposed development is assessed and a description of the factors likely to be significantly affected by the proposed development is set out, together with any direct, indirect, secondary, cumulative, transboundary, and short-long term effects of the proposed development. A description of forecasting methods including difficulties encountered and the main uncertainties, as well as measures envisaged to avoid, prevent, reduce or off-set significant adverse effects and any monitoring arrangements are included for both construction and operational phases. The vulnerability to risk of major accidents is also described, along with any measures to prevent or mitigate the significant adverse effects on the environment. Details of scoping consultations are included and there is an adequate list of experts who contributed to the EIAR.

12.2.3. Overall, I am satisfied that the information provided is reasonable, up to date and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment.

12.3. Reasonable Alternatives

12.3.1. The EIAR must include a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, as well as an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.

12.3.2. Chapter 4 of the EIAR sets out the project design processes and reasonable alternatives that resulted in the site selection and the design process, including identification of environmental sensitivities and constraints. Alternative wind farm layouts, technologies and construction methodology are considered, together with alternative turbine scales and alternative grid connections.

12.3.3. An assessment of alternative locations for the proposed windfarm was not considered appropriate in this instance as the proposed development is on the site of a windfarm development that was permitted in March 2009, and which has now expired. However, ecological, ornithological and landscape and visual studies were undertaken to assess the potential of the site to accommodate amended layouts with more modern and efficient technology.

12.3.4. A review of the potential for renewable energy projects within Coillte's estate was carried out in 2014, which considered factors such as committed lands, habitat restoration, designated areas, grid constraints, amenity/ tourist/ scenic areas, residential density, and site area/ shape/ topography. The proposed development site at Drumahough was identified as being suitable as a potential wind farm location. The site itself was then examined in terms of the main policy, and planning and environmental issues including wind source, proximity to grid, compliance with planning designation, avoidance of environmental designations, proximity to other windfarms, separation distance from dwellings, site accessibility and visual impact.

12.3.5. The design process was informed by procedures to identify buildable area, roads and infrastructure based on avoidance of unsuitable areas. EIAR baseline studies were used to determine environmental constraints, and buffers and set back distances were put in place. Steep areas and the footprint of the proposed development within sensitive habitat have been avoided. A felling distance of 95m around each turbine will minimise impacts to foraging bats and a buffer of 350m from a merlin nesting site is also incorporated into the layout of the proposed

development. Buffers of 185m to public roads, 50m to watercourses (except crossings) and 20m to a malt kiln at the north-eastern boundary of the site have been applied. A Peat Stability Risk Assessment was carried out and potential borrow pits were located on site.

12.3.6. Various turbine layout configurations were applied to habitat maps, water features, peat survey data and residential receptors. The chosen locations were based on topography, potential wind resource, peat depths and landscape and visual impact. The use of existing infrastructure was maximised and the positioning of turbines, hardstandings, roads and other infrastructure were adjusted to reduce the risk of peat instability.

12.3.7. A total of six windfarm layouts were considered iteratively before the optimum layout was determined. Changes were made throughout the process to increase buffer distances from sensitive habitat, mitigate potential impacts on nesting birds and archaeology, reduce impacts on areas of peat, and to include the consented Lenalea substation within the site boundary. As the design evolved throughout each of the six iterations, the severity of impact declined. Turbines T9, T10 and T11 were repositioned northwards to the ridge of the hill from blanket bog into eroded blanket bog. Turbine hardstands at T7 and T8 were rotated to avoid areas of blanket bog. The track between T8 and T9 was altered to follow the ridgeline west to reduce potential impact on blanket bog drainage. Four options were examined for proposed access tracks between T7, T8 and T9. Excluded options would have necessitated peat removal in areas of blanket bog, and within the chosen option, the access track traverses relatively flat sections of blanket bog allowing for a floated road design. The final iteration reduces the length of internal service roads over previous iterations by 1.7km.

12.3.8. Assessment of alternative wind turbine scales included the previously permitted tip height of 135m and the proposed tip height of 167.5m. A lesser number of larger turbines would maximise the electricity generated from the wind source and reduce the proposed development footprint and forestry felling. This would result in associated impact reduction in terms of biodiversity, land and soils and water.

12.3.9. There are two reasonable grid connection options for the proposed windfarm via the permitted Lenalea substation to the east, and via a new substation adjacent to the

existing 110kV overhead line. Both options are assessed in the EIAR. The preferred connection to the Lenalea substation would require less forestry and therefore temporary effects on land and soil. The alternative grid connection also includes an examination with and without a battery energy storage system that would allow for storage of surplus energy and export of electricity to the national grid as required. It should be noted, however, that it is the connection to the Lenalea substation that is being applied for and the alternative connection is being assessed for the purposes of EIA and Appropriate Assessment.

12.3.10. Alternative construction methods were examined for internal access roads and sourcing of aggregate materials. The proposed windfarm will use 3.2km of existing forestry and windfarm tracks and 7.1km of new roads. New excavated roads and floating roads will be required depending on the existing environment. The EIAR predicts the same environmental effects for both options.

12.3.11. On-site borrow pits are proposed as a source of stone and aggregate with the alternative option of importing materials from authorised quarries. It is preferred to utilise on-site sources that will result in reduced traffic volumes on the public road network and the potential to use borrow pits for storage of excavated peat.

12.3.12. In general, all reasonable alternatives that are relevant to the project and its specific characteristics are clearly presented in the EIAR. The main reasons for the chosen site and the development of the design process are set out, together with the background for the chosen layout. I would be satisfied that this section of the EIAR is sufficient to comply with the provisions of Paragraph 1(d) of Schedule 6 of the Planning and Development Regulations, 2001 (as amended) and Article 5(1) and Annex IV of Directive 2014/52/EU.

12.4. Likely Significant Effects on the Environment

12.4.1. This section of the EIA **identifies, describes and assesses** the potential direct and indirect effects of the project under each of the individual factors of the environment (population and human health; biodiversity; land, soil, water, air and climate; material assets, cultural heritage and the landscape; and the interactions between these factors). Baseline characteristics, cumulative information and an evaluation of

impacts on each sensitive aspect are set out, together with mitigation measures and residual impacts.

12.5. Population and Human Health

12.5.1. Chapter 5 of the EIAR describes the general characteristics of human activity and health status in the study area. Issues relevant to the human environment that are covered in this chapter include economic activity, social consideration, land-use, tourism and health and safety. Impacts on population and human health is also considered in other sections of the EIA, e.g. landscape and visual, cultural heritage and material assets. This section focuses on physical disruption, severance or exclusion, or deterrence of additional further development of amenities and tourism potential.

12.5.2. The study area is focused on the local receiving human environment and includes the 8 no. Electoral Divisions and 15 no. Small Area Population districts within or located close to the proposed development site. A desk-based survey of the Census of Population, mapping, local and regional planning policy, the planning register and tourism data was carried out. Desk-based research also had regard to publications on public health and wind turbines.

12.5.3. The existing receiving environment comprises a sparsely population rural upland setting with isolated residences and farmsteads. The greatest density of individual dwellings occurs along local roads to the north and south-west of the proposed development. Four dwellings are approximately 1km from the proposed development site and there are ten residences within 1-2km. Letterkenny is the largest population centre located approximately 12.5km to the north-east (19,274 in the 2016 Census) and there are smaller villages to the east at Drumkeen, Convoy and Raphoe and to the south an An Clochán. Ballybofey is approximately 7km to the south-west. The western part of the proposed development site is within the Donegal Gaeltacht.

12.5.4. Approximately 35% of the workforce in the study area is employed in the public administration / professional services category. Land uses in the area of the proposed development predominately consist of transitional wood scrub, commercial conifer plantations and peat bogs, including evidence of turf cutting. The nature of

agricultural activity in the surrounding area is marginal. There are long-established windfarms nearby at Cark (1997), Meentycat (2004), Culliagh (2000 & 2012) and Cark extension (2012). In the wider area there are recreational and cultural amenities including walking trails and forest walks, cycling, golf, angling and equestrian activities. Health statistics contained within the 2016 Census show that overall, the local population has good health, with only 1-3% reporting to have bad or very bad health.

Characteristics of the Proposed Development

12.5.5. The proposed development comprises the construction of a 12-turbine windfarm with turbine tip heights of 167.5m, a 110m high meteorological mast, new and upgraded site service roads, underground electric cabling systems between turbines and to the permitted 110kV Lenalea substation. The proposed development will take place on a site with area of 611 hectares. Minor works are also proposed along the turbine delivery route.

12.5.6. The construction period is expected to take 14 months and it is envisaged that works will commence in 2023. Normal working hours will be 07:00 to 19:00 hours Monday to Friday and 07:00 to 14:00 hours on Saturdays. Work along public roads would be from 09:00 to 17:00 hours Monday to Friday and 09:00 to 14:00 on Saturdays. Employment for approximately 60 people would be generated during the construction period for site contractors, vehicle and plant operators, engineers, materials delivery personnel, environmental personnel and health & safety personnel. Temporary construction compounds and welfare facilities will be erected on site for the duration of the works.

Predicted Impact of the Proposed Development

12.5.7. The predicted impacts of the proposed development on population and human health are summarised as follows:

- Population and settlement – unlikely to have a significant effect on population numbers of the local area.
- Construction phase will create 60 full time equivalent jobs and it is expected that the majority of construction personnel will be local to the region. Envisaged that

operational phase operators and maintenance personnel (two persons) will be sourced locally.

- Community benefit fund and annual rates payments from the project will contribute to the local area and would indirectly have a long-term effect on population and settlement in the region.
- Economic activity – Aggregates and concrete supply for road construction and foundations will be obtained from local quarries and suppliers, supporting the local economy. Potential for local businesses to provide a range of services including catering, accommodation and plant hire.
- Land-use – Existing forestry and harvesting activities within the plantation would cease for the duration of the wind farm construction works. Only a relatively small area of forestry (33.8 ha) will be permanently displaced. Conventional felling and forestry activities will resume at the site independent of the proposed development.
- Tourism & Amenities – Site may be visible from sites of historical, cultural and natural interest, as well as linear routes. Considered that proposed development will have a slight to moderate visual effect but is unlikely to have a significant negative impact on existing or future tourism potential in the area.
- Irish language and the Gaeltacht – community benefit fund could be used to support the Development Plan policy of strengthening the socio-economic vibrancy of Gaeltacht towns and villages.
- Community fund – will be operated to ensure the project provides tangible long-term benefits to the community throughout lifetime of the project and with community involvement and consultation.
- Health & safety – project will be managed in accordance with health and safety regulations and guidelines. Project will have a net benefit on human health in the long term by contributing to the provision of clean renewable energy.
- Traffic and road usage – peak daily construction traffic is predicted to be 180 HGVs during base pours on 12 occasions. Increase well within the carrying capacity of local road network. Local road users will nonetheless experience minor disturbances and/ or inconvenience from site related traffic.

- Noise – windfarm construction has the potential to generate noise emissions which could cause disturbance to local noise sensitive areas. Construction noise predictions indicate that noise generated during construction will not exceed acceptable construction noise limits at any dwelling. Operational noise will be within levels deemed by national guidance to be acceptable for wind energy schemes.
- Shadow flicker – 5 no. properties could theoretically experience potential shadow flicker greater than 30 hours per year or 30 minutes per day as per guidelines. Where meteorological conditions and the presence of screening are taken into consideration, guideline limits will not be exceeded. Additional turbine management measures to shut down operations at critical times will result in zero shadow flicker effect on residences.
- Electromagnetic radiation – proposed turbines are located at substantial distances from residential receptors and thus would have no possible EMF impact.
- Air quality – Potential for short-term negative impacts in terms of dust emissions during the construction phase. Not likely to have a significant effect on local air quality.
- Visual Impacts – assessment of 17 viewpoints shows that visual effect range from those with no visual effect (3 no. viewpoints), to moderate effect (3 no. viewpoints).

Mitigation Measures

12.5.8. Potential impacts on population and human health are mitigated by the measures outlined below under material assets, air & climate, noise & vibration and shadow flicker.

Residual Impacts

12.5.9. With implementation of mitigation measures, there will be no significant negative residual effects of population and human health.

Conclusions on Population and Human Health

12.5.10. Overall, it is considered that there will be no significant adverse impacts of population and human health during the construction or operational phases of the proposed development. I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions, and that no significant direct, indirect or cumulative adverse effects on population and human health are likely to arise. There will be slight positive effects on local residential and community and the local economy from increased employment.

12.6. Biodiversity

12.6.1. Chapter 6 of the EIAR identifies, quantifies, and evaluates the potential impacts of the proposed development on habitats, species and ecosystems in accordance with relevant guidance, and with reference to the findings of the separate Appropriate Assessment Screening and NIS. Ornithology is addressed in Chapter 7 of the EIAR and is analysed separately under Section 12.7 below.

12.6.2. Information appended to the EIAR pertaining to biodiversity includes a Macroinvertebrate Species List (Appendix D-1), Aquatic Ecology and Fish Report (Appendix D-2), Evaluation of Ecological Resources and Significance of Impact (Appendix D-4), 2018 & 2019 Bat Survey Reports (Appendices D-5 & D-6), Habitat Mapping (Appendix D-7a), Photographic Plates (Appendix D-7b), 2018 & 2019 Breeding Bird Survey Reports (Appendices D-8 & D-10), and 2018/19 & 2019/20 Winter Bird Survey Reports (Appendices D-9 & D-11).

12.6.3. Features of ecological significance are classified as key ecological receptors. The zone of influence includes the proposed development site and 2 no. grid connection routes being considered, the haul route, European Sites, nationally important sites, river catchments and mammal dwelling and foraging locations within the receiving environment.

12.6.4. The methodology includes a desktop study of publications, resources and datasets to include information on watercourses, designated sites and flora and fauna from sources such as the NPWS, National Biodiversity Data Centre, EPA, IFI, OSi and the EIS carried out for the previous windfarm on site. Consultations were also held with

statutory and non-statutory bodies. Multidisciplinary ecological walkover surveys were conducted for general habitat and protected flora, non-volant mammals, bat habitat suitability and activity, aquatic ecology and fish, and amphibians and reptiles. Habitats surveys were carried out in May 2019 and habitats were classified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Targeted species for non-volant mammal surveys included otter, badger, red squirrel, Irish hare and red deer. Surveys were also carried out for marsh fritillary and invasive alien species.

12.6.5. The receiving environment for the purposes of the EIAR includes all designated sites within 15km of the windfarm, grid connection options and the section of the turbine delivery route closest to the windfarm. Designated sites within 15km of the site include the River Finn SAC, River Foyle and Tributaries SAC, Meentygrannagh Bog SAC, Lough Swilly SAC, Croaghonagh Bog SAC and Coolvoy Bog SAC, Derryveagh and Glendowan Mountains SPA and Lough Swilly SPA. Designated sites beyond 15km occur in different catchments to the proposed development or are considered to be outside the zone of influence for bird species. Sites of national importance within 15km of the site include Tullytresna Bog pNHA, Lough Hill Bog NHA, Meenagarranroe Bog NHA, Cashelnavean Bog NHA and Meenmore West Bog NHA.

12.6.6. The main channel of the River Finn (Salmonid River) receives discharge from the Elatagh River, which drains most of the proposed development site via several small streams. Some streams in the site flow north and east to the Swilly and Deale Rivers. Watercourses draining the site are classified as eroding/ upland rivers. These are mostly limited to 1st order streams less than 1m wide. Adult salmon are unlikely to reach the upper limits of the Elatagh River and brown trout is typically the dominant species in these upland reaches. Lamprey could be present in low densities within watercourses in the site. There is a body of artificial standing water c. 115m north-east of T12.

12.6.7. The site is dominated by conifer plantation of mixed tree ages and upland blanket bog, which grades into wetland grass in low-lying areas of the site. The quality of blanket bog has been eroded at the most elevated locations within the site. The dominant conifer species is Sitka spruce and flora diversity is extremely poor in mature sections. Flora species is reminiscent of heathland or blanket bog habitat at

plantation edges, firebreaks and open areas. Bramble, willowherbs, and rushes occur in immature and pre-thicket plantation at lower elevations.

12.6.8. Upland blanket bog occurs in the environs of T1, the track between T2 and T3 and between T7 and T11, with peat depths between 0.7m and 2.6m. A peat depth of 3.4m was recorded c. 440m north-east of T7 and c. 40m west of the proposed new road. Drainage ditches have altered the hydrology of the area containing T1 and environs to the south and east. The upland blanket bog on site is not regarded as priority habitat given the low distribution and lack of areas of potentially peat forming bog. The proposed new road will intersect an area of cutover bog and a small area (c.1.5 ha) of wetland heath occurs as a mosaic with upland blanket bog and eroding blanket bog at the northern extent of the proposed grid connection to the permitted Lenalea substation.

12.6.9. Existing habitat and flora within the environs of the proposed development site results in a generally impoverished environment for faunal species. Species recorded or likely to occur within the site are otter, Irish hare, red deer and fallow deer, badger, pine marten, stoat, hedgehog and pygmy shrew. The site is also suitable for red squirrel. The proposed development site provides less insect prey biomass than areas on lower ground that surround it, and typically lacks the type of landscape features needed by bats. Surveys suggest that the levels of bat activity are low.

12.6.10. Marsh fritillary are considered unlikely to occur within the site. However, other species of moth and butterfly recorded at the Lenalea windfarm site are likely. Ground beetle are widespread in areas of hill peat, and the peatland, wet grassland and other habitats are considered important in the production of insects.

12.6.11. Peat erosion, afforestation and deforestation (clear-felling) are the main concerns in relation of water quality and dependent biota in the study area. The Foyle catchment was listed by the EPA in 2019 with the lowest percentage of satisfactory river water bodies below the national average. Significant work is required in the Finn catchment to protect or restore water quality, with the Elatagh River having been impacted by peat cutting and forestry activities. Water quality in the study area is largely unsatisfactory and silt is the mostly likely the most significant risk to aquatic fauna. The Finn catchment is an identified Freshwater Pearl Mussel sensitive area.

However, no Freshwater Pearl Mussel were detected during 2019 surveys of the Finn, Elatagh, Swilly, Treankeel and Lowmagh Rivers.

12.6.12. Other species likely to be present on site or nearby include amphibians and reptiles (smooth newt and common frog), non-native fauna (Sika deer, American mink, grey squirrel and European rabbit).

12.6.13. Following an evaluation of designated sites, habitat and fauna, an assessment was carried out in the EIAR to decide which habitats and species are considered to be key ecological receptors that may be impacted upon during the proposed construction, operation or decommissioning phases of the project. In terms of nationally designated sites, the Tullytresna Bog pNHA is adjacent to the south-west boundary of the proposed development site and there are hydrological linkages. This pNHA is largely contained within the boundary of the River Finn SAC.

12.6.14. Habitats and species identified as key ecological receptors include eroding blanket bog, upland blanket bog (Annex I habitat), cutover bog, wet heath (Annex I habitat), eroding upland rivers, bats (Annex IV species), aquatic macroinvertebrates, Freshwater Pearl Mussel (Annex II species), terrestrial macroinvertebrates, otter (conservation interest for River Finn SAC), Atlantic Salmon (Annex II species), brown trout, European eel, amphibians, and common lizard.

Characteristics of the Proposed Development

12.6.15. The proposed development for 12 no. wind turbines with tip height of 167.5m will include certain characteristics that will affect the biodiversity and ornithology of the area. The proposed works will include tree felling; vegetation clearance; topsoil/ peat stripping, excavation; piling; upgrading of existing and creation of new internal service tracks; borrow pits to source stone and to store excess peat; and an associated surface water management system. Blasting will be necessary at turbine locations where bedrock is present near the surface.

12.6.16. The EIAR also assesses an alternative grid connection option between the windfarm site and a new 110kV substation with an adjacent battery energy storage system at the location of a nearby 110kV transmission line. This option includes the construction of 1.8km of new internal access tracks, a borrow pit for stone and peat storage and an associated surface water management system. The option for which

planning consent is sought include a connection to the permitted 110kV Lenalea substation.

12.6.17. Felled forestry at the proposed development site will be replaced at four sites. These are located at the Cork/ Limerick boundary, Co. Clare (2 no.) and Co. Galway. These lands are mainly in agricultural use at present. Following the further information request the applicant omitted the sites at Pollacorragune, Co. Galway and Craghera, Co. Clare in favour of biodiversity enhancement measures.

12.6.18. Construction is expected to take 14 months. Works for cable route are expected to take 6 months to the permitted Lenalea substation and 3 months for alternative option.

Potential Impact of the Proposed Development

12.6.19. The predicted impacts on each of the key ecological receptors arising from the construction phase of the proposed development are summarised as follows:

- **Do-nothing scenario:** Possible that a large proportion of lands supporting semi-natural habitats within the proposed development site could be assigned for conifer plantation resulting in a significant decline in biodiversity value due to habitat degradation and surface water quality impacts, with consequent reduced floral and faunal assemblages in the study area.
- **Designated sites:** Appropriate Assessment carried out in Section 13 below to determine the ecological effect of the project on the integrity of European Sites, either alone or in combination with other plans or projects, in view of the sites' conservation objectives.
- Potential impacts on Tullytresna on pNHA as a result of hydrological changes such as water quantities or water quality from pollution or siltation.
- Given the intervening distance and dilution, and relatively moderate size and scale of the windfarm, project is unlikely to have a significant water quality effects on the River Foyle and Tributaries SAC (UK0030320).
- Uncontrolled silt from wind farm construction could result in degraded spawning and nursery habitat for salmon. However, most salmon in the Foyle and Tributaries can be expected to originate in rivers other than those potentially

affected by the proposed development. Furthermore, water quality in watercourses draining the proposed development site were found to be compromised and this reduces the importance of these watercourses relative to watercourses of higher quality that contribute to the River Foyle and Tributaries SAC.

- **Impacts to Habitats and Flora:** Bog and peatland mosaics will be directly or potentially indirectly impacted from development between proposed turbines T6 to T11 through development of turbine footprints and associated infrastructure and potential changes to drainage of adjacent areas. Total area of proposed infrastructure is c. 38 ha and most infrastructure is in habitat of low conservation value.
- Direct permanent loss of c. 6.71 ha of four types of peat habitat (upland blanket bog, eroding blanket bog, cutover bog and wet heath), including 1.35 ha of Annex I upland blanket bog.
- Risk of peat failure and landslide impacting on habitats and species downstream. Peat Stability Risk Assessment Report concludes that there is a low risk of peat slide given mitigation by avoidance of higher risk areas. More risk associated with development of wind farm on deep peat, or on fringes around blanket peat. Areas of deep and soft peat have been avoided insofar as possible.
- Digging of voids to cast turbine bases generates waste peat, introduces alkaline concrete and requires drainage, with the potential to lower the water level in blanket bog, resulting in degradation and oxidation of peat.
- Pre-cast piping associated with widening of existing watercourse crossing will result in loss of stream bed habitat and loss and degradation of fluvial habitats. May also interfere with fish passage.
- Operations taking place on site such as blasting and crushing of rock and aggregates and movement of materials can disturb local ecosystems.
- There is potential to generate dust from extraction of raw material, loading and haulage and this can travel into waterways, impact upon sensitive habitat and disrupt wildlife.

- Indirect impacts on peat from increased drainage of areas upslope of tracks and other infrastructure leading to altered sub-surface flows and overland flows, and depriving areas downslope of water – could alter local hydrological regime, thereby influencing peat habitat at a local level.
- Impact of all types of track on blanket bog is a concern with respect to the flow of water through and over the bog – cut and fill tracks cause movement of water over the peat surface and through its layers to be interrupted.
- Key impacts of windfarms on hydrology may include:
    - Lowering of water levels associated with drainage around infrastructure – can result in vegetation changes, subsidence and increased decomposition of peat.
    - Change in stream flow including rapid run-off and downstream erosion of bog surface.
    - Changes in local water quality – altered drainage pathways and residence time of water within peat.
    - Changes in downstream water quality from altered runoff patterns or sediment supply.
- Impacts on peat habitat considered in EIAR to be medium, long term moderate negative, associated with hydrological change confined to areas where gradient is greatest due to interference with the properties of adjacent peatland.
- Impacts on eroding/ upland river habitat from stream crossings and indirect change to fluvial habitat from transport of substances arising from construction activities – limited by small size of streams and restricted occurrence. Assessed as short-term moderate negative.
- Impact on turbine delivery route through replacement of grassy verges and some trees and hedgerow with hardcore material. Assessed as short-term slight and negative.
- Invasive alien species could be imported to the proposed development site during construction by machinery.

- **Impacts to fauna:**
- *Otter* – No holts recorded and there were few other signs apart from one sighting. Potential impacts related to the degree of water quality impairment, which is considered to be limited given the localised and temporary nature of the works and the wide availability of habitat downstream.
- *Bats* – Potential construction phase impacts due to loss/ alteration of habitat, disturbance/ displacement. Habitat loss confined mainly to areas of commercial forestry and peatland habitat types, neither of which are of intrinsic value to bats. Peak activity recorded along road verges beyond proposed development boundary. No requirement for bridge strengthening works along turbine delivery route and trees to be removed are of inadequate maturity.
- No evidence of any active bat roosts on site and bats only use site for foraging at night – no disturbance/ displacement impacts from construction noise or daily construction activities.
- *Fish* – potential for earthworks to cause impacts to water quality due to entrainment of suspended solids, nutrient release and construction phase pollutants in surface watercourses – could lead to negative effects on fish further downstream or habitat that support fish and their food.
- Release of silt from works areas could exacerbate the existing unsatisfactory substrate conditions of watercourses already degraded by anthropogenic activities, e.g., land drainage. Pathways have low conveyance capacity, but gradients are generally high.
- Proposed development could potentially result in significant effects on salmonids and other fish species at a local level.
- Proposed development unlikely to impact on lamprey at a local level given the unsuitable nursery habitat and apparent absence of this fish group in the Elatagh and other watercourses draining the site.
- *Aquatic macroinvertebrates* – proposed development could cause further reduction in water quality in an already stressed system and therefore increase ecological pressures on aquatic macroinvertebrate diversity.

- Sediment can trigger invertebrate decline in various ways including scour damage, burial of heavy or immobile species, clogging of gills or feeding structures and reduction in interstitial habitat and primary production. Sediment also represents an important vector for contaminants such as phosphorus, heavy metals and organic pollutants.
- Effects on Freshwater Pearl Mussel are dependent on the occurrence of sensitive taxa. Freshwater Pearl Mussel unlikely to occur in the Elatagh River and the distance to the River Finn downstream would mean that the proposed development would be unlikely to impact on Freshwater Pearl Mussel at local or county level.
- *Terrestrial macroinvertebrates* – habitat loss of peatland will result in loss of terrestrial macroinvertebrates habitat and therefore reduce the abundance and potentially the diversity of this group.
- *Amphibians and reptiles* – Loss and alteration of peatland habitats will result in a reduction of foraging habitat for this animal group. Unlikely to result in a significant effect at a local level.

12.6.20. The predicted impacts on each of the key ecological receptors arising from the operational phase of the proposed development are summarised as follows:

- No impacts on Tullytresna Bog pNHA other than those associated with hydrological changes that could alter peat habitats.
- Proposed development likely to operate for 30 years – impacts to habitats and flora may be lower in magnitude and lasting a longer time.
- Impacts on peat can include alteration of surface and groundwater flow patterns, peat subsidence, sediment release and chemical pollution.
- Proposed development may lower water levels in blanket bog due to ongoing drainage of tracks. Tracks may change flow pathways across the site, increasing potential for erosion in areas where water flow is now focused.
- Otter that were temporarily displaced during construction would utilise habitat within and adjacent the development area within a short period of time.

- Notwithstanding the low level of activity recorded for all bat species, foraging bats may be impacted by mortality due to collision with rotating turbine blades – any unmitigated impact may result in significant effects at local level.
- Negative impacts on water quality resulting in subsequent effects on fish owing to infrastructure, maintenance, vehicular access and other activities on site are assessed as short-term slight negative in the absence of mitigation.
- Impact to aquatic macroinvertebrates at operation stage relate to water quality in surface water – assessed as short-term slight negative in the absence of mitigation.

12.6.21. The predicted impacts of decommissioning a wind farm are similar to the construction phase. Underground cables will be left in situ and removal of infrastructure will be in line with landowner and regulatory requirements, and best practice applicable at the time.

12.6.22. In terms of cumulative impact, the Finn catchment is impacted upon by a wide range of anthropogenic factors including agriculture, sand and gravel extraction, commercial forestry, commercial and recreational fishing, industry, water abstraction, sewage treatment, diffuse and point source pollution, invasive plant species, urban sprawl, flood defences and climate change.

Mitigation Measures

12.6.23. Mitigation measures for the construction phase of the proposed development on biodiversity are summarised as follows:

- **Mitigation by design:** Designed to minimise the footprint of the proposed development on more sensitive habitat, taking account of peat depths, habitat value and area potentially impacted. Utilisation of roads and built infrastructure were possible.
- *Bats***:** Felling distance of 95m around each proposed turbines where conifer plantation occurs to create a clearance setback at forest edge that could be used by foraging bats. Tree and scrub regrowth will be required to keep vegetation height low and maintain buffer distance around proposed turbines.

- All lighting introduced to the proposed development site will be in accordance with relevant guidelines. Low pressure sodium lights will be used.
- *Water quality:* Surface water management system has been designed for the proposed development to avoid and minimise impacts to water quality.
- Site will be inspected prior to construction and where necessary check dams, sandbags and/ or silt fences will be installed adjacent to roadside drainage. Works will be halted during heavy rainfall and stockpiles will be covered. Additional measures to control water quality include:
    - Setting out silty water through drainage measures and channelling into suitable vegetation at least 50m from watercourses,
    - Minimising exposed peat soil,
    - Establishing vegetation on exposed areas,
    - Regular road cleaning,
    - Wheel washes,
    - Check dams to slow water velocity,
    - Silt fences to reduce sediment loading,
    - Weather forecast monitoring,
    - Water quality monitoring.
- All designs and works in proximity to watercourses shall follow best practice guidance.
- **Mitigation by management:** *Habitats* – Works area marked by secure posts and tape to ensure sensitive areas are avoided.
- Storing of vegetated turf for use in reinstating bare areas separating living and dead peat.
- Biodiversity Enhancement Plan will be implemented on site aimed at achieving biodiversity net gain.
- *Dewatering* – Any dewatering of turbine foundations or cable trenches/ joint bays will be removed and treated and disposed of appropriately, i.e., no pumping

directly into roadside drainage, settling out or infiltration of silted groundwater/ surface water.

- *Cement boundary granular mixtures* – to be stored on hardstand areas or areas not prone to run-off.
- *Forestry felling* – written proposals and accompanying maps should clearly illustrate harvesting and shall include the project area, environmental receptors, felling and extraction system and machinery, clear fell coupe size and greening up requirement, silt and sediment control, timing and managing extraction.
- *Ecological Clerk of Works* – employed during construction phase to review all method statements, deliver toolbox talks and monitor construction works.
- *Construction and Environmental Management Plan (CEMP)* – implementation of mitigation measures, environmental commitments and monitoring and supervision of these measures will be managed through CEMP.
- Drainage through or under floating tracks will be maintained to prevent the structure acting as a dam – sub-base constructed of course granular material or construction of drains along length of track.
- *Fuel management* – Fuel Management Plan will be developed for the construction stage containing a range of measures relating to storage, control, inspection and emergency.
- *Refuelling of construction plant on site* – measures to be undertaken to avoid or minimise negative effects to water quality as a result of the use of hydrocarbons, e.g., bunding, absorbent mats, use of mechanically sound machinery, containment of leaks or spills, spill kits, etc.
- *Daily inspections and lab testing* – all elements of drainage system including clean and dirty water drains and settlement ponds.
- *Concrete residue* – implementation of measures relating to delivery, washout and disposal.
- *Construction of wheel wash* – residue to be fed through settlement pond, interceptor and discharged to vegetated area of low value.

- *Temporary construction compound* – measures to avoid or minimise negative effects to water quality from temporary compound such as use of oil interceptor, bunded area for fuels, oils, etc., and removal once commissioning is complete.
- *Storage* – materials, containers, stockpiles and wastes should be stored in accordance with best practice and at designated areas.
- *Excavation works* – suspension of earth moving activities during prolonged rainfall, placement of material in compacted layers and drainage/ pollution control measures.
- *Excavation material & soil management* – No removal of soils from site and no permanent stockpiling of peat or soils. Reuse of soils in bunding, landscaping and restoration of borrow pits and peat deposition areas.
- Peat Management Plan will outline where excavated peat will be reused (track verges, borrow pits), utilised for restoration or disposed in material storage areas.
- Stockpiles would be stored a minimum of 50m back from rivers/ streams on level ground with silt barrier installed at base.
- *Noise & dust* – measures including the restriction of vehicle speeds, minimising material drop heights, and maintaining roads in compact condition.
- *Temporary storage and stockpiles of demolition material* – implementation of measures to avoid or reduce negative impacts to water quality.
- *Habitat reinstatement* – layer of topsoil/ peat spread evenly and fenced off to regenerate naturally. No fertiliser or herbicide. Scrub encroachment monitored and planting of native trees where vegetation is slow to regenerate.
- *Invasive alien species* – Best practice and mitigation incorporated into CEMP. Invasive Species Management Plan prepared where invasive species recorded at works locations. Adherence to 'IFI Biosecurity Protocol for Field Survey Work' (IFI, 2010).
- *Risk of accident* – no concrete pours during heavy rainfall. All site works carried out in compliance with health and safety legislation.
- *Disturbance to fauna* – control movement of construction vehicles; restricted working hours; cessation of works where faunal species are actively using site for

breeding roosting and implementation of mitigation; and adherence to 'Guidelines for the Treatment of otters/ badgers prior to Construction of National Road Schemes' (TII, 2006).

- *Bats* – Adherence to best practice guidelines and bat mitigation guidelines.
- *Reptiles & Amphibians* – Surveys carried out in advance of construction works.
- *Water quality monitoring* – Baseline monitoring prior to commencement of works and water quality monitoring as outlined in the CEMP.

12.6.24. Mitigation measures for the operational phase of the proposed development on biodiversity are summarised as follows:

- *Bats* – post construction surveys to assess effectiveness of proposed mitigation measures in years 1, 3 and 5 and any additional mitigation measures will be identified.
- *Water quality* – Considered that biological water quality monitoring is sufficient for surface water quality monitoring during operational phase. Recommended that macroinvertebrates be sampled annually on 1st, 2nd and 3rd years and in future years if there is instability.
- *Fish stock assessment* – fish stock surveys will be undertaken at the same sites and same frequency as water quality surveys.
- *Biodiversity enhancement* – implemented through Biodiversity Enhancement Plan and through suitable management and maintenance of surrounding habitats. Measures include peat habitat restoration, stream buffer zones/ forestry setback distances, riparian woodland creation, pond creation and bat box installation.
- 7.2 ha area to south of T11 & T12 will be selected for peatland restoration representing potential gain of 0.5 ha. Aim is to restore original hydrology conditions of the peat and connect site to bog/ wet heath immediately to north-east and to prevent further drying. Reinstatement of borrow pits in areas previously under conifer plantation amount to c. 6.2 ha – target habitat cutover bog.
- Riparian setback zone designed to create an intact and permanent buffer area of natural vegetation alongside the aquatic zone to protect water quality and aquatic

ecosystems from possible overland flow of sediment and nutrient run-off. Buffer zone (width increased with slope) would be left undisturbed during forestry operations to allow riverbanks to develop and enhance biodiversity. Riparian woodland creation measures to be carried out that are appropriate for the location.

- Sediment trapping would be carried out in setback zones to allow for infiltration and filtering through vegetation before entry of overland flow of water to aquatic zone. This would also promote biodiversity along watercourses and within them.
- Silt ponds would be retained post construction to allow colonisation by local aquatic flora and fauna.
- 20 bat boxes and 30 bird boxes will be erected within/ adjacent to riparian buffer zones.
- Stacking of trees cut down due to keyholing to create habitat for small mammals and invertebrates.

Residual Impacts

12.6.25. Table 6.19 of the EIAR describes the residual effects on key ecological receptors. It is considered that residential effects on habitats, flora, fauna and water quality are not significant with full implementation of mitigation measures during construction and operational phases of the proposed development.

Conclusions on Biodiversity

12.6.26. Impacts on 15 different key ecological receptors arising from the proposed development are examined in the biodiversity chapter of the EIAR. An Appropriate Assessment of the impact of the proposal, in combination with other plans and projects, is carried out in Section 13 of this report. Fieldwork included multidisciplinary ecological walkover surveys carried out in May 2019 for general habitat and protected flora, non-volant mammals, bat habitat suitability and activity, aquatic ecology and fish, and amphibians and reptiles. Appendix D1 provides a macroinvertebrates species list from watercourses draining the site and an Aquatic Ecology and Fish Report (Appendix D2) is informed by surveys carried out in July 2019. Additional surveys were conducted as part of the further information

response. These surveys are appropriate having regard to the biodiversity of the area and adequate in terms of their content, duration and coverage.

12.6.27. The overall impact of the proposal on certain aspects of biodiversity, such as the removal of habitat, is unavoidable. There will be a permanent, significant and negative impact from the loss of c. 1.35 ha of blanket bog of county importance and a medium-long term moderate negative impact associated with hydrological change. The loss of other blanket bog, eroding bog, drained upland bog and wet heath/ upland blanket bog/ eroding blanket bog of local importance (higher value) will also give rise to permanent, significant and negative impacts and associated hydrological change. Removal of areas of cutover bog and upland blanket bog/ conifer plantation will have permanent moderate negative impacts with associated hydrological change.

12.6.28. Following mitigation, any remaining moderate negative impact from the removal of a total of 6.71 hectare of peat habitat would be off-set by peatland restoration amounting to an area of 7.2 hectares currently under conifer plantation where the target habitat is upland blanket bog. The rehabilitation of 6.2 hectares of peatland currently under conifer planation would result in a net gain of c. 6.7 hectares of peatland habitat. It is considered that the proposed development does not have the potential to result in significant effects on bogland taking account of habitat restoration and mitigation measures and given the distribution of the habitat in the locality.

12.6.29. In terms of impact on watercourses, it is noted that there will be a permanent moderate negative impact with regard to disturbance and habitat loss of channel length of less than 10m and this will have a short term slight negative impact related to water quality. Aquatic macroinvertebrates will experience a short term imperceptible negative impact following mitigation, and based on 2019 surveys, the probability of impact on Freshwater Pearl Mussel is low given its apparent absence.

12.6.30. There will be a temporary imperceptible negative/ neutral impact on terrestrial invertebrates and otter following mitigation. Watercourses at the proposed development site are unsuitable for foraging otter and there is similar habitat in the surrounding area to that occurring within the proposed development site. Similarly, there is similar or superior habitat in the site hinterland for bats.

12.6.31. Impacts to salmonids, European eel and other fish are related to water quality and habitat degradation. Impacts are reversible and take account of mitigation and the presence of these species outside the site boundary. Long term imperceptible positive impacts will accrue from the creation of riparian woodland. There will be no perceptible impacts on any of the other key ecological receptors identified in the EIAR.

12.6.32. The EIAR provides information that expressly addresses the significant effects of the proposed development on all species and habitat identified and the environmental impact of the chosen option and main alternatives has been properly considered. I am satisfied that with proper implementation of mitigation measures and best practice measures, together with implementation of environmental commitments under the Construction and Environmental Management Plan, impacts on water quality, habitats and species will be minimised to a non-significant level.

12.7. **Ornithology**

12.7.1. Chapter 7 of the EIAR describes the avian ecology of the proposed development site and identifies mitigation measures to avoid or reduce significant residual effects. Breeding bird and wintering bird reports are appended to the EIAR which include surveys over two consecutive years between April 2018 and March 2020. A survey was also completed for the 2020 season at the time of preparation of the EIAR and additional 2020/2021 breeding and wintering surveys were conducted for the further information response. A Collision Risk Assessment has been carried out for the proposed development.

12.7.2. The zone of influence of the proposed development was identified as including the site itself and land extending away from it, together with any potential commuting routes, and designated sites in the area which support ecological connectivity. Baseline information was obtained from a desk study followed by ornithological surveys recording bird species and suitable habitats.

12.7.3. Consultations were carried out with the NPWS on how species such as merlin, red grouse, golden eagle and hen harrier use the wider landscape. Records were also obtained of rare and protected flora/ fauna within the 10km grid square on and surrounding the site. Ecological information was sourced from the previous EIA

carried out on site and from other nearby windfarms at Lenalea, Culliagh and Meenbog. The Countryside Bird Survey (Birdwatch Ireland) was reviewed, and the results of surveys and the desktop study were used to identify bird species likely to occur at the site and surrounding area.

12.7.4. The receiving environment has an upland windswept and modified character that is dominated by commercial forestry. The combination of closed canopy and shrub level new, second rotation conifer plantation and unplanted peat habitat suits adaptable bird species such as kestrel and stonechat. Hen harrier and merlin may breed and forage but would also require open moorland. The conifer plantations would also have resulted in the loss of upland moorland habitat for species that would have previously inhabited the area. Annex I species recorded during the 2018 and 2019 breeding and winter seasons include merlin, peregrine, golden eagle, golden plover, hen harrier, and whooper swan. Woodcock, red grouse and meadow pipit are red-listed species that were recorded within the survey area. Other species recorded in surveys that are amber listed include kestrel, sparrowhawk, snipe, goosander, great and lesser black backed gulls and teal. NPWS datasets show the presence of curlew (breeding pairs) in the 10km hectad that included the proposed development site. The further information response also provided further commentary on curlew usage of the surrounding area.

12.7.5. Species evaluated as key ecological receptors include Annex I merlin, peregrine, hen harrier and golden plover. These species were observed flying at collision risk height during the survey period. Donegal is a stronghold for merlin, and pairs were nesting within the site in 2018 and 2020 and close to/ within the site in 2019. Kestrel, sparrowhawk, buzzard and snipe were recorded within the breeding atlas hectad, and golden eagle, although not recorded in the hectad, was observed flying at collision risk height and it is the only species of national importance. Other species of high or medium sensitivity selected as key ecological indicators are goosander, less black-backed gull and red grouse. Other species of low sensitivity selected as key ecological receptors are snipe, great black-back gull, grey heron and passerines (meadow pipit and grey wagtail).

Potential Impact of the Proposed Development

12.7.6. The predicted impacts on each of the key ecological receptors arising from the construction phase of the proposed development are summarised as follows:

- **Do-nothing scenario:** If proposed development does not proceed, it is likely that current land use will remain the same. Subject to normal management practices, the forestry plantation occurring will be suitable for nesting merlin between 3-9 years after planting and foraging between 3-15 years.
- **Designated areas:** Proposed development will not negatively affect the supporting habitats of birds of interest in the Cloghernagore Bog and Glenveagh National Park pNHA. Potential for displacement of red-throated diver but considered imperceptible.
- Potential for disturbance impact to birds that are key ecological receptors in pNHA. Potential for impacts to water quantities or quality from pollution or siltation within Tullytresna Bog pNHA. Assessed as short-term and slight negative.
- **Avian key ecological receptors:** Potential for habitat loss, disturbance and displacement to birds within the zone of influence. Some birds more susceptible to disturbance during construction than during operation. Evidence shows that red grouse recover in first year after construction, curlew and snipe densities did not recover in the first year after construction, and stonechat and sky lark increased during and after construction. Studies showed an approximate decline of 50% for snipe in windfarm sites. Indications are that birds move into the wider area to breed as opposed to being lost to the population.
- Scale of direct habitat loss is likely to be small per turbine base. Displacement of birds due to visual intrusion and disturbance can amount effectively to habitat loss.
- *Passerines* – can be impacted by loss of conifer habitat. Direct habitat loss relatively limited due to low degree of felling for turbines and almost half of internal roads have previously been built for forestry purposes.

- Loss of peat habitat will reduce the available nesting habitat for ground nesting passerines – not significant in the context of availability of this habitat within site and surroundings.
- New habitat will be created in areas of keyhole felling for species that favour more open habitat with plenty of cover in the form of residual brash.
- *Birds of prey* – Limited felling of conifer trees will not significantly impact on these species.
- Impact of disturbance/ displacement on merlin is considered to be temporary, imperceptible and negative – in general, there is suitable breeding and foraging habitat in the surrounding forestry, woodland, wetlands and rough pastures for birds of prey recorded at the site.
- Disturbance during construction is likely to discourage nesting and foraging in the vicinity of the proposed development for merlin – determined to be short-term moderate negative impact.
- *Swans, geese, ducks, gulls and waders* – Bogs and wetlands in study area, as well as Lough Deele offer suitable feeding and breeding habitat. There will be limited loss of habitat and there is an abundance of similar habitat in the general area.
- With the exception of whooper swan, these species have not been recorded, or occur in low numbers within the site boundary. Most flight paths during monitoring have been outside the development area. Species that do forage and roost do so largely outside the development area in surrounding bog and wetland habitats such as Lough Deele.
- Some displacement of snipe may occur – significant geographical scale displacement during construction not anticipated due to extent of suitable habitat in the wider area.
- Construction on open peatlands may displace red grouse but significant displacement not anticipated.

12.7.7. The predicted impacts on avian key ecological receptors arising from the operational phase of the proposed development are summarised as follows:

- **Designated sites:** Tullytresna Bog pNHA supports red grouse and snipe and merlin have been reported by NPWS staff. Potential for some impacts in terms of barrier effects and collisions.
- **Avian Key Ecological Receptors:** Main operational effects of a windfarm are displacement due to barrier effects and collision.
- *Barrier effect* – birds altering their migration flyways or local flight paths to avoid the windfarm is a form of displacement. Can range from a slight check in flight direction, height or speed through to significant diversions, which may reduce the number of birds using areas beyond the windfarm.
- *Collisions* – problem sites are those with large raptors occurring regularly within the windfarm at the same height as rotor blades (golden eagle and hen harrier), and sites with very high densities of other birds flying at rotor height (seabird breeding colonies and feeding concentrations, wetlands with large waterfowl concentrations and any other major migration routes).
- Core windfarm is not a flyway for large numbers of migratory birds, or birds in transit between roost and foraging locations.
- Hen harrier only recorded within the potential collision height for 3 minutes over a 2-year period – not considered a significant concern.
- Only species of potential significant concern was golden eagle which was recorded for 17.7 minutes over same survey period. Number of golden eagle collisions predicted to be 0.495 over a 30 year period.
- Proposed windfarm site and environs are not regarded as sensitive with respect to raptors, including golden eagle taking into account survey result of c. 2.5 years of monitoring, bird sensitivity mapping and high avoidance rates of raptors.
- Only breeding raptor on site was merlin which does not appear to be affected by existing turbines and ongoing human activities. Predicted collision rate of 0.042 per 30 years.
- Buzzards has predicted collision rate of 10.41 per 30 years – represents loss of c. 1.7% of the species from an area of 10km^2 and is insignificant in the context of county, national and international population.

12.7.8. The predicted impacts on avian key ecological receptors arising from the decommissioning phase of the proposed development are summarised as follows:

- Potentially similar to construction phase but with cables left underground.
- Hardstand areas remediated to match existing landscape requiring restoration or reforestation.
- Access roads will be left in use for landowner.
- Bird species may be disturbed by noise and physical presence and activities of personnel and machinery during decommissioning works.
- Comprehensive reinstatement proposal will be submitted to competent authority for approval. Decommissioning activities will avoid the main period of sensitivity for breeding birds.

12.7.9. Cumulative impacts associated with the proposed windfarm are assessed in the EIAR with respect to land management, climate change and wind farm development. The main points pertaining to cumulative impact as summarised as follows:

- *Land management* – drivers of farming intensification and afforestation have been associated with declines in the abundance and range of many countryside bird populations.
- There are concerns that a significant and rapid increase in agricultural output under 'Food Wise 2025' will come at a cost to birds and other biodiversity.
- Simplification of landscape in terms of habitat has had an indirect effect on raptors such as kestrel through loss of suitable hunting habitat, the loss of habitat connectivity through hedgerow removal and reduced prey base. Pesticides, directly and indirectly reduce the diversity and quantity of food available to farmland birds.
- Forestry can facilitate increased densities of mammalian and avian mesopredators, leading to increase predation for ground-nesting birds.
- Practice of burning heather to encourage new growth for sheep can impact on ground nesting birds – no evidence of such burning or peat harvesting within or adjacent to the proposed development site.

- Taking into account the already modified nature of the proposed development and wider study area, potential for significant cumulative impacts on land are unlikely to be significant. Merlin have adapted to the proliferation of commercial forestry in the locality.
- *Climate change* – despite predictions of increased average temperatures in Ireland in the future, any increase in relatively short-term severe winter weather will cause high mortality in bird species.
- Proposed development will produce net gain in terms of carbon budgets by reducing the need for fossil fuel over the lifetime of the proposed development.
- No significant effects on local avifauna are predicted with regard to climate change and cumulative impacts.
- *Wind farm Development* – there are 12 wind energy developments within 10km of the proposed development.
- Potential for negative cumulative effect of wind turbines on birds include the barrier effect.
- Displacement effects of wind turbines on raptors are negligible for the most part, e.g., turbines do not constitute any impediment to hen harrier movement.
- Predicted operational cumulative impact on raptors will not be significant – based on multiple raptor records for numerous species within adjacent operational wind farm sites, where birds continue to forage and commute.
- Species that do not fly regularly at turbine height (e.g. red grouse and many small passerines) are unlikely to be affected. Species likely to be affected cumulatively are those with large foraging range and where the numbers of individuals in a local population are of conservation concern (e.g. raptors or species of wildfowl).
- Most sensitive species are probably merlin; however, significant cumulative population impacts are not envisaged. Proposed development site harbours a seemingly stable passerine population, and this provides adequate food supply for raptors with a primarily passerine diet. Merlin ambushes its prey near to the ground and will fly under the area swept by the proposed turbine rotors.
- Cumulative impact on birds is considered to be long term imperceptible negative.

Mitigation Measures

12.7.10. The proposed windfarm has been designed to specifically avoid, reduce and minimise effects on all avian key ecological receptors by applying mitigation and through an iterative process until the optimum layout was realised with negative impacts avoided where possible.

12.7.11. Mitigation measures for the construction phase of the proposed development on ornithology are summarised as follows:

- **Mitigation by design:** All attempts were made to ensure the footprint of the proposed development was located on the least ecologically sensitive areas to minimise potentially significant habitat loss effects – turbines mainly located on commercial forestry on site.
- Avoidance with buffer or set back distance for new infrastructure from an identified successful merlin nest site.
- Avoidance and minimising infrastructure on high quality bogland habitats.
- Avoidance of potential barrier effect on birds – turbines positioned at distances greater than 500m apart.
- Construction of access roads and hardstanding areas designed to the minimum size.
- Grid connection to permitted Lenalea substation will utilise existing or permitted infrastructure for the entire length – cables will be laid underground to avoid effects on roadside hedgerows and disturbance to birds.
- Main ornithological driver of design was the presence of merlin (Annex I of EU Birds Directive). Includes 350m buffer between merlin nest site and turbines.
- High visibility wire markers would be installed on the loop-in transmission powerline connection proposed as part of the alternative grid connection option.
- **Project Ornithologist:** To conduct pre-construction and construction phase bird surveys at the site, including monitoring of merlin.
- **Pre-construction avian monitoring:** Potentially most significant impact is disturbance/ destruction of a nest during construction – merlin considered most vulnerable.

- Nesting preferences of merlin make them vulnerable to disturbance from forest operations associated within the proposed development. Mitigation includes pre-construction breeding verification survey from late February.
- Merlin are difficult to survey and ornithologist will require adequate experience on merlin surveying, including identification of nest sites.
- Should merlin be present within 350m of proposed works, construction works within this zone will be restricted to outside the breeding season (Oct-Feb).
- 350m buffer considered appropriate due to the wide range of opinions on typical distance at which nesting merlin may be disturbed; capability of tolerance of at least some form of human disturbance; and the stand of conifer trees between the nest site and the proposed development infrastructure, acting as a visual and sound screen.
- **General construction mitigation measures:** Displacement/ disturbance impacts, and habitat degradation will be limited by controlling the movement of vehicles.
- Felling of forestry and vegetation clearance and cutback will take place outside the breeding season unless permission is obtained from NPWS.
- Where possible, construction works will take place outside the breeding season – relevant pre-check works will be undertaken by ECoW/ ornithologist.
- Plant and equipment will conform with Construction Plant and Equipment Permissible Noise Levels Regulations, 1996 and will be turned off when not in use.
- **Avian monitoring:** Primary focus will be on merlin, but all species would be recorded.
- **Construction and Environmental Management Plan:** Final CEMP will be in place prior to start of construction and Ecological Clerk of Works will be appointed to delivery toolbox talks, liaise with project ornithologist, provide guidance to contractors, and liaise with NPWS, local authorities, etc.
- Measures will be put in place to reduce the availability of prey and nesting and associated aerial courtship behaviour opportunities around turbines.

- **Operational phase avian monitoring:** Bird surveys will continue during operational phase at vantage point locations. Survey will inform any additional mitigation such as curtailment of operation times. Operational Avian Monitoring Plan will be prepared.
- **Consultations:** Ongoing with NPWS throughout operational phase.
- **Decommissioning phase:** Comprehensive reinstatement proposal will be submitted to the Council and NPWS prior to decommissioning.

Residual Impacts

12.7.12. As noted in the EIAR, with the design phase avoidance measures, and full implementation of mitigation measures throughout the construction, operational and decommissioning phases, significant residual effects on avian key ecological receptors are not expected.

Conclusions on Ornithology

12.7.13. The EIAR assesses the impact of the proposed development during construction, operational and decommissioning phases for a total of 15 key ecological receptor bird species considered sensitive to the development. The effects of habitat loss and alteration over the lifetime of the windfarm, and disturbance/ displacement are the main potential impacts that were assessed for the construction phase. The main operational impacts are displacement due to barrier effects and collision. Cumulative impacts are considered in terms of land management, climate change and other wind farms development in the area.

12.7.14. No significant effects are predicted on birds due to habitat loss or alteration. The scale of direct habitat loss at each turbine base is likely to be small. Loss of conifer habitat can impact on passerines; however, new habitat will be created in areas of keyhole felling. Displacement and disturbance can amount to habitat loss and such disturbance during construction may discourage nesting and foraging in the vicinity of the proposed development for merlin. A 350m merlin buffer will be put in place and no residual effects are predicted.

12.7.15. Barrier effects can occur from birds altering their flight paths to avoid windfarms. However, the core windfarm is not a flyway for a large number of migratory birds, or for birds in transit between roost and foraging locations. A collision risk analysis was

carried out to predict the mean number of collisions per year and per 30 years using 24 months of data and the application of avoidance rates. The only species of potential significant concern is the golden eagle; however, the mean number of predicted collisions for this species per 30 years at 0.495, which represents an increase of only 3% in the species background mortality rate. It is therefore considered that the proposed development will not result in significant collision effects to bird species.

12.7.16. There is potential for cumulative impacts on birds associated with the proposed development and other projects and activities from farming intensification and afforestation; climate change causing short term severe winters; and the presence of 12 other wind farms within 10km of the proposed development site. The proposed development site and the wider area is already modified in nature, and it is noted that bird species, in particular merlin, have adapted to the proliferation of commercial forestry in the area. The cumulation of windfarms in the area is not evaluated as significant based on the multiple raptor records within adjacent windfarm sites. The most sensitive species is considered to be merlin and is stated that the proposed development site also seems to harbour a stable passerine population, and this provides an adequate food supply for this species. In terms of climate change, it has been calculated that the proposed development will result in a net gain in terms of carbon budgets and reduction in fossil fuel usage.

12.7.17. BirdWatch Ireland made a submission on the application relating to the protection of breeding curlew. Curlew favour open landscapes with wide visibility and clear uninterrupted views of surrounding areas. The proposed development footprint is within, or at the edge, of conifer plantation, a habitat unsuitable for breeding or foraging curlew. Notwithstanding this, the applicant has decided to exclude the proposed second site access point to the north-west from the project description in response to the concerns raised by BWI regarding the potential for disturbance of feeding birds to the west of the site during the breeding season. Furthermore, to minimise any potential noise or visual disturbance to breeding curlew, the construction of turbines T11 and T12 or the associated access roads, will not be undertaken during summer months of the breeding period.

12.7.18. Overall, I consider that the EIAR has adequately assessed the impact of the proposed development on ornithology and the cumulative impacts with other plans

and projects that were scoped in for the purposes of the EIAR. I am satisfied that with proper implementation of project design measures and best practice measures, together with implementation of environmental commitments under the Construction and Environmental Management Plan, impacts on bird species will be minimised to a non-significant level.

12.8. Land, Soil, Water, Air and Climate

12.8.1. This assessment deals separately with the above environmental factors as they appear in the EIAR. Chapter 8 addresses air quality and climate change and Chapter 10 deals with land and soils. Water and noise are covered under Chapters 10 and 11 respectively.

12.8.2. The scale and duration of construction works were examined in the EIAR for their potential to impact on local air quality. The local climate was characterised based on 30 year averages at Malin Head. There are no major sources of pollution at the proposed development site or surroundings and air quality in the region is currently ranked by the EPA as good. The nearest dwelling is located at a distance of 773m from the works area.

12.8.3. The project was examined for compatibility with the Climate Action Plan and carbon savings were calculated for the proposed windfarm. At a global level, it is noted that mean temperature, atmospheric mole concentrations of greenhouse gases, tracked atmospheric CO_2 levels, ocean heat content, mean sea levels and extreme heat conditions are all on the increase.

12.8.4. The proposed development is located in rural uplands on lands comprising primarily peat bogs and transitional woodland scrub, with areas of coniferous forest, agricultural lands and natural vegetation. Site topography ranges from 235m OD to 364m OD. Igneous rock is the predominant rock type in Co. Donegal and the site itself is mostly underlain by the Termon Foundation. The predominant soil type is blanket peat, which contains a high level of organic matter and very high moisture content. The peat overlays schist bedrock and there are some local concentrations of bedrock at surface, as well as metamorphic till.

12.8.5. Extensive peat probing was carried out within the study area. The maximum peat depth recorded was 4.5m and the minimum depth was 0.1m. The average peat

depth was 1.73m. A Peat Risk Assessment Report was carried out, which concluded that peat landslide presented a negligible risk to the infrastructure of the wind farm and surrounding area.

12.8.6. An assessment of the potential impact of the proposed development on the hydrological regime was carried out via a desktop review and site survey, which identified hydrological features on site, drainage patterns and distribution, drains, watercourse crossings and sampling streams for water quality. The Quality Rating (Q) System was used to obtain water quality ratings and the EPA Q-Index system is the standard biological assessment technique under the Water Framework Directive. The Biological Monitoring Working Party index was also used[1].

12.8.7. The site drains primarily to the south and west towards the Elatagh River and River Finn sub-catchment. The eastern part of the site is within the Deele sub-catchment and both the Deele and Finn sub-catchments are within the Foyle catchment. A section of the site to the north is within the Swilly sub-catchment. The Lenalea grid connection is within the Deele sub-catchment and the alternative route is within the Swilly sub-catchment. In terms of water balance, most rainwater runs off the site as overland flow.

12.8.8. The Elatagh showed a WFD status ranging from poor to moderate. Peat cutting and forestry activities are identified as pressures within the sub-basins where the site is located. Both the Deele and Swilly sub-catchments were assigned a good WFD status. The sensitivity of the hydrological environment downstream of the proposed development is considered to be very high for all waterbodies. Bedrock underlying the site is classified as a poor aquifer and groundwater vulnerability to the north of the site is extreme and moderate to the south. Groundwater is expected to follow the topography through five sub basins and into the Rivers Finn, Deele and Swilly.

12.8.9. The proposed grid connection to the Lenalea substation involves a total of seven water crossings including two within the proposed development site (1 new and 1 existing), 1 no. water crossing adjacent the public road and 4 no. within the Cark extension and Lenalea sites along existing and permitted access tracks. The

[1] Procedure for measuring water quality using families of macroinvertebrates as biological indicators.

alternative grid connection involves 3 no. water crossings (1 existing and 2 new). No new watercourse crossings are required for turbine delivery.

12.8.10. The baseline noise environment is dominated by natural sources such as wind disturbed vegetation, birdsong, and farm animals. There is also intermittent noise from local roads and agricultural vehicle movements. Background noise monitoring was carried out from 9th July 2019 to 1st October 2019. Wind speeds are also recorded at heights representative of turbine hub heights.

12.8.11. Noise and vibration effects of the proposed development are assessed for construction and operational phases at noise-sensitive residential properties. The operational phase of the proposed wind farm has been considered cumulatively with other windfarms in the area. A derived noise limit is calculated that relates to the total noise occurring at a dwelling due to the combined noise of all operational windfarms. The likely noise emissions from the proposed substation and energy storage equipment are also considered in relation to baseline noise levels.

Characteristics of the Proposed Development

12.8.12. The proposed development comprises a windfarm development within an upland area in mid Co. Donegal. The area within the site boundary is 611 hectares and the development footprint comprises an area of approximately 65 hectares. Aspects relating to the proposal outside the boundaries of the development application area include the turbine delivery route.

12.8.13. The foundation bases for each of the turbines will have a diameter of 28m and excavations to a maximum depth of 6m will take place. A hardstand area will be provided at each turbine for delivery, storage and for crane erection. The typical hardstanding area is 3,346 sq.m. The proposed development will also include a 110m high meteorological mast with a 25 sq.m. foundation and a hardstanding area of 100 sq.m.

12.8.14. Existing forestry and windfarm roads (3.2km), together with new excavated and floating roads (8.9km) will be used to access the turbines, substation and meteorological mast. The roads will have a standard width of 5m and internal cabling within the site will be co-located with access roads where possible.

12.8.15. The drainage system will be implemented along access roads, storage areas, crane hardstands and site compounds. Along internal access routes, the drainage system will separate and collect dirty water from the roadway and intercept clean over land surface water flows. Clean water will be piped under access roads.

12.8.16. Upgraded and new watercourse crossings are proposed for internal access roads and underground cables. No in-stream works are proposed; existing crossings will be widened using pre-cast piping and new crossings will be clear span structures.

12.8.17. The Construction and Environmental Management Plan will include site management controls relating to temporary construction compounds; soil stripping; excavation works; dewatering; storage and stockpiles; refuelling of construction plant on-site; materials handling, fuels and oil storage; road maintenance; construction wheel wash; and inspection and maintenance.

12.8.18. The use of natural resources for the proposed development includes a total volume of stone/ aggregate equating to 383,359 m^3 of which 306,680 m^3 will be site won aggregate and 76,670 m^3 will be imported. Turbine bases will require 7,200 m^3 of concrete and the substation and battery facility compound will require 100 m^3. The met mast foundation will be 20 m^3.

12.8.19. It is estimated that up to 3,000 litres of potable water will be required during peak construction for employees. Water will also be required during construction for concrete truck chute washing, wheel wash, dust suppression and settlement ponds. The main emissions during construction will be from fugitive dust. Exhaust fumes will also be generated. Noise during the construction phase will occur from traffic, excavation and machinery. There will also be operational noise from the turbines and substation.

12.8.20. When completed and operational, it is estimated that the Drumnahough windfarm will offset a total of 80,316 tonnes of CO_2 per year. The payback period for CO_2 losses associated with the manufacture, construction and decommissioning of the wind farm will be 2 years.

*Predicted Impact of the Proposed Development on **Air quality and climate change***

12.8.21. The predicted impacts on air and climate change during the construction phase are summarised as follows:

- ***Do nothing scenario:*** Opportunity to offset greenhouse gas emissions would be lost.
- ***Dust emissions:*** Construction of proposed windfarm categorised as a moderate-sized construction site – dust unlikely to cause an impact on sensitive receptors beyond 50m of the source with standard mitigation in place. There are no dwellings within 500m and no designated sites within the zone of impact for significant effects from dust.
- ***Vehicle emissions:*** Unlikely to have an adverse impact on local air quality due to high levels of dispersion and limited extent and duration of construction works.
- Overall, there will be no significant effects on air quality and climate at sensitive receptors for the short-term duration of the construction phase.

12.8.22. The predicted impacts on air and climate change during the operational phase are summarised as follows:

- ***Air quality:*** CO_2 offset by proposed development will further assist Ireland's CO_2 reduction commitments under the Paris Agreement and Climate Action Plan, 2021 – long-term significant positive effect.
- ***Compatibility with climate policy targets:*** Proposed windfarm is aligned with current energy and climate policy, aims and objectives, which primarily seek to increase the production of electricity from renewable resources.
- ***Climate Action Plan, 2021 –*** Project will contribute to commitment that 70% of national electricity will come from renewables by 2030.
- Battery energy storage will support the renewable energy output.
- ***Carbon savings and losses from proposed development:*** There will be some carbon losses due to the manufacturing process of wind turbines and the drainage and excavation of organic soil/ peat during the construction.
- Drainage and excavation of undisturbed peat leads to drying out and therefore decomposition of organic material and release of CO_2 into the atmosphere. However, hydrological regime across the site has already been highly modified by drainage to facilitate commercial forestry.

- In the absence of an Irish equivalent, the spreadsheet 'Calculating carbon savings from wind farms on Scottish peatlands' was used. Site has been categorised as an undisturbed acid or fen bog for the purposes of this tool as a worst-case scenario.
- There will be total losses (worst case) of 194,638 tonnes CO_2 equivalent from turbine manufacture, construction and decommissioning; reduced plant fixation; soil organic matter; leaching; and forestry felling.
- CO_2 lost due to construction and operation will be recovered in just over 2 years. Over lifetime of windfarm, 2,409,480 tonnes of CO_2 will be offset.
- ***Battery energy storage system:*** proposed BESS has 20 MWh of energy storage. Another 2000 tonnes of carbon dioxide would be added to the footprint of the proposed windfarm, which increases payback period by less than a month.
- ***Decommissioning phase:*** Emissions will be lower than the construction phase.
- ***Cumulative phase:*** No CO_2 emissions once windfarm is operational and therefore no cumulative effects with other windfarms in the area.
- Combined beneficial cumulative effects will be greater and the emissions avoided and improvements to air quality will be greatly enhanced.
- Cumulative impact with other renewable energy projects will be long-term significant positive effect on air quality and climate and human health.
- ***Risk of major accidents and natural disasters:*** Given temporary nature of construction stage and the scale of the proposed development, along with environmental protection measures, risk of disasters or accidents is considered low.
- Outcome of Peat Landslide Hazard and Risk Assessment was that landslide presents a negligible risk to the wind farm infrastructure and surrounding environment.
- Risk of increase in downstream flooding is low due to the small percentage increase in run-off contributing to the catchments as a result of the proposed development.

Mitigation Measures for Air quality and Climate

- Adherence to best practice during construction to minimise fugitive dust emissions.
- Dust and exhaust emissions will be minimised through the provision of mitigations measures incorporated into the site-specific CEMP, including the following:
    - Use of water as dust suppressant,
    - Inspection of public roads,
    - Covering of loads entering and leaving the site,
    - Control of vehicle speeds,
    - Wheel wash facilities,
    - Stockpiling to minimise wind exposure,
    - Daily site inspection.
- Reduction of construction traffic emissions using the following measures:
    - Regular maintenance of plant and machinery,
    - Implementation of Traffic Management Plan,
    - No machinery idling,
    - On-site borrow pits to reduce vehicle movements,
- Negative effects to climate during operational phase not expected.
- Mitigation measures such as those related to dust and construction vehicles are recommended for the decommissioning phase.

Residual Impacts for air quality and climate

12.8.23. There will be short-term slight adverse effects on local air quality during construction and once operational, there will be no negative residual air quality impacts and significant beneficial effects on climate.

*Predicted Impact of the Proposed Development on **Land and Soils***

12.8.24. The predicted impacts of the proposed development on land and soils during the construction phase are summarised as follows:

- ***Do nothing scenario:*** Land and soils environment would remain unchanged and forestry operations and agricultural activities would continue.
- Activities that can cause damage to the existing geological environment, and may subsequently indirectly impact on the aquatic environment, include felling of trees, roads and drainage, excavation works, rock blasting, storage of materials, soil erosion, and waste generation,
- ***Land use:*** Land within footprint of proposed turbines, borrow pits, hardstandings, access roads, cable trenches, substation, battery storage, permanent met mast and all other associated infrastructure will be sterilised from their existing land use for the duration of the wind farm's operational life. Land can be reinstated afterwards for agricultural/ forestry use.
- ***Roads & drainage:*** 8,900m of new roads and 3,200m of upgraded existing roads will be required within the site – combination of new and upgraded drainage network will be installed. Moderate negative impacts are expected given the modified nature of the land and soils environment at large parts of the site and the mitigation by avoidance approach.
- ***Excavation activities:*** Removal of soil, subsoil, peat and bedrock will result in a direct impact. Material will be managed, reused and stored locally or removed to a suitably licenced/ permitted facility. Areas of shallowest peat were selected when designing the project, along with already disturbed conifer plantation or upland agriculture.
- Total volume of material excavated material will be c. 368,400m^3 of which peat accounts for 255,300m^3.
- Excavated peat will be used for roadside berms and reinstatement of borrow pits (BP/ MSA), and any remaining peat will be placed in clear fell forestry areas around turbines T2, T3, T4, T5, T6, T7, T8, T11 and T12 (Peat deposition areas). Areas around turbines that do not currently contain conifer forestry will not be used for peat deposition.

- Excavated material other than peat will be reused for landscaping, drainage berms and backfill at turbine locations.
- Four borrow pits and nine felled conifer forestry areas are spread across the site to minimise transport and handling requirements associated with peat and spoil.
- Vibrations from construction traffic, blasting or excavation activities near deep peat deposits, or unsupported excavation of roads through areas of saturated and weak peat can trigger peat slides.
- Excavations, if left unmitigated, represent a moderate long-term negative impact on land and soils.
- ***Rock blasting:*** Required at borrow pits, turbine foundations and road cuttings resulting is some level of ground vibration and air overpressure. Could result in liquefaction of peat in the vicinity and slope instability if not properly mitigated.
- Rock blasting has potential to result in excessive dust within the vicinity of the borrow pit which may affect peat, soil or nearby aquatic environment.
- Blasting impact represents a moderate temporary negative impact on the land and soil environment.
- ***Storage and stockpiles of excavated material:*** Potential for slight negative medium-term impact on watercourses or water bodies as a result of the erosion of soil and the inappropriate temporary and permanent storage of excavated materials.
- ***Impacts to ground/ peat stability:*** Interference with existing ground stability conditions, by inappropriate excavation methods, such as continuous vehicular movement over excavated peat, must be mitigated by appropriate construction methods, suitable for peat environments.
- Impact to ground stability is evaluated as slight negative short-term.
- ***Vehicular movement:*** 1,210m of internal access road with running width of 5m and locally wider at bends and turning areas – not envisaged that vehicular activity would have a negative effect on the existing peat and soil regime.
- ***Hydrocarbon release:*** Handling, storage and management of excavated spoil will be carried out in line with the CEMP.

- Construction waste, mixed organic waste, mixed dry recyclables, toilet waste and unused oil, diesel and building materials will be generated during the construction phase.

12.8.25. The predicted impacts of the proposed development on land and soils during the operational and decommissioning phases are summarised as follows:

- Much lower as the majority of excavations will be reinstated.
- Some potential for excavations associated with drainage, road and cable maintenance – these will be small scale and infrequent.
- Decommissioning phase will require minimal earthworks. Potential impacts associated with decommissioning will be similar to those associated with construction but of a reduced magnitude – extensive excavation and wet concrete handling will not be required.

12.8.26. **Cumulative effects** with other projects and activities could potentially result from land use change, continued growth in wind energy development, afforestation and agricultural intensification. It is stated in the EIAR that there is no potential for significant cumulative effects in-combination with any other local development due to the localised nature of the proposed construction works. It is considered that the only way that the proposed development can have in-combination effects is via drainage and peat slides. This is considered to be negligible as higher risk areas have been identified and avoided.

Mitigation measures for land and soils

- ***Mitigation by design:*** Turbine locations, the alignment and rotation of hardstands, and the routes of the proposed new access roads were designed to optimise the balance between access criteria and the required volumes of excavated materials.
- Avoidance of areas of higher risk of peat instability.
- ***Mitigation measures for land use:*** Area of land for all stages of windfarm will be kept to a minimum and existing access roads have been utilised in the design.
- ***Mitigation measures for slope failure/ ground stability:*** Infrastructure only placed on lower risk areas and therefore risk of instability is low.

- Findings of Peat Landslide Hazard Risk Assessment was that peat landslide presented a negligible risk to the infrastructure.
- Peat monitoring by sightlines monitoring method shall be carried out by appointed contractor at areas of deep excavation (e.g. turbine bases), material deposition areas and any area of works with a risk rating higher than low.
- Early discovery of stress in peat will give developer the opportunity to implement emergency procedures to prevent the onset of a bog burst or localised peat slide.
- Geotechnical engineer experienced in working in upland peat should be employed full-time to ensure implementation of best practice, including supervision of all site excavations and construction and review of method statement.
- Prior to excavation, drains will be established to effectively intercept overland flow prior to earthworks.
- All peat excavated will be immediately removed from work areas. If peat is required for reinstatement, acrotelm peat (<0.5m shallow, living layer) will be stripped off the surface and placed at the margins of the work area along the access road and hardstand margins that are characterised by near horizontal slopes.
- From evidence of previous landslides, it is recommended that construction activities will be assessed for impact after prolonged periods of heavy rainfall. When pre-determined rainfall trigger is exceeded, planned responses shall be undertaken, i.e. cessation of construction until storm event, including storm run-off has passed over.
- ***Mitigation measures for excavation:*** Minimisation of volumes of peat excavation and lengths of road construction by judicious design.
- Floated roads will be used in circumstances where peat depths are greater than 1m, with the exception of roads immediately adjacent to crane hardstands.
- Excavated peat will be reused for local landscaping and reprofiling with excess peat deposited in material storage areas and peat deposition areas.
- Machinery will not operate directly on excavated/ stockpiled peat.

- Drainage will be constructed in parallel with road construction and turbine excavation. Bog mats or 'bogmaster' excavators will be used when working in deeper peat areas.
- Excavations for turbine foundations, hardstands and the roadway from T8 to T9 and borrow pits will be the largest scale excavations – will involve creating safe side slope angles, installation of drainage around and within the excavation and installation of sediment control measures.
- Within and around excavations, pore water pressure will be kept low by avoidance of loading of peat and spoil on machinery and giving careful attention to existing drainage and how structures could affect it.
- All temporary cuts/ excavations will be carried out such that they are stable or adequately supported and do not adversely interfere with existing drainage regime.
- Plant and material will not be positioned or trafficked in a manner that would surcharge existing or newly formed slopes.
- Excavated peat from cable route will be used to landscape and reinstate area around cable trench following backfilling of trench with appropriate materials.
- Machinery must be kept on roads and aside from advancing excavations.
- ***Mitigation measures for excavation associated with cable trenching:*** Efforts will be made to ensure that the amount of earth materials excavated is kept to a minimum.
- Temporary storage of materials beside trenches will be done in line with CEMP. Management control will ensure that measures in place operate effectively, prevent accidental leakage and identify potential breaches in the protective retention network during earthworks.
- ***Mitigation for rock blasting:*** Borrow pits will be located within areas of thin peat cover and low susceptibility to landslide.
- Blasting will not occur after periods of heavy rainfall – no blasting for at least 24 hours following a period of rainfall which exceeds 25mm within the previous 24 hours.

- Where rock blasting is necessary, detailed blasting design will be undertaken to ensure peak particle velocity of 10 mm/s is not exceeded at a distance greater than 20m from blast holes.
- Blast areas will be lightly sprayed with water prior to blasting to mitigate against the risk of excessive dust.
- Rock blasting plan will be prepared as part of the CEMP, and the Council and adjoining landowners will be notified in advance of any blasting activities. NPWS will also be consulted.
- ***Mitigation measures for the storage and management of excavated material:*** Reduce overall peat excavation by design of access road and turbine location, and planting and reseeding of material storage areas and peat deposition areas.
- Drainage measures for reinstated materials storage and peat deposition areas will include cut-off drains, toe drains, settlement ponds and silt fencing.
- Run-off from peat deposition areas in clear felled areas will be separated into clean and dirty water and ensuring that the discharge rate is no higher than the existing condition through use of settlement ponds.
- Handling, storage and management of excavated spoil will be in line with the CEMP.
- ***Waste management:*** Construction phase waste management plan has been developed to control all site generated construction waste and the storage and disposal of same.
- ***General site management:*** CEMP will include the checking of equipment, materials storage and transfer areas, drainage structures and their attenuation ability on a regular basis.
- Fuel management plan will be implemented.
- ***Drainage:*** Permanent road works will require a drainage network to be in place for construction and operational phases. Sediment and Erosion Plan will be implemented.

- ***Surface water:*** Regular environmental audit and site maintenance of constructed drainage and attenuation structures and drainage crossing is required.
- ***Operational phase:*** Some erosion may occur as vegetation becomes established. Sediment control measures will remain in place on site.
- Risks associated with sedimentation and contamination of watercourses and aquifers due to erosion and runoff will be reduced to minimal levels as areas revegetate and construction/ forestry traffic ceases.
- ***Decommissioning phase:*** Areas around bases will rehabilitate by covering with locally sourced soil in order to regenerate vegetation. This will reduce run-off and sedimentation.
- ***Cumulative impacts:*** Measures proposed for construction, operational and decommissioning phases will mitigate against cumulative impacts associated with the land and soils environment.

Residual Impacts for land and soils

12.8.27. No residual impacts.

*Predicted Impact of the Proposed Development on **Water***

12.8.28. The predicted impacts on water are summarised as follows:

- Significant potential hydrological effects could occur from interference/ disruption and pollution of surface and groundwaters during excavations.
- Potential impacts in relation to an increase in flooding, cumulative flood and pollution risk with neighbouring developments, as well as specific impacts during the various phases of wind farm development as follows:
- ***Potential for increase in downstream flooding:*** Forest felling, new site access tracks, turbine hardstanding areas and other hard surfaces have the potential to contribute to surface water run-off causing soil erosion and sediment release. Risk considered to be minor due to small percentage increase in run-off.
- Proposed development is at a distance of 7.5km from nearest recorded location where flooding has occurred in the Swilly catchment.

- ***Potential impacts on hydrology during tree-felling:*** Rate of run-off expected to be slightly higher than forested site – proposed felling is small relative to the overall planted area and thus there will be no significant increase in run-off and downstream flooding.
- ***Potential impacts on hydrology during construction:*** Most of the site is already drained by manmade drainage channels. Formation of new spurs to existing access roads will result in additional drains and removal of linear areas of peat soil, which will affect groundwater flow by localised lowering of water table and diversion of near-surface groundwater flow into drains and channels. Depth of groundwater table drawdown will generally be no deeper than access road drainage and much less significant drawdown will occur away from road drainage.
- Potential for drawdown within the bedrock at Drumnahough is relatively insignificant.
- Some areas of the site have high to extreme groundwater vulnerability – if not properly mitigated, any sources of contamination or sedimentation will experience very little attenuation prior to reaching groundwater.
- Excavation of peat could lead to an increase in suspended solids in surface water run-off and increase in rate of run-off could result in minor increase to flooding downstream.
- Removal of peat and drainage of areas will reduce storage capacity of water in the land and increase the risk of peak flood down gradient of site.
- Excavations, excavated peat, stone and drainage of peat storage areas could lead to loss of suspended solid to surface waters.
- Excavations for drainage systems could disturb underlying silt below peat.
- Blockage of cross-drains could lead to consequent flooding & concentration of flows. Flows from new drainage system could be impeded.
- Cable trenches could act as conduit for surface water flows and run-off from borrow pits could be silt laden.

- Velocity of flows in drainage adjacent to access tracks could cause erosion in steeply sloping drains.
- Excavation for drainage systems could affect peat stability.
- New infrastructure has potential to obstruct existing overland flow.
- Inappropriate management of spoil heaps resulting in accidental breakouts of silt.
- Use of machinery and accidental spillages affecting local groundwater and surface water quality.
- ***Potential hydrological impacts of the operation and maintenance of the wind farm:*** Main potential hydrological impact once operational is a slight increase in run-off from a storm event to the Finn, Swilly and Deele catchments.
- ***Potential hydrological impacts of the decommissioning of the wind farm:*** Similar to those found during construction – use of machinery and excavations or movement of peat during hardstand rehabilitation.
- ***Potential impact of turbine delivery route:*** Only minor modifications required and no significant impact on water.
- ***Cumulative impacts:*** Potential cumulative hydrological impacts in Finn catchment from forestry operations (including access tracks and drainage), farming and neighbouring windfarms.
- Cark Extension, Cark RES, Culliagh and Meenbog windfarms are within the Finn catchment; Cark RES is within the Swilly catchment; and Cark RES, Cark, Culliagh, Ballystang, Lenalea and Meentycat windfarms are within the Deele catchment.
- There is a cumulative risk of flooding and sedimentation release into watercourses, particularly the River Finn.
- Previously consented windfarms committed to run-off being attenuated, sediment reduction to acceptable levels, pollution control and sensitive hydrological features.

- Large proportion of Elatagh catchment is under commercial forestry dominated by Sitka Spruce – felling of this forestry could lead to cumulative impacts with proposed development.
- During overland flow caused by storm events, phosphorus added to forestry can enter surface waters and peat soils can have low sorption capacity for phosphorus. If area harvested is replanted, and vegetation established quickly, it is unlikely that phosphorus will enter surface waters.
- Permitted windfarms in three catchments (Finn, Swilly & Deele) have the potential for cumulative risk of landslide and sedimentation release into the river catchments.
- Potential for significant cumulative impacts on geology, hydrogeology and peat stability arising from proposed and permitted windfarms is considered negligible. Potential cumulative impact on groundwater due to landslide risk also assessed as negligible.
- ***Potential transboundary impact:*** River Finn becomes River Foyle after crossing the border and is designated as the River Foyle and Tributaries SAC (Ref. UK0030320) for Otter, Salmon, and watercourses with floating vegetation. Project unlikely to have a significant water quality effect locally and thus significant transboundary impacts are unlikely.

Mitigation measures for water:

- ***Mitigation by design:*** Design of proposed drainage aims to maintain continuity of existing flows and to manage discharges at source.
- 50m buffer with the exception of crossings was applied to watercourses. Existing tracks used to minimise the creation of new watercourse crossings. New access tracks designed to avoid deep peat and/ or steep slopes.
- ***Mitigation by management:*** Measures during site clearance will prevent run-off erosion from forest operations. Brash from tree felling will be removed from riparian buffer zones to provide clear access for drainage and track works. Trees will be felled away from aquatic zones where possible and brash mats will be used as necessary.

- Drainage system alongside existing forest track will be maintained and improved as required, and permanent interceptor drains and temporary silt traps will be installed alongside existing access tracks and hardstanding areas. Cross drains will be fitted, and permanent check dams will mitigate the increase in the rate of run-off.
- Drains from keyhole felling to watercourses will be blocked to ensure the impact of sediment release is kept to a minimum.
- ***Sediment control:*** Site will be inspected for areas prone to siltation of nearby rivers and pollution prevention measures will be maintained/ upgraded as necessary.
- Drainage features will be installed where new development components are proposed, e.g. access tracks, trenching, hardstands, substations and borrow pits.
- Three stage treatment train of discharges from new development is proposed to include temporary settlement ponds, permanent diffuse outflow and continuation of flows by natural flow paths via existing drains.
- All erosion control and retention facilities will be regularly maintained during and post construction for 6 months.
- Use of a construction wheel wash with water fed through a settlement pond, interceptor and then discharged to vegetated area of low ecological value.
- There will be no direct discharge of surface water into watercourses – settlement pond will release to into onsite drainage system.
- Silt fencing will be kept in place until vegetation has been satisfactorily established in the mineral and peat storage areas.
- Drainage system will be periodically checked during the operational phase of the windfarm.
- ***Settlement ponds:*** Provided adjacent to site tracks, borrow pit locations, hardstands, substations and mineral/ peat soil storage areas – will remain in place and maintained for 6 months post construction and partly filled with stone before being left to fill in and re-vegetate naturally.

- Retention of drainage infrastructure will ensure than run-off continues to be attenuated and dispersed across existing vegetation before reaching downstream receiving waters.
- All drains carrying dirty run-off adjacent to access tracks will discharge to temporary settlement ponds located to avoid crossings for overland flows and where peat is shallow.
- ***Concrete control:*** Effective containment measures will be implemented to prevent concrete from entering the drainage system.
- ***Storage areas:*** Storage of cement will be in Control of Substances Hazardous to Health Regulations store or similar (shipping container), and cement would only be in the open when in use.
- ***Plant and refuelling:*** To take place in designated areas at least 50m from watercourses and there will be appropriate containment facilities for any spillages.
- Petrol and oil interceptors will be installed for substation drainage and at site compound for plant repairs/ storage of fuel/ temporary generator installation.
- ***Wastewater sanitisation:*** Domestic waste holding tank and portaloos will be used within construction compound.
- ***Waste:*** Waste Management Plan is included in CEMP.
- ***Monitoring:*** Drainage system monitoring schedule will be drawn up prior to construction and will consist of daily and weekly visual inspections.
- ***Environmental manager:*** Appointed for duration of construction phase to ensure that all environmental design, control and mitigation measures outlined in CEMP/ EIAR and supporting documents in relation to the water environment are implemented.

Residual Impacts for water

12.8.29. With the implementation of mitigation measures, it is considered that there will be no significant effects on surface water or groundwater resources. The significance of residual impacts on the water environment is assessed in the EIAR as imperceptible negative to minor negative.

*Predicted Impact of the Proposed Development on **Noise***

12.8.30. The predicted impacts on **noise** during the construction phase are summarised as follows:

- Proposed construction activities would occur at relatively large distances from nearest residential properties such that resulting predicted noise levels would not exceed 50 dB $L_{Aeq.}$
- Worst case traffic during construction is 12 heavy vehicles per hour – associated noise impact at nearest dwellings will not exceed 65 dB $L_{Aeq.}$, representing a minor impact.
- Negligible impact for peak construction traffic on noise for properties adjacent the N13 and N15.
- Operational noise levels from the proposed development are considered acceptable in line with relevant noise limits and are therefore not significant.
- Given the separation distance, noise from substation and battery storage would be below the most stringent noise limits.
- Decommissioning likely to result in less noise than construction phase.
- ***Cumulative effects:*** No cumulative construction activities would occur in sufficient proximity to generate potentially significant effects.
- Contribution of proposed development is either more than 10dB below that of other schemes, or that the contribution from other schemes is 10dB below that from the proposed development – cumulative effects can therefore be considered relatively negligible at closest properties.
- Cumulative operational noise levels including all neighbouring schemes are considered acceptable in line with relevant noise limits and are therefore not significant.

Mitigation measures for noise:

- No specific mitigation required for substation and energy storage.

- Construction activities that may give rise to audible noise at surrounding properties and heavy goods deliveries will be limited to 07:00 to 19:00 Monday to Friday and 07:00 to 14:00 on Saturdays.
- All construction activities shall adhere to good practice as set out in BS5228 and activities will be separated from residential properties as much as possible.
- Equipment will be kept in good working order and movement of vehicles to and from the site will be controlled.
- Construction plant capable of generating significant noise and vibration will be operated in a manner to restrict the duration of the higher magnitude levels.
- Potential noise and vibration effects of blasting operations will be reduced according to guidance set out in relevant standards.
- Specific noise limits determined such that operation in isolation would result in cumulative levels which do not exceed the derived noise limits.
- ***Monitoring:*** Condition attached to planning consent should include requirement that, in the event of a noise complaint, noise levels resulting from the operation of the wind farm are measured to demonstrate compliance with conditioned noise limits.
- ***Decommissioning phase:*** Similar mitigation as construction phase.

Residual impacts for noise:

12.8.31. The associated effects of construction noise would be negligible to minor temporary adverse, and operational noise is acceptable in terms of relevant guidance for the assessment of windfarm noise.

Conclusions on Land, Soil, Water, Air and Climate

12.8.32. It would appear that all lands are necessary for the construction and operational phases of the proposed development. The main potential effects to land relate to the temporary and permanent loss of the use forestry and agricultural lands; however, the extent of lands used for the subject works will be very small in the context of the surrounding agricultural and forestry holdings. The lands can be reinstated at the end of the operational life of the windfarm. Furthermore, replacement forestry lands

will be planted and separate locations and biodiversity enhancements will be carried out.

12.8.33. Activities associated with the proposed development that can cause impacts on the geological and hydrogeological environment include tree felling, roads and drainage, excavation works, rock blasting, storage of materials, soil erosion, and waste generation. The potential for cumulative impacts could arise from land-use change, wind energy growth, afforestation, and agricultural intensification. The main concern is cumulative impacts on drainage and the potential for slope movement and peat slides. However, the EIAR confirms that the proposal identifies and avoids higher risk areas within the site.

12.8.34. A Peat Stability Assessment appended to the EIAR notes the presence of peat across the site, together with areas of steeper ground and a range of landslide susceptibility. Peat probing and hand shear vane testing were carried out across the site and additional testing was conducted in response to the further information request. The maximum peat depth encountered was 4.5m and the minimum depth was 0.1m. Hand shear vane results ranged from 7kPa to 49kPa. A peat slide risk assessment was carried out to assess the influence of rainfall and climate; water on slopes; peat/ sub-strata interface; peat profile and thickness; shear strength of peat; surface slope gradient and regularity; geomorphology and site history; extent and condition of subterranean drainage; peatslide history; and potential impact of pesticides. Peat has eroded in the area from T9 to T11, possibly due to overgrazing, creating blocks of peat with over steepened sides. Overall, turbines T9 to T11, Borrow Pit 4, the meteorological mast, and the substation and battery storage area received a low-moderate peatslide hazard rating score. The remaining turbines and borrow pits received a low or very low score. Stabilisation works in the form of granular berms may be required for the low-moderate rating areas.

12.8.35. It is considered reasonable to rate the likelihood of a landslide run-out occurring on the site over the lifetime of the project as being unlikely. Infrastructure is located in areas of shallower peat, away from watercourses and steep slopes, and therefore the impact of a slide is considered to be low and no further planning stage design measures are proposed. Peat sightline monitoring will be carried out and monitoring will take place at areas of deep peat excavation, material deposition areas and any areas of works with a risk higher than low. Detailed measures are outlined in the

event of an emergency, and it appears that the risk of peat slide has been thoroughly assessed and reconfirmed within the further information submission.

12.8.36. Other land and soil mitigation measures are set out in the EIAR for excavation, rock blasting, storage of excavated material, waste management, site management, drainage and surface water. It is concluded in the EIAR that following mitigation, the proposed development does not constitute a significant effect on the land and soils environment, either alone or cumulatively with other existing and/ or approved projects.

12.8.37. The main impacts on water are activities, which left unmitigated, could have an effect on receiving watercourses, particularly the risk of sedimentation of sensitive catchments. The site access tracks, crossings, cabling, turbine construction, borrow bit, crane pad construction, substation, battery compound and peat management would have a moderate magnitude and significance on the Elatagh River (Finn) without mitigation. Other impacts on hydrology during site preparation, construction and operational phases would be negligible to minor without mitigation.

12.8.38. Air quality at the region where the proposed windfarm is located is ranked as good. The impact from dust emissions during construction will not be significant given the separation distance to the nearest dwellings.

12.8.39. During the operational phase, electricity generated by the proposed windfarm will result in a CO_2 offset that will contribute to Ireland's commitments under the Paris Agreement and the Climate Action Plan, 2021. The calculated payback associated with the manufacture, construction and decommissioning of the windfarm will be 2 years.

12.8.40. Noise associated with the construction phase of the proposed development will be negligible to minor and will occur over a temporary period. Noise from the proposed windfarm will be audible when operational at some locations under certain wind conditions. However, both daytime and night-time noise limits as set out in guidance can be satisfied at all properties. Noise monitoring will be carried out in the event of a complaint and turbine constraints may be required to stay within these limits at certain turbines. Cumulative noise with other windfarms will also be negligible or below applicable noise limits.

12.8.41. Overall, I consider that the impacts on land, soil, water, air and climate would be avoided, managed and/ or mitigated by the design and measures that form part of the windfarm project. Taken with other projects or activities in the area, the cumulative effects the proposal are not likely to give rise to significant effects that might warrant a refusal of the proposed development.

12.9. Material Assets

12.9.1. Material assets are addressed under Chapter 15 of the EIAR. Topic areas examined under this chapter include roads and traffic (construction and operational phases and unplanned) and built services (electricity, air navigation, television and telecommunications, water supply and wastewater infrastructure, and waste management). Topic areas closely related to material assets are considered in other sections of the EIAR.

12.9.2. The receiving environment includes a number of local roads that connect with the N13 national road to the east, the R250 to the north and the R252 to the south. The turbine delivery route is from Killybegs Port to the eastern entrance at the subject site via the N56, N15 and N13. This route was assessed for a 71m long turbine blade. Electricity infrastructure in the vicinity of the site includes the Binbane to Letterkenny 110kV overhead line to the north of the site between the Cark and Cuillagh substations.

Characteristics of the Proposed Development

12.9.3. The proposed development involves the development of a windfarm comprising of 12 no. turbines with tip height of 167.5m. A permanent meteorological mast with height of 110m is also proposed. Underground electric cabling will be installed between the turbines themselves and to a connection point at the permitted Lenalea substation. An alternative grid connection assessed in the EIAR involves underground cabling from the windfarm to a new 110kV substation at the 110kV overhead line, together with a battery energy storage system facility.

12.9.4. The proposed development will also include upgrade/ widening of the site entrance and the creation of a new junction off the L-10142 to facilitate access to T1.

12.9.5. Other associated works include the diversion of an existing 38kV overhead line at T1; temporary works along the turbine delivery route (hedge/ tree cutting, relocation of powerlines/ poles and lampposts, signage and road widening); and off-site replacement of felled forestry.

Predicted Impact of the Proposed Development

12.9.6. The predicted impacts on **material assets** are summarised as follows:

- *Roads & Traffic:* Construction material required from off-site will be sourced from local quarries using selected delivery routes – predicted traffic volumes have been proportioned accordingly across access points to the subject site.
- 14 month construction period will require the importation of up to 13,070 loads of material. 120 delivery vehicles will be required for the 12 turbines along Route C, and this could result in temporary delays for other traffic during the off-peak traffic delivery period.
- Single lane closures may be required on the L-10142 as part of the grid connection construction works if grid connection to Lenalea substation is selected. 100-200m of cable route will be constructed each day (750m total construction length).
- HGVs could damage road pavements on public roads, including vehicle turning, accelerating and decelerating locations.
- 22 nodes/ pinch points of work required along turbine delivery route. Temporary removal of telecoms poles, electrical poles, overhead cables and fences will be limited to approximately one day. Effects considered to be short term and not significant.
- *Grid capacity and electrical infrastructure:* - Proposal will contribute to ensuring that adequate electricity supplies are available to support economic activity and growth.
- Option for energy storage infrastructure at Drumnahough is aligned with the provisions relating to grid system flexibility set out under the Climate Action Plan, 2021. Energy will be stored at times when supply outstrips national energy requirements.

- There is currently sufficient capacity and infrastructure to accommodate the additional renewable energy to be generated by the windfarm.
- *Aviation:* Consultation with Irish Aviation Authority concluded that the proposed turbine locations and turbine tip height will not impact on aviation in the area.
- *Television and telecommunications:* Correspondence from Broadcasting Authority of Ireland indicates that they are not aware of any issues from existing windfarms with existing Frequency Modulation networks. Presence of existing windfarms demonstrates low potential risk of television and telecommunications interference.
- Signed protocol between developer and RTE will be put in place and developer will be responsible for resolving any issue of interference with TV reception.
- *Water and wastewater infrastructure:* Water requirement for construction will be sourced from on-site rainwater collection systems and settlement ponds. Potable water requirement will be imported in bulk tanks. Volumes of wastewater requiring disposal are minimal and will have a negligible impact on the capacities of external treatment facilities.
- *Waste management:* Construction phase waste may consist of hardcore, concrete, spare steel reinforcement, cable wires, shuttering timber and building materials.
- Construction waste will be taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility.
- Surplus spoil material will be transported back to deposition areas for reuse in permanent reinstatement of borrow pits.
- Types of wastes generated will be similar to established construction waste streams and will not require unusual or new treatment options.
- Waste management procedures included within CEMP.
- On decommissioning, 85% of turbine components can be recycled or reused. Fiberglass blades are generally disposed of by landfill. Other options include reuse to form artificial reefs, playgrounds or street furniture, cement co-

processing for glass fibre component and blade recycling through pyrolysis and gasification.

- *Forestry resources:* Amount of forestry to be lost is minimal and will be insignificant in terms of the size of the forestry resource nationally.
- ***Cumulative effects:*** Forestry operations may use delivery routes during the construction period for maintenance – not considered significant.
- Any future decommissioning impact at Cark windfarm will be low in terms of traffic volumes unless it takes place concurrently with the construction phase of the proposed development.

Mitigation Measures

- *Roads and traffic:* Traffic Management Plan has been prepared. Construction activities will be adapted to ensure the safety and convenience of all road users.
- Pre-construction and post construction surveys will be carried out to verify structural integrity of proposed haulage route – repairs carried out as necessary.
- Applicant committed to a high level of communication to the general public and business community regarding the extent and duration of the project.
- *Turbine delivery route:* Schedule of street furniture alterations will be compiled and formally agreed with the Council and TII.
- Consultation will take place with relevant authorities regarding possible transport restrictions when transporting components.
- *Grid capacity and infrastructure:* Mitigation by design and avoidance.
- No significant effects on grid capacity but potentially positive effect of the electricity supply infrastructure.
- *Aviation:* Warning light scheme will be agreed, and co-ordinates will be provided to IAA. IAA will be notified of crane operations a minimum 30 days in advance.
- *Television and telecommunications:* Applicant committed to working with providers to remedy any issues. Signed protocol will be put in place.
- *Waste management:* Managed in accordance with waste hierarchy.

- *Forestry resource:* Forestry Service Guidelines will be implemented to control erosion, minimise forest damage and protect water resources.

Residual Impacts

12.9.7. There will be slight to moderate and short-term residual impacts on roads and traffic. The disposal of turbine blades during the decommissioning phase is considered to be a moderate negative residual effect.

Conclusions on Material Assets

12.9.8. The sensitive aspects evaluated under Material Assets included roads and traffic and built services. All local roads providing access to the proposed development site are lightly trafficked. Any damage to the road pavement will be repaired to the satisfaction of Donegal County Council. Single lane road closures will be required along a local road as part of the grid connection works. Works will also be required at pinch points along the turbine delivery route. These impacts will be short term and not significant.

12.9.9. In terms of grid capacity and infrastructure, the proposal will contribute towards sustainable and renewable electricity supplies to support economic activity and growth. Furthermore, capacity and infrastructure are available to accommodate the additional energy to be generated by the proposed windfarm. There are no other impacts associated with the proposed development on built services that cannot be mitigated to a non-significant level.

12.9.10. Subject to the proper implementation of all other relevant mitigation and best practice measures, I would be satisfied that the proposed development would not have any significant effect on material assets either individually or cumulatively with other projects or activities.

12.10. Cultural Heritage and the Landscape

12.10.1. Chapter 12 of the EIAR provides a landscape and visual impact assessment and Chapter 13 includes an archaeological impact assessment. Shadow flicker is covered under Chapter 14.

12.10.2. The assessment of landscape and visual impact is focused on an approximate 20km radius from the proposed turbines. The assessment focuses on the change in landscape character, or changes to the composition, character and quality of views in the receiving environment. Landscape susceptibility in relation to wind energy development can be influenced by topography and skyline, landscape pattern and landcover, and settlement pattern. The visual assessment includes 17 no. viewpoints showing the magnitude of change to view.

12.10.3. The proposed windfarm site is shown in the Donegal Development Plan Scenic Amenity Map as being within an Area of High Scenic Amenity. There are lands adjacent to the site boundary to the south that are within an area of Especially High Scenic Amenity. Two protected views towards the site to the east and south-west are not within the zone of theoretical visibility (tip height) of the proposed development. It is also a policy that wind energy developments must not be within the Zone of Visual Influence of Glenveagh National Park.

12.10.4. The site lies in the Cark Mountains Uplands Landscape Character Area. The site and surrounding landscape comprise an undulating topography with a mosaic of coniferous forestry, open expansive areas of blanket bog and high concentrations of wind energy development. Lands to the east are predominately low lying and lands to the west are mountainous. Settlement is sparse.

12.10.5. An Archaeological Impact Assessment carried out for the proposed development includes a desk based assessment of archaeological, historical, cultural and cartographic sources, together with inspections of the site and replanting lands. There are no recorded archaeological monuments within the boundary of the proposed wind farm site and a total of 14 monuments within 5km. The upstanding remains of a number of malt settlements can be found in the vicinity of the site. A portal tomb is located along a section of roadway that forms part of the turbine delivery route at Cloghroe. The roadway is narrow at this location and the impact of any road widening works is considered to be high.

12.10.6. The Shadow Flicker Assessment within the EIAR is used to inform shadow flicker control measures that will be designed for each turbine. This included the modelling of unmitigated shadow flicker on 7 no. residential properties within a 10 rotor diameter study area (1.45km). The key factors relating to shadow flicker occurrence

are spatial relationships, wind direction and sunshine hours. Windfarm modelling uses the worst-case scenario when reporting shadow flicker results, assuming *inter alia* that the sun is always shining, and the wind is always blowing. A realistic scenario is added which takes account of cloud cover in the region.

Characteristics of the Proposed Development

12.10.7. From a landscape and visual perspective, the main impacts will occur during the construction phase of the project. This includes the creation of compounds, use of machinery, clearing of vegetation and topsoil, stockpiling of materials, reinstatement, etc.

12.10.8. Clearly, the main visual and landscape impacts during the operational phase involves the erection of 12 no. wind turbines with overall height of 167.5m, together with a 110m meteorological mast, turbine hardstand and laydown areas, borrow pits, access roads and tree felling. The turbines will be constructed on hills with elevations ranging from approximately 220m to 341m OD. The surrounding area comprises an upland landscape with forestry plantations. There is also a significant presence of windfarms at this location.

12.10.9. The turbines will be aligned roughly from north-west to south-east. There is a cluster of dwellings to the north-west of the windfarm within 145m of the site boundary. Further dwellings are located to the north outside the 145m buffer area applied for the purposes of shadow flicker analysis. During the operational phase, the windfarm will be monitored by a computerised system that can shut a turbine down when shadow flicker is predicted to occur.

Predicted Impact of the Proposed Development (Landscape & Visual)

12.10.10. The predicted impacts in terms of **landscape and visual impact assessment** are summarised as follows:

- *Do nothing scenario:* Commercial forestry and wind energy production in the area of the proposed development expected to continue. Cark windfarm nearing end of its operational life.
- *Landscape effects:* These uplands are considered to have a medium sensitivity to windfarms. There are several ‘Especially High Scenic Areas’ in the vicinity of the

site and Finn Valley to the south and Swilly Valley to the north have low-medium sensitivity.

- *Construction phase landscape effects:* Likely to be localised and affecting only the site and immediate vicinity. Magnitude of change will be medium to high and works will be temporary to short-term.
- Negligible to no effect in the wider landscape including Glenveagh National Park.
- Proposed off site works are localised and temporary.
- *Operational phase landscape effects:* 12 no. turbines will result in limited change to the fabric of the landscape.
- Proposed turbines are located in an area with a high proportion on existing turbines – other main elements of landcover are coniferous forestry and moorland.
- Proposed windfarm is consistent with the character of landscape in the area and magnitude of change is considered to be low.
- Character of the Especially High Scenic Area to the south is already influenced by the surrounding forestry and windfarms.
- Only one short section of one road in Glenveagh has theoretical visibility of the tips of several of the proposed turbines (Viewpoint 1). Magnitude of change within Glenveagh is low. Where theoretical visibility does occur, in the majority of areas these are not the only turbines visible, and visibility is distant. Most trails in the park will not have theoretical visibility of the turbines.
- Within Cark Mountains Uplands, the proposed development will not introduce a new element to the landscape but will increase the number of turbines.
- *Visual effects:* Construction phase visual effects likely to be localised.
- Machinery accessing the site will be evident in the vicinity. Felling and earthworks are likely to be evident from local roads close to the site.
- Visual receptors in the wider landscape will not be affected from construction phase visual effects.
- ZTV maps and photomontages used to assess operational phase visual effects.

- Stranorlar and much of the Finn Valley to the south, the N15 through Barnesmore Gap and much of the Bluestack Mountains will have no theoretical visibility of the proposed development.
- There is no visibility in the vicinity of Glenties, Doochary or further west of the Derryveagh Mountains.
- Areas at Tullyhonor and Rathdonnell will have theoretical visibility and some houses are likely to have open views of turbines at relatively close proximity.
- Proposed substation near Tullyhonor is likely to be screened from the road by forestry and road is already traversed by 110kV line.
- There is limited theoretical visibility from Glenveagh National Park. Blade tips are only visible along R254 at Viewpoint 1.
- There is theoretical visibility along parts of the Lough Inshagh walk, as well as upper slopes of some mountains. In upper sections of walk, views are panoramic and not just focused on the direction of the proposed windfarm. Turbines likely to be visible in good weather conditions with other more distant turbines.
- There is theoretical visibility of between 1 and 3 turbines at St. Colmcille's Stone, Lough Gartan – likely to appear as distant blade tips.
- Viewpoints 2, 3 & 4 show theoretical visibility of the highest number of turbines (12 no.) – Viewpoint 2 shows no actual visibility.
- Theoretical visibility shown from Letterkenny, however, built form will screen much of these views (Viewpoints 5, 6 & 7).
- ZTV shows that there is visibility directly east of the site, but in reality, mature coniferous plantations are likely to reduce visibility.
- Visibility of all 12 turbines is likely from the south of the site; however, this area is occupied by wind farms. Between 1 & 6 turbines will be theoretically visible at Fintown.
- There will be some visibility from some parts of the Slí Dhún na nGall.
- Project is unlikely to have significant transboundary visual impacts.

- Assessment of 17 no. viewpoint locations shows that the visual effects range from no visual effect (3 no.) to moderate effect (3 no.). Two of the moderate effect viewpoints are along the R250 to the north of the site (Viewpoints 8 & 15). Viewpoint 8 is of most concern as it adds to visual clutter.
- Sensitive receptors are Glenveagh, Fintown and Slí Dhún na nGall (Viewpoints 1, 10 & 13 respectively). Visual effects at these locations are considered to be not significant or slight.
- No viewpoints within the moderate range are considered of high sensitivity or within an Especially High Scenic area, a scenic view or within a national park.
- There are few locations where all 12 turbines would be visible.
- Dwellings are scattered in the vicinity of the site and the area is relatively remote. However, some dwellings will experience visual effect, particularly to the north.
- *Cumulative effects:* Should Cark windfarm be re-powered, this will entail a planning application and it is not possible to speculate on potential layouts/ heights – taller turbines and a change to the number of turbines may give rise to differing cumulative effects.
- Windfarms are an established land use in the area and now are an element of the landscape character. Addition of proposed windfarm to existing windfarms is considered to have a low to moderate magnitude of change on landscape character.
- Cumulative Zone of Theoretical Visibility mapping shows the additional areas where theoretical visibility will result from the proposed Drumnahough turbines only – proposed turbines will result in very little additional cumulative visibility.
- 7 of the 17 viewpoints do not show any other windfarms in the view. Of the remaining 10, two are considered imperceptible, four not significant, one slight and one slight moderate. Three viewpoints (4, 8 & 11) are considered moderate and two of these considered adverse.
- Proposed turbines will result in the most pronounced changes to cumulative visibility to the north of the site.

- In Viewpoint 4, only one other set of turbines is visible and in Viewpoint 8 the additional turbines will result in stacking. Proposed turbines are less visible in Viewpoint 11 but increase the extent of turbines visible in the image.
- Cumulative effects do not arise in Viewpoint 1 and there is very little additional visibility in Glenveagh National Park due to the proposed turbines. Cumulative visibility from key visitor locations in the park is very limited.
- Overall pattern of cumulative visibility is that in the vast majority of areas where the turbines are visible, there is theoretical visibility of other turbines. Main increase in visibility of Drumnahough turbines only is in the immediate vicinity to the north-west.

Mitigation Measures for landscape and visual assessment:

- Mitigation relates mainly to the siting and design of the wind turbines.
- Reversed viewshed ZTV was carried out for Glenveagh National Park to assist in ensuring the layout minimised the visual effects on the park.
- Turbines will be a matt, off white finish.
- Substation and battery storage and borrow pits are located in forested area.
- Soils and subsoils generated from excavation works will be retained on site and reused in bunding, landscaping and localised earthworks. Borrow pits will be backfilled with excavated material and allowed to revegetate.
- If planning permission is not sought after 30 years, the site will be decommissioned and reinstated.

Residual effects for landscape and visual assessment:

- No residual effects.

Predicted Impact of the Proposed Development on Cultural Heritage

12.10.11. The predicted impacts of the proposed development on **cultural heritage** are summarised as follows:

- No recorded archaeological monuments or artifacts known or recorded within the proposed development site.

- Low probably that proposed development will impact on potential unknown subsurface archaeological features, deposits or artifacts that may have survived in underlying bogland/ upland within the site.
- Malt settlement situated within proposed windfarm site and two other malt kilns straddle and abut the site boundary. Proposed works will not impact on these settlements.
- Highest potential for impact along the turbine delivery route occurs at Cloghroe whereby proposed road widening could impact on portal tomb.
- No archaeological impact envisaged during operational or decommissioning phases.
- No cumulative impact on archaeological heritage resource.

Mitigation measures for Cultural Heritage:

- Licenced archaeological test excavations should be undertaken in advance of construction at targeted areas of all primary ground impacts. Further mitigation, including archaeological monitoring of works may be required.
- Malt settlement sites will be archaeologically recorded and surveyed, a 20m buffer will be applied and a report will be submitted to Donegal County Council and the National Monuments Service.
- Any proposed road levelling or widening at Cloghroe should only be undertaken on the opposite (northern) side of the road after licenced archaeological testing has taken place.
- Effective temporary high visibility fence should be erected around the roadside limits of the portal tomb in advance of turbine components delivery.
- Archaeological monitoring will be undertaken to ensure that road widening does not impact on lime kilns in the Cloghroe area.

Residual Impacts for Cultural Heritage:

- No residual impact anticipated.

Predicted Impact of the Proposed Development (Shadow Flicker)

12.10.12. The predicted impacts of **shadow flicker** associated with the proposed development are summarised as follows:

- Current shadow flicker thresholds may potentially be exceeded in theory – when monthly sunshine hours and shutdown periods are accounted for, shadow flicker if unmitigated, reduces to well below the 30 hours per year threshold value at all locations.
- Results are very conservative – model does not take into account the hours when the wind is blowing in the direction needed to orient the turbine perpendicular to the house.
- Assumption is made that there is a clear line of sight between all dwellings and a wind turbine and that there is a window on the potentially affected wall/ gable.
- Computer model provides detailed information down to exact times of the day when shadow flicker is predicted to occur and from which turbine for each receptor – information will be used to program shadow flicker modules to assist in eliminating shadow flicker.
- Shadow flicker control measures will ensure no shadow flicker and there can therefore be no cumulative effect.

Mitigation measures for shadow flicker:

- Model has identified potential for shadow flicker to occur and has identified times this could happen – developer commits to installing mitigation measures that will eliminate shadow flicker.
- Turbines are programmed to shut down during periods when shadow flicker is predicted to occur.

Residual Impact - shadow flicker:

- Correct operation of shadow flicker control measures will ensure that there will be no impact from shadow flicker.

Conclusions on Cultural Heritage and the Landscape

12.10.13. The proposed development is located in a relatively remote upland area characterised by a large number of wind turbines, commercial forestry and blanket bog. Nearby landscapes of scenic quality include Glenveagh National Park and the Bluestack Mountains. There are a number of trails in Glenveagh National Park and the Slí Dhún na nGall is approximately 3km to the south-west.

12.10.14. Open views of the proposed turbines will be available from areas to the north and north-west at relatively close proximity. However, the proposal will increase the number of turbines rather than introduce any new element to the landscape. I agree that the landscape and visual effects on Glenveagh National Park will not be significant, with the turbines appearing at some distance where visible.

12.10.15. Visibility of the proposed turbines is focused mainly at the site and its immediate surrounds. The turbines will be seen from the south and east against backdrop of existing turbines. From the north and north-west, however, a low number of residences are likely to experience open views of the turbines. Of the 17 viewpoints assessed, moderate effects were found at three to the north. An additional photomontage was prepared to assess the visual impact of the proposed turbines from the local road to the north-west.

12.10.16. In general, the more sensitive viewpoints will not experience significant effects. Cumulatively, the proposed windfarm will have the effect of extending the presence of turbines further to the north-east. This will result in the visual effects being more pronounced than at present in some areas. In more distance views, the proposed turbines will be difficult to distinguish from existing turbines.

12.10.17. In terms of cultural heritage, there will be no impact on known recorded archaeology within the boundary limits of the site. Pre-construction licenced archaeological testing and monitoring will offset any potential for impacts on unknown subsurface archaeology.

12.10.18. In the absence of mitigation, there is potential for impacts during construction works to the three upland malt settlement sites. Mitigation will be in the form of exclusion zones around these sites. The turbine delivery route passes close to a portal tomb and proposed road widening and levelling at this location will take place on the side opposite the monument.

12.10.19. It is calculated that shadow flicker could potentially occur at up to six properties under theoretical worst case scenario conditions. However, shadow flicker would not exceed threshold values of 30 hours per year or 30 minutes per day when average sunshine hours are considered. Shadow flicker control modules will nonetheless be programmed to shut down turbines when shadow flicker is expected to occur.

12.10.20. Subject to the proper implementation of all other relevant mitigation and best practice measures, I would be satisfied that the proposed development would not have any significant effect on cultural heritage and the landscape, either individually or cumulatively with any other projects or activities.

12.11. Vulnerably of the Project to Major Accident and/ or Natural Disaster

12.11.1. Section 2.12 of the EIAR identifies the risk of any major accidents or natural disasters during the construction and operational phases of the proposed development.

12.11.2. The Construction and Environmental Management Plan (CEMP) outlines safety procedures that will help reduce the risks associated with the construction phase of the proposed development. The risk of peat slide is assessed within a Peat Stability Risk Assessment accompanying the EIAR. Factors that contribute to increased risk of peat slide include rainfall and climate, water on the slope, peat/ sub-strata interface, peat profile and thickness, shear strength, surface slope gradient and regularity, geomorphology and site history, extent and condition of subterranean drainage pipes, peatslide history and potential peatslide severity.

12.11.3. The Peat Stability Risk Assessment includes a peat slide hazard rating system which has determined that there are turbines (T9, T10 and T11), a borrow pit (BP4), the permanent meteorological mast and the substation that are within an area of low to moderate risk level. A low-moderate rating may require peat slide stabilisation works.

12.11.4. Ground investigations across the site included a total of 560 peat probes. The maximum depth of peat encountered was 4.5m and the average depth across the study area is 1.73m. Shear values collected at 292 probe locations showed a range from 7kPa to 49kPa across the site. An infinite slope stability analysis was also carried out using peat probe and slope data to calculate a factor of safety (FoS) for

each location probed. Most of the windfarm infrastructure is located on areas where there is a low FoS risk. The infrastructure is located in areas of shallower peat and away from watercourses and steep slopes. There is a low risk of peat slide which nonetheless warrants mitigation by means of sightline monitoring to detect any signs of stress or deformation in the bog. Emergency procedures will then be put in place by the appointed contractor. This shall include emergency response procedures, identification of potential flow paths and stockpiling of rockfill for emergency containment barrages. It is stated in the Peat Stability Risk Assessment that a geotechnical engineer should be employed full time to ensure implementation of best practice. Further assessment undertaken in response to the further information request included additional collection, and analysis of data on peat depth and peat strengths. It was concluded that the proposed windfarm represents a negligible risk from a geotechnical and peat stability perspective. I am satisfied that the potential impact in terms of peat stability has been addressed in full and that the overall risk of a major accident occurring is low.

12.11.5. Other risks of major accidents or disasters associated with the operational phase of the proposed development include fire/ fuels, lightning strikes, turbine structural failure, severe weather and flooding. Protocols will be included for oils, lubricants and fuels and each turbine will be equipped with an electrical grounding system. Safety checks will be carried out on turbines and brake mechanisms will ensure than the turbines shut down during high wind speed events. The site is not at risk of extreme fluvial flooding and the proposal will not contribute to downstream flooding.

12.11.6. I am satisfied that given the nature of the proposed development, and the mitigation measures proposed, together with the low probability of a major accident/ natural disaster, it is not likely that significant effects on the environment would arise in this regard.

12.12. Cumulative Impacts & Environmental Interactions

12.12.1. Chapter 16 of the EIAR sets out the various interactions between the environmental factors insofar as the effect of one environmental factor causes an indirect effect on another environmental factor. Throughout the EIAR, the cumulative assessment of the proposed development is carried out along with other developments in the area.

12.12.2. Figure 16.1 of the EIAR provides a matrix of impacts of environmental factors and any interactions between them for the construction and operational phases of the proposed development. There are no major interactions, and any interactions are minor in nature.

12.12.3. It is highlighted in the EIAR that the most dynamic interaction and interdependency relates to the connection between ecology, soils and hydrology. Site run-off and removal of soil cover may have secondary ecological effects on vegetation patterns and habitat species.

12.12.4. Population and human health is the environmental factor with most interactions. Key interactions occur between population and human health, along with noise and vibration; air quality and climate; water; landscape; and material assets. There is potential for water pollution during the construction phase that will be adequately mitigated through measures set out in the water section of the EIAR. Other construction related impacts relating to air quality and climate, noise and vibration and material assets will be adequately mitigated so that no impacts on population and human health will occur. There is also potential for these factors to interact with population and human health during the operational phase from shadow flicker.

12.12.5. Interactions will occur between biodiversity and other factors including land, water, noise and vibration and landscape. These interactions will take place during the construction phase and there is also the potential for noise and vibration impacts on biodiversity during the operational phase. Other environmental impacts on biodiversity could occur from land use change, water pollution, construction noise and disturbance, and alterations to the local landscape. The overall inter-related effects will not be significant or will be adequately mitigated. Habitat loss and noise and vibration impacts could result in disturbance of bird species; however, this will be temporary and not significant.

12.12.6. Other interactions may include excavation and movement of burden leading to habitat loss, pollution and impacts on archaeology. These impacts are assessed in their respective sections. Overall, it can be concluded that many of the interactions will take place during the construction phase of the proposed development and will therefore be short term. Mitigation measures are set out in each of the relevant chapters and can also be applicable to other environmental factors.

12.12.7. Cumulative noise, traffic and air quality impacts have the potential to arise locally when construction works are taking place in the locality at the same time as other nearby developments. No other additional approved windfarm projects in the study area have been identified that might produce cumulative noise, vibration or shadow flicker impacts. Overall, it is considered unlikely that any cumulative adverse effects with other projects due to construction works would result in long term significant impacts on population and human health. Cumulative long-term beneficial greenhouse gas and climate change effects will accrue from the proposed development and other renewable energy project in the area.

12.12.8. In terms of biodiversity, the Finn catchment is impacted by a wide range of anthropogenic factors. There are also a range of climatic factors that could exacerbate the potential impacts associated with the proposed development, e.g. warming, rising sea levels. However, the potential for cumulative adverse impacts on climate are unlikely to be significant and would be off set to a degree by the positive impact in the reduction of CO_2 emissions. The upland peat in this area has been planted with conifer forestry and this has degraded the peat habitat. The siting of wind energy developments in degraded habitat reduces the magnitude of cumulative loss for the habitat and any associated faunal populations.

12.12.9. Cumulative impacts on ornithology could occur from land management practices, climate change and other wind farm developments. Farm intensification and afforestation have seen declines in countryside bird populations. Pesticides have also reduced the quality of food available to birds and afforestation can lead to increases in predation for ground-nest birds. Notwithstanding this, the land use changes associated with the proposed development will take place during construction and decommissioning and no likely effects on local avifauna are predicted. No significant effects on local avifauna are predicted with regards to climate change and cumulative impacts. The increase in short term severe weather conditions, coupled with sub-zero temperatures, can cause high mortality for bird species. However, the overall reduction in CO_2 emission from the proposed development will have a long term but imperceptible impact on climate. There will be a positive cumulative impact when considered with other windfarms.

12.12.10. There are 12 existing or planned wind energy developments within 10km of the proposed development site. There are over 100 turbines within this area, the most

of which are concentrated in the vicinity of the proposed development site to the east and south-east. Multiple wind turbines in an area can create a barrier effect and give rise to increased collision mortality. Cumulative impacts occur if combined bird mortality has a significant effect on populations of a species of conservation concern. The EIAR states that significant cumulative population level impacts are not envisaged for reasons relating to the absence of sensitive habitat, minimisation of development footprint, absence of regular flight lines between nesting and foraging areas, absence of bird corpses at nearby Meenbog windfarm, the low flying nature of Merlin using the environs for foraging in recent years, and the absence of overhead transmission lines.

12.12.11. With respect to water quality, there are high levels of fine sediment, channelisation, land drainage, forestry activities, peat harvesting, erosion and embankments. Agriculture is the most significant pressure affecting the greatest number of water bodies through loss of phosphorus to surface waters, sediment, use of pesticides, etc. However, agriculture is not widely practiced in the study area and there is limited potential for the proposed development to contribute to a cumulative impact on water quality.

12.12.12. Water quality and aquatic habitat and species can be negatively impacted by poorly managed and inappropriately sited forestry operations, leading to sediment and nutrient release and acidification. There are other issues relating to drainage, road construction, planting and clear felling. The proposed development could contribute to cumulative impacts on water quality in local watercourse through clear felling.

12.12.13. Peat extraction and drainage results in release of ammonium and fine-grained suspended sediments, and physical alteration of aquatic habitats. Hydro-morphological modification including land drainage and erosion linked to animal activity are issues that exist in the sub-catchment. There is no evidence of peat extraction within or in the environs of the proposed development site and the changes to water volumes from the proposed development are considered to be imperceptible. Other significant pressures exist from domestic wastewater in three rivers within the Finn sub-catchments.

12.12.14. There is potential for cumulative water quality impacts arising from the proposed development and other planned and existing wind farms in the same surface water

catchment. It is noted in the EIAR that surrounding wind farms lie in upland peat habitats that have been degraded by the planting of conifers and therefore the magnitude of cumulative habitat loss and impact on fauna is reduced. Historic EPA water quality data shows that the general decline in water quality since the 1970's commenced prior to the initiation of wind energy development in the area. Commercial forestry is considered the primary water quality pressure at the proposed development site and upper Elatagh catchment, with agriculture identified as a significant pressure by the EPA in the lower Elatagh catchment. The EIAR notes that the proposed development will reduce the area of conifer plantation and therefore lead to a reduction in forestry pressures. In addition, it is considered that improved buffer zones along watercourses can interfere with the source-pathway-receptor mechanism for potential pollutants reaching sensitive aquatic sites.

12.12.15. The EIAR states that the only way the proposed development can have cumulative impacts with other projects and plans in terms of land and soils is via drainage and off-site surface water network and slope movement. It is stated that higher risk areas of the site have been identified and avoided as part of the layout design. In response to the further information request, the applicant submitted that peat stability is local to the point of construction and other local windfarms have no potential to impact on peat stability at the Drumnahough site and vice versa. Other local windfarms are located on the other side of significant hills and in separate drainage catchments; they are therefore not hydrologically or topographically connected. It is also noted that other windfarms in the area have similar ground conditions and have been successfully completed without occurrence of peat instability.

12.12.16. The main consideration in the assessment of cumulative landscape and visual impacts is that the proposed development will increase in the number of turbines. Wind turbines are prevalent in the surrounding area and the proposed development would have the effect of extending the presence of turbines further to the northeast. Cumulative visual effects from three viewpoints to the north of the site (4,8) and one to the south (11) are considered to be moderate. In more distant viewpoints, the proposed turbines will be difficult to distinguish from other turbines.

12.12.17. In general, I would be satisfied with the methodology provided within the EIAR for interactions and cumulative assessment. Construction stage interactions will mostly be short term and mitigation for one environmental factor can be applicable to other

environmental factors. The subject development is assessed with all the other windfarms in the area and any relevant other activities. Overall, this provides for a robust and complete assessment of the proposal by itself and any cumulative interactions with projects and activities in the area. I am therefore satisfied that sufficient information has been acquired to fully inform the cumulative assessment of the proposed development and other relevant projects and activities.

12.13. Reasoned Conclusion

12.13.1. Having regard to the examination of environmental information contained above, and in particular to the EIAR and supplementary information provided by the applicant, and the submissions from Planning Authority, observers and prescribed bodies in the course of the application, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Positive impacts on **population and human health** on the local economy from increased spending and jobs during the construction period and from landowner and community benefit payments.

  Any adverse impacts on population and human health will be mitigated by the measures to reduce impacts from material assets, air & climate, noise & vibration and shadow flicker to acceptable levels.

- Potential for adverse effects on **Biodiversity** arising from the proposed development and cumulatively with other projects, plans and activities in the area with respect to peat habitat, terrestrial invertebrates, aquatic habitats and species, and salmonids, European eel and other fish related to water quality and habitat degradation.

  There will be permanent loss of 6.71 hectares of peat habitat due to the construction footprint, with potential secondary impacts on adjacent peat habitats. This will be offset through habitat reinstatement and a biodiversity enhancement plan where 6.2 hectares of conifer plantation at keyhole felling locations would be rehabilitated to peatland and 7.2 hectares of upland blanket bog will be restored, resulting in a net gain of 6.69 hectares of peatland habitat.

Potential impacts on this fauna relate primarily to habitat loss and disturbance, and collisions with proposed turbines in the case of bats. Bat densities were recorded as being low. Impacts on aquatic receptors is related to water quality and pathways with source pollutants. Potential cumulative impacts related to climate change, water quality deterioration, agricultural intensification and wind farm development could exacerbate potential impacts associated with the proposed development.

The above impacts will be mitigated by measures to provide a biodiversity net gain in an area currently under commercial forestry, provide habitat amelioration, establishment of stream buffer zones/forestry set back distances, riparian woodland creation, pond creation, bat box installation and general best practice construction mitigation measures in accordance with the Construction and Environmental Management Plan and through implementation of Biodiversity Enhancement Plan under guidance of Ecological Clerk of Works.

- Potential for adverse impacts on **Ornithology** due to habitat loss resulting in reduced feeding and nesting opportunities, disturbance from the presence of machinery or personnel, and displacement due to barrier effects and collisions. Habitat loss will be limited and there is an abundance of similar habitat in the area. Collision risks are low due to factors related to bird species, numbers and avoidance behaviour.

  The most sensitive bird species is considered to be merlin and the proposed development site seems to harbour a stable passerine population, which provides an adequate food supply for this species. Raptors were recorded but merlin is the only breeding species on site. Mitigation will include a 350m buffer between merlin nest site and turbines, and should this species be present within 350m of proposed works, construction works within this zone will be restricted to outside the breeding season.

  The proposed development site and the wider area is already modified in nature, and it is noted that bird species, in particular merlin, have adapted to the proliferation of commercial forestry in the area. The cumulation of windfarms in the area is not evaluated as significant based on the multiple raptor records within adjacent windfarm sites

- Potential for adverse impacts to **Land and Soils** from slope failure risk, excavations, rock blasting, storage and disposal of excavated materials and drainage. Mitigation by design has taken place to avoid areas of deep peat. Peat sightline monitoring will be carried out and monitoring will take place at areas of deep peat excavation, material deposition areas and any areas of works with a risk higher than low. Emergency procedures will be implemented to prevent the onset of bog burst or localised peat slide.
- Potential impacts on **Water**, which left unmitigated, could have an effect on receiving watercourses, particularly the risk of sedimentation of sensitive catchments. Site access tracks, crossings, cabling, turbine construction, borrow bit, crane pad construction, substation, battery compound and peat management would have a moderate magnitude and significance on the Elatagh River (Finn) without mitigation. These potential impacts will be mitigated by siltation and erosion controls, temporary settlement ponds, buffer zones to rivers/ streams, avoidance of deep peat/ steep slopes, surface water monitoring and forestry clearing in accordance with guidelines.
- Positive cumulative impacts on **Climate** from Drumnahough Windfarm due to the production renewable wind energy and a reduction in the use of fossil fuels.
- Potential impacts on **Landscape character and visual amenity** from the proposed turbines focused mainly at the site and its immediate surrounds. From the north and north-west, a low number of residences are likely to experience open views of the turbines. More sensitive viewpoints will not experience significant effects. Cumulatively, the proposed windfarm will have the effect of extending the presence of turbines further to the north-east. This will result in the visual effects being more pronounced than at present in some areas. In more distance views, the proposed turbines will be difficult to distinguish from existing turbines.

12.13.2. Having regard to the above, the Board is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures referred to above, including proposed monitoring as appropriate, and

subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report. The Board is satisfied that the reasoned conclusion is up to date at the time of making the decision.

13.0 Appropriate Assessment

13.1. The areas addressed in this section are as follows:

- Compliance with Articles 6(3) of the EU Habitats Directive
- Geographical Scope and Main Characteristics
- Screening the need for Appropriate Assessment
- The Natura Impact Statement and associated documents
- Appropriate Assessment of implications of the proposed development on each European Site

13.2. **Compliance with Articles 6(3) of the EU Habitats Directive:** The Habitats Directive deals with the Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union. Article 6(3) of this Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European site.

13.3. The proposed development comprising the construction of a windfarm (12 no. turbines with maximum tip height of 167.5m) and associated works including cabling, windfarm roads, a 110m high meteorological mast, haul route works and access upgrades, construction compounds, borrow pits and tree felling at the townlands of Meenadaura or Drumnahough Mountain, Treankeel, Carrickalangan, Tooslenagh, Cark, Killymasney, Meentycat and Meenalaban, Co. Donegal is not directly connected with or necessary to the management of any European site, and is therefore subject to the provisions of Article 6(3).

13.4. Geographical Scope and Main Characteristics

13.4.1. The subject site is located in an upland area in central Co. Donegal extending over an area of 611 hectares. The site is mostly covered by transitional woodland scrub including forest and semi-natural areas. Most of the forestry within the site is in second rotation. The part of the site to the north at Cronaglack between woodland consists of peat bog. NPWS mapping identifies areas of Wet Heath, an Annex I habitat, in this part of the site. Site investigations as part of the proposed development indicate peat depths ranging from 0.1 to 4.5m, with an average depth of 1.73m.

13.4.2. The site slopes from the lowest point at Turbine 1 (235m OD) upwards to the north-west to Cronaglack (341m OD) and Cronalough (339m OD). Cark Mountain (364m OD) to the south-east is the highest peak in the surrounding area. There is extensive windfarm development to the south-east and south amounting to approximately 100 turbines extending as far as 6km from the main part of the proposed development site. The site is in the Cark Mountain Uplands Landscape Character Area and in an Area of High Scenic Amenity. There is an Area of Especially High Scenic Amenity immediately to the south of the site.

13.4.3. The site is mostly within the River Foyle catchment, with a small part to the north located in the Swilly catchment. The Elatagh River is a tributary of the River Finn, which is approximately 4.5km south-west of the site. The River Foyle commences at the confluence of the River Finn and River Mourne at Lifford/ Strabane. The Finn catchment is a Freshwater Pearl Mussel sensitive area. Lough Deele is to the east of the main part of the site and the Lowna River flows north from this lake to the River Swilly, a Salmonid River, which is approximately 1.7km north of the site. The Deele River, a tributary of the River Foyle, flows east from Lough Deele.

13.4.4. Surface water drainage within the site is typically a complex of small drainage ditches created during ground preparation for commercial forestry. Primary drainage within the site is in a southerly or westerly direction to the Elatagh River.

13.4.5. The River Finn SAC adjoins the subject site to the south and the Meentygrannagh Bog SAC is approximately 140m west of the site. The Cloghernagore Bog and Glenveagh National Park SAC and the Derryveagh and Glendowan Mountains SPA

are situated approximately 5.8km west of the site. Tullytresna Bog pNHA and Meentygrannagh Bog pNHA are to the south and west of the site, respectively

13.4.6. The main characteristics of the proposed development are the construction of 12 no. wind turbines (tip height 167.5m, hub height 95m, rotor diameter 145m and blade length 71m) with associated foundations and crane hardstand areas. A range of turbines are not sought under the application, and the NIS has assessed the wind turbine model as described.

13.4.7. Other components of the proposed development include 1 no. permanent meteorological mast (110m height) and associated foundation, hardstand area and ancillary main crane hardstand area; new and upgraded internal site service roads (3.2km of existing forestry tracks to be upgraded and 7.1km of new internal access tracks to be constructed); underground electric cabling systems between turbines within the wind farm site; and underground electric cabling systems between the wind farm site and connection point at permitted 110kV Lenalea substation.

13.4.8. The proposed development will also involve minor road works; 2 no. temporary construction compounds; 3 no. borrow pits; 3 no. peat/ spoil deposition areas; surface water drainage system; tree felling; and diversion of an existing 38kV overhead line at T1.

13.4.9. An alternative grid connection via a new on-site 110kV substation which will connect to the existing 110kV Binbane to Letterkenny overhead line is also assessed for the purposes of EIA and Appropriate Assessment. A Battery Energy Storage System would also form part of this alternative proposal. However, permission is only sought for the connection to Lenalea substation.

13.4.10. It was originally proposed to utilise a second site entrance along an existing forestry track to the north-west of the site. Following further information, it was decided to use the main entrance only.

13.5. Screening the need for Appropriate Assessment

13.5.1. The first test of Article 6(3) is to establish if the proposed development could result in likely significant effects to a European site. This is considered stage 1 of the appropriate assessment process i.e. *screening.* The screening stage is intended to be a preliminary examination. If the possibility of significant effects cannot be

excluded on the basis of objective information, without extensive investigation or the application of mitigation, a plan or project should be considered to have a likely significant effect and Appropriate Assessment carried out.

13.5.2. Having regard to the information and submissions available, the nature, size and location of the proposed development and its likely direct, indirect and cumulative effects, the source pathway receptor principle and sensitivities of the ecological receptors, the European Sites set out in Table 1 below are considered relevant to include for the purposes of initial screening for the requirement for Stage 2 appropriate assessment on the basis of likely significant effects. A 15km study area from all elements of the proposed development is applied for this purpose, wherein a total of 9 European Sites are included (7 SACs & 2 SPAs).

13.5.3. European sites considered for Stage 1 screening:

European site (SAC/SPA)	Site code	Distance to proposed development site	Connections (source, pathway, receptor)	Considered further in Screening (Y/N)
River Finn SAC	002301	0 km	Hydrological links	Y
Meetygrannagh Bog SAC	000173	150m (1km to nearest windfarm infrastructure)	Separate hydrological catchment (apart from T12)	N
Leannan River SAC	002176	5.8 km	No pathway	N
Cloghernagore Bog and Glenveagh National Park SAC	002047	6.3 km	No pathway	N
Lough Swilly SAC	002287	13.25 km	No pathway	N
Croaghonagh Bog SAC	000129	14.5 km	No pathway	N
Coolvoy Bog SAC	001107	14.6 km	No pathway	N
Derryveagh and Glendowan Mountains SPA	004039	6.1 km	Possible links	Y
Lough Swilly SPA	004075	14.2 km	Possible links	Y

Table 1 – Summary Table of European Sites considered in Screening for Appropriate Assessment

13.5.4. Most of the proposed windfarm site drains to the Finn catchment and part of the River Finn which lies across the Border is designated as the River Foyle and Tributaries SAC (Ref: UK0030320). This SAC sits alongside the River Finn SAC and lies approximately 23km south-east of the proposed development site. As there is hydrological connection, it has also been included in the screening exercise.

13.5.5. Based on my examination of the NIS, Revised NIS and other supporting information, the NPWS website, aerial and satellite imagery, the scale of the proposed development and likely effects, separation distances and functional relationships between the proposed works and the European sites, their conservation objectives, and taken in conjunction with my assessment of the subject site and the surrounding area, I conclude that a Stage 2 Appropriate Assessment is required for the following European Sites in view of the conservation objectives of those sites:

- River Finn SAC (Site code: 002301)
- Derryveagh and Glendowan Mountains SPA (Site code: 004039)
- Lough Swilly SPA (004075)
- Meetygrannagh Bog SAC (000173)
- River Foyle and Tributaries SAC (UK0030320)

13.5.6. The Revised Screening Assessment (February 2022) submitted by the applicant with the further information response screens out Meetygrannagh Bog SAC on the basis that most of this SAC is within a separate hydrological WFD river sub-basin (Elatagh_020) to the proposed development site. Notwithstanding this, drainage from infrastructure at T12 and parts of the turbine hardstanding are within the Elatagh_020 river sub basin. Having regard to the precautionary principle, I consider that further assessment is required and therefore the Meentygranagh Bog SAC should be brought forward for Appropriate Assessment.

13.5.7. Table 2 below provides a screening summary matrix where there is a possibility of significant effects, or where the possibility of significant effects cannot be excluded without further detailed assessment.

Site name **Qualifying Interest** **feature**	**Is there a possibility of significant effects in view of the** **conservation objectives of the site?** **General impact categories presented**		
	Habitat loss/ modification	Water quality and water dependent habitats (pollution)	Disturbance/ displacement barrier effects
River Finn SAC (002301) *Qualifying Interest:* Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] Northern Atlantic wet heaths with Erica tetralix [4010] Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355]	Yes Potential for indirect hydrological effects to the adjacent peatland habitats and siltation of riverbeds within the Finn catchment.	Yes Potential exists for pollution from construction phase earthworks, nutrients from past fertilisation of forestry and accidental ingress of oils, concrete and other harmful substances.	Yes Otter and Atlantic salmon both of which are dependent on good water quality. Potential exists for significant indirect loss of habitat for spawning Salmon as a result of siltation of the riverbeds due to the ingress of suspended sediments into watercourses draining the site during the construction phase earthworks. This in turn could affect the prey biomass for Otter.
Derryveagh and Glendown Mountains SPA (004039) *Qualifying Interests:* Red-throated Diver (Gavia stellata) [A001] Merlin (Falco columbarius) [A098] Peregrine (Falco peregrinus) [A103] Golden Plover (Pluvialis apricaria) [A140] Dunlin (Calidris alpina schinzii) [A466]	No	No There is no direct hydrological connection between the subject site and the SPA.	Yes Potential for significant disturbance or displacement effects to the SCI that may use the wind farm site - Peregrine and Golden plover were recorded at the wind farm site and foraging range extends to SPA. Merlin recorded at windfarm site although core foraging range is less than 5km.
Lough Swilly SPA	No	No	Yes

Qualifying Interests: Great Crested Grebe (Podiceps cristatus) [A005] Grey Heron (Ardea cinerea) [A028] Whooper Swan (Cygnus cygnus) [A038] Greylag Goose (Anser anser) [A043] Shelduck (Tadorna tadorna) [A048] Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Mallard (Anas platyrhynchos) [A053] Shoveler (Anas clypeata) [A056] Scaup (Aythya marila) [A062] Goldeneye (Bucephala clangula) [A067] Red-breasted Merganser (Mergus serrator) [A069] Coot (Fulica atra) [A125] Oystercatcher (Haematopus ostralegus) [A130] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162] Greenshank (Tringa nebularia) [A164] Black-headed Gull (Chroicocephalus ridibundus) [A179]	The intervening distance and dilution and the relatively modest size and scale of the wind farm elements that will be built in this part of the site drained by the Swilly catchment will not result in a significant habitat loss or alteration within the SPA.	The intervening distance of over 14km, dilution factor and relatively moderate size and scale of the wind farm, project unlikely to have significant water quality impacts.	Greenland white-fronted goose and Whooper swan have been recorded in historical or more recent surveys of the wind farm area - Potential for significant disturbance or displacement effects to these SCI cannot be ruled out at this stage.

Common Gull (Larus canus) [A182] Sandwich Tern (Sterna sandvicensis) [A191] Common Tern (Sterna hirundo) [A193] Greenland White-fronted Goose (Anser albifrons flavirostris) [A395] Wetland and Waterbirds [A999] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Alosa fallax fallax (Twaite Shad) [1103] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355]			
Meentygranagh Bog SAC (000173) *Qualifying Interests:* Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] Alkaline fens [7230] Hamatocaulis vernicosus (Slender Green Feather-moss) [6216]	Yes Potential for drainage from infrastructure at T12 to adversely affect the hydrological regime or quality of the habitats selected as conservation interests.	Yes Potential for drainage from infrastructure at T12 to adversely affect the hydrological regime or quality of the habitats selected as conservation interests.	No SAC lies in separate hydrological sub-basin to windfarm project.
River Foyle and Tributaries SAC (UK0030320) *Qualifying Interests:* Lutra lutra (Otter) Salmo salar (Salmon) Watercourses with floating river vegetation	No There is a direct hydrological connection with the wind farm site though the SAC is located at a distance of over 23km “as the crow flies”; however, it is likely that no appreciable water quality effects will occur given this	No There is a direct hydrological connection with the wind farm site though the SAC is located at a distance of over 23km “as the crow flies”; however, it is likely that no appreciable water quality effects will occur given this	Yes Adult Salmon returning from feeding grounds in the Atlantic Ocean pass through the River Foyle and Tributaries SAC on route to spawning grounds in the upper reaches of the River Finn SAC, some of which spawn in the River Elatagh

	distance and dilution factor. Thus, no direct or indirect significant habitat loss or alteration will occur	distance and dilution factor.	and possibly associated tributaries in the upper reaches of the catchment – further assessment required.

Table 2 Screening summary matrix: European Sites for which there is a possibility of significant effects (or where the possibility of significant effects cannot be excluded without further detailed assessment)

13.5.8. The remaining sites can be screened out from further assessment because of the scale of the proposed works, the nature of the Conservation Objectives, Qualifying and Special Conservation Interests, the separation distances, and the lack of a substantive ecological linkage between the proposed works and the European sites.

13.5.9. There is no potential for the proposed development to cause direct habitat loss, fragmentation or disturbance in any of the Special Areas of Conservation screened out within the study area due to the location of the works outside of any such European Sites. Indirect terrestrial or aquatic habitat loss or degradation will not occur in all sites screened out due to the absence of hydrological connectivity and the separation distance between construction works, or any operational stage work, and these sites.

13.5.10. There is also no potential for indirect/ ex-situ disturbance or displacement of animal species qualifying interests in the Croaghonagh Bog SAC or Coolvoy SAC as these European Sites relate to habitats/ plant species only. Within the Leannan River SAC, Cloghernagore Bog and Glenveagh National Park SAC and Lough Swilly SAC, there is no potential disturbance or displacement effects to otter, salmon or Freshwater Pearl Mussel due to the absence of ecological linkage or the separation distance between the SACs in question and the proposed development site.

13.5.11. It should be noted that the Appropriate Assessment Screening Report screens out the Meetygrannagh Bog SAC as most of this SAC is within a neighbouring hydrological sub-basin. However, drainage from Turbine T12 would be within this sub-catchment, and on the basis of the precautionary principle, it is considered that this SAC should be brought forward to Stage 2 Appropriate Assessment.

13.5.12. Potential for significant effects to European Site along the turbine delivery route as a result of the minor works is ruled out as these works will be localised and will not result in any emissions to air or water that could significantly affect nearby European

Site such as St. John's Point SAC, Donegal Bay SAC, Donegal Bay SPA, Lough Eske and Ardnamona Bog SAC, Croaghonagh Bog SAC, River Finn SAC, Lough Swilly SPA or Lough Swilly SAC.

Screening Determination

13.5.13. It is therefore reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on Leannan River SAC (002176), Cloghernagore Bog and Glenveagh National Park SAC (002047), Lough Swilly SAC (002287), Croaghonagh Bog SAC (000129) and Coolvoy Bog SAC (001107) in view of the sites' conservation objectives and a Stage 2 Appropriate Assessment for these sites is not therefore required. I am satisfied that no additional sites other than those assessed in the NIS and Revised Appropriate Assessment Screening Report (River Finn SAC, Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, Meetygrannagh Bog SAC and River Foyle and Tributaries SAC) need to be brought forward for Appropriate Assessment.

13.6. The Natura Impact Statement and Associated Documents

13.6.1. The application was accompanied by a Natura Impact Statement (NIS) for Drumnahough Wind Farm dated September 2020. Following a request for further information, a Revised NIS dated February 2022 was submitted to the Board. This document is made up of the following:

- Revised Natura Impact Statement for Proposed Drumnahough Wind Farm, Co. Donegal (Main NIS)
- Appendix 1: Revised – Screening for Appropriate Assessment Report
- Appendix 2: Drumnahough Breeding Bird Report for 2018
- Appendix 3: Drumnahough Winter Bird Report for 2018/19
- Appendix 4: Drumnahough Breeding Bird Report for 2019
- Appendix 5: Drumnahough Winter Bird Report for 2019/20
- Appendix 6: Drumnahough Wind Farm CEMP

- Appendix 7: Drumnahough Wind Farm Breeding & Wintering Report 2020-2021

13.6.2. The request for further information issued by the Board on 4th August 2021. The applicant was invited to respond to all submissions received and to confirm the nature and extent of the development sought. Further information was also requested on peat stability at the site and the applicant was asked to consider omitting Turbines T9, T10, T11 and T12 from the proposed development. In addition to issues of peat stability, gradients and excavations, the Board considered the presence of breeding Curlew to the west of the site, flight paths over Cronaglack, visual and residential impacts and elevations as potential reasons for omitting the turbines.

13.6.3. Finally, it was noted that there are areas of Wet Heath, an Annex I habitat, in close proximity to the proposed locations for Turbines T7 and T8 and the applicant was requested to consider relocating these turbines away from this habitat. Any such relocations or omissions are to be fully reflected in an amended EIAR and Natura Impact Statement for the proposed development.

13.6.4. In response to the further information request, the applicant submitted the Appropriate Assessment Screening Report and Revised NIS, which reflects the further information response to submissions and to the items requested by the Board. The following matters from the further information response are reflected in the revised NIS:

- Amendments to the proposed development include the non-usage of the site access point to the north-west via an existing forestry track;
- Redesign of section of site access road between Turbines T8 and T9 to reduce the extent of excavation and fill;
- Utilisation of a 14.1 hectare area within the River Finn SAC as ecological enhancement for merlin;
- Lough Swilly SPA now screened in for Appropriate Assessment;
- Confirmation that chosen turbine dimensions have been assessed and that a range of options is not sought;

- Turbines T9, T10, T11 and T12 are projected to be the best performing turbines on the site and are critical to the overall success of the proposed development – no reasonable necessity to omit them.
- Relocating any turbines or re-routing tracks to avoid what is classified/deemed 'Wet Heath' habitat as per the NPWS maps, would only increase the footprint and loss of another, and equally important peatland habitat.

13.6.5. In general, I am satisfied that NIS submitted with the planning application, the response to the Board's further information request and the Revised NIS for Drumnahough Wind Farm adequately describe the proposed development, the project site and the surrounding area. The Stage 1 Screening Assessment concluded that a NIS was required. The NIS/ Revised NIS outlined the methodology used for assessing potential impacts on the habitats and species within the European Sites that have the potential to be affected by the proposed development. It predicted the potential impacts for the site and its conservation objectives, suggested mitigation measures, assessed in-combination effects with other plans and projects and identified any residual effects on the European site and its conservation objectives.

13.6.6. The NIS/ Revised NIS were informed by the following studies, surveys and consultations:

- Review of NPWS conservation objectives, site data, Natura 2000 forms and Article 12 reports 2008-2012.
- OSI Aerial photography and 1:50000 mapping, and other mapping sources (online)
- NPWS (2017). River Finn SAC (site code 002301): Conservation objectives supporting document – blanket bogs and associated habitats
- Department of the Environment NI (online)
- National Biodiversity Data Centre (NBDC) (online)
- OSI's GeoHive (online)
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished Report, NPWS

- Environmental Protection Agency (EPA) (online)
- Drumnahough Wind Farm EIAR, 2020
- BirdWatch Ireland and RSPB information and data (online)
- Loughs Agency reports
- Publications including Birds of Conservation Concern in Ireland 2014-2019, Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Irish Wildlife Manual No. 79 and Draft Plan for Forests and Freshwater Pearl Mussel in Ireland - Consultation Document (Department of Agriculture, Food and Marine (2018).
- Scottish Natural Heritage (SNH) (online) resources relating to Scottish SPAs including site specific citations and conservation objectives
- Consultations with statutory consultees and other relevant as follows:
    - Pre-application consultation meetings with An Bord Pleanála representatives on 24th October 2019 and 15th January 2020
    - Meeting with NPWS on 19th February 2020
- Ecological surveys including the following:
    - Habitat surveys and mapping, 2019
    - Aquatic surveys including habitat assessment, fish habitat suitability survey, macroinvertebrate habitat assessment, biological sampling, physio-chemical water sampling, freshwater pearl mussel (*Margaritifera margaritifera*) survey and electrofishing survey, 2019
    - Bat surveys over Spring, Summer and Autumn, 2019
    - Non-volant mammal survey, 2019
    - Marsh fritillary suitability survey, 2019
    - Breeding bird surveys including vantage point surveys in 2018 and 2019,
    - Breeding bird surveys including vantage point surveys 2020 and 2021
    - Wintering bird surveys including vantage point surveys in 2018/19 and 2019/20

- Wintering bird surveys including vantage point surveys 2020/21
- Ecological walkover at specific parts of the proposed development site and environs, and an additional aquatic survey site, 2021
- Ecological walkover at specific parts of the proposed development site and environs, 2022

13.6.7. The NIS concluded that, that no mitigation measures are necessary for the Derryveagh and Glendowan Mountains SPA (004039) and Lough Swilly SPA (004075) as the potential for significant effects on these sites alone and in-combination with other plans or projects can be excluded. It was also concluded that with full implementation of the recommended mitigation measures, the Drumnahough Wind Farm project will not result in significant effects on the conservation objectives of the River Finn SAC (002301) and the River Foyle and Tributaries SAC (UK0030320), either alone or in-combination with other plans and projects, or affect integrity of these sites. Having regard to the precautionary principle, I consider that the Meentygrannagh Bog SAC should be brought forward for Appropriate Assessment.

13.6.8. Having reviewed the NIS and the supporting documentation, I am satisfied that it provides adequate information in respect of the baseline conditions, clearly identifies the potential impacts, and uses best scientific information and knowledge. Details of mitigation measures are provided, and they are summarised in the NIS. I am satisfied that the information is sufficient to allow for appropriate assessment of the proposed development (see further analysis below). I also consider that there is sufficient information for the Board to carried out a Stage 2 Appropriate Assessment of the Meentygrannagh Bog SAC.

13.7. Appropriate Assessment of implications of the proposed development on each European Site

13.7.1. The following is an assessment of the implications of the project on the relevant conservation objectives of the European sites using the best available scientific knowledge in the field. All aspects of the project which could result in significant effects are identified and mitigation measures designed to avoid or reduce any adverse effects are examined and assessed.

13.7.2. I have relied on the following guidance:

- DoEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.
- EC (2002) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EC
- EC (2011) Guidance Document: Wind Energy Development and Natura 2000
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC

13.7.3. **Relevant European sites:** The following sites are subject to appropriate assessment.

- Derryveagh and Glendowan Mountains SPA (004039)
- Lough Swilly SPA (004075)
- River Finn SAC (002301)
- River Foyle and Tributaries SAC (UK0030320)
- Meentygrannagh Bog SAC (000173)

13.7.4. A description of these sites and their Conservation Objectives and Qualifying Interests, including any relevant attributes and targets for these sites, are set out in the NIS and outlined in Tables 3-6 below. I have also examined the Natura 2000 data forms as relevant and the Conservation Objectives supporting documents for these sites available through the NPWS website (www.npws.ie).

13.7.5. **Aspects of the proposed development:** The main aspects of the proposed development that could adversely affect the conservation objectives of European sites include;

- Habitat loss or alteration
- Water quality and resource
- Disturbance and/ or displacement of species

- Habitat or species population fragmentation

13.7.6. **Tables 3-7** summarise the appropriate assessment and site integrity test. The conservation objectives, targets and attributes as relevant to the identified potential significant effects are examined and assessed in relation to the aspects of the project (alone and in combination with other plans and projects). Mitigation measures are examined, and clear, precise and definitive conclusions reached in terms of adverse effects on the integrity of European sites.

13.7.7. Supplemental to the summary tables, key issues that arose through consultation and through my examination and assessment of the NIS and further information request are expanded upon in the text below:

13.7.8. Key issues raised by the National Parks and Wildlife Service is the extent to which the proposed development may cause barrier effects and construction impacts on bird species and the potential for in-combination effects with other wind energy developments nearby, and with forestry and agriculture. Peat excavation and management and the potential for peat slippage, mobilisation of silt and stored nutrients are highlighted, together with pressures on the natural environment and fresh water dependent species.

Table 3

Derryveagh and Glendowan Mountains SPA (004039)

Key Issues:

- **Disturbance and/ or displacement of species**
- **Habitat loss or alteration**

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004039.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Red-throated Diver (A001) Merlin (A098) Peregrine (A103) Golden Plover (A140) Dunlin (A466)	The favourable conservation status of a species is achieved when: - population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and - the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and	- Potential for loss of habitat within the wind farm site that might be used by species of conservation interest (SCI) for the SPA. - Golden plover and merlin use peatland habitats for breeding and foraging and may therefore be indirectly affected by the loss of peatland habitat. - Potential for indirect displacement effects on the SCI that may use	- No mitigation required for red-throated diver. - Vegetation removal outside of bird breeding season.	- The main threats or pressures on merlin include afforestation and changes in agricultural practices - Other neighbouring wind farms also outside of the core foraging range of breeding merlin, and with the location of the SPA upgradient of any hydrological effects, it is reasonable to	Yes - Parts of SPA within Finn catchment are up-gradient of any water quality effects that might be caused by the project. - Given the location of the proposed Drumnahough Wind Farm is well away from known breeding locations, the lack of records of the species during site or nearby bird surveys, or the bird atlas, and the high avoidance rate for the species were an atypical diver flight to occur, it is considered that the project will not have a significant

	- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.	habitats outside of the SPA boundary - Potential for collision risk with wind farm infrastructure.		conclude that the that the proposed Drumnahough Wind Farm when considered in combination with other wind farms in the area will not have a significant cumulative effect on merlin within the SPA, in terms of their population viability, distribution, supporting habitats or disturbance. - Given their core foraging range and distance from the SPA, proposed development, taken in combination with other existing and permitted wind farms in the area, will not result in significant cumulative effect on Red-throated diver, peregrine and dunlin within the SPA, in terms of their population viability, distribution,	negative effect on breeding red-throated diver. - Proposed development is likely to be outside of the core foraging range of breeding merlin associated with the SPA - unlikely that the breeding merlin recorded at the Drumnahough site forage within or close to the SPA. The breeding pair associated with the project site is not dependent on the SPA but rather on the open upland habitat within range of its nest particularly to the north and east as well as to the south. - No evidence of breeding peregrine associated with the SPA using the proposed development site. Core foraging range is 2km and SPA is over 6km away. - No evidence that the site is being used by breeding golden plover – sightings relate to wintering or passage birds. Core foraging range is 3km and proposed windfarm is 6km from the SPA. - Dunlin favours coastal habitat. Core foraging range is 500m and it is reasonable to consider that project will not have a

				supporting habitats or disturbance. - The Derryveagh and Glendowan Mountains SPA is designated for breeding Golden plover while the sightings at the site and from neighbouring wind farms indicate that the birds recorded were mainly wintering birds.	negative effect on SPA breeding population. - The project is located at a remove of 6km to the southeast of the SPA and is outside the hydrological influence of the project and will not result in any direct or indirect habitat loss effects within the SPA.

Overall Conclusion: Integrity test

Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the Derryveagh and Glendowan Mountains SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.

Table 4

Lough Swilly SPA (004075)

Key Issues:

- Disturbance and/ or displacement of species

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004039.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Great Crested Grebe (A005) Grey Heron (A028) Whooper Swan (A038) Greylag Goose (A043) Shelduck (A048) Wigeon (A050) Teal (A052) Mallard (A053) Shoveler (A056) Scaup (A062) Goldeneye (A067) Red-brested Merganser (A069) Coot (A125) Oystercatcher (A130) Knot (A143) Dunlin (A149) Curlew (A160) Redshank (A162) Greenshank (A164) Black-headed Gull (A179)	The favourable conservation status of a species is achieved when: - Long term population trend stable or increasing. - No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation. - No significant decline (Black-headed Gull, Sandwich Tern & Common Tern)	- Potential for barrier effects or prevention of ecological linkages to Whooper Swan and Greenland White-fronted geese migrating through the area. - Potential for collision risk within zone of influence.	- Project will not undermine the conservation objectives for Whooper swan and Greenland white-fronted goose and thus no mitigation is required.	- Reasonable to conclude that the that the proposed Drumnahough Wind Farm when considered in combination with other wind farms in the area will not have a significant cumulative effect on Whooper swan and Greenland white-fronted goose within the Lough Swilly SPA, in terms of their population viability, distribution, supporting habitats or disturbance. - Whooper swans recorded during the surveys are most likely not the population from the Lough Swilly SPA as this site is 13km away from the proposed development site. The results of the extensive surveys completed to date, do	Yes - No habitat loss or alteration with this SPA as it is situated 13km east of the proposed development site. - Flight data for Whooper swan did not meet the criteria to carry out a Collision Risk Assessment i.e. too little activity. As there were no observations of Greenland white-fronted goose there was no CRA carried out. - No regular flights of migratory birds of interest in the SPA over or near the proposed development site during the recent surveys. - Proposed development site is not a flyway between any roost and foraging sites of birds of interest in the SPA, so displacement effects will not occur. - Whooper swans recorded during the surveys are most likely not the population from the Lough Swilly SPA as this site is 13km away from the

Common Gull (A182) Sandwich Tern (A191) Common Tern (A193) Greenland White-fronted goose (A395)				not suggest that the proposed development is located on an important migratory route for the species. - Results of the extensive surveys completed to date since 2008, do not suggest that the proposed development is located on an important migratory route for Greenland white-fronted goose, as there have been no records of this species migrating over the site from 2018-2021 nor have there been any sightings of this species using the site.	proposed development site. Core foraging range is <5km. - The project is located at a remove of 13km to the east of the SPA, this is a much greater distance than Greenland white-fronted goose core foraging range which is 5-8km.
To maintain the favourable conservation condition of the wetland habitat in Lough Swilly SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.	The permanent area occupied by the wetland habitat is stable and not significantly less than the areas of 4,162, 2,419, 201 and 317 hectares for subtidal, intertidal, supratidal and lagoon (and associated) habitats respectively, other than that occurring from natural patterns of variation.	No	No	No	Yes - No reasonable scientific doubt remains as to the absence of the identified potential water quality effects on the Lough Swilly SAC and SPA.

Overall Conclusion: Integrity test

Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the Lough Swilly SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.

Table 5

River Finn SAC (Site code: 002301)

Key Issues:

- Disturbance and/ or displacement of species
- Habitat loss or alteration
- Water quality and resource
- Habitat or species population fragmentation

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf

		Summary of Appropriate Assessment			
Conservation Objective To restore the favourable conservation condition of the following:	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]	Stable/ increasing habitat area; no decline in habitat distribution; typical species present, in good condition, and demonstrating typical abundances and distribution; presence and correct distribution of all	- Project occurs upslope of two parcels of blanket bog within the SAC at Carrickalangan and Cark, which may support wet heath habitat and transition mire and quaking bog habitat.	*Mitigation by Design:* - Site specific surface water management plan that will separate clean and dirty water from turbines and roads. Construction site run-off will be	- Poor habitat quality due to high levels of fine sediment channelisation, land drainage, forestry activities, peat harvesting, erosion and embankment.	Yes - This lake habitat does not occur within the SAC near the wind farm site or downstream of the wind farm site within the SAC.

	vegetation characteristic zones and in good condition; maintain maximum depth of vegetation; maintain appropriate hydrological regime; maintain appropriate lake sub-stratum, maintain appropriate water quality (transparency, nutrients, phytoplankton, attached algal biomass, macrophyte status), maintain appropriate acidification status, water colour, organic carbon levels and turbidity; and maintain are and condition of fringing habitats.	There is potential for the project to alter the hydrology of the bogs and any associated wet heath habitat and transition mire and quaking bog habitat. - Bog also supports a number of small streams/drainage channels which likely support some flush habitat while a second order tributary stream of the Elatagh River forms the SACs eastern boundary. It is possible that the flush and stream fringe support transition mires and quaking bog habitat. - Potential for water quality impacts arising from potential pollutants entering the tributary streams of the Elatagh River during the construction phase of the proposed works mainly arising from earthworks to facilitate the construction of wind farm infrastructure. Pollutants include silt, chemicals or hydrocarbons associated with construction activities.	diverted to settlement ponds. - Water quality controlled by additional measures including silt traps/ fences; minimisation of exposed peat soil; establishing vegetation; road cleaning and wheel washes; check dams; forecasting and monitoring. - Excavated materials and soil management. Reuse of soils and avoidance of stockpiling. - Dewatering of foundations or cable trenches/ joint bays will not be pumped directly into roadside drainage/ watercourses and appropriate treatment for any siltation. - Appropriate control measures for cement bound granular mixtures. *Mitigation by Management:*	- Ecological problems from increased erosion rates, siltation and nutrient loss. - Forestry pressures such as acidification, drainage, road construction, planting and clear felling – large proportion of proposed development occurs beside conifer plantation. - Earthworks associated with the proposed development can mobilise peat silt and nutrients. - Forestry has resulted in a loss of upland blanket bog and other peatland habitats such as wet heath and flush habitat. This would have reduced the habitat available for certain fauna and flora species. Forestry likely to have contributed to a reduction in water quality within the upper Finn catchment. - Water quality effects from proposed development and from forestry could exacerbate potential impacts associated	
Northern Atlantic wet heaths with Erica tetralix [4010]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; maintain variety of vegetation communities; appropriate vegetation composition for cross-leaved heath, positive indicator species, lichens and bryophytes, ericoid species and crowberry, dwarf shrub species, negative indicator species and non-native species, native trees and shrubs, bracken and soft rush; appropriate				- Given the separation distances, the siting of the turbines and borrow pit to the east of the existing road and the intervening forestry drainage network, these elements of the project will not affect the hydrology of the blanket bog or associated peatland habitats at Cark. - Most wind farm infrastructure to be located on afforested lands, which were planted on peatland habitat - key impacts of forestry on blanket bog

	vegetation structure in terms of sphagnum condition, signs of browsing and burning; appropriate physical structure in terms of disturbed bare ground and drainage; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.		- Employment of environmental manager/ ECoW. - Invasive species management. - Tree felling mitigation with respect to water exclusion zone, silt and sediment control, water crossing (tributary of Elatagh River west of T6), crossings forest drains (throughout the site), managing extraction, timing and other measures such as whole tree harvesting and grass seeding in keyhole felled areas. - Pre-construction surveys to ensure that newly established otter holts do not occur within the works area before commencement of construction. - Implementation of CEMP that will include noise, vibration, dust and air control; management of C&D waste; water quality/sediment and	with the project within the River Finn catchment and undermine the conservation objectives for salmon and otter of the River Finn SAC. - Agriculture is not extensive within the study area but is one of the main land uses within catchments draining the site. Agricultural practices could exacerbate potential impacts within Finn catchment and undermine the conservation objectives for salmon and otter. - Peat drainage and extraction identified as significant pressure in eight river water bodies in Finn catchment resulting in elevated concentrations of ammonium, and organic and hydromorphological impacts. - Proposed development largely located within sub-catchment where there is extensive land drainage.	include the lowering of water levels in the peat in response to drainage, water demand for tree growth and interception of water by the forest resulting in the original vegetation being almost destroyed as well as subsidence and shrinkage of the peat and change in soil structure. - Proposed turbines and associated infrastructure will not affect the hydrology of the blanket bog or associated peatland habitats at Carrickalangan, as these areas drain to streams that bound the bog. - Internal road between proposed turbines T8 and T11 including the turbine infrastructure will drain to tributaries of the Elatagh River and do not drain directly to the bog. - Proposed T12 and access road from T11 drains to third order tributary of the Elatagh and the river itself – this section of road will not affect the blanket bog or associated peatland habitat.
Blanket bogs (* if active bog) [7130]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; at least 99% of the total Annex I blanket bog area active; natural hydrology unaffected by drains and erosion; maintain variety of vegetation communities; appropriate vegetation composition for positive indicator species, lichens and bryophytes, potential dominant species, negative indicator species and non-native species and native trees and shrubs; appropriate vegetation structure in terms of sphagnum condition, signs of browsing and burning; appropriate physical structure in terms of				

	disturbed bare ground, drainage and erosion; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.		erosion control; fuel & oils management; management of concrete; emergency response plan; and tree felling & site clearance plan. - Protection of water quality through specific measures relating to daily inspections and lab testing; concrete residue; wheel wash; temporary construction compound drainage, storage and removal; refuelling of construction plant; storage; risk of accidents; and bridge crossings. - Measures relating to excavation works and excavated materials and soil management. *Water quality monitoring programme:* - Baseline water quality monitoring. - Daily inspections and visual turbidity monitoring.	- Water quality effects of the proposed development during the construction and early operational phases together with the effects of wastewater could exacerbate potential impacts associated with the proposed development within the River Finn catchment. - Water quality effects of the proposed development during the construction and early operational phases together with the construction or decommissioning of other wind farms in the catchment could exacerbate potential impacts within the River Finn catchment and undermine the conservation objectives for salmon and otter of the River Finn SAC. - Effects of climate change could exacerbate the potential impacts associated with the proposed development	
Transition mires and quaking bogs [7140]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; maintain variety of vegetation communities; appropriate vegetation composition for positive indicator species (at least one core), negative indicator species and non-native species; appropriate vegetation structure in terms of height, disturbed bare ground and drainage; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.				

			- Weekly monitoring of pH, Temp, turbidity, TSS, conductivity, dissolved oxygen. - Monthly sampling of other parameters. - Continuing of monitoring in early operational phase. - Baseline water quality monitoring following establishment of vegetation in early operational phase. - Drain blocking - Silviculture system.	on within the River Finn catchment and undermine the conservation objectives for salmon and otter.	
To maintain the favourable conservation condition of the following:					
Salmo salar (Salmon) [1106]	100% of river channels down to 2nd order accessible from estuary, conservation limit for each system consistently exceeded, maintain or exceed 0+ fry mean catchment-wide abundance threshold value- currently set at 17	- Salmon were recorded in the River Elatagh, which drains the proposed development site and discharges to the River Finn about 4.5km downstream of the proposed development. The River Finn is a designated Salmonid	- As above re: water quality. - Pre-construction surveys will be undertaken to ensure that newly established holts do not occur within the works area before the	As above	Yes

	salmon fry/5 minutes sampling, no significant decline in out-migrating smolt abundance, no decline in no. & distribution of spawning redds due to anthropogenic causes, water quality at least Q4 at all sampled sites.	Water under the E.U. Freshwater Fish Directive. Therefore, Salmon is considered to be within the zone of influence of the project and thus, there is potential for significant effects to the species. - Potential for indirect habitat alteration or degradation through release of sedimentation from earthworks at wind farm site to the streams draining the site. If uncontrolled siltation from the construction earthworks clog the clean gravels required by salmon to spawn, this will result in a reduction in the number of salmon smolts returning to sea through the River Finn. - Reduction in water quality in the water column can reduce the suitability of the river for adult salmon, resulting in disturbance/displacement of the species. - Reduction in the quality of the river bed arising from siltation can fragment the available suitable habitat for	commencement of construction. Should a holt be identified, additional surveys/enabling works will only be undertaken under the appropriate NPWS licence.		

		spawning salmon and other fish species.			
Lutra lutra (Otter) [1355]	No significant decline in distribution or extent of terrestrial, marine and freshwater habitat; no significant decline in couching sites and holts; available fish biomass; no significant increase in barriers to connectivity.	- Otter are likely to be present further downstream in the Elatagh River and are considered to be within the zone of influence of the project. There is potential for significant effects to the species. - Potential for indirect displacement of otter through a reduction in water quality reducing the suitability of the main channel for spawning salmon and trout and consequently reducing the prey biomass for otter. - The construction phase of the project could potentially result in pollutants release and knock-on effects on fish biomass.			Yes
Overall Conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the River Finn SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 6

River Foyle and Tributaries SAC (Site code: UK0030320)

Key Issues:

- Disturbance and/ or displacement of species
- Water quality and resource

Conservation Objectives: River Foyle & Tributaries SAC Conservation Objectives 2015 (daera-ni.gov.uk)

		Summary of Appropriate Assessment			
Conservation Objective To maintain (or restore as appropriate) the favourable condition of the following:	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	Coverage characteristic of river type and characteristic plant species should dominate assemblage; flow regime characteristic of the river; maintain and restore river morphology and channels should be dominated by clean gravels; appropriate water quality in terms of biological and ecosystem class,	- Project unlikely to have a significant water quality effect on the River Foyle and Tributaries SAC on the basis of the intervening distance of 40 river kilometres and associated dilution coupled with the moderate size and scale of the wind farm.	Mitigation has been included to protect water as per River Finn SAC above.	- Significant pressure affecting the greatest number of water bodies in the Finn catchment is agriculture, followed by forestry, peat, urban wastewater, hydromorphological pressures, domestic wastewater, other and diffuse urban. Proposed development upstream of Foyle via Finn.	Yes - Given the intervening distance of approximately 40 river kilometres and dilution factor (ratio between the volume of available freshwater and pollution discharge such as silt) and the moderate size and scale of the wind farm, it is reasonable to conclude that the project is unlikely to have a significant water quality effect on the River Foyle and Tributaries SAC

	suspended solids and soluble reactive phosphorus.				
Lutra lutra (Otter) [1355]	Signs of otter found at least once per year; no overall permanent decrease; category A or B water quality; appropriate fish stocks; no significant change to rover or bankside usage; no reduction attributable to increased abstraction; and no reduction or fragmentation of area.	- Reduction in salmon in the River Foyle may affect prey abundance for otter - otter considered to be within the zone of influence of the project based on the precautionary principle.			Yes - Given the intervening distance between the wind farm project and the SAC, the presence of Otters on the River Finn/Foyle will not be affected.
Salmo salar (Salmon)	Stable or increasing population and appropriate adult run, juvenile population densities and biological disturbance (introductions); sustainable exploitation; no artificial barriers, maintenance of river channel and clean gravels dominating channels; appropriate water quality in terms of flows, biological and ecosystem class, soluble reactive phosphorus, pollution and suspended solids.	- Uncontrolled siltation from the wind farm construction earthworks may clog the clean gravels required by salmon to spawn - this may potentially result in a reduction in the number of salmon smolts returning to sea through the River Finn/Foyle and less adults returning from sea migration to spawn. - Important salmon spawning areas do occur in watercourses downstream, though these areas are relatively distant from pollution sources.			Yes - Most salmon in the River Foyle and Tributaries SAC can be expected to originate in rivers other than those potentially affected by the proposed development. - Watercourses draining the proposed development are small headwater streams of little/no importance to salmon.

Overall Conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the River Foyle and Tributaries SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 7

Meentygrannagh Bog SAC (Site code: 000173)

Key Issues:

- Habitat loss or alteration
- Water quality and resource

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000173.pdf

		Summary of Appropriate Assessment			
Conservation Objective To restore the favourable conservation condition of the following:	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
Blanket bogs (* if active bog) [7130]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; at least 99% of the total Annex I blanket bog area active; natural hydrology unaffected by drains and erosion; maintain variety of vegetation communities; appropriate vegetation composition for positive indicator species, lichens and bryophytes, potential dominant species,	- Drainage from Turbine T12 would be within the Elatagh_020 river sub-basin - Potential for adverse impacts to water quality due to soil erosion and suspension of the soil sediment particles in site run-off and overland flow - phosphorous can be bound to the soil from past fertilisation and potential exists for accidental ingress of fuel and oils, concrete and cementitious material.	Notwithstanding no adverse effects on hydrological regime, mitigation has been included to protect water as per River Finn SAC above.	- No in combination effects as majority of proposed development site is in different catchment. - Drainage from infrastructure at T12 itself will not adversely affect the hydrological regime or quality of the habitats selected as conservation interests and	Yes - No direct habitat loss - Drainage from infrastructure at T12 will not adversely affect the hydrological regime or quality of the habitats selected as conservation interests. - Drainage from T12 within the Elatagh_020 subbasin is to the headwaters of the Tooslenagh Stream. This stream rises c. 700m west of the hardstand of T12 and

	negative indicator species and non-native species and native trees and shrubs; appropriate vegetation structure in terms of sphagnum condition, signs of browsing and burning; appropriate physical structure in terms of disturbed bare ground, drainage and erosion; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.	- Consequent erosion arising from the wind farm project that could affect the habitat supporting slender green feather-moss. - Site boundary is close proximity to sensitive and rare specimens of protected moss, and a QI for an SAC, with works occurring upslope. - Construction of hard surfaces such as roads and hardstandings, having the potential to increase runoff and downstream flooding.		therefore there will be no in-combination effects.	then flows west into the Meentygrannagh Stream at a point downslope of the slender green feather moss and alkaline fen habitat – no hydrological influence on these habitats. - All water flowing into the alkaline fen that supports slender green feather moss comes from an area upslope that does not include any part of the proposed development. - There is a linear depression that acts as a hydrological disconnect between the slender green feather moss habitat and the Toosenagh Stream. - Second site access to the north-west has now been excluded from the proposed development, which is within the catchment of the habitat supporting the population of slender green feather moss within the SAC.
Transition mires and quaking bogs [7140]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; maintain variety of vegetation communities; appropriate vegetation composition for positive indicator species (at least one core), negative indicator species and non-native species; appropriate vegetation structure in terms of height, disturbed bare ground and drainage; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.				

Alkaline fens [7230]	Stable/ increasing habitat area; no decline in habitat distribution; maintain soil nutrient status; maintain active peat formation, natural hydrological regimes and appropriate water quality; maintain variety of vegetation communities; appropriate vegetation composition for positive indicator species (brown mosses, vascular plants), negative indicator species, non-native species, native trees and scrubs and soft rush and common reed cover; appropriate vegetation structure in terms of height, disturbed bare ground, drainage and tufa formations; and no decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.				
To maintain the favourable conservation condition of the following:					
Slender Green Feather-moss [1393]	No decline in distribution of populations and population size; mean percentage of cover at least 15%; no				

	decline in area of suitable habitat; maintain suitable hydrological conditions; appropriate vegetation composition for tree, scrub, grass and bryophyte cover and cover of *Calliergonella cuspidata*; and appropriate vegetation structure in terms of height.				
Overall Conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of the Meentygrannagh Bog SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Relevant European site: Derryveagh and Glendowan Mountains SPA (Site code: 004075)

13.7.9. According to the Site Synopsis, the Derryveagh and Glendowan Mountains SPA is an extensive upland site in north-west Co. Donegal, much of which is over 300m above sea level, with the highest peak at Slieve Snaght (678m). The substrate over much of the site is peat and the principal habitats are blanket bog and heath.

13.7.10. It is noted that this European Site is of high ornithological importance with nationally important breeding populations of species listed on Annex I of the E.U. Birds Directive, i.e. Red-throated diver, peregrine, merlin, Golden plover and dunlin. The site is one of only a few locations in Ireland where Red-throated Diver breed and the extensive bog and heath habitat also provides excellent foraging habitat for peregrine and merlin, with the latter nesting is heath or in old crows' nests in trees.

13.7.11. The proposed windfarm will consist of 12 no. turbines (tip height of 167.5m) with expected yield of c. 60MW. The proposal will also include internal windfarm cabling, a potential underground grid connection to Lenalea substation and an alternative grid connection to a new substation. Construction methods will comprise of site clearance and felling; temporary site compounds; surface water drainage system; borrow pits; peat/ spoil deposition areas; and new and upgraded internal service roads.

13.7.12. There is potential for indirect displacement effects Special Conservation Interest species that may use habitat outside the SPA boundary. There is also potential for displacement or disturbance effects in terms of collision risk from wind farm infrastructure.

Baseline ecological conditions

13.7.13. The NIS sets out an overall description of the proposed development site in terms of topography and landcover, soils and geology and surface water drainage. The dominant land use comprises commercial forestry, peat bog and marginal agriculture. Site investigations indicate that peat depths across the site range from 0.1 to 4.5m with an average depth of 1.73m. Surface water drainage consists of a complex of small forestry drainage ditches feeding into 1st and 2nd order streams, which in turn drain to the Elatagh River, River Finn and River Foyle.

13.7.14. The list of habitats on site and study area from surveys carried out in 2019 were upland blanket bog, cutover bog, eroding blanket bog, wet heath, conifer plantation, recently felled woodland, eroding/ upland rivers, acid oligotrophic lakes, other artificial lakes and ponds, wet grassland, improved agricultural grassland, dry-humid acid grassland and buildings and artificial surfaces.

13.7.15. Aquatic ecology surveys undertaken in 2019 included a habitat assessment and fish habitat suitability survey, electrofishing survey, macroinvertebrate habitat assessment, biological sampling, physio-chemical water sampling and Freshwater pearl mussel survey. The Finn catchment is identified as a Freshwater pearl mussel sensitive area. It is confirmed that watercourses draining the proposed development site are best suited to the early life stages of salmonids. Silt from commercial forestry is the main risk to aquatic fauna in watercourses draining the proposed development site.

13.7.16. A non-volant mammal survey conducted in 2019 noted that the streams within the site would not be used by otter for foraging as they are too small to support fish in feasible numbers. Larger watercourses such as the Elatagh are more suitable for otter.

13.7.17. Breeding bird surveys were undertaken between 2018 and 2021 in the form of a hinterland survey, monthly vantage point surveys and transect surveys. Wintering bird surveys comprised monthly vantage point, transect and point count surveys. Tabulated summaries and flight line mapping of target species observations are contained within bird survey reports appended to the NIS. Transect and point count survey summaries are presented, together with a comprehensive list of all bird species recorded within the study area over the course of the surveys. It was noted by the NPWS that Golden eagle, merlin, hen harrier, peregrine and Golden plover were all recorded foraging and transiting the proposed development site during the breeding season. Merlin, peregrine and Golden plover, together with Red-throated diver and dunlin are special conservation interest species for the Derryveagh and Glendowan Mountains SPA.

13.7.18. The NPWS welcomed the excellent and clear presentation of survey data within the bird survey reports; however, there was concern that the bird survey data does not fully represent the range of species occurring on site, with areas of open upland

blanket bog to the north-east of the site appearing to have been neglected. The NPWS also highlighted concerns with respect to visibility during winter vantage point surveys and that Golden plover have not been fully accounted for in mitigation. Cumulative pressures on curlew are noted as well as the absence of dedicated surveys for this species. In addition, the potential effects and mitigation for merlin is considered to be inadequate. It is also recommended that the provision of robust monitoring protocols for merlin, curlew and golden plover should form a condition of any grant of permission. BirdWatch Ireland also made a submission on the application relating to the protection of breeding curlew.

13.7.19. The applicant submitted a detailed further information response to the concerns of the NPWS which included a Revised Appropriate Assessment Screening and Revised NIS. Additional breeding and wintering bird surveys including vantage point surveys were carried out in 2020/21. Ecological walkovers were conducted at specific parts of the site and environs in 2021 and 2022 and an additional aquatic survey site was included. The walked transects and point counts completed through the peatland monthly during summer of 2021 and the species captured were the same species captured during vantage point surveys. Desk top information for NIS included previous bird surveys on site between 2006 and 2008; breeding bird surveys in 2018/ 19 and winter bird surveys in 2018/ 19 at site and nearby Lenalea windfarm; ongoing breeding survey at site in 2020; and survey and ongoing monitoring at Meetycat, Culliagh and Cark.

13.7.20. The applicant submits that impact assessments in the NIS and the EIAR were based on two years of bird surveys as recommended by Scottish Natural Heritage (2017). Two further years of data were collected between 2006 and 2008 and presented in the original Drumnahough EIS, and an additional 1 ½ years of bird data was collected between April 2020 and September 2021 since the completion of assessments. Data collection is considered to be more than adequate to determine the likely significant effects of the project on bird populations including Golden plover. It is also stated that target species can be recorded using the site during poor weather conditions and results obtained from poor weather searches are as relevant as those obtained from good weather watches.

13.7.21. Overall, I am satisfied that species and habitat surveys are appropriate having regard to the relationship of the subject site with the Derryveagh and Glendowan

Mountains SPA. The baseline information is also suitably up to date and the survey effort goes beyond what might normally be submitted with a first-time planning application. Survey information pertaining to the site as far back as 2006 provides a longer-term picture of the usage of the site and surroundings by different species. Surveys and reviews were carried out as recently as 2021. I consider that this information is suitably up to date having regard to the lodgement dates of the planning application.

Factors that can adversely affect the achievement of conservation objectives

13.7.22. The boundary of the proposed development site is located approximately 5.4km to the south-east of the Derryveagh and Glendowan Mountains SPA. The nearest wind farm infrastructure (Turbine 12) is approximately 6.2km from the SPA.

13.7.23. There are factors arising from the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objective for which the Derryveagh and Glendowan Mountains SPA is designated. The conservation objective is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Red-throated diver, merlin, peregrine, Golden plover and dunlin.

13.7.24. The favourable conservation status of a species is achieved when its population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

13.7.25. The main potential impacts to the favourable conservation status of special conservation interest species relate to direct habitat loss through construction of windfarm infrastructure; disturbance and/ or displacement during construction and operation including barrier effects; and direct effect of mortality caused by collisions with turbine blades and other infrastructure.

13.7.26. Golden plover and merlin use peatland habitats for breeding and foraging and may be indirectly affected by the direct loss of 6.71 hectares of upland blanket bog, eroding blanket bog, cutover bog and wet heath. Golden plover, merlin and peregrine may also be indirectly affected through displacement if these species are

deterred from using normal routes for feeding or roosting. There may also be noise disturbance during construction, particularly from borrow pit extraction.

13.7.27. A Collision Risk Report provides collision rates for Golden plover, peregrine and merlin over a 30 year period taking into account bird behaviour and characteristics, species avoidance rates, turbine specifications, and the recording of data. Golden plover, merlin and peregrine were observed flying within a potential collision risk height over the two year survey period. The mean number of predicted collisions per 30 years for golden plover (2.621), merlin (0.045) and peregrine (0.008) are relatively low. The only species with comparatively high rates were buzzard and kestrel and these are not special conservation interest species for the SPA.

13.7.28. The proposed development lies within the core foraging range of Red-throated diver breeding in the Derryveagh and Glendowan Mountains SPA; however, this species was not recorded during breeding or wintering bird surveys at the proposed development site and no records appear for the hectad containing the site or surrounding hectads. There was one observation of a red-throated diver at Lough Deele but this species was regarded as a non-breeder. During the winter Red-coated diver is found at coastal locations. Given the lack of records for this species, together with the high avoidance rate where an atypical flight was to occur, it is considered that the proposed development will not have a significant negative effect on breeding Red-throated diver.

13.7.29. The hectad encompassing the proposed development has confirmed merlin breeding and this species was observed breeding at the site during 2018 and 2019 surveys, and again in 2020 in the same area. However, the core foraging range for the species is 5km during the breeding season and this distance can be used when determining whether there is connectivity between the proposal and the qualifying interests of the SPA. The nearest part of the proposed windfarm infrastructure is 6.3km from the SPA and therefore breeding merlin within the site are outside the core foraging range of breeding merlin associated with the SPA.

13.7.30. The NPWS recommended that modelling of local and regional populations and/ or modelling of merlin habitat use be carried out to provide certainty around connectivity with the Derryveagh and Glendowan Mountains SPA, significance, and site use for this species. The applicant did not complete any specific modelling but instead

provided more detail on regional populations and habitat use. It is highlighted that merlin records broadly correspond with land uses and suitable merlin habitat aligns with upland areas typically on peat habitats. There is continuity of land use between the proposed development site and the SPA, and it is acknowledged that merlin using the SPA could at some point use the proposed development site and vice versa. However, breeding merlin recorded at the proposed development site are unlikely to forage within or close to the SPA. Notwithstanding this, mitigation measures are proposed for merlin as described below.

13.7.31. Peregrine were not recorded within the hectad pertaining to the proposed development site according to NPWS records and this species was not observed during breeding or winter bird surveys of 2018 and 2019. Peregrine were rarely seen over the course of survey work and there is no evidence of peregrine breeding at the proposed development site. The core foraging range of the species is 2km and therefore breeding peregrine associated with the SPA are unlikely to use the proposed development site.

13.7.32. Golden plover were not recorded with the hectad containing the site according to NPWS records; however, the species was present in surrounding hectads. There were two sightings of flocks within the proposed development site during the 2018 breeding season (10th & 11th April). These were considered to be remaining wintering flocks passing through the area on further migration north to Iceland. No Golden plover were recorded on site during the 2019 breeding season and it is stated in the Revised NIS that the site is not used by breeding golden plover.

13.7.33. Flocks of Golden plover were observed on three occasions during the 2018/19 winter season (20th, 21st & 22nd March). It is stated in the NIS that it is likely that these observations were wintering Golden plover passing through the area heading north. However, the NPWS noted that the birds were circling within the site boundary, a behaviour indicative of site use and not transitory behaviour. There are concerns that surveys are not sufficiently comprehensive, and that this species has not been adequately accounted for in mitigation.

13.7.34. The applicant confirms in response that there is no evidence of breeding Golden plover within the site or wider landscape on the basis of the Bird Atlas 2007-11, information received from a NPWS data request for the area, and from vantage point

surveys completed over a two year period between 2006 and 2008 (FTC, 2008), and a three and a half year period between 2018 and 2021. Historical information from the previous windfarm application in 2006 and 2008 also compared similarly to more recent surveys.

13.7.35. It is considered by the applicant that most of the windfarm side is not suitable for wintering Golden plover given the cover of commercial forestry plantation. The only suitable habitat is to the north-west of the site and no feeding Golden plover were recorded in this area. Suitable habitat exists outside the site in all directions including Tullytresna Bog and peatland around Lough Deele.

13.7.36. The core foraging range of Golden plover is 3km and the breeding population associated with the SPA would therefore be unlikely to use the proposed development lands which are in excess of 6km. Given that the flocks of Golden plover recorded early in the breeding season were likely to be wintering or passage birds, and the few other sightings during the breeding season, it is unlikely that the proposed windfarm will have negative effects on this special conservation interest species.

13.7.37. Dunlin were not recorded during breeding or wintering bird surveys for 2018/2019, or for 2019/20 winter surveys at the proposed windfarm site. There is also an absence of breeding dunlin within the hectad containing the proposed development site according to the Bird Atlas, 2007-11. Dunlin favours coastal habitat and the windfarm is therefore unsuitable for this species. In addition, the core foraging range for Dunlin is 500m and therefore it is reasonable to consider that the proposed development will not have negative effects on the SPA breeding dunlin population.

13.7.38. **In-combination** impacts with other plans or projects may also give rise to loss of suitable habitat or disturbance/ displacement of special conservation interest species that have been recorded using the site for foraging. Afforestation of farmland and agricultural practices can result in land use changes which in turn would have in-combination effects. Climatic changes can cause mismatches, migration, breeding, pest avoidance and food availability.

13.7.39. Adjacent wind energy developments can have in-combination effects with the proposed wind farm on birds. It should be noted, however, that the Meenbog Windfarm, and the cluster of wind farms associated with Cark Mountain are further

away from the SPA than the proposed development site. Given that the proposed windfarm and neighbouring windfarms are outside the core foraging range of breeding special conservation interest species merlin, peregrine and golden plover associated with the SPA, together with the location of the SPA upgradient of any hydrological effects, it is considered that the proposed development, in combination with other windfarms in the area will not have a significant cumulative effect for SCI species merlin, peregrine and golden plover within the SPA in terms of their population viability, distribution, supporting habitat or disturbance.

13.7.40. There is evidence that Golden plover use suitable habitat within the greater area in winter and spring. Golden plover have been recorded at Lenalea Windfarm, Culliagh Windfarm and Meenbog Windfarm. Sightings at the site and from neighbouring windfarms indicate that the birds recorded were mainly wintering birds.

13.7.41. The NPWS noted that there are 11 windfarms within close proximity to the proposed development site and there was concern that the in-combination impacts of these development had not been adequately addressed. In response, the applicant highlighted the potential for barrier effects caused by a number of windfarms occurring at a geographical location. However, it is considered that the operational cumulative effect on raptors with not be significant having regard to the multiple raptor records for numerous species within adjacent operational windfarm sites, where these birds continue to forage and commute.

13.7.42. Overall, significant cumulative population level impacts on birds are not envisaged for a number of reasons. The loss and alteration of habitat on site is not considered to be significant and the proposed windfarm will not block birds using regular flight lines between nesting and foraging areas. The numbers of these birds recorded at and adjacent to the proposed development were small and or/irregular, while flocks of birds were seen flying during migratory journeys. During post construction monitoring at adjacent wind farm sites, no birds were discovered during corpse searches. Merlin have been recorded within adjacent windfarms with no apparent avoidance of turbines due to their low flying nature.

13.7.43. It is not possible to produce a cumulative Collision Risk Model for other windfarms in the area as only the Lenalea Windfarm contains the necessary survey information. However, the cumulative effects of the proposed development with other windfarms

in the area is assessed from historical and current ornithological desk-top and site survey information.

13.7.44. **Mitigation** by design measures are proposed in the Revised NIS to deal with surface water management, excavated materials and soils, dewatering and cement bound granular mixtures. Mitigation by management measures include the appointment of and environmental manager/ ecological clerk of works, invasive species management, forestry felling, vegetation removal, protection of otter, implementation of a CEMP and protection of water quality. Some of these measures may indirectly relate to special conservation interest bird species, e.g., undertaking of forestry felling and vegetation clearance outside of the bird breeding season.

13.7.45. Other measures have been devised to avoid, prevent or reduce likely or significant effects on the environment directly related to special conservation interest species for the Derryveagh and Glendowan Mountains SPA. Pre-construction avian monitoring, as well as monitoring during construction will take place. Disturbance/destruction of a merlin nest during the construction phase is potentially the most significant impact that the windfarm may pose on SCI species. Proposed works within 350m of the presence of any nesting merlin will be restricted to outside of the breeding season. Procedures when a nest within 350m of construction is discovered will include notification of NPWS, treating location as ecological sensitive area, and monitoring and liaison with NPWS.

13.7.46. NPWS recommended the consideration of additional habitat management for merlin with the aim of dissuading and luring the species away from turbine dominated areas. A merlin habitat management plan (February 2022) accompanies the further information response wherein proposals are put forward to manage a 14.1 hectare piece of land currently under commercial forestry for attracting merlin. The land is to the south of the site, and it forms part of the River Finn SAC. The principal objective of the enhancement plan is to restore the land to the original habitat of upland blanket bog/ wet heath, with the aim of increasing local biodiversity including small birds that are the main prey item of merlin. Long-term recolonisation of bog plants will also provide potential breeding habitat for merlin.

13.7.47. Notwithstanding the potential for positive impacts arising as a result of the habitat management plan, I do not consider that this can be taken into account as mitigation

for merlin in this case. The habitat enhancement plan will involve the felling of 14.1 hectares of conifer plantation outside of the site boundary and within the River Finn SAC, and this may require a permission or licence of its own. I would therefore be of the view that the Board is precluded from considering this as mitigation when there is no certainty that permission will be obtained or that the works will be carried out. I recommend that the Board should attach a condition to any grant of permission confirming same. It should be noted that the 14.1 hectare enhancement plan is separate from other proposed biological enhancements that will take place within the site, e.g. within area of keyhole felling for borrow pits and turbines.

13.7.48. The Derryveagh and Glendowan Mountains SPA contains nationally important breeding populations of Red-throated diver, peregrine, merlin, Golden plover and dunlin and its extensive bog and heath habitat also provides excellent foraging habitat for peregrine and merlin. The conservation objective is to maintain or restore the favourable conservation objective of these species. I am satisfied the proposed development will not have an adverse effect on the favourable conservation status of the Special Conservation Interest species and that the above mitigation measures are sufficient for the proposed development, in combination with other plans or projects, to avoid or reduce adverse effects on these species to non-significant levels.

13.7.49. The works associated with the proposed development, in combination with other plans or projects, will take place on lands outside the SPA. The nearest proposed windfarm infrastructure is SPA is 6.3km from the SPA and any breeding SCI species within the site are outside the core foraging range of species associated with the SPA. In this regard, merlin is the only breeding SCI species recorded within the proposed development site. No construction works will take place within 350m of any recorded nest. Other windfarms in the surrounding area are further away from the SPA than the proposed development site and the SPA is upgradient of any hydrological effects. The proposed development will not therefore have significant effect on the ability of merlin or any other SCI species to maintain themselves on a long-term basis.

13.7.50. The loss or alteration of any suitable foraging habitat on site is not significant in the context of surrounding habitat and the numbers of SCI species recorded at and adjacent to the proposed development were small and or/irregular, while flocks of

birds were seen flying during migratory journeys. There is, and will probably continue to be, a sufficiently large habitat within the SPA to maintain the SCI species population on a long-term basis and the proposed development will not interfere with the natural range of the species.

13.7.51. Having regard to the above, I am satisfied that the proposed development, in-combination with other plans and projects, would not adversely affect the maintenance or restoration of the favourable conservation condition of Red-throated diver, peregrine, merlin, Golden plover and dunlin, which are listed as special conservation interests for the Derryveagh and Glendowan Mountains SPA and therefore there can be no adverse effects on site integrity of the SPA.

Relevant European site: Lough Swilly (Site code: 004039)

13.7.52. According to the Site Synopsis, the Lough Swilly SPA comprises part of the sea inlet to the west of Inishowen Peninsula and a series of improved pasture and arable fields on the south side of the lough that are important to geese and swans. Estuaries and sand/ mud flats within the SPA are listed on Annex I of the EU Habitats Directive and the SPA is of major ornithological importance for wintering waterbirds.

13.7.53. The site is of special conservation interest for wetlands and waterbirds and for the following species: Great Crested Grebe, Grey Heron, Whooper Swan, Greenland White-fronted Goose, Greylag Goose, Shelduck, Wigeon, Teal, Mallard, Shoveler, Scaup, Goldeneye, Red-breasted Merganser, Coot, Oystercatcher, Knot, Dunlin, Curlew, Redshank, Greenshank, Black-headed Gull, Common Gull, Sandwich Tern and Common Tern. The extensive feeding areas and safe resting and roosting sites and important for wintering waterfowl and the SPA supports internationally important numbers of Whooper swan and Greenland white-fronted goose, both of which are listed on Annex I of the E.U. Birds Directive.

13.7.54. There is potential for indirect displacement effects on Special Conservation Interest species that may be migrating through the area. There is also potential for displacement or disturbance effects in terms of collision risk from wind farm infrastructure.

Baseline ecological conditions

13.7.55. Details of breeding and wintering bird surveys as set out under the baseline ecological conditions for the Derryveagh and Glendowan Mountains SPA also apply the Lough Swilly SPA.

13.7.56. Additional breeding and wintering bird surveys including vantage point surveys were carried out in 2020/21. Transect and point count surveys comprising targeted distribution and abundance surveys were conducted, together with vantage point surveys, with the corresponding viewsheds covering the proposed development and surrounding areas to the east and west and including Lough Deele. Lough Deele is the only significant body of standing water in proximity to the site and is a habitat found to be used by birds of high conservation importance, including whooper swan.

13.7.57. Whooper swan were recorded in two out of the three winter seasons (2018/19 to 2020/21 inclusive). A flock of 53 whooper swan was recorded to the west of the site flying north-east and heights of c. 150-250m on 21st March 2019. On 24th October 2019, 10 birds were observed to the north of the site flying east (20-100m high); 21 birds were observed flying east to Lough Deele (20-50m high); and 21 birds were observed flying east from Lough Deele (20-100m). Three birds were observed at heights of 20-50m to the south of Lough Deele flying west on 13th December 2019. Within previous surveys, the species was recorded in April 2006 at Lough Deele (18 no. whooper swans).

13.7.58. There are no records of Greenland white-fronted geese migrating over the proposed development site from 2018-2021 and there have been no sightings of this species using the site. During the 2006-2008 surveys, four flocks were observed flying south/ south-west to north/ north-west at heights of approximately 500-900m over datum.

13.7.59. The hectad containing the proposed development site shows an absence of Whooper swan records in the Bird Atlas 2007-2011. The Bird Atlas 2007-11 also shows an absence of Greenland white-fronted goose within the hectad containing the site and surrounding hectads.

13.7.60. Data collection is considered to be more than adequate to determine the likely significant effects of the project on bird populations including Whooper swan and Greenland white-fronted goose. As noted above, survey information goes back to

2006 and provides a longer-term picture of the usage of the site and surroundings by different species.

Factors that can adversely affect the achievement of conservation objectives

13.7.61. The boundary of the proposed development site is located approximately 12km to the south-west of Lough Swilly SPA. The nearest wind farm infrastructure (Turbine 3) is approximately 14.4km from the SPA.

13.7.62. There are factors arising from the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objective for which the Lough Swilly SPA is designated. The conservation objective is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. Of this list of species, only Whooper swan and Greenland white-fronted goose were recorded previously within surveys. There is no potential for significant impacts on any of the other Special Conservation Interest species for which Lough Swilly SPA is designated.

13.7.63. The favourable conservation status of a species is achieved when its population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

13.7.64. The main potential impacts to the favourable conservation status of special conservation interest species relate to direct habitat loss through construction of windfarm infrastructure; disturbance and/ or displacement during construction and operation including barrier effects; and direct effects of mortality caused by collisions with turbine blades and other infrastructure.

13.7.65. The NPWS noted the presence of Whooper swan in both winter count periods and Greenland white-fronted goose from records in 2006-08 and stated that projects can have a significant effect on Natura 2000 sites if they cause a barrier effect or prevent ecological linkages. NPWS therefore requested that the NIS should specifically focus on any in-combination barrier effects of the windfarm with regard to migratory routes to/ from Lough Swilly SPA and/ or between the site and supporting satellite sites (Lough Deele) that seasonally support SCI populations for the SPA.

13.7.66. The Lough Swilly SPA was screened in for appropriate assessment within the Revised NIS. The key issues for SCI species observed within the site are potential collision with turbines; displacement due to effective loss of habitat; and barrier effects where the wind farm creates an obstacle to regular movements to and from breeding colonies or migration.

13.7.67. There was too little activity within the flight data for Whooper swan to meet the criteria to carry out Collision Risk Assessment for this species. There were no observations of Greenland white-fronted goose and therefore no Collision Risk Assessment could be carried out for this species. The species was recorded once within the 2006-08 surveys (south-west to north-west), at much greater heights than the proposed turbines and appearing not to come from Lough Swilly.

13.7.68. There are no foraging records for Whooper swan at the proposed development site and the site is not traversed to and from roost and foraging areas. The foraging distance for Whooper swan is generally <5km from roost sites and the proposed development site is c. 13km south-west of the Lough Swilly SPA. Similarly, there are no foraging records in the study area for Greenland white-fronted goose.

13.7.69. In terms of the potential for barrier effects to and from breeding colonies, it is noted Whooper swan make their Irish landfall in Autumn on their return from breeding grounds in Iceland. Greenland white-fronted goose is also a scarce winter visitor from October to April.

13.7.70. With respect to impacts on migratory corridors, Whooper swan has been recorded within surveys at two of the three winter seasons between 2018-2020. Whooper swan recorded at the proposed development site on 21st March 2019 came from the south and those recorded on 24th October 2019 were considered to be on transit further south. These flocks are not considered to the part of the Lough Swilly population. In 2019, there were observations recorded on Lough Deele, and in flight, including a flock flying east over the northern part of the site at a height of >150m. Other flights were observed to the east of the site, and none occurred within the site boundary.

13.7.71. There have been no records of Greenland white-fronted goose migrating over the site or using the site in recent surveys. Moreover, the proposed development is

located approximately 13km from Lough Swilly SPA and this distance is much greater than the core foraging range of Greenland white-fronted goose.

13.7.72. I noted that Zone of Influence included in the Appropriate Assessment Screening Report does not include Lough Nillan Bog SPA which is located approximately 19km to the south-west of the proposed development site. Greenland white-fronted goose are one of the special conservation interest species for this European Site. The proposed development site is located between Lough Nillan Bog SAC and Lough Swilly. Having regard to the low numbers of this species recorded in the study area, it is reasonable to conclude that the is no regular flyway between these sites that could be impacted by the proposed development.

13.7.73. In terms of **in combination** effects, ongoing bird monitoring has shown that existing wind farms do not interact cumulatively to create extensive barriers leading to diversion of birds. There is still a recorded presence of Greenland white-fronted goose and Whooper swan. On the other hand, surveys show that the proposed development is not located on an important migratory route for Special Conservation Interest species. The numbers of these birds recorded were small or irregular and any cumulative impacts are reduced by the fact that the environs of the proposed development site are of no particular importance to these bird species. No birds were found during corpse searches at Meenbog Windfarm. It is therefore reasonable to conclude that the proposed development site does not affect migratory routes to/ from Lough Swilly SPA and/ or between the site and supporting satellite sites (Lough Deele).

13.7.74. The proposed development will not undermine the conservation objectives for Whooper swan and Greenland white-fronted goose and thus no **mitigation** is required.

13.7.75. Having regard to the above, it is unlikely the long-term population of these species will decrease or become unstable as a result of the proposed development. Furthermore, the proposed development will not result in significant decrease in the numbers or range of areas used by these species. Thus, the proposed development, in-combination with other plans and projects, would not adversely affect the maintenance or restoration of the favourable conservation condition of Whooper swan and Greenland white fronted goose, which are listed as special

conservation interests for the Lough Swilly SPA and therefore there can be no adverse affect on site integrity of the SPA.

Relevant European site: River Finn SAC (Site code: 002301)

13.7.76. The River Finn SAC consists of almost the entire freshwater element of the River Finn, its tributaries including the Elatagh, the spawning grounds at headwaters of the Mourne and Derg Rivers, Lough Derg, and the tidal stetch of the Foyle.

13.7.77. Upland blanket bog occurs throughout the upland areas of the SAC along the edges of the river, with more extensive examples at Tullytresna and Owendoo/ Cloghervaddy bogs. Blanket bog receives priority status on Annex I of the EU Habitats Directive. There are flushes with bright green lawns of bog mosses and abundant rushes at Tullytresna, with transition mires occurring at several locations. Wet heath is associated with blanket bog throughout the site and lowland oligotrophic lakes are found at Loughs Finn, Belshade and Derg, as well as in many of the smaller lakes within the site. There are small pockets of conifer plantation along the strip both sides of the rivers.

13.7.78. The Finn system is one of Ireland's premier salmon waters and Atlantic Salmon is listed on Annex II of the EU Habitats Directive. There are stable spring populations in the Finn whereas many parts of Ireland and Europe are experiencing a decline. Grilse runs through to the upper reaches running peak until mid-June, depending on water quality. The Finn is a designated Salmonid Water under the E.U. Freshwater Fish Directive.

13.7.79. Otter is widespread throughout the Finn system and this species is also listed on Annex II of the EU Habitats Directive. Golden plover, Peregrine and merlin are listed on Annex I of the EU Birds Directive and these species breed in the upland areas of the SAC.

13.7.80. The main land use along the Finn and its tributaries is agriculture with particular emphasis on grazing. Afforestation is ongoing in the western section of the SAC and this can cause acidification and sedimentation, resulting in loss of suitable spawning grounds.

13.7.81. There are potential impact pathways from the proposed development site on the qualifying interests of the River Finn SAC, i.e. Oligotrophic waters containing very

few minerals of sandy plains (Littorelletalia uniflorae); Northern Atlantic wet heaths with Erica tetralix; Blanket bogs (* if active bog); Transition mires and quaking bogs; Salmo salar (Salmon); and Lutra lutra (Otter).

Factors that can adversely affect the achievement of conservation objectives

13.7.82. The River Finn SAC adjoins the proposed development site boundary to the south. The closest windfarm infrastructure to the SAC is Turbine 4 at a distance of approximately 195m and Turbine 1 located approximately 220m from the SAC as shown on GIS mapping. The Elatagh River flows through the SAC and along its boundary at this location. The part of the SAC in proximity to Turbine 4 comprises blanket bog lying downstream in the townland of Cark immediately north of Tullytresna bog on the northern slopes shore of the Elatagh River. There is also a parcel of blanket bog within the SAC at a distance of 0.8km west of Turbine 5.

13.7.83. Most of the proposed development site is within the Foyle WFD catchment and a small portion to the north is within the Lough Swilly WFD catchment. The main part of the site is within the Elatagh_010 river sub basin and the part to the east comprising mostly on the grid connection lies within the Deele (Donegal)_010 river sub basin. There are also small parts of the site to the north and west within the Swilly_010/ Swilly_020 and the Elatagh_020 river sub basins respectively.

13.7.84. The conservation objectives for the River Finn SAC includes the restoration of the favourable conservation of Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae); Northern Atlantic wet heaths with Erica tetralix; Blanket bogs (* if active bog); and Transition mires and quaking bogs. It is also the conservation objective to maintain the favourable conservation objective of Salmo salar (Salmon) and Lutra lutra (Otter).

13.7.85. The favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, are stable or increasing; the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and the conservation status of its typical species is favourable. The favourable conservation status of a species is achieved when its population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable

future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

13.7.86. There are factors arising from the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objectives for which the River Finn SAC is designated. In the absence of mitigation measures, the proposed development alone, and in combination with other plans/ projects, has the potential to adversely affect the maintenance or restoration of the favourable conservation condition of certain habitats and species for which the River Finn SAC is designated through disturbance and/ or displacement of species; habitat loss or alteration; water quality and resource; and habitat or species population fragmentation.

13.7.87. There is potential for the proposed development to alter the hydrology of the bogs and any associated wet heath habitat, transition mire and quaking bog habitat. As noted, the proposed development site is upslope of the two parcels of blanket bog which may support these habitats. These bogs also support a number of small streams/drainage channels which likely support some flush habitat, while a second order tributary stream of the Elatagh River forms the SAC's eastern boundary. It is possible that the flush and stream fringe support transition mires and quaking bog habitat.

13.7.88. There is also the potential for water quality impacts arising from potential pollutants entering the tributary streams of the Elatagh River during the construction phase of the proposed works, mainly arising from earthworks to facilitate the construction of wind farm infrastructure. Pollutants include silt, chemicals or hydrocarbons associated with construction activities. In an unmanaged situation, impacts could occur on water runoff flow paths and watercourses/ landcover from movement of soil and machinery; earthworks, excavations & overburden storage; sediment; in-stream works; new crossing structures; use of fuels, chemicals & cement-based compounds; excavation dewatering; and tree felling and brash storage. Sediment release and adverse water quality impacts can have negative implications for fish and invertebrates due to physical damage, degradation of aquatic habitat, reduced feeding/ foraging and compaction of spawning gravels.

13.7.89. There is potential for **in-combination** impacts on the aquatic environment from ongoing activities in the area including forestry, agriculture, peat extraction, hydromorphological modification and wastewater treatment. Fine sediment channelisation, land drainage, erosion and nutrient loss can cause ecological problems and these ongoing activities can act in combination with the proposed development.

13.7.90. A large proportion of the proposed development occurs within and beside conifer plantations and there are in-combination forestry pressures such as acidification, drainage, road construction, planting and clear felling. Earthworks associated with the proposed development can mobilise peat silts and nutrients within forestry and other areas of the proposed development site.

13.7.91. Forestry is likely to have contributed to a reduction in water quality within the Upper Finn catchment. Water quality effects from the proposed development and from forestry could exacerbate potential impacts associated with the project within the River Finn catchment and undermine the conservation objectives for salmon and otter of the River Finn SAC. Forestry has also resulted in a loss of upland blanket bog and other peatland habitats such as wet heath and flush habitat and this would have reduced the habitat available for certain fauna and flora species. Peat drainage and extraction is identified as a significant pressure in eight river water bodies in the Finn catchment, resulting in elevated concentrations of ammonium, and organic and hydromorphological impacts.

13.7.92. There is the potential for agricultural practices to exacerbate potential impacts within Finn catchment and undermine the conservation objectives for salmon and otter. The proposed development is located within a sub-catchment where there is extensive land drainage. The effects of climate change could exacerbate the potential impacts associated with the proposed development on the River Finn catchment and undermine the conservation objectives for salmon and otter.

13.7.93. The water quality effects of the proposed development during the construction and early operational phases, together with the construction or decommissioning of other wind farms in the catchment could exacerbate potential impacts within the River Finn catchment and undermine the conservation objectives for salmon and otter of the River Finn SAC.

13.7.94. It is noted in the submission from NPWS that peat-based habitats have low resistance to changes in surrounding hydrology and that the effects of altering upslope watercourses, groundwater and surface water flows in close proximity to the protected peat-based habitats in the River Finn SAC (e.g. T1 & T4) should be assessed in more detail. It was also noted that the methods for and volume of peat to the excavated, stored and disposed/ recovered should be sufficiently detailed. In addition, it is considered that there is potential for catastrophic impact arising from peat slippage, mobilisation of silt and stored nutrients in forestry lands, with multiple watercourses and riparian receptors that flow from the development into the River Finn SAC. Turbine T1 is 0.21km from the River Finn SAC and Tullytrasna blanket bog and T4 is 0.23km from Cark blanket bog; these peat-based habitats are particularly vulnerable to hydrological impacts that may result in drainage and/ or compression of underlying peat. Hydrologically connected habitats occurring downslope in the River Finn SAC may be impacted at considerable distances from the source of pollution and/ or alteration of surface and groundwater flow and volume.

13.7.95. The NPWS also noted that the River Finn is failing to meet its management targets for Salmon. Records indicate a loss of half of the biological diversity in the river catchment area. There are concerns regarding the cumulative effect of locating further development in peat-based habitats in the upper reaches of the River Finn that is already under significant pressure from existing development. A more thorough in-combination and cumulative impact assessment is recommended to inform the Appropriate Assessment process.

13.7.96. In response to the concerns of NPWS regarding peat excavation and management, additional collection, and analysis of data on peat depth and peat strengths was carried out and it was concluded that the proposed windfarm represents a negligible risk from a geotechnical and peat stability perspective. Geotechnical site investigations included peat probing, shear strength measurements and assessment of drainage and geomorphological mapping. A two-stage peat stability risk assessment was carried out and this provided a high-level qualitative assessment using the peat slide hazard rating system and a detailed quantitative assessment using the infinite slope stability analysis.

13.7.97. With respect to the concerns of the NPWS in relation to the effect of the project on the hydrology of downslope peatland habitats within the River Finn SAC, the applicant has demonstrated that there is no hydrological connection between the proposed windfarm infrastructure and blanket bog within the SAC. The only hydrologically connected piece of infrastructure within the entire windfarm proposal is a short section of new road between T7 and T8; however, this component is over 1km away from the SAC and there are intervening fire breaks, forestry road and forestry. A surface water management plan will also be implemented for the proposed development to control water pollutants, principally silt.

13.7.98. The NPWS note that records indicate a loss of half of the biological diversity in the river catchment area, a result that is indicative of excessive pressures on the natural environment and specifically freshwater dependent species. In response, the applicant noted that the decline of the salmon population in the Finn catchment is attributed to several issues but that the proposed development is not expected to contribute any further to this trend. The proposed development is not expected to adversely affect adult spawning salmon or salmon fry abundance, or bring about a decline in out-migrating smolt abundance, redds or water quality. Appropriate water quality mitigation is proposed, and it should be noted that the proposed development site is a small parcel of land within the Finn catchment. It is not expected that the proposal will act in any significant cumulative manner in terms of adverse impact on salmon stocks in the Finn catchment.

13.7.99. **Mitigation** by design measures are proposed in the Revised NIS to deal with surface water management, excavated materials and soils, dewatering and cement bound granular mixtures. Mitigation by management measures include the appointment of and environmental manager/ ecological clerk of works and measures to address invasive species, forestry felling, vegetation removal, protection of otter, implementation of a CEMP and protection of water quality.

13.7.100. Measures are included in the peat stability further information response to mitigate against slides and bog bursts, and to address excavated spoil management, permanent disposal of excavated spoil, management of excavated material, temporary storage of material, reinstatement and general control measures.

13.7.101. The targets and attributes for each of the qualifying interests that potentially could be adversely affected by the proposed development are set out in Table 5 above. The proposed development will not adversely impact on habitat area and distribution, ecosystem function, community diversity, vegetation composition, vegetation structure, physical structure and indicators of local distinctiveness for bogland habitats that are qualifying interests for the River Finn SAC. There will be no direct loss or changes to the habitat distribution of wet heath, blanket bog or transition mire and quaking bog habitat within the SAC. Given the intervening distance and complex network of forestry drainage, together with the siting of windfarm infrastructure, it is considered that the proposed development will not directly or indirectly affect the ecosystem function, vegetation composition, vegetation structure of wet heath or blanket bog or transition mire and quaking bog habitat.

13.7.102. The above mitigation measures will ensure that the proposed development will also mitigate any potential impact causing disturbance to fisheries species, including salmon. In particular, the above mitigation measures will make sure that the proposed development will not adversely or significantly impact on water quality. These measures will also protect against water quality impacts affecting otter prey. Notwithstanding this, streams within the proposed development site are extremely unlikely to be used by otter for foraging as they are too small and habitat within the site is not considered optimal for otter. No couching silts or holts have been identified on site.

13.7.103. I am satisfied that with full and proper implementation of the above mitigation measures, it can be determined, beyond all reasonable and reliable scientific doubt, that the proposed development will not result in adverse effects on the integrity of the River Finn SAC. The mitigation measures will address the source of any potential impacts and are adequate, in particular, to protect against sedimentation and pollutants arising from surface water run-off to various watercourses in the River Finn catchment.

Relevant European site: River Foyle and Tributaries SAC (Site code: UK0030320)

13.7.104. The River Foyle and Tributaries SAC includes the River Foyle and its tributaries, including part of the River Finn. The site is notable for the physical diversity and

naturalness of the banks and channels, especially in the upper reaches, and the richness and naturalness of its plant and animal communities.

13.7.105. Otter is found throughout the system and the population of Atlantic Salmon is one of the largest in Europe. There are fast flowing spate rivers in the upper catchments with dynamic flow regimes characterised by sequences of rapid, riffle and run. The River Foyle below Strabane is slow-flowing and is influenced by a tidal regime, rising and falling with the tidal cycle.

13.7.106. There are potential impact pathways from the proposed development site on the qualifying interests of the River Foyle SAC, i.e. Salmo salar (Salmon); and Lutra lutra (Otter); and Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation.

Factors that can adversely affect the achievement of conservation objectives

13.7.107. The River Foyle SAC and Tributaries SAC (NI) is located approximately 18km from the site. Most of the proposed windfarm drains to the Finn catchment and the River Finn becomes the River Foyle as it crosses the Border.

13.7.108. Salmon were recorded in the River Elatagh and smolts migrate to sea and return to spawn while passing through the River Foyle in the lower part of the Finn catchment. There is potential for uncontrolled siltation from windfarm construction to clog the clean gravels required by salmon to spawn, and in turn, less adult salmon may return from sea migration to spawn. A reduction in salmon in the River Foyle may also affect prey abundance for otter.

13.7.109. The NPWS was concerned that the NIS assumes that the dilution of pollution over a distance of 40km sufficiently mitigates the potential risk to the River Foyle and Tributaries SAC. Reference is made to the peat slippage incident at Meenbog Windfarm in November 2020 and evidence that silt mobilisation can impact on habitat and species a considerable distance downstream (60+km). It was therefore requested that further consideration should be given to mitigation of risks to include scientific rationale for assuming no impact to peat-based habitats in this SAC.

13.7.110. The River Foyle and Tributaries SAC adjoins the River Finn SAC at the Border, and any impact would first be experienced on the River Finn SAC, which adjoins the site and continues downstream to the River Foyle and Tributaries SAC. It is concluded

above that it is the design of the proposed development and implementation of mitigation measures to preserve water quality that will mitigate any risk rather than distance and dilution. It is also noted that the River Foyle and Tributaries SAC is not designated for peatland habitat. Notwithstanding this, a peat slide has the potential to effect spawning beds in the SAC and ultimately food for otter.

13.7.111. In general, the watercourses draining the proposed development site are small headwater streams with little or no importance to salmon. However, important salmon spawning areas do occur downstream, albeit relatively distant from the pollution sources. The intervening distance is approximately 40 river kilometres, and furthermore, drainage and surface water management measures will be put in place, with due consideration to the dilution within the Finn catchment and the moderate size and scale of the proposed wind farm.

13.7.112. The River Foyle and Tributaries SAC is downstream of the River Finn SAC and therefore **in-combination** effects pertain to both European sites. As noted above for the River Finn SAC, there is potential for in-combination impacts on the aquatic environment from ongoing activities in the area including forestry, agriculture, peat extraction, hydromorphological modification and wastewater treatment. The water quality effects of the proposed development during the construction and early operational phases, together with the construction or decommissioning of other wind farms in the catchment could exacerbate potential impacts within the River Finn catchment and undermine the conservation objectives for salmon and otter of the River Foyle and Tributaries SAC.

13.7.113. **Mitigation** measures in the event of a peat slide include emergency response to implement containment procedures; identification of potential flow paths to construct barrages, settlement ponds and silt traps to prevent downstream contamination; and stockpiling of rockfill for containment barrages. As noted above, mitigation by design measures and mitigation by management measures are proposed in the Revised NIS to deal with surface water management, excavation, invasive species, forestry felling, protection of otter and implementation of a CEMP. Measures are included in the peat stability further information response to mitigate against slides and bog bursts, and to address excavated spoil management, permanent disposal of excavated spoil, management of excavated material, temporary storage of material, reinstatement and general control measures.

13.7.114. The targets and attributes for each of the qualifying interests that potentially could be adversely affected by the proposed development are set out in Table 6 above. The proposed development will not adversely impact on the coverage characteristics or river type and characteristic plant species, flow regime characteristics, river morphology and channels, and water quality of the water vegetation that is a qualifying interest for the River Foyle and Tributaries SAC. The proposed development is unlikely to have a water quality effect on the SAC on the basis of the intervening distance, associated dilution and the moderate size and scale of the proposed wind farm.

13.7.115. The above mitigation measures will ensure that the proposed development will not adversely or significantly impact on water quality. These measures will also protect against water quality impacts affecting salmon and otter prey.

13.7.116. I am satisfied that with full and proper implementation of the above mitigation measures, it can be determined, beyond all reasonable and reliable scientific doubt, that the proposed development will not result in adverse effects on the integrity of the River Foyle and Tributaries SAC. The mitigation measures will address the source of any potential impacts and are adequate, in particular, to protect against sedimentation and pollutants arising from surface water run-off to various watercourses in the River Finn catchment.

Relevant European site: Meentygrannagh Bog SAC (Site code: 000173)

13.7.117. Meentygrannagh Bog is located on a gently sloping hillside to the west of the Elatagh River. The SAC has a diversity of bog habitats within a small area with the juxtaposition of domed valley bogs with fen being unusual in Donegal and blanket bog regions generally. The blanket bog grades into an area of transition mire and fen communities. The transition mire is notable for the occurrence of Slender green feather-moss, a species listed on Annex II of the E.U. Habitats Directive. It is noted in the Site Synopsis that the main land use is sheep grazing, but the main threat is afforestation, with extensive areas adjacent to the site already planted.

13.7.118. There are potential impact pathways from the proposed development site on the qualifying interests of the Meentygrannagh Bog SAC, i.e. Blanket Bogs (Active)* Transition Mires, Alkaline Fens, and Slender green feather-moss.

Factors that can adversely affect the achievement of conservation objectives

13.7.119. The Meentygrannagh Bog SAC is located approximately 140m from the proposed development site boundary and c. 1km from the nearest windfarm infrastructure (T12). It is stated in the Screening for Appropriate Assessment Report that most of the Meentygrannagh SAC is within a neighbouring hydrological sub-basin and drainage from infrastructure at T12 will not adversely affect the hydrological regime or quality of conservation interest habitats. The Meentygrannagh Bog SAC was therefore screened out for Appropriate Assessment in the Screening for Appropriate Assessment Report.

13.7.120. Notwithstanding this, I consider that there may be factors arising from the certain aspects of the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objectives for which the Meentygrannagh Bog SAC is designated. Turbine T12 drains to the Elatagh_020 river sub-basin and there is potential for adverse impacts to water quality due to soil erosion and suspension of the soil sediment particles in site run-off and overland flow. Erosion could affect habitat supporting Slender green feather-moss.

13.7.121. The submission from the NPWS notes that the proposed development site is immediately adjacent and upslope of both the River Finn SAC and the Meentygrannagh Bog SAC. It appears, however, that the NPWS was more concerned with the potential effects arising from the multiple watercourses and riparian receptors that flow into the River Finn SAC.

13.7.122. The submission from BirdWatch Ireland highlights that Slender green feather-moss is known to occur at Meentygrannagh Bog SAC and the threat to this moss is not detailed or quantified specifically within the Appropriate Assessment Screening Report or NIS. It is also noted that the moss appears to be only metres away from the red line boundary of the site and that the proposal could threaten the qualifying criteria of the SAC due to the exceptional closeness to of this habitat of great sensitivity to potential changes in water level. It appears that works at T12 will occur upslope and an Appropriate Assessment should have clearly quantified the impact of construction and operation on the moss which is listed on Annex II of the EU Habitats Directive. It is also submitted that the impact on other Annex I habitat types such as Alkaline Fen, Blanket Bog and Quaking Mires should be quantified.

13.7.123. Records indicate the presence of Slender green feather-moss close to the Meentygrannagh Stream in the townlands of Tooslenagh to the east of the stream and Meencargagh west of the stream. An ecological survey was carried out to verify the presence of Slender green feather-moss and the habitat was found within alkaline fen in Meentygrannagh Bog SAC. The alkaline fen was deemed to be stable. Site conditions were also examined in February 2022 at the location of T12 after significant rainfall, which allowed the drainage pathway from T12 to Meentygrannagh Stream to be traced.

13.7.124. The nearest component of the proposed windfarm (hardstand turbine infrastructure at T12) is >890m east of Meentygrannagh Bog SAC and the access track to the north-west of the proposed development site will not now be utilised for accessing the proposed development. Part of the T12 hardstand lies within the Elatagh_020 sub-basin, which also contains the Slender green feather-moss. However, all surface water drainage from T12 will be to the Tooslenagh Stream that flows into the Meentygrannagh Stream downstream of the alkaline fen habitat supporting Slender green feather-moss. Thus, all water flowing into the alkaline fen that supports Slender green feather moss comes from an area upslope that does not include any part of the proposed development. There is also a linear depression that acts as a hydrological disconnect between the Slender green feather moss habitat and the Toosenagh Stream. The proposed development will not therefore affect slender green feather-moss, alkaline fen or other habitats within the Meentygrannagh Bog SAC.

13.7.125. As the drainage from infrastructure at T12 itself will not adversely affect the hydrological regime or quality of the habitats selected as conservation interests, there will be no **in-combination** effects. In combination effects are also unlikely as most of the proposed development site is in different catchment.

13.7.126. Notwithstanding that there will be no adverse effects on the hydrological regime, **mitigation** has been included to protect water with the Elatagh_020 sub-basin as per the River Finn SAC above.

13.7.127. The targets and attributes for each of the qualifying interests that potentially could be adversely affected by the proposed development are set out in Table 7 above. The proposed development will not adversely impact on habitat area and distribution,

natural hydrology, vegetation composition and structure, physical structure and distribution or population sizes of rare, threatened or scarce species associated with blanket bog, transition mire and quaking bog and alkaline fen that are qualifying interests for the Meentygrannagh Bog SAC. Furthermore, there will be no decline in the size or distribution of Slender green feather-moss population and suitable hydrological conditions and vegetation composition/ structure for this habitat will be maintained. Given that there will be no hydrological linkage from the proposed development works at T12 to part of the Meentygrannagh Bog SAC that lies to the east of Meentygrannagh Stream, and which contains alkaline fen and Slender green feather-moss habitat, it is considered that the proposed development will not directly or indirectly affect the relevant targets and attributes for these habitats.

13.7.128. Mitigation measures will address the source of any potential impacts associated with T12 and are adequate, in particular, to protect against sedimentation and pollutants arising from surface water run-off within the Elatagh_020 sub-catchment. I am satisfied that it can be determined, beyond all reasonable and reliable scientific doubt, that there is no hydrological connection with the qualifying interest habitat of the Meentygrannagh Bog SAC and that the proposed development will not result in adverse effects on its integrity.

13.8. In-Combination Effects

13.8.1. The surrounding environment is dominated by conifer plantation, agricultural lands, peatlands and windfarms and these land uses could act in-combination with the proposed windfarm during the construction, operational and decommissioning phases of the project.

13.8.2. Other ongoing plans, projects and activities that could act in combination with the proposed development are the Donegal County Development Plan, 2018-2024, planning applications within the immediate area and commercial applications for additional forestry.

13.8.3. Impacts on the Finn catchment identified by the Loughs Agency include agriculture, sand and gravel extraction, commercial forestry, commercial and recreational fishing, industry, water abstraction, sewage treatment, diffuse and point source pollution, invasive plant species, urban sprawl and flood defences. Poor habitat quality is

significant in the Foyle catchment due to fine sediment, channelisation, land drainage, forestry activities, peat harvesting, erosion and embankments. Climate change can also affect ecosystems that could act in-combination with the proposed development. Increases in rain could result in uncontrolled erosion of riverbanks. The windfarm, however, will have a positive impact by reducing CO_2 emissions.

13.8.4. There is potential for in-combination impact with the 11 no. operating windfarms in the surrounding area comprising a total of approximately 100 turbines. Lenalea windfarm to the east of the proposed development site has had its planning period extended to January 2024. These windfarms are all to the east, south and south-east of the proposed development site. Other windfarms could act in-combination with the proposed windfarm to increase effects on water quality and birds. Of the cluster of windfarms associated with the slopes of Cark Mountain, the proposed development will be the closest windfarm to the Derryveagh and Glendowan Mountains SPA. Having regard to the core foraging ranges of special conservation interest species and the distance to windfarms, it is reasonable to conclude that the that the proposal when considered in combination with other wind farms in the area will not have significant in-combination effects, in terms of the species' population viability, distribution, supporting habitats or disturbance.

13.8.5. The proposed development will involve the construction of new roads, turbines and other infrastructure adjacent to conifer plantations. Commercial forestry has contributed to reduced water quality in the upper Finn catchment and there is potential for negative water quality impacts from earthworks and the release of sediment. Forestry felling to accommodate the proposed development may also impact on downstream water quality effects.

13.8.6. Agriculture is not extensive in the study area but is one of the main land uses within the catchments draining the site. Water quality impacts associated with the construction phase of the project could act in-combination with the effects of agricultural practices to exacerbate the impacts on catchments draining the site.

13.8.7. Peat drainage and extraction is a significant pressure within the Finn catchment and the water quality effects of the proposed windfarm during construction could act in combination with this. Hydromorphological modification such as land drainage and

wastewater impacts could also have in-combination impacts with windfarm construction.

13.8.8. Overall, I consider that the in-combination analysis set out in the NIS is complete and robust in terms of plans and projects and that no likely significant impacts arose taking into account any residual impacts from the proposed development.

13.8.9. The potential for adverse effects due to in-combination effects with other projects and activities was excluded based on the following:

- Other windfarms in the area are further away from the Derryveagh and Glendowan Mountains SPA than the proposed development site and the proposed windfarm and neighbouring windfarms are outside the core foraging range of breeding special conservation interest species associated with the SPA.
- The multiple raptor records for numerous species within adjacent operational windfarm sites, where these birds continue to forage and commute.
- Numbers of recorded migratory birds that are special conservation interest species for the Lough Swilly SPA were small or irregular and any cumulative impacts are reduced by the fact that the environs of the proposed development site are of no particular importance to these bird species.
- Ongoing bird monitoring showing that existing wind farms do not interact cumulatively to create extensive barriers leading to diversion of birds - there is still a recorded presence of Greenland white-fronted goose and Whooper swan.
- Collection and analysis of data on peat depth and peat strengths concluding that the proposed windfarm represents a negligible risk from a geotechnical and peat stability perspective.
- Demonstration that there is no hydrological connection between the proposed windfarm infrastructure and blanket bog within the River Finn SAC. The only hydrologically connected small piece of infrastructure (short section of new road) is over 1km away from the SAC and there are intervening fire breaks, forestry road and forestry.

- Demonstration that there is no hydrological connection between the proposed windfarm infrastructure and qualifying interest habitat pertaining to the Meetygrannagh Bog SAC.

13.9. Appropriate Assessment Conclusions

13.9.1. Having carried out screening for appropriate assessment of the proposed construction of a 12 turbine windfarm with associated works, both individually and in combination with other projects, plans and activities, it was concluded that it could have significant effects on the Derryveagh and Glendowan Mountains SPA (004039), Lough Swilly SPA (004075), River Finn SAC (002301), River Foyle and Tributaries SAC (UK0030320) and Meentygrannagh Bog SAC (000173). Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of those sites in light of their conservation objectives.

13.9.2. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC or any other European site, in view of the sites' Conservation Objectives. No reasonable scientific doubt remains as to the absence of such effects.

13.9.3. This conclusion is based on:

- A full and detailed assessment of all aspects of the proposed project including proposed mitigation measures and ecological monitoring in relation to the Conservation Objectives of the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC,
- Detailed assessment of in combination effects with other plans and projects including historical projects, current proposals and future plans, and in particular the other windfarms in the surrounding area,

- Identification and examination of the implications of the proposed development for species present on site and implications for habitat types and species found outside the boundaries of each European Site where they affect the conservation objectives of the European Site concerned.
- No adverse effects to Special Conservation Interest habitat or species of the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC following the application of mitigation measures.
- The demonstration, beyond reasonable scientific doubt, that with full and proper implementation of mitigation measures, the proposed development will not result in adverse effects on the integrity of the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC.

14.0 **Overall Conclusion**

14.1. There is a consistent message throughout all levels of policy that there must be a transition to a low carbon and climate resilient society. This requires an increase in renewable energy generation and associated infrastructure, including wind and solar farms, grid reinforcement, storage development and interconnection. National Policy Objective 55 of the National Planning Framework seeks to *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."* Objective RPO 4.18 of the Regional Spatial and Economic Strategy also seeks to "*support the development of secure, reliable and safe supplies of renewable energy, to maximise their value, maintain the inward investment, support indigenous industry and create jobs."*

14.2. At a local level, it is a core aim of the Development Plan with respect to energy *"to facilitate the development of a diverse energy portfolio by the sustainable harnessing of the potential of renewable energy including ocean energy, bioenergy, solar, wind and geothermal, along with the sustainable use of oil and gas, and other emerging energy sources in accordance with National Energy policy and guidance. It is also an aim to facilitate the appropriate development of associated infrastructure to enable*

the harnessing of these energy resources and to promote and facilitate the development of Donegal as a Centre of Excellence for Renewable Energy."

14.3. This is an application to An Bord Pleanála under the provisions of Section 37E of the Planning and Development Act, 2000 (as amended) for the development of a 12 turbine windfarm in rural Co. Donegal. The principle of the proposed windfarm is acceptable and in accordance with the overall policy aims of supporting the sustainable development of wind energy. The windfarm application is assessed both individually and cumulatively within the EIA and Appropriate Assessment with any other relevant plans and projects.

14.4. Baseline survey information in the current case goes beyond what might normally be submitted with a first-time planning application. Survey information pertaining to the site from a previous planning application as far back as 2006 provides a longer-term picture of the usage of the site and surroundings by different species. Surveys and reviews were carried out up to 2021. I consider that this information is suitably up to date having regard to the lodgement dates of the planning application.

14.5. The main issues associated with the proposed development are impacts on biodiversity including ornithology and peatland habitat; impacts on soils and water bodies; and landscape and visual impacts. The applicant has presented reasonable and reliable scientific evidence to conclude that there will be no significant adverse impacts arising from the proposed windfarm. There will be a significant positive impact on climate arising from the increased generation of renewable energy.

14.6. Overall, I am satisfied that the proposed development, in-combination with other plans and projects, would not adversely affect the favourable conservation condition of the habitats and species, which is listed as special conservation interests for the Derryveagh and Glendowan Mountains SPA, Lough Swilly SPA, River Finn SAC, River Foyle and Tributaries SAC and Meentygrannagh Bog SAC. I also consider that the EIAR and Revised Appropriate Assessment Screening Report and Revised NIS provides the Board with adequate information to fully assess the cumulative impacts and in-combination effects of the proposed windfarm and any other relevant plans or projects. Finally, the proposed Drumnahough Windfarm complies with local, regional and national policy with respect to renewable energy and climate resilience.

15.0 Recommendation

15.1. On the basis of the above assessment, I recommend that the Board should grant permission for the proposed development for the reasons and considerations set out below.

16.0 Reasons and Considerations

In coming to its decision, the Board had regard to the following:

- the nature, scale and extent of the proposed development,
- the decisions made in respect of an appropriate assessment,
- the national target to have up to 80% of electricity generated from renewable sources by 2030,
- national and local policy support for developing renewable energy, in particular the:-
    - National Planning Framework, 2018,
    - Climate Action Plan, 2021
    - Regional Spatial & Economic Strategy for the Northern and Western Region, 2020
    - the relevant provisions as set out in the current Donegal County Development Plan,
- the pattern of development in the area (including the separation distance to dwellings),
- the submissions on file including that from the Planning Authority,
- the documentation submitted with the application, including the Revised Appropriate Assessment Report, Revised Natura Impact Statement and the Environmental Impact Assessment Report,
- the report of the Inspector,
- the likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the

proposed development and the likely significant effects of the proposed development on European Sites.

it is considered that, subject to compliance with the conditions set out below, the proposed development would not seriously injure the visual amenities of the area or of property in the vicinity, would not have an unacceptable impact on the landscape character of the area, would not be detrimental to the natural heritage or cultural heritage of the area, and would otherwise be in accordance with the proper planning and sustainable development of the area.

Appropriate Assessment: Stage 1

The Board agreed with and adopted the screening assessment and conclusions carried out in the Inspector's report that the only European sites in respect of which the proposed development has the potential to have a significant effect are the Derryveagh and Glendowan Mountains SPA (Site code: 004075), Lough Swilly (Site code: 004039), River Finn SAC (Site code: 002301), River Foyle and Tributaries SAC (Site code: UK0030320) and Meentygrannagh Bog SAC (Site code: 000173).

Appropriate Assessment: Stage 2

The Board considered the Revised Appropriate Assessment Screening Report, the Revised Natura Impact Statement, and other associated documentation submitted with the application and appeal, the mitigation measures contained therein, the submissions and observations on file and the Inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development on the aforementioned European sites in view of the sites' Conservation Objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

(a) the likely direct and indirect impacts arising from the development and the proposed development, both individually, when taken together and in combination with other plans or projects,

(b) the mitigation measures, which are included as part of the current proposal, and

(c) the Conservation Objectives for the European sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European sites, having regard to the sites' Conservation Objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' Conservation Objectives.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development, taking into account:

(a) the nature, scale and extent of the proposed development,

(b) the Environmental Impact Assessment Report and other associated documentation submitted in support of the application,

(c) the submissions from the planning authority, the observers and prescribed bodies in the course of the application, and

(d) the Inspector's report.

The Board agreed with the summary of the results of consultations and information gathered in the course of the environmental impact assessment, and the examination of the information contained in the Environmental Impact Assessment Report and the associated documentation submitted by the applicant, and the submissions made in the course of the application as set out in the Inspector's report. The Board was satisfied that the Inspector's report sets out how these various environmental issues were addressed in the examination and recommendation which are incorporated into the Board's decision.

Reasoned Conclusion of the Significant Effects:

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to

date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below.

The main significant effects, both positive and negative, are:

- Positive impacts on **population and human health** on the local economy from increased spending and jobs during the construction period and from landowner and community benefit payments.

  Any adverse impacts on population and human health will be mitigated by the measures to reduce impacts from material assets, air & climate, noise & vibration and shadow flicker to acceptable levels.

- Potential for adverse effects on **Biodiversity** arising from the proposed development and cumulatively with other projects, plans and activities in the area with respect to peat habitat, terrestrial invertebrates, aquatic habitats and species, and salmonids, European eel and other fish related to water quality and habitat degradation.

  There will be permanent loss of 6.71 hectares of peat habitat due to the construction footprint, with potential secondary impacts on adjacent peat habitats. This will be offset through habitat reinstatement and a biodiversity enhancement plan where 6.2 hectares of conifer plantation at keyhole felling locations would be rehabilitated to peatland and 7.2 hectares of upland blanket bog will be restored, resulting in a net gain of 6.69 hectares of peatland habitat.

  Potential impacts on this fauna relate primarily to habitat loss and disturbance, and collisions with proposed turbines in the case of bats. Bat densities were recorded as being low. Impacts on aquatic receptors is related to water quality and pathways with source pollutants. Potential cumulative impacts related to climate change, water quality deterioration, agricultural intensification and wind farm development could exacerbate potential impacts associated with the proposed development.

  The above impacts will be mitigated by measures to provide a biodiversity net gain in an area currently under commercial forestry, provide habitat amelioration,

establishment of stream buffer zones/forestry set back distances, riparian woodland creation, pond creation, bat box installation and general best practice construction mitigation measures in accordance with the Construction and Environmental Management Plan and through implementation of Biodiversity Enhancement Plan under guidance of Ecological Clerk of Works.

- Potential for adverse impacts on **Ornithology** due to habitat loss resulting in reduced feeding and nesting opportunities, disturbance from the presence of machinery or personnel, and displacement due to barrier effects and collisions. Habitat loss will be limited and there is an abundance of similar habitat in the area. Collision risks are low due to factors related to bird species, numbers and avoidance behaviour.

  The most sensitive bird species is considered to be merlin and the proposed development site seems to harbour a stable passerine population, which provides an adequate food supply for this species. Raptors were recorded but merlin is the only breeding species on site. Mitigation will include a 350m buffer between merlin nest site and turbines, and should this species be present within 350m of proposed works, construction works within this zone will be restricted to outside the breeding season.

  The proposed development site and the wider area is already modified in nature, and it is noted that bird species, in particular merlin, have adapted to the proliferation of commercial forestry in the area. The cumulation of windfarms in the area is not evaluated as significant based on the multiple raptor records within adjacent windfarm sites

- Potential for adverse impacts to **Land and Soils** from slope failure risk, excavations, rock blasting, storage and disposal of excavated materials and drainage. Mitigation by design has taken place to avoid areas of deep peat. Peat sightline monitoring will be carried out and monitoring will take place at areas of deep peat excavation, material deposition areas and any areas of works with a risk higher than low. Emergency procedures will be implemented to prevent the onset of bog burst or localised peat slide.

- Potential impacts on **Water**, which left unmitigated, could have an effect on receiving watercourses, particularly the risk of sedimentation of sensitive

catchments. Site access tracks, crossings, cabling, turbine construction, borrow bit, crane pad construction, substation, battery compound and peat management would have a moderate magnitude and significance on the Elatagh River (Finn) without mitigation. These potential impacts will be mitigated by siltation and erosion controls, temporary settlement ponds, buffer zones to rivers/ streams, avoidance of deep peat/ steep slopes, surface water monitoring and forestry clearing in accordance with guidelines.

- Positive cumulative impacts on **Climate** from Drumnahough Windfarm due to the production renewable wind energy and a reduction in the use of fossil fuels.
- Potential impacts on **Landscape character and visual amenity** from the proposed turbines focused mainly at the site and its immediate surrounds. From the north and north-west, a low number of residences are likely to experience open views of the turbines. More sensitive viewpoints will not experience significant effects. Cumulatively, the proposed windfarm will have the effect of extending the presence of turbines further to the north-east. This will result in the visual effects being more pronounced than at present in some areas. In more distance views, the proposed turbines will be difficult to distinguish from existing turbines.

16.1.1. Having regard to the above, the Board is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures referred to above, including proposed monitoring as appropriate, and subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report.

Proper Planning and Sustainable Development:

It is considered that, subject to compliance with the conditions set out below, the proposed development would be in accordance with European energy policy, the National Planning Framework, the Regional Spatial and Economic Strategy for the

Northern and Western Region and the relevant provisions of the current Donegal County Development Plan and would:

(a) make a positive contribution to Ireland's national strategic policy on renewable energy and its move to a low energy carbon future, and

(b) have an acceptable impact on the environment and on the amenities of the area.

The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

17.0 **Conditions**

1.	The development shall be carried out and completed in accordance with the plans and particulars lodged with the application, as amended by the further plans and particulars received by An Bord Pleanála on the 25th day of February 2022, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development and the development shall be carried out and completed in accordance with the agreed particulars. **Reason:** In the interests of clarity.
2.	This permission shall be for a period of 30 years from the date of commissioning of the wind farm. **Reason:** To enable the planning authority to review its operation in the light of the circumstances then prevailing.
3.	The period during which the proposed development hearby permitted may be constructed shall be ten years from the date of this Order. **Reason:** In the interests of clarity.
4.	The wind turbines including masts and blades shall be finished externally in a light grey colour. **Reason:** In the interest of visual amenity.
5.	Prior to any development taking place on site, the developer shall submit for the written agreement of the Planning Authority, the final detail and specification of the proposed grid connection route. **Reason:** In the interests of clarity.
6.	All of the environmental, construction and ecological mitigation measures set out in the Environmental Impact Statement and Natura Impact Statement accompanying the application to An Bord Pleanála and other particulars submitted with the application to the Board shall be

	implemented by the developer in conjunction with the timelines set out therein, except as may otherwise be required in order to comply with the conditions of this order. The merlin habitat management plan (February 2022) is not taken into consideration by An Bord Pleanála as mitigation for the proposed development. **Reason:** In the interest of clarity and the protection of the environment during the construction and operation phases of the development.
7.	The applicant shall appoint a suitably qualified ecologist to monitor and ensure that all avoidance/mitigation measures relating to the protection of flora and fauna are carried out in accordance with best ecological practice and to liaise with consultants, the site contractor, the NPWS and Inland Fisheries Ireland. A report on the implementation of these measures shall be submitted to the planning authority and retained on file as a matter of public record. **Reason:** To protect the environmental and natural heritage of the area.
8.	The developer shall retain the services of a suitably qualified and experienced bird specialist to undertake appropriate surveys of this site for merlin. Details of the surveys to be undertaken shall be submitted to, and agreed in writing with the planning authority prior to commencement of development. **Reason:** To monitor the impact of the development on the local population of merlin.
9.	The developer shall review usage by birds of the wind farm site and document bird casualties through an annual monitoring programme, which shall be submitted by the developer to, and agreed in writing with, the planning authority prior to commencement of development. This programme shall be developed in consultation with the Department of Housing, Local Government and Heritage, and shall cover the entire period of the operation of the wind farm. **Reason:** To ensure appropriate monitoring of the impact of the development on the fauna of the area.

10.	The operation of the proposed development, by itself or in combination with any other permitted wind energy development, shall not result in noise levels, when measured externally at nearby noise sensitive locations, which exceed: (a) Between the hours of 7am and 11pm: i. the greater of 5 dB(A) $L_{90,10min}$ above background noise levels, or 45 dB(A) $L_{90,10min}$, at standardised 10m height above ground level wind speeds of 7m/s or greater ii. 40 dB(A) $L_{90,10min}$ at all other standardised 10m height above ground level wind speeds (b) 43 dB(A) $L_{90,10min}$ at all other times. Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, including any mitigation measures such as the de-rating of particular turbines. All noise measurements shall be carried out in accordance with ISO Recommendation R 1996 "Assessment of Noise with Respect to Community Response," as amended by ISO Recommendations R 1996-1. The results of the initial noise compliance monitoring shall be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm. **Reason:** In the interest of residential amenity.
11.	In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise such interference. Details of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing with, the planning authority prior to commissioning of the turbines and following consultation with the relevant authorities. **Reason:** In the interests of protecting telecommunications signals and of residential amenity.

12.	Details of aeronautical requirements shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. Subsequently the developer shall inform the planning authority and the Irish Aviation Authority of the co-ordinates of the 'as constructed' positions and highest point of the telecoms pole and turbines (to the top of the blade spin). **Reason:** In the interest of air traffic safety.
13.	Shadow flicker arising from the proposed development, by itself or in combination with other existing or permitted wind energy development in the vicinity, shall not exceed 30 hours per year or 30 minutes per day at existing or permitted dwellings or other sensitive receptors. A report shall be prepared by a suitably qualified person in accordance with the requirements of the planning authority, indicating compliance with the above shadow flicker requirements at dwellings. Within 12 months of commissioning of the proposed wind farm, this report shall be submitted to, and agreed in writing with, the planning authority. **Reason:** In the interest of residential amenity.
14.	(a) Prior to commencement of development, details of the following shall be submitted to, and agreed in writing with the planning authority: (i) A Transport Management Plan, including details of the road network/haulage routes indicated in the Environmental Impact Assessment Report including the vehicle types to be used to transport materials on and off site, and a schedule of control measures for exceptional wide and heavy delivery loads. (ii) A condition survey of the roads and bridges along the haul routes to be carried out at the developer's expense by a suitably qualified person both before and after construction of the wind farm development. This survey shall include a schedule of required works to enable the haul routes to cater for construction-related traffic. The extent and scope of the survey and the

	schedule of works shall be agreed with the planning authority/authorities prior to commencement of development. (iii) Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the planning authority/authorities. (iv) Detailed arrangements for temporary traffic arrangements/controls on roads. (v) A programme indicating the timescale within which it is intended to use each public route to facilitate construction of the development. (b) All works arising from the aforementioned arrangements shall be completed at the developer's expense, within 12 months of the cessation of each road's use as a haul route for the proposed development. **Reason:** To protect the public road network and to clarify the extent of the permission in the interest of traffic safety and orderly development.
15.	Prior to commencement of development, a detailed Construction Management Plan for the construction stage shall be submitted to, and agreed in writing with, the planning authority generally in accordance with the proposals set out in the Environmental Impact Assessment Report. The Construction Management Plan shall incorporate the following: (a) a detailed plan for the construction phase incorporating, inter alia, construction programme, supervisory measures, noise management measures, construction hours and the management of construction waste, (b) a comprehensive programme for the implementation of all monitoring commitments made in the application and supporting documentation during the construction period, (c) details of a pre-construction survey to identify/confirm the absence of any merlin nests within the subject site, and including a work

	cessation protocol including appropriate buffer in the vicinity of any identified nest, until the nest has been vacated at the end of the breeding season, (d) an emergency response plan, and (e) proposals in relation to public information and communication. A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be available for public inspection by the planning authority. **Reason:** In the interests of environmental protection and orderly development.
16.	Prior to the commencement of development, community gain proposals shall be submitted to, and agreed in writing with, the planning authority. **Reason:** In the interest of the proper planning and sustainable development of the area.
17.	On full or partial decommissioning of the wind farm or if the wind farm ceases operation for a period of more than one year, the masts and the turbines concerned, shall be removed and all decommissioned structures shall be removed within three months of decommissioning. **Reason:** To ensure satisfactory reinstatement of the site upon cessation of the project.
18.	The applicant shall engage with the services of a suitably qualified archaeologist to monitor all topsoil stripping and groundworks associated with the development, licenced under the National Monuments Acts, 1930-1994. No sub-surface work shall be undertaken in the absence of an archaeologist without his/ her express consent. The archaeologist is required to notify the Heritage Division of the Department of Housing, Local Government and Heritage in writing at least four weeks prior to the commencement of site preparations. This will allow the archaeologist sufficient time to obtain a licence to carry out the work.

	Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The applicant shall be prepared to be advised by the Heritage Division of the Department of Housing, Local Government and Heritage with regards to any necessary mitigating action (e.g. preservation in situ, or excavation) and shall facilitate the archaeologist in recording any material found. The Planning Authority and the Department of Housing, Local Government and Heritage shall be furnished with a report describing the results of the archaeological monitoring, and including any necessary specialist reports, following the completion of all archaeological work on site. **Reason:** To ensure the continued preservation (either in-situ or by record) of places, caves, sites, features or other objects of archaeological interest.
19.	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the relevant planning authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the relevant planning authority to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and amount of the security shall be as agreed between the relevant planning authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination. **Reason:** To ensure the satisfactory reinstatement of the delivery route.
20.	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the satisfactory reinstatement of the site upon cessation of the project coupled with an agreement empowering the planning authority to apply such security or part thereof to such reinstatement. The form and amount of the security shall be as agreed between the planning authority

	and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination. **Reason:** To ensure satisfactory reinstatement of the site.
21.	The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála to determine the proper application of the terms of the Scheme. **Reason:** It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

Donal Donnelly
Senior Planning Inspector

6th July 2022