An Bord Pleanála

Inspector's Report

ABP-318295-23

Development	Construction of five wind turbines, meteorological mast, electricity sub station and associated site works. The application is accompanied by a Planning Report, Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).
Location	Bilboa Wind Farm, Land at Boolyvannanan and Coolnakisha, Bilboa, County Carlow.
Planning Authority	Carlow County Council
Planning Authority Reg. Ref.	22/340
Applicant(s)	Boolyvannan Renewable Energy Limited.
Type of Application	Permission.
Planning Authority Decision	Grant Permission subject to conditions
Type of Appeal	Third Party
Appellant(s)	Justin & Susan Hayden & Mary Farrell.

Observer(s)	Wild Ireland Defence CLG, c/o Peter Sweetman & Associates. Shangri La, Newtown, Bantry. Co Cork Michael Monaghan, Johnsduffwood, Old Leighlin, Co Carlow. Michael Farrell, Coolnakisha, Leighlinsbridge, Co Carlow. Mary Farrell. Coolnakisha, Leighlinsbridge, Co Carlow. Justin Hayden & Susan Hayden,Coolnakisha, Old Leighlinbridge.
Prescribed Bodies	Development Applications Unit, Department of Housing Local Government and Heritage. Health Service Executive, Environmental Health. National Office for Environmental Health Services. Kilkenny County Council Inland Fisheries Ireland I.F.I. Irish Water Irish Aviation Authority. I.A.A.
Date of Site Inspection	24th May 2024.
Inspector	Bríd Maxwell

Contents

1.0 Site Location and Description

1.1 The appeal site extends to 25.2 hectares and is located at Boolyvannanan and Coolnakisha, Bilboa, in Co Carlow. The site lies approximately 8km to the southwest of Carlow Town and circa 1km south of the small settlement of Bilboa and 'Three Counties Bridge" which lies on the border of counties Carlow, Laois and Kilkenny. Other settlements in the vicinity include Kilkenny City located circa 18km to the southwest, Castlecomer 11km to the west, Leighlinbridge 6km to the southeast and Bagnalstown 10km to the southeast.

1.2 The appeal site is of an irregular shape confined to the proposed footprint ie. defined tightly along the internal forestry road network and rounded at the location of the proposed wind turbines. The landholding is larger (circa125ha) and demarcated by local roads to the south and southeast. The location is an upland area of the Killeshin Hills which form part of the Castlecomer Plateau. There is an existing operational windfarm nearby in County Laois, Gortahile (8 turbines hub height 80m 20 MW capacity) which is visible from the northern portion of the appeal site.

1.3 The appeal site comprises commercial coniferous forestry, predominantly Sitka spruce with an area of bog to the north east of the site known as Red Bog. Site topography involves a gently slope of 0 to 4 degrees and an elevation ranging between 290m above ordnance datum (AOD) to 300m AOD. Lands to the north of the appeal site consists primarily of coniferous trees with some broadleaves and rough grazing. Lands to the south are predominantly in agricultural use. The southern boundary runs adjacent to the L7130 public road.

1.4 There is a scattered pattern of residential development with a total of 25 residential properties within 1km of the site predominantly to the north and south. Scoil Bhríde, Ardough National School, is located circa 800m to the north of the site. Bilboa Church of Ireland, Holy Trinity Church (Tullowcreen) Caaanlusky, (NIAH Reg No 10300601) is located circa 1.5km north of the site. There are three scheduled monuments within 2km of the site including a schedule bowl barrow (CW011-012) and earthwork CW011-004 and a moated site (CW011-001).

1.5 There are no watercourses within the proposed windfarm site. The site is within the water catchment of the River Dinin, a tributary of the River Nore. The River Barrow (4.4km distant) and River Nore (2.3km distant) are located to the south east and south west respectively designated part of the River Barrow and River Nore SAC (Site Code 002162).

2.0 **Proposed Development**

2.1. The application involves permission for the erection of five wind turbines with turbine blade diameter of 117m, hub height 78m and overall height to tip of 136.5m, one permanent meteorological mast, access road and internal tracks, electricity substation, temporary construction compound, turbine laydown area, control building, 1 borrow pit, crane hardstanding, underground cabling, up to approximately 18 hectares of forestry felling and all associated site works, with an operational lifetime of 30 years.

2.2. The Planning report outlines that the components of the application have previously been consented by Carlow Couty Council and An Bord Pleanála. The proposed size, location and nature of the infrastructure is unchanged from the consented wind farm (11/154 Granted 21/12/2012 Expired 20/12/2022) as modified by 21/15 (granted 18/03/2022 expired 20/12/2022) and the stated purpose of the application is to consolidate the elements into one planning permission to “allow for the comfortable completion of the construction programme.” I note for clarity that as the previous permissions have now expired the proposal seeks to revive the now lapsed permissions. The proposed development is presented in the context of the grid connection route and turbine delivery route permitted under 20/180 (Expires 12/8/2026).

2.3. A substation and temporary construction compound are proposed towards the northwest of the site between Turbines 4 and 5. Compound is proposed on an area of crushed stone hardstanding. Substation compound to contain electrical infrastructure and control elements in a free standing unit approximately 50mx25m with a capacity of 21MW. Underground cables will be brought into the substation building in ducts. Lighting is to be limited to working areas. The proposed crane

hardstanding is approximately 30m x 62.5m at each turbine. This represents the maximum size which may be used whereas final hardstanding may be smaller and design will be confirmed prior to construction.

2.4. Regarding access tracks there are approximately 2.8m of existing internal tracks which may have to be upgraded and 0.4km of proposed access tracks which will have a maximum width of 8m. A meteorological mast (up to 81m lattice mast) is proposed to the southwest of proposed Turbine T5 with intermittent weather monitoring equipment security to ground foundations and surrounded by security palisade fence is proposed. An alternative smaller mast (approximately 31m) is also demonstrated. Final meteorological mast will be selected based on the requirements of the system operator. Felling of approximately 18 hectares of forestry, predominantly sitka spruce, will be undertaken as part of the development.

2.5. The consented grid route (20/180 - expires 12/8/2026) comprises the installation of 6.6km of underground cables to connect to the national electricity grid. A new offsite substation is located approximately 3km from the site. The permission also provides for an updated transport delivery route, upgrading of forestry access between the previously consented windfarm and L7129, construction of two additional sections of onsite access track and re-orientation and increase in size of turbine one's craned hardstanding pursuant to the previously consented development. While the original windfarm proposed main access from the existing forestry entrance to the south along the L7130 the subsequent permission for grid connection route (20/180) proposed access from the L7127 to the north.

2.6. A construction environment management Plan, CEMP is provided as Appendix 4.1 setting out the detail of the proposed works. It is anticipated that the construction of the development will require approximately 19 months to complete.

2.7. The proposed development consisting of 5 turbines with an anticipated output of approximately 22.5MW, has a total output of greater than 4MW and accordingly is

subject to EIA. The application is accompanied by a planning report and a Natura Impact Statement (NIS) and an Environmental Impact Assessment Report (EIAR).

3.0 Planning Authority Decision

3.1. Decision

3.1.1 Following an initial request for additional information, and by order dated 25th September 2023, Carlow County Council issued notification of its decision to grant permission for the development and 32 conditions were attached which included the following of particular note.

- Condition 2. Operational period 30 years from date of commissioning.
- Condition 3. Specification requirements including Hub height 78 metres rotor diameter 117m Overall height to blade tip 136.5m. Height of permanent met mast shall not exceed 81m.
- Condition 5. Community benefit scheme and fund details to be agreed prior to commencement of development. Ongoing community engagement throughout all stages of the development.
- Condition 9 Bog Restoration Rewetting plan and ecological hydrological monitoring programme to be developed in consultation with the NPWS and agreed in writing with the planning authority.
- Condition 10. Supervision by ecological clerk of works.
- Condition 13 Noise limits
- Condition 15. Shadow flicker control limits.
- Condition 22. Sumps or settlement lagoons to serve onsite borrow pit shall be located outside the 50m buffer for mapped natural watercourses and 25m buffer for artificial channels. Buffer also implemented for the siting of silt busters and for location of water discharged onto vegetated surfaces. Flocculants only as a measure of last resort or emergency.
- Condition 27. Archaeological monitoring of site clearance works, topsoil stripping, groundworks and/or implementation of agreed preservation in situ measures.

- Condition 30. Bond / security for reinstatement of public roads.
- Condition 31. Bond Security reinstatement of the site upon cessation.
- Condition 32. Development Contribution €17,400.

3.2. **Planning Authority Reports**

3.2.1. Planning Reports

3.2.1.1 Planning report notes that the Carlow County Development Plan 2022-2028 designates the site as an upland area whereby wind energy development is indicated to be "not normally permissible" however a number of factors arising in the particular circumstances of this case which would suggest favourable consideration including:

- Previous permissions for the windfarm project.
- Landscape Character Type - location in the north western periphery of the county in Killeshin hills which has a moderate capacity to absorb such developments as set out in the Landscape Character Assessment. Appendix VII of the County Development Plan.
- Acknowledgement of the contribution of the consented wind farm within the Renewable Energy Strategy accompanying the Carlow County Development Plan 2022-2028.
- Other specific objectives of the Carlow County Development Plan 2022-2028 RE 01 and WE 01 together with national and regional objectives supporting transition to low carbon energy future.

The planning report considers the proposal is acceptable from a visual amenity perspective. The Planning Authority engaged the services of "Blackstaff Ecology" consultants to advise on the adequacy of Chapter 7 Biodiversity of the EIAR and the NIS who found no significant gaps in terms of the identified receptors and potential effects. Mitigation measures will ensure minimal adverse impacts on biodiversity and should be considered for inclusion as planning conditions should consent for the project be granted. A number of issues for clarification including experience/qualifications of the field survey team in accordance with SNH

Guidelines. Regarding Vol III Technical Appendices Part A7.5 Ornithology report queries were raised regarding the scope of the breeding bird survey and a relative lack of survey data from early and late in the day which may bias the observations of target species.

3.2.1.2A request for additional information issued on 30th November 2022 requesting the following:

- Response to the issues raised in submission from Inland Fisheries Ireland. (IFI)
- Applicant to clarify whether recreational walking routes/ amenity to be provided as part of the project.
- EIAR report and non-technical summary to be reviewed. Clarification required regarding public consultation noting guidance set out in the Wind Energy Guidelines 2006.
- Chapter 7 Biodiversity. Level of Experience and qualifications of the field survey team to be provided.
- Regarding Volume III Technical Appendices Part A 7.5 Ornithology Report. Breeding bird survey is limited in scope and does not extend across the entire site. While VP watches are carried out at the appropriate time of year they are spread across the relevant seasons as is required by SNH methodology however there is a relative lack of survey data from early and late in the day which may bias the observations of target species. Applicant requested to clarify if the breeding bird surveys were truncated or cover the entire site. Applicant also to provide an explanation why VP watches weren't spread through the day as stated in SNH 2017 guidance.
- Technical Appendices of EIAR to be submitted. TA 7.12 Summary of Construction Stage Impacts and TA 7.13 Hydrogeology Report.
- NIS to be reviewed given its incorrect reference page 75-78 to Carlow County Development Plan 2015-2021 and Draft Carlow County Development Plan 2022-2028.

3.2.1.3Following further information submission the report from Blackstaff Ecology 18/8/2023 in relation to further information response notes that the rationale for the

breeding and wintering bird survey methodology is provided based on sampling of the habitats present on the site. Although the response does not confirm whether the surveys that were carried out extended to the actual proposed turbine locations, the conclusion of the 2011 EIS that the site is primarily a highly modified habitat with no significant intrinsic ecological value and that areas of higher value habitat were avoided remains valid. It is likely that the sampling methodology used therefore describes the likely bird population at the site including turbine locations.

There are no habitats on the site that are suitable for use by the locally most likely available target species swans and hen harrier. While very few VP watches were carried out at dawn and dusk the absence of habitats likely to be used by target species, in tandem with the results from hinterland surveys indicates that conclusions drawn from VP watch data are likely to be appropriate.

3.2.1.4 Final Planner's report adopts the conclusions of the consulting ecologists and recommends permission subject to conditions including development contribution of €3.480 per turbine + €17,400, bond for the reinstatement of the road. EIA report sets out the assessment of the likely significant effects of the proposed development on the environment.

3.2.2. Other Technical Reports

- Water Services Report No objection. - No impact on Irish Water Assets.
- Environment Section - No objection subject to conditions.
- Fire Authority – No objection. Access for fire brigade, and water supply for fire fighting to comply with requirements of chief fire officer.
- Senior Executive Engineer Roads - No objection subject to conditions including:

  Surface water to be contained within the site. Soakways in accordance with BRE Digest 365. Consultation with local municipal engineers in relation to works / road opening licence. An initial recommendation for contribution of €28,000 towards estimated cost of resurfacing of L-7129 was subsequently recommended not to apply as road reinstatement will be carried out following laying of ducting in accordance with road opening licence."

3.3. **Prescribed Bodies**

- Irish Aviation Authority. In the event of permission applicant to contact IAA to agree an aeronautical obstacle warning light scheme for the wind farm development, provide as constructed co-ordinates in WGS84 format together with ground and blade tip height elevations at each turbine location and notify the authority of intention to commence crane operations with at least 30 days prior notification to their erection.
- IAA Air Navigation Services. Requirement in accordance with SI 215 of 2005 to notify the aerodrome operator of the intended operation at least thirty days in advance if the structure is to be erected in the vicinity of the aerodrome or the areas around the aerodrome and other protected surfaces associated with the aerodrome. Crane erection to be notified thirty days in advance. Electronic terrain and obstacle data survey by Ordnance Survey Ireland be paid for by the developer. Data to be supplied once construction is commenced and available to the airspace team.
- Irish Water – No objection.
- Inland Fisheries Ireland. IFI. Site is within the catchment areas of the Dinan(South)-010 and the Rathornan-010 surface water bodies. Current ecological status of the Dinan (south)-010 is Moderate and Risk status under review. Among the significant pressures for this surface water body is forestry clear felling, The current ecological status of the Rathnornan-010 is unassigned and its risk status if under review. The Dinan (South—10 and the Rathornan-010 are important salmon spawning tributaries of the Nore and Barrow Rivers respectively.

  Storage management and conveyance of materials on site must not permit any deleterious matter to reach surface water systems either directly or indirectly. Bankside vegetation to be preserved and no interference with the bed, gradient, profile or alignment of any watercourse without the prior notification and the written agreement of IFI. Mitigation measures outlined in the NIS and CEMP must be adhered to. Applicant to comply with IFIs Guidelines on protection of fisheries during construction works in and adjacent to waters (2016). Though not proposed, if required, instream works may only take place during the period 1 July to 30 September and during periods of low flow.

Buffer zones should be provided 25m from any channels. Buffer zones should be clearly marked in advance of works commencing to preserve their integrity.

Applicant to detail mitigation measures to prevent erosion from soil disturbance in excavation areas and areas where there is significant movement of machinery. Storage of excavated material to include measures to prevent suspended solids pollution of surface water.

Road construction drainage to divert water away from buffer zones. Drains and silt traps designed and sited to minimise flow velocities and potential for erosion. Buffer zones to be marked and protected.

Method statements for water crossings or alterations to existing crossings to be submitted for written approval of IFI.

Principles of Sustainable Urban Drainage Systems to be incorporated into water management plans.

Soak pits on suitable ground to provide sufficient retention time to attenuate potential contaminated water.

Tree felling licence to be referred to IFI for consideration.

Regular maintenance and inspection of sediment traps and drains.

Works to be suspended during periods of heavy rainfall.

Pre-cast concrete to be used where possible. Works with cast in place concrete to be carried out in dry and isolated from water that might enter the drainage networks.

Measures to prevent oils fuels or concrete run off.

Clarification required regarding route of the cable system from individual turbines to the proposed substation compound. Method statement for works where within 50m of a significant watercourse.

Concerns arise in relation to proposal to construct a pond area at the southern end of the site as a biodiversity feature based on potential for the introduction /spread of non native fish and other species. There should be no hydrological connectivity between the pond and any watercourse and it should be designed to ensure that there is no potential for non-native fish to become established. No deep open water areas and managed so that it is dominated by emergent aquatic vegetation /plants with large areas which are intermittently wet.

Given extreme sensitivity of soil / subsoils on site request that applicant investigate importation of material to site rather than excavation of borrow pit on site.

No interruption of natural flow paths.

Precautionary principle to apply throughout the development.

Water monitoring records, details of ecological clerk of works.

- IFI submission following response to request for additional information indicates satisfaction with the response. Regarding the on site borrow pit sumps or settlement lagoons should be outside the 50m buffer for mapped natural watercourse and the 25m buffer for artificial channels as outlined. Similar buffer zones should be implemented for the siting of silt busters and for the location of water discharged onto vegetated surfaces. Natural mitigation measures should suffice if these conditions are adhered to. Flocculants should be used only as a measure of last resort or in an emergency situation.

- Kilkenny County Council Roads design office. No objection subject to abnormal load permits. Access to the development should be restricted to the routes indicated in the EIA and CEMP. In the event that access for construction traffic is required via the local road network in Co Kilkenny applicant is required to submit a detailed traffic management plan for consideration and approval of municipal district office.

- Kilkenny County Council noted the direction with respect to renewable energy policies and wind strategy of Kilkenny City and County Development Plan 2021-2027 from Minister of State at the Department of Housing Local Government and Heritage consequent to a recommendation made to him by the OPR. Second submission indicates no comment on further information.

- HSE - Environmental Health Services,

  Would support the creation of accessible amenity area. Noting the fundamental requirement for public consultation in EIA process, the 11 year timelapse between public consultation and submission of the application is significant. If the potential

splitting of projects of the turbine development and grid connection warrants a new application with both components considered together this also warrants a supporting public consultation process. Non-technical summary is not clear on the reason for the application for a development that has already received consent.

Protection of environmental and public health during the construction phase adequate if the CEMP is implemented in full. The hydrological disconnection between the site and the public water source zones is noted and no private well is identified within 1km of the development area. Provided all mitigation measures in CEMP to protect surface and groundwater are implemented in full EHS is satisfied that there is adequate protection of drinking water sources in the development proposal. No likely significant health effects from the predicted noise from the proposed development.

Second submission following further information acknowledges the response with regard to public consultation and makes no additional comments.

- Development Applications Unit Department of Housing Local Government and Heritage.

  Archaeological Observations

  Given the scale and extent of the proposed development subsurface archaeological remains could be encountered during the construction phase. Mitigation measures outlined in the EIAR should be carried out in full. Recommend conditions regarding archaeological monitoring and reporting.

  Regarding Nature Conservation

  Site is of a substantial scale and lies within the upstream surface water catchment of the River Dinin, a major tributary of the River Nore, in the north of the site and the River Barrow catchment in the south and is hydrologically connected to the River Barrow and River Nore SAC. Mitigation measures to protect the River Barrow and River Nore SAC contained in the NIS and CEMP to be implemented in full. Department welcomes the bog restoration measures to be carried out as outlined in the Habitat and Species management plan. A specific management plan is required to guide the work which should be produced by an ecologist / eco hydrologist with

experience in peatland restoration. Monitoring is an essential element of the restoration process to determine ecological responses to restoration and assess the effectiveness of selected measures. Hydrological monitoring is important in determine the effects of restoration on the hydrological function of a bog and beyond the immediate restoration area to enable hydrological process to be better understood and the potential wider benefits of raised bog restoration to be realised. The department recommends hydrological and ecological monitoring are carried out as part of the planned restoration. Condition recommended for a bog restoration Rewetting Plan and an Ecological and hydrological monitoring programme of the bog restoration to be agreed with the Planning Authority prior to commencement of development.

Noting that meadow planting to be caried out along the margins of access tracks between T3 and T5 and between T1 and the site entrance these areas to be seeded with native wildflower meadow seed mixture. Department notes that all Ireland pollinator plan advises against planting wildflower seed outside a garden setting. Condition recommended "Wildflower and grass seed shall only be introduced to the site if the prior written agreement of the planning authority has fist been obtained to as to conserve biodiversity including genetic diversity.

Errata noted within EIAR and NIS documentation including reference to 2015 Order which has been revoked and is replaced by the 2022 order SI No 235 of 2022. (Flora (Protection) Order. Special Areas of Conservation implemented in Ireland by the European Communities (Natural Habitats) Regulations 2011-2021 (SI 477 of 2011) not the 997 Regulations which have been revoked. The Birds Directive 79/409 EEC was amended in 2009 and became Directive 2009/148/EC.

3.4. **Third Party Observations**

3.4.1 Submission from Wild Ireland Defence CLG, C/o Peter Sweetman & Associates. Shangri La, Newtown, Bantry. Co. Cork. Planning Authority should assess the application in context of the Planning and Development Act 2000, consider EIA report and is the competent authority having responsibilities under the Habitats Directive. Compliance with the Water Framework Directive also to be assessed,

3.4.2 Submission by Michael Monahan, Johnsduffwood, Old Leighlin, Carlow. Three raised bog areas within the site should be restored and improved. Areas of cutaway

bog are regenerating and the commitment of the developer to rewet the raised bogs and cutaway bogs adjacent to them is welcome. It is noted that restoration of the bogs would be unlikely to happen without the windfarm development. The richness and interest of the environment in the area is somewhat understated in the application. Pond near the entrance (which has rubbish dumped in it) already has dragonflies, frog spawn and sometimes even ducks. Area stated to be sub optimal for marsh fritillary but it has been found nearby and Devilsbit scabious is widespread, Bog cranberry is widespread, lizards are present, snipe plentiful. Cuckoo is present. Orchids widespread. Buzzard and kestrel often found. Vigorous insect life on the bogs and along forest tracks in the area.

The cultural history of the Boolyvannan bog is noted. It was a source of food for the surrounding area during WW2 and was apparently still in use until 1960s. Part of the project community fund could be used for the recording its history. Amenity use should be developed (Parking provision, new walking routes /recreational areas). Information boards should provide information on the bog, environment, cultural history local history, carbon capture and climate change. Provision of boardwalks on cutaway bogs and raised bogs.

3.4.3 Submission from Michael Farrell, Coolnakisha, Leighlinbridge, Co Carlow. Concerned regarding potential impact on water supply for farmland adjacent to the proposed development. There are 5 wells on the farm one of which is approximately 300m from the proposed development. No objection subject to no impact on water supply.

3.4.4 Mary Farrell. Coolnakisha, Leighlinbridge - objects to felling of forestry, negative impact on local wildlife. Bird kill, noise. Wind turbines an eye sore in the local area. Impact on local wells.

3.4.5 Justin Hayden and Susan Hayden, Coolnakisha, Leighlinbridge. Object on grounds of impact on water noting their well located 680m from the proposed borrow pit. Negative impact on scenic views of the local countryside. Noise pollution and negative impact on residential amenity. Impact on local wildlife. Location on a flight path. Helicopters fly low over the hill.

4.0 Planning History

PL01.240245 (PA Ref 11/154) 10 year permission for wind energy development in the townlands of Boolyvannan and Coolnakisha, Bilboa, Co Carlow. The development consists of the erection of five number wind turbines (maximum hub height 90 metres, maximum blade diameter 93metres), one permanent meteorological mast, access road and internal site tracks, electricity substation, underground cabling and all associated site works. Permission granted by the Board following third party appeal of Carlow County Council Decision Granted 21/12/2012 Expired 20/12/2022.

20/180 Permission granted by Carlow County Council 12 July 2021 for the installation of approximately 4.6 kilometres (km) of underground cables within the Carlow County Council (CCC) boundary and approximately 2.0 km within the Laois County Council (LCC) boundary with a voltage of up to 38 kilovolts and associated works, including a new substation within LCC, for the connection of the consented Bilboa Wind Farm (Planning Register References: Carlow County Council 11/154; An Bord Pleanala PL 01.240245) to the national electricity grid; upgrading of an existing forestry track within CCC; construction of two new onsite access tracks within CCC; re-orientation and increasing in size of a crane hardstanding within CCC; and road strengthening and widening along an updated turbine delivery route, within LCC. Granted 13/8/2021 Expired 12/8/2026

21/15 Permission granted 15 February 2022 for development consisting of **alterations** to a previously permitted wind farm development (Planning Register References: Carlow County Council 11/154; An Bord Pleanála PL 01.240245) The proposed alteration will consist of increasing the maximum turbine blade diameter of the permitted turbines from 93m up to a maximum of 120m, while maintaining the overall tip height of the permitted development; increasing the size of crane hardstanding area at 4 turbines to 30m x 62.5m; felling of up to an additional 6.3 hectares of onsite forestry to accommodate the proposed increased turbine blade diameter in addition to the permitted felling; and an extension of the operational lifetime of the permitted wind farm development from 25 years to 30 years. Granted 18/03/2022 Expired 20/12/2022

Windfarm history in the locality includes:

04/935 Gortahile Windfarm Co Laois Permission to erect 7 no wind turbines up to 80m hub height and up to 45m blade length, access roads, control building and ancillary site works.

ABP315365-22 Whitehill Windfarm. Permission Granted for wind energy development consisting of 7 no wind turbines and all associated works, Ridge, Knocknabranagh and Knockbaun, Baunreagh, and Agharue, Co. Carlow and Coolcullen, Cloneen and Coan East, Co. Kilkenny

Current applications

Seskin Windfarm. Circa 1.2km to the southwest (Application received by Carlow County Council on 13/05/2024. Decision due date 07/07/2024.)

24/60122 in the townlands of Ridge Agharue Coolnakisha and Seskinrea, Co Carlow. Seskin Windfarm. Application be EDF Renewables Ireland Limited, in the townlands of Ridge Agharue Coolnakisha and Seskinrea, Co Carlow. Application is for a development of 7 no wind turbines, 38kV on site substation, battery energy storage system and associated works and infrastructure.

24/60210 Concurrent application for works within Co Kilkenny including junction accommodation works, bridge strengthening works and 39kV underground grid connection to existing Kilkenny 110kV substation. Works associated with the connection of the proposed Seskin Windfarm to the national grid.

Freneystown Public consultation underway in respect of up to eight turbine c50mW project. Location is circa 12km southwest of the proposed Bilboa windfarm site.

5.0 Policy Context

EU Legislation / Policy

The Renewable Energy Directive (REDII) 2018/2001/EU

Climate and energy Policy Framework 2030

European Wind Power Action Plan.

National Policy

National Planning Framework (NPF), 2018

The NPF is a high-level strategic plan to shape the future growth and development of the country to 2040. It is focussed on delivering 10 National Strategic Outcomes (NSOs). NSO 8 focuses on the 'Transition to a Low Carbon and Climate Resilient Society' and recognises the need to harness both on-shore and off-shore potential from energy sources including solar and deliver 40% of our electricity needs from renewable sources.

It is stated in the NPF that "new energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system, harnessing both the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and connecting the richest sources of that energy to the major sources of demand".

Section 5.4, 'Planning and Investment to Support Rural Job Creation', notes that in meeting the challenge of transitioning to a low-carbon economy, the location of future national renewable energy generation will, for the most part, need to be accommodated on large tracts of land that are located in a rural setting, while also continuing to protect the integrity of the environment and respecting the needs of people who live in rural areas.

It is a National Policy Objective (NPO 55) 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'.

National Energy Security Framework

Published in April 2022 – provides an overarching and comprehensive response to Ireland's Energy security needs in the context of the war in Ukraine. The framework outlines the structures in place to monitor and manage energy supplies.

The framework outlines proposals to speed up the country's shift to increased energy efficiency and indigenous renewable energy systems.

Climate Action Plan 2024 (CAP24)

This plan was approved by Government on 21 May 2024. This is the third annual update to Ireland's Climate Action Plan. The purpose of the Climate Action Plan is to lay out a roadmap of actions which will ultimately lead us to meeting our national climate objective of pursuing and achieving, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. It aligns with the legally binding economy-wide carbon budgets and sectoral emissions ceilings that were agreed by Government in July 2022.The Plan refines and updates measures and actions required to deliver carbon budgets and sectoral emissions ceilings. The Plan provides a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021..

Ireland's National Energy and Climate Plan 2021-2030

The National Energy and Climate (NECP) Plan is an integrated document mandated by the European Union to each of its member states in order for the EU to meet its overall greenhouse gases emissions targets. The plan establishes key measures to address the dimensions of the EU Energy Union, including:

• To achieve a 34% share of renewable energy in energy consumption by 2030.

• To increase electricity generated from renewable sources to 70%.

Regional Policy

Regional Spatial and Economic Strategy – Southern Region

Seeks to facilitate the sustainable development of additional electricity generation capacity throughout the region and to support the sustainable expansion of the

transmission network. Relevant regional policy objectives (RPOs) are noted including:

RPO 87 Low Carbon Energy Future The RSES is committed to the implementation of the Government's policy under Ireland's Transition to a Low Carbon Energy Future 2015-30 and Climate Action Plan 2019. It is an objective to promote change across business, public and residential sectors to achieve reduced GHG emissions in accordance with current and future national targets, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture.

RPO 95 "Sustainable Renewable Energy Generation - It is an objective to support implementation of the National Renewable Energy Action Plan (NREAP), and the Offshore Renewable Energy Plan and the implementation of mitigation measures outlined in their respective SEA and AA and leverage the Region as a leader and innovator in sustainable renewable energy generation."

RPO 99 "Renewable Wind Energy It is an objective to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines."

RPO 219 New Energy Infrastructure: It is an objective to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs.

RPO 221 Renewable Energy Generation and Transmission Network: a. Local Authority City and County Development Plans shall support the sustainable development of renewable energy generation and demand centres such as data centres which can be serviced with a renewable energy source (subject to appropriate environmental assessment and the planning process) to spatially

suitable locations to ensure efficient use of the existing transmission network; b. The RSES supports strengthened and sustainable local/community renewable energy networks, micro renewable generation, climate smart countryside projects and connections from such initiatives to the grid. The potential for sustainable local/community energy projects and micro generation to both mitigate climate change and to reduce fuel poverty is also supported; c. The RSES supports the Southern Region as a Carbon Neutral Energy Region.

Development Plan

The Carlow County Development Plan 2022-2028 refers.

- Chapter 7 Climate Action and Energy.

CA P2 Support the transition of the County to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050, by way of reducing greenhouse gases, increasing renewable energy, and improving energy efficiency.

Renewable Energy Policy

RE P1 "Encourage and facilitate the production of energy from renewable sources, such as from wind, solar, bioenergy, hydroelectricity, and geothermal, subject to compliance with proper planning and environmental considerations."

Renewable Energy Objective

Seek to achieve a minimum of 130MW of renewable electricity in the County by 2030, by enabling renewable energy developments, and through micro-generation including rooftop solar, wind, hydro-electric and bioenergy combined heat and power (CHP)

7.10.3.1 Wind Energy

"Site suitability is an important factor in determining the suitability of wind farms, having regard to possible adverse impacts associated with, for example, residential amenities, landscape, including views and scenic routes, wildlife, habitats, designated sites, protected structures or bird migration paths, and compatibility with adjoining land uses. The Council is required to achieve a reasonable balance between responding to overall positive Government policy on renewable energy and

enabling the wind energy resources of the County area to be harnessed in a manner that is consistent with proper planning and sustainable development."

Figure 7.7 sets out Wind Energy Opportunities and Constraints.

The site is within an area identified as having a viable wind speed >7.6m/s.

Fig 7.8 Landscape Types

The site falls within the upland landscape type.

Wind Energy Policies

WE P1 Have regard to the Department of the Environment, Heritage and Local Government's Guidelines for Planning Authorities on Wind Energy Development (or any update to this document).

WE P2 Support the re-powering of existing wind farms when they come to the end of their operational life, and extensions to existing wind farms, subject to compliance with proper planning and environmental considerations.

WE P3 Support community led wind energy developments or developments with innovative models for community ownership.

WE P4 Wind farm development will not normally be permissible in the Uplands Landscape Type as shown in Figure 6 of the Carlow County Landscape Type as shown in Figure 6 of the Carlow County Landscape Character Assessment included as Appendix VII to this Plan. This provision shall not apply to micro energy generation and community energy projects as provided for in Section 7.10.3.5 where deemed appropriate and subject to compliance with proper planning and environmental considerations.

Wind Energy Objective 01

Increase the penetration of wind energy generation in County Carlow at appropriate locations and scale and subject to compliance with proper planning and environmental considerations.

Volume 2b Appendices. VI Renewable Energy Strategy.

6.1 Wind Energy.

6.1.3 Onshore wind energy is the largest contributor to total renewable energy generation in Carlow, which reflects the national status of wind energy contribution.

There is currently an installed capacity of c. 5.8 MW of onshore wind power in the county. Table 6-1 outlines the existing, planned and contracted wind energy developments in Carlow and these are indicated on Figure 6-2. The level of wind energy penetration in County Carlow is relatively low, representing less than 0.1% of the installed national capacity.

Table 6-5 Wind Energy Objectives and Policies:

Objective W1 Increase the penetration of wind energy generation in County Carlow at appropriate location and scale.

Policy W1.1 Proposals for wind farm developments will be determined in accordance with National Wind Energy Development Guidelines and County Development Plan policy framework.

Policy W1.2 Support the re-powering of existing wind farms when they come to the end of their operational life, and extensions to existing wind farms, subject to assessment on a case-by case basis.

- Chapter 9 Landscape and Green Infrastructure

  Aim: To protect, conserve and enhance the character, quality, and value of the County's landscape, in conjunction with recognition and support for the role of green infrastructure as a natural resource in the landscape, capable of delivering a wide range of environmental and quality of life benefits, including climate change adaptation.

Natural Heritage Designations

The site is not located within a Natura 2000 site.

The closest Natura 2000 site is the River Barrow and River Nore SAC (Site Code 002126) is 2.4km to the west and to which the site is hydrologically linked.

The River Nore SPA (Site Code 004233) lies approximately 20km to the west of the site

Lisbigney Bog SAC (Site Code 000869) is located circa 14.9km north of the site.

EIA Screening

The following class in Schedule 5 of the Planning and Development Regulations 2001 is noted: Part 2 Class 3 (i) Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts.

The proposed development relates to permission for five wind turbines with a total maximum output of 22.5MW. As this exceeds the thresholds set out an EIA is required. The applicant in this instance has submitted an EIAR.

6.0 The Appeal

6.1. Grounds of Appeal

The appeal is submitted by Justin & Susan Hayden and Mary Farrell. Grounds of appeal are summarised as follows:

- Concern regarding risk to well.
- Destruction of scenic views.
- Loss of forestry. Impact on wildlife.
- Proximity to homes.
- Impact on flight path - helicopters known to fly low across the hill.
- Noise and visual pollution.
- No information on height and location of turbines.

6.2. Applicant Response

The applicant did not respond to the grounds of appeal.

6.3. **Planning Authority Response**

The Planning Authority made no comment on third party appeal and directed the Board to assessment set out in planning report and technical reports.

6.4. **Observations**

No submissions.

7.0 **Assessment**

7.1 I consider that the appeal can be assessed under the following broad headings:

- Planning Assessment - Key matters raised in third party appeal

  Principle of Development

  Landscape and Visual Impact

  Impact on residential and other amenities

  Impact on Water Supplies

  Impact on biodiversity

  Other Matters Community Engagement, Aviation.

- Environmental Impact Assessment

- Appropriate Assessment

Planning Assessment

7.2 Principle of Development and Policy Context.

7.2.1 The importance of renewable energy is clearly acknowledged at national, regional and local level with a suite of policy documents promoting the transition towards a low carbon and climate resilient society with a sustainable renewable energy supply and associated grid infrastructure provision. Ireland is committed to achieving climate neutrality no later than 2050 with a 51% reduction in greenhouse gas emissions by 2030. These legally binding objectives are set out in the Climate Action and Low Carbon Development (Amendment) Act of 2021.

7.2.2 The Climate Action Plan, 2024 (the third annual update to Ireland's Climate Action Plan 2019) and follows the introduction in 2022 of economy wide carbon budgets and sectoral emissions ceilings and states that large scale deployment of renewables will be critical to decarbonising the power sector. The Plan sets out a roadmap for taking decisive action to halve our emissions by 2030 and reach net zero no later than 2050. Climate Action Plan 2024 restates the key national target of 9GW for onshore wind by 2030. Transitioning to a low carbon and climate resilient society is a National Strategic Outcome of the Project Ireland 2040 National Planning Framework. Reflecting this, National Policy Objective 1 - NPO1 seeks to enhance the competitiveness of rural areas by supporting innovation and diversification of the rural economy into new sectors and services including those addressing climate change and sustainability. NPO 54 seeks to reduce carbon footprint by integrating climate into the planning system in support of national targets for climate policy mitigation and adaption objectives as well as targets for greenhouse gas emission reduction. NPO 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."

7.2.4 At a regional level, the Regional Spatial and Economic Strategy for the Southern Region seeks to facilitate the sustainable development of additional electricity generation capacity throughout the region and to support the sustainable expansion of the transmission network. At the local level the Carlow County Development Plan 2022-2028 provides a number of policies and objectives in relation to climate action and the transition to a competitive low carbon climate resilient and environmentally sustainable economy by 2050 by way of reducing greenhouse gases, increasing renewable energy and improving energy efficiency. Objective RE O1 seeks to achieve a minimum of 130MW of renewable electricity in the County by 2030.

7.2.6 The site is located within an area identified as having a viable wind speed >7.6m/s however is also within an area designated as an upland area whereby wind energy development is "not normally permissible." Delving into the Landscape Character Assessment, Appendix VII, the site is within the Killeshin Hills Landscape Character

Area where “subject to appropriate mitigation measures there may be moderate scope to absorb extractive industry and wind farming”.

7.2.7 Clearly in terms of the policy context the proposed windfarm with potential installed capacity of c.22.5 MW complies with the overarching aim to tackle climate breakdown by reducing greenhouse gas emissions and providing renewable energy capacity. Whilst it is acknowledged that the Carlow County Development Plan context of upland designation whereby wind energy development is “not normally permissible” the location is within the ‘Killeshin Hills’ as set out in Appendix 2b VI Renewable Energy Strategy has a moderate capacity to absorb such development. Furthermore given the planning history on the site, whereby the development proposed was previously permitted, I would concur with the conclusions of the Planning Authority that favourable consideration of the proposal in principle is appropriate. I also note that the Board recently granted permission for the White Hill Windfarm within the Upland landscape type referencing the totality of overarching provisions in the Carlow County Development Plan in terms of justifying the proposal in the light of potential conflict with landscape policy.

7.2.8 It is clear from the foregoing review, that policy at all levels acknowledges that significant increases in wind energy capacity will be required to meet the mandatory national targets set out in relation to tackling climate change. The proposed wind farm, with a projected maximum output of up to 22.5 megawatts will deliver and build upon the renewable energy resource available in Ireland and will assist in the progress to a low carbon economy and to a reduced dependence on fossil fuels. The proposal is therefore acceptable in principle and is in accordance with the proper planning and sustainable development subject to the assessment of the detailed matters addressed hereunder.

7.3 Landscape and Visual Impact

7.3.1 The site is within the uplands landscape character type and Killeshin Hills landscape character area. The landscape sensitivity map within the Carlow County

Development Plan 9.3 shows the uplands to have the greatest level of sensitivity 5. Table 9.2 Land Use Capacity matrix indicates that the Killeshin Hills have a moderate capacity for wind farming. The proposed development involves the construction of 5 no wind turbines each with height to blade tip of 136.5m (Hub height 78m & rotor diameter 117m). The felling of forestry is also included as part of the construction process. The nature and scale of the wind turbine structures and their visual influence on the landscape character is one of the key concerns raised within the third party appeal submission.

7.3.2 As regards identification of sensitive receptors with greatest impact in visual terms these include the village of Bilboa (c1.4km from the nearest turbine) which is the only settlement within 5km and a total number of 37 dwellings located within 1.5km of a proposed turbine. Scenic Routes 6, 7, 8 and 9 are also within a 5km radius of the site and scenic viewpoints no 32 and 41 are within 5km to the south of the site.

7.3.3 The landscape and visual impact assessment of the proposal is addressed within chapter 6 of the submitted EIAR. In terms of mitigation the applicant notes key embedded mitigation being the maintenance of all component infrastructure at the same location and scale as assessed as acceptable and permitted under Planning Ref 11/154 and 21/15. As regards felling it is noted that as the felling area is within the forest no direct view of construction activities arise and the focus within the LVIA is on the development only.

7.3.4 As regards the zone of theoretical visibility this is depicted in Figures 6.2 – 6.4 in terms of maximum blade tip, indicative hub height. The ZTV demonstrates a high degree of potential visibility of all 5 turbines within 2 and 5km. The focus of the LVIA is on the Killeshin Hills LCA and Uplands LCT within 10km, dwellings within 1km radius and the settlement of Bilboa.

7.3.5 As regards design and layout the proposal maintains the design objectives in relation to all components as per the previous permissions. As regards the Wind Energy Development Guidelines 2006 regarding siting and layout within transitional/marginal

landscape character type it is noted that location provides separation from the complexities of lower ground by its location on higher ground in the Killeshin Hills. The spatial extent is small and irregular spacing given the complexity of the landform and landcover. A clustered layout on the broad hilltop is adopted. Tall turbines are more appropriate in open visually extensive locations. As regards cumulative effect Gortahile Windfarm has been included within the submitted assessment.

7.3.6 I consider that in the context of the planning history of the site where the Board has previously determined that the proposed windfarm development was acceptable at this location and as there has been no change to the overall context which would necessitate an alternative conclusion with regard to landscape and aesthetic considerations. I consider that the aesthetic effect of the development when considered as a discrete development in isolation can be absorbed within the landscape.

7.3.7 I note in terms of cumulative impact regard must be taken not only to the existing Gortahile windfarm but also recently permitted Whitehill Windfarm (ABP.315365) and the proposed Seskin Wind (2460122 CCC) and Freneystown windfarm (planned) beyond. I acknowledge the cumulative landscape effects in terms of a linear cluster turbine effect extending from Gortahile to the proposed Biboa development to Seskin wind farm and White Hill wind farm in particular in terms of the extension of the visual envelope of windfarm development. I note that that the undulating nature of this upland area and extent of visual screening restricts the visibility of the proposed development and om my view provides a high capacity to absorb multiple wind energy developments. Where open views from the lowland areas arise the visual separation provides that each development is observed in relative isolation. I conclude that this upland area has the capacity to absorb this proposed wind energy development without significant detrimental effects on landscape character and therefore I conclude that the landscape and visual impact is acceptable.

7.4 Impact on Residential and Other Amenities.

7.4.1 The key issues in terms of residential amenity impacts, aside from visual impact which has been addressed above, relate to shadow flicker and noise. There are a total of 37 residences within 1.5km of a proposed turbine.

7.4.2 The Wind Energy Guidelines 2006 refer at Section 5.6 to noise noting that turbine noise increases as wind speeds increase but at a slower rate than wind generated background noise increases. The impact of wind energy development noise is therefore likely to be greater at low wind speeds when the difference between noise of the wind energy development and the background noise is likely to be greater. At higher wind speeds noise from wind has the effect of largely masking wind turbine noise. It is stated that good acoustical design and carefully considered siting of turbines is essential to ensure that there is no significant increase in ambient noise levels at any nearby noise sensitive locations. Sound output from modern wind turbines can be regulated, thus mitigating noise problems, albeit with some loss of power and the guidelines recommend the achievement of an appropriate balance between power generation and noise impact.

The guidelines recommend that:

"*In general, a lower fixed limit of 45 dB(A)10 or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours. However, in very quiet areas, the use of a margin of 5dB(A) above background noise at nearby noise sensitive properties is not necessary to offer a reasonable degree of protection and may unduly restrict wind energy developments which should be recognised as having wider national and global benefits. Instead, in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the LA90, 10min of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A).*

Separate noise limits should apply for day-time and for night-time. During the night the protection of external amenity becomes less important and the emphasis should be on preventing sleep disturbance. A fixed limit of 43dB(A) will protect sleep inside properties during the night."

The guidelines also note that planning authorities may seek evidence that the type of turbines proposed will use best engineering practice in terms of noise creation and suppression.

7.4.3 Chapter 11 of the submitted EIAR addresses the issues of noise and vibration and the methodology for assessment is clearly set out. The applicant notes potential construction operational and decommissioning noise effects. Construction and decommissioning noise is scoped out of the assessment on the basis of the separation distance to nearest noise sensitive receptors. A commitment to best practice construction methods is presented. Operational vibration, special audible characteristics (tonal noise, amplitude modulation and low frequency noise) are addressed and discussed however scoped out in terms of detailed assessment on the basis of conclusions that these will not be significant. Background noise monitoring carried out in July August 2021 at two locations (within Blboa Village NSR 25) and to the south of the development (NSR08) and an assessment of noise was undertaken based on a candidate turbine of type and scale likely to be selected for construction. Wind data from the on site 80m met mast is used and noise limits derived for each noise sensitive location within 1.5km from results of background noise monitoring based on the 2006 guidelines. The predicted operational noise levels at all noise sensitive receptors comply with noise limits, derived in accordance with the guidelines, at all sensitive receptors. ‘An assessment of cumulative noise effects in combination with the Gortahile Windfarm also demonstrates compliance with all limits. Construction and decommissioning noise is considered to be not significant given distance to receptors and I consider that good practice measures as outlined will appropriately mitigate any significant noise disturbance.

7.4.4 I consider that based on the information provided within the EIAR impacts on residential amenity arising from operational noise are appropriately mitigated. I note that mitigation of noise by curtailment by way of employment of technology is now an accepted practice in respect of modern wind farm development and in my view this can be addressed by way of condition.

7.4.5 As regards shadow flicker this is addressed at chapter 15.6 of the EIAR. It is noted that EIS for original windfarm 2011 and consented modification in 2020 found effects

below the 2005 wind energy Development Guidelines and therefore concluded that no significant effects in terms of shadow flicker arose. The 2006 guidelines recommend that shadow flicker should not exceed 30 hours per year or 30 minutes per day for dwellings within 500metres. The guidelines also note that at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low.

7.4.6 A study area of 1,170 (ie 10 times rotor diameter) from each turbine was employed in the EIAR assessment methodology. A total of 25 potential dwellings were identified within the shadow flicker study area. The nearest residential property is situated circa 520m southeast of T1. Of the 25 properties within the study area, 11 properties have been assessed to experience zero shadow flicker effects. The remaining 14 properties for which shadow flicker is identified as likely to occur are assessed in more detail. A conservative approach is adopted whereby the screening effects provided by trees and other buildings and building orientation has not been taken into account thereby representing a worst case scenario. The likely number of hours per year where shadow flicker could potentially occur is 25.7 minutes per day and 36.7 hours per annum at the nearest property (No 14). No other properties located within the study area exceed the 30 hours per year or 30 minutes per day identified within the guidelines. The applicant indicates a commitment to the installation of appropriate equipment and /or software controls to mitigate effects at property 14 to ensure compliance with the guidelines. It is proposed that such measures be agreed with the Planning Authority. As regards cumulative effects from the Gorthile windfarm no significant cumulative effects are predicted. As regards the proposed Seskin windfarm I have noted the cumulative assessment of shadow flicker included within the EIAR with respect to that application[1] and the conclusion that following mitigation significant cumulative shadow flicker effects will not arise.

7.4.7 As regards impact on residential amenity generally, I note that the construction phase and decommissioning phase will give rise to disturbances in terms of construction traffic, noise dust etc. I note however that such impacts will be short term in duration and subject to best practice mitigation as set out within the EIAR

[1] Carlow County Council Planning Appliocation 2460122

and in accordance with the agreed CEMP and Traffic Management Plan no significant impacts arise. I conclude that the proposed development of a windfarm at this location in Bilboa, as previously permitted, is acceptable in terms of its impact on residential and other amenities.

7.5 Impact on Water Supplies

7.5.1 A number of the third parties raise concerns with regard to the potential for negative impact on private well water supplies. Chapter 8 Hydrology and Hydrogeology sets out potential impacts mitigation and summary of effects on the hydrological resource.

7.5.2 The site is on the watershed between the catchment of the River Barrow to the southeast and Dinin section of the River Nore catchment to the northwest. The southwest of the site is approximately 7km from the River Barrow, to which it drains via three small tributaries which join together approximately 3km downstream to form the stream flowing under Rathornan Bridge and joining the Barrow upstream of Leighlin Bridge. Both the River Barrow and River Nore are part of the River Barrow and River Nore SAC.

7.5.3 The Hydrology of the site is classified as bedrock which underlies the site as a poor aquifer which is generally unproductive. The vulnerability of the aquifers underling a localised area to the southeast of the site is rated as Extreme by the GSI due to the presence of rock at the surface. The rock at the surface coincides with the exposure of Namurian Shales along the edge of the Castlecomer Plateau. Aquifers underlying the rest to the site are rated as ‘high to low’.

7.5.4 GSI bedrock maps indicate the underlying geology as a heavily faulted sequence of shale, sandstone and siltstones. Faults trend northwest to southeast with bedding generally perpendicular, dipping to the northwest. Published geology indicates that the development is underlain by till superficial deposits, primarily in the east. Till superficial deposits are derived from sandtown, limestone and shales and (Namurian) are largely impermeable. The aquifer units associated with the bedrock are poor aquifer (PI) which is unproductive meaning low yield of water, except for localised zones where fracture or weathering results in minimal yields. Recharge to

this aquifer is likely to be in areas of higher topography at the top of slopes and recharge is considered minimal due to the relatively impermeable nature of bedrock unit and overlying impermeable superficial deposits. The majority of the study area is within the Shanragh groundwater body and has an overall WFD status of 'good'.

7.5.5 The groundwater vulnerability of the site is rated as extreme due to the presence of rock outcropping at surface and minimal peat coverage, however the aquifer unit is confined by the overlying till deposits, with a very small proportion of the aquifer being exposed at the surface.

7.5.6 As regards private and public water supplies Table 8.5 within the EIS details 4 boreholes, 5 dug wells and 2 springs for private water supply use and one borehole for public supply use within the water supply study area (2km of site boundary). A number of small supplies to the west of the development (Agharue) are located upstream of the development and greater than 1km from the development therefore not at risk.

7.5.7 The Paulstown Public Water supply is located approximately 6.2km south of the development and is hydrologically disconnected therefore there is no prospect of effects on this supply. As regards Bilboa public water supply a borehole is located 1.6km northeast of T3. It is believed that the well is 30m deep but may be significantly deeper. Given the distance from the groundwater unit and base of turbine excavations the potential for direct interaction with supply source from turbine foundations is considered unlikely. Indirect effects relating to chemical pollution from concrete pouring, oil and fuel storage failure, soil and fuel leakage are mitigated by way of best practice measures outlined in the CEMP. Ballinabranna Group Water scheme has two boreholes approximately 5km and 4.7km east of the development. Abstracted water is treated at a facility off Kileshal Road and pumped to a reservoir above Ballinabaranna approximately 2.8km east of the development before distribution via a network of pipes. The boreholes are underlain by Dinantian Pure Bedded Limestones while the development is underlain by Namurian Shales. Based on the distances and differing geology there will be no interaction with the windfarm.

7.5.8 The potential for alterations to private water supply yields is deemed to be of slight significance. Regarding potential for deterioration of quality it is asserted that the

distance of deep excavation to the nearest dwellings will provide for dissipation and dilution of chemical or sedimentation effects. Mitigation measures are set out at section 8.7 of the CEMP including a programme of water quality monitoring and agreement with regard to remedial measures where required. It is stated that in the unlikely event that mitigation measures fail or a period of dewatering is required which will impact supply to a private water supply an emergency response plan will be actioned. I note that the HSE has indicated satisfaction with the proposals with regard to the protection of drinking water supplies concluding that these measures are sufficient to address potential impacts arising. On the basis of the information submitted I consider that the proposed development will not significantly impact on drinking water supply sources and outlines appropriate mitigation measures to address outcomes in this regard.

7.6 Impact on Biodiversity.

7.6.1 The third party appeal objects to the development on basis of grounds of loss of forestry and potential negative effects on flora and fauna. Chapter 7 of the EIAR deals with biodiversity. The application is also accompanied by an NIS addressing the appropriate assessment of the proposal. The EIAR sets out the key conclusions of previous assessments (2011 EIS and FI, 2020 Grid Connection and Access EIAR and 2021 Rotor Modification EIAR). The site does not overlap any designated nature conservation site but it is upstream of the River Barrow and River Nore SAC (Site Code.002162). The site and surrounding lands drain towards the Dinin River (tributary of the Nore) and also towards the Barrow. The River Nore SPA is 18.5km from the site.

7.6.2 The site is primarily classified as a highly modified habitat of coniferous forest with no significant intrinsic ecological value. The remnant blanket bog appears typical of the original habitat previously covering this upland area. The project design has avoided areas of higher value habitat. As regards survey findings a number of ground based faunal species were recorded however within these badger and common frog were the only species identified as potentially subject to effects. Plantation woodland is considered suitable for pine marten and red squirrel and

mammal surveys reported in 2021 rotor modification EIAR noted field signs on/adjacent to the proposed development of badger, fox, red squirrel, pine marten, deer and American mink (an invasive species). The hedgerows and associated grassy verges along the cable route provide suitable foraging habitat for small mammal species such as hedgehog and pygmy shrew. Other species not observed during surveys but likely to occur include otter, Irish hare, irish stoat, wood mouse. Mitigation including pre construction surveys, translocation and sett closure (licensed by NPWS) is proposed to prevent significant negative effects.

7.6.3 As regards other features on site, the EIAR notes a number of ephemeral pools of standing water within the plantation woodland, many of which contained spawn of common frog. It is noted that no devils bit scabious was recorded so there would not be any potential breeding sites for marsh fritillary butterfly. As regards ornithology common bird species characteristic of coniferous forest and some of peatland habitats were recorded on the site. In the field surveys carried out for 2020 grid connection and access EIAR, a dipper was observed on the River Dinin approximately 50m from the grid connection route. Two species (Goldcrest and House sparrow) are of amber status (medium conservation concern on the birds of conservation concern Ireland list). In the 2021 Rotor modification EIAR flight activity VP surveys undertaken during both winter 2019-20 and summer 2020 seasons covering the site and surrounding area. Breeding bird surveys and winter walkover surveys, hinterland surveys and hen harrier winter roost checks identified a total of 49 bird species recorded during both breeding and winter season surveys. Target species and secondary species present within and outside the site included grey heron, golden plover, woodcock, snipe, sparrowhawk, kestrel, peregrine falcon, lesser black backed gull, buzzard and hen harrier.

7.6.4 A total of eight bat species were recorded on site during static detector surveys during the 2020 bat activity season, common Nathusius and soprano pipistrelle , leisler's bat, natterer's bat, daubenton's bat, brown long eared bat and whiskered bat. Mitigation for turbine strike is a 50m buffer zone between turbine blade tips and surrounding trees.

7.6.5 Aquatic surveys included habitat assessment including targeted salmonid, lamprey, crayfish and pearl mussel habitat suitability survey. Q values of Q3-4 and Q5 were

recorded on the minor watercourses downstream of the site. Poor-fair quality salmonid habitat was recorded in the minor watercourses downstream however the better quality habitat was inaccessible to salmonids. The river Dinin main channel up to 10km downstream contains significant salmon and brown trout spawning and nursery habitat. Atlantic salmon were recorded downstream at Black bridge (within the River barrow and Rover Nore SAC) White clawed crayfish, river and brook lamprey could be present in the Dinin at low densities however the habitat available was not optimal. There was considered to be no possibility for freshwater pearl mussel to occur in the potential zone of influence within the Nore catchment.

7.6.6 Within the Barrow catchment no significant quality habitat for crayfish (ie fair or better) was recorded within 2km downstream. No freshwater pearl mussel habitat was recorded within 7km downstream and this species is considered absent from the Barrow main channel.

7.6.7 As regards the impact of the development on biodiversity it is noted that the loss of conifer plantation 18.01ha is considered of negligible botanical importance and of limited biodiversity value. The clearance of trees within non woodland habitats (cutover bog/degraded wet heath mosaic) will enhance the habitat . Felling and transport activities will result in temporary disturbance to vegetation and localised soil compaction. Felled areas will be maintained as treeless for the lifetime of the windfarm but shall form other semi natural habitats as vegetation recolonises these area. An area of scrub .54ha is to be lost however likely that recolonisation would occur following construction of the windfarm and the habitat loss would be short term. An artificial pond 0.3ha is located within the proposed borrow pit footprint and will be lost as a result. It is proposed to construct a new pond within the reinstated borrow pit area following construction. An area of 3.45ha of cutover bog / degraded wet heath mosaic is located within the study area and a total of 0.09ha or 2.6% of the habitat will be list within the section of access track between T2 and T3 consented under the grid application. Measures to restore / rewet this surrounding peatland habitat and minimise drainage arising from access track construction is outlined.

7.6.8 As regards fauna the habitat alteration arising is small scale. Potential indirect effects in terms of disturbance will be temporary in duration and given the presence of

habitats in the wider environment affected species will be able to move to other locations in the wider area until the disturbance has ceased.

7.6.9 The areas of highest value to bats are the linear and edge habitats comprising access tracks and the edges of conifer plantation block. No potential roosting features are present within the site. While foraging or commuting bats may be subject to disturbance effects during the construction phase through increased noise and lighting to the site this will be temporary. The proposed felling will increase the amount of edge habitat thereby also increasing foraging opportunities for bats.

7.6.10 Regarding bird species vantage point surveys provide a details assessment of wintering and breeding bird activity at the site. Four very high sensitivity species recorded within the core study area include Golden Plover (Annex I Red Listed), Hen Harrier (Annex I amber listed), Kingfisher (Annex I amber listed) and Peregrine Falcon (Annex I Green Listed). Seven 'high' sensitivity species, 12 medium sensitivity species and five low sensitivity species were also noted. The EIAR explores potential effects in terms of direct habitat loss and fragmentation, displacement due to disturbance, death and injury due to collisions and distribution of local or migratory movements. Regarding habitat loss or alteration it is not expected that the development will cause a reduction in the baseline population of passerines as the area of nesting foraging habitat lost will be imperceptible to slight. Disturbance and displacement impact to birds of prey, waders waterfowl range from brief imperceptible to short term slight and short term moderate. Collision risk modelling was carried out based on VP data 2019, 2020 & 2021 and based on Scottish Natural Heritage Collision Risk Model. Nine raptor, wader and waterbird species selected for collision risk modelling as they were recorded within the 500m turbine buffer at rotor swepth heights (buzzard, hen harrier, grey heron, kestrel, peregrine, lesser black backed gull. Sparrowhawk, golden plover and snipe.) Probability of impact is extremely unlikely and collision risk is deemed to be long term imperceptible effect. Regarding displacement, disturbance and barrier effect these are reviewed in respect of target species at Table 7.70 of the EIAR. The potential for hen harrier avoidance of breeding habitat creation is noted and mitigation measures required to prevent the establishment of hen harrier breeding habitat following the felling of conifer stands. Direct effects during decommissioning are temporary imperceptible and reversible. Mitigation measures in respect of

avifauna impacts include removal of trees and scrub outside the bird breeding season and in line with best practice. Construction operations to be carried out during the hours of daylight to minimise disturbance to roosting birds or active nocturnal species. Re-confirmatory surveys are proposed to be conducted at turbine locations to assess evidence of buzzard kestrel sparrowhawk and woodcock activity or taking up of new territories.

7.6.11 Regarding aquatic ecology the principal effects from the development on the aquatic environment are expected to occur during the construction phase. Risks relate to water pollution and or contamination via siltation, hydrocarbons, concrete and tree felling. The CEMP details comprehensive measures to minimise risk of potential contamination and water pollution.

7.6.12 As regards potential impacts mitigation by avoidance and design have been incorporated to reduce effects on designated sites, flora and fauna. Hard standing area has been kept to the minimum to minimise land take. Buffers between the development and hydrological features such as rivers and streams are provided. A project ecologist/ecological clerk of works will be employed for the duration of the construction phase. Strict biosecurity measures will be implemented. Site specific issues in relation to wildlife not currently present at the site (e.g. badger setts) will be reconfirmed prior to commencement of works. A pre-construction mammal survey will be undertaken within the footprint. Evacuation procedures, sett excavation and destruction and other relevant issues to be agreed with NPWS. Derogation / disturbance license shall be sought as required. Clear-felling to be carried out outside the peak period for red squirrel, pine marten. Supervision of vegetation clearance will mitigate vulnerability of Irish Hare, Pygmy Shrew Irish Stoat and hedgehog to vegetation clearance.

7.6.13 A felling buffer for each turbine in accordance with SNH guidelines, supervision of vegetation clearance, lighting restrictions and pre construction survey in respect of bats. As outlined above removal of trees and scrub will be undertaken outside the bird breeding season in line with best practice and re-confirmatory survey to be conducted at turbine locations to assess evidence of buzzard, kestrel, sparrowhawk and woodcock activity or taking up new territories. Lighting of turbines will be by way of medium intensity fixed red obstacle lights fitted with baffles. Water quality

mitigation measures during construction phase are intended to protect aquatic ecology.

7.6.14 As regards impact on bats the featuring of blades cut in speeds curtailment will be employed to mitigate bat fatalities. A focused curtailment regime is proposed from year two of operation using the SCADA operating system. Post construction surveys, bat fatality monitoring and monitoring of mitigation measures are outlined.

7.6.15 Having considered to the information provided I am generally satisfied that the submitted information adequately addresses the potential impacts on biodiversity. Although the construction works could give rise to habitat loss, species disturbance and displacement, it is likely that species displaced during this phase would return to the site when the works are completed, subject to the implementation of mitigation measures. I am satisfied that the proposed development would not give rise to any additional significant adverse impacts on biodiversity, including birds and bats, as well as mammals using the site.

7.7 Other Matters Community Engagement, Aviation Impact.

7.7.1 I note the provisions and advice set out in the Department of the Environment's "Wind Energy Development Guidelines 2006" under Section 4.4 titled 'Public Consultation with the Local Community' as follows:

"Planning authorities should encourage developers to engage in public consultation with the local community. While it is not a mandatory requirement, it is strongly recommended that the developer of a wind energy project should engage in active consultation and dialogue with the local community at an early stage in the planning process, ideally prior to submitting a planning application."

The guidelines explore the consultation process at all stages of the project and set out best practice guidance on pre application public consultation in Appendix 2. It is noted that the provision of a good flow of information to the public about a proposed wind energy development prior to formal application can avoid conflict.

7.7.2 Third party submissions outlined concern regarding consultation and I note an apparent confusion regarding the specifics of the proposal. I note the evident difficulties for third parties to negotiate and decipher the extensive documentation and technical details provided in terms of the EIAR, AA and supporting reports and data. Section 2.4 of the EIAR sets out consultation carried out as part of the environmental impact assessment process. The initial public information with regard to the windfarm was carried out in March 2011 comprising a public meeting at Ballynabranagh GAA hall. Invitations to the event were delivered to households within the environs of the proposed development and adder placed in local print and radio media. Issues raised were noted. Further engagement with the local community occurred in February 2020 with regard to the turbine delivery route. This included meetings with local landlords and community groups. A project website has been live since April 2019 and provides up to date information on the development and the consultation approach including contact details for a community liaison officer.

7.7.3 The issue of public consultation and specifically the time lapse between original community engagement was raised in the local authority request for additional information. In response the applicant confirmed ongoing engagement with the local community including a further letter drop campaign January 2023 -March 2023 to houses within 1km of the proposed development. Issues raised were noted including potential impact on wells, community benefit scheme, shadow flicker, noise, visual impact, telecommunications, traffic and impact on property values. I note in relation to community benefit the applicant commits to putting in place a community benefit fund currently set at €2/MWhr for the lifetime of the scheme estimated at tin the region of €1m of direct benefit to the surrounding community. This fund is to be managed by an experienced independent community benefit fund administrator.

7.7.4 I consider that whilst the submissions suggest a degree of confusion with regard to the nature of the development the applicant has evidently sought to incorporate a consultation element to the environmental impact assessment process as envisaged

within the guidelines. Given the complexities of the application and the evolution of the project in terms of the initial application, subsequent separate application for amendments and grid route, to the current application I consider that the conditions for such confusion arises. It is my view that the applicant has complied with the requirements and obligations of the Planning Act in terms of public consultation.

7.7.5 Regarding impact on flight paths I note that the third party submission assert that helicopters regularly fly over the hill in the vicinity of the proposed turbines. I note that submission from IAA indicated that the proposal would not have any consequences for the safety of air navigation. The IAA submission sets out its requirements with regard to an aeronautical obstacle warning light scheme, as constructed co-ordinates in WGS84 format and specification data and at least 30 days prior notification to their erection.

7.7.6 Regarding the loss of forestry it is noted that the area to be clear felled comprise monoculture coniferous forestry of little botanical or ecological value. It is noted that it is proposed to replant an equivalent area in accordance with obligations under the 2014 Forestry Act. The bog rewetting and restoration measures as part of the habitat and species management plan are welcome and will provide a framework for biodiversity to flourish. The replant lands at Carrigthomas Co Cork are not located within or adjacent to any designated site or within any sensitive habitat and the loss of improved agricultural grassland to facilitate this plantation is considered to have non-significant negative, and highly localised short-term effects and as the forestry matures. The effect on the local habitat are likely to be neutral non-significant and highly localised in the medium to long term. It is noted that there is an abundance of similar well-connected improved grassland habitat in the area of the proposed replacement planting site and therefore disturbance to species is considered to be temporary slight negative impact. I am satisfied that this is acceptable.

8.0 Environmental Impact Assessment

8.1 Introduction

8.1.1 This section of the report comprises an Environmental Impact Assessment of the proposed development. The application falls within the scope of the amending 2014 EIA Directive (Directive 2014/52/EU) and also falls within the scope of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

8.1.2 The proposed development is a class for the purposes of EIA, under Schedule 5 Part 2 Class 3(i) the Planning and Development Regulations 2001 as amended – "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 development is an energy project which proposes 5no. wind turbines, with a total maximum output of 22.5 MW. As this exceeds the thresholds above, an EIA is required.

8.1.3 I have carried out an examination of the information presented by the applicant including the EIAR and the submission made during the course of the application including the appeal and other observations. A summary of submissions made by

the planning authority, prescribed bodies, appellants and observers have been set out at Sections 3 and 6 of this report.

8.2 Environmental Impact Assessment Report

8.2.1 An EIAR prepared on behalf of the applicant has been submitted with the application.

The EAIR consists of four volumes:

Volume 1 Environmental Impact Assessment Report

Volume II Environmental Impact Assessment Report Figures

Volume III Technical Appendices

Volume IV Non-Technical Summary

8.2.2 The EIAR describes the proposed development, including information on the site and the project size and design. A description of the main alternatives studied by the developer is provided along with the reasons for the preferred choices, these are outlined in greater detail below. The likely significant direct and indirect effects of the

development are considered under the following specific headings, which collectively address the factors set out in Article 3 of the EIA Directive 2014/52/EU:

- Landscape and Visual Impact
- Biodiversity
- Hydrology and Hydrogeology
- Land and Soils
- Cultural Heritage and Archaeology
- Noise and Vibration
- Material Assets – Roads and Traffic
- Air quality and Climate
- Population and Human Health
- Other considerations
- Interactions and Inter Relationships
- Mitigation

The impact of the proposal was assessed under all relevant topics and mitigation measures set out within each chapter. Detailed surveys and baseline data are contained within the appendices.

8.2.3 The documentation prepared by Arcus Consultancy Services and dated August 2022 is in line with current best practice guidance and allows for a complete examination and identification of any potential significant effects of the development, alone, or in cumulation with other plans and projects. This is supplemented by additional information responding to the Further information request of the Planning Authority received by the Planning Authority and date stamped 2nd June 2023. I am satisfied that authors of each chapter of the EIAR have suitable professional competencies, qualifications and experience to prepare an EIAR in their respective fields to ensure

completeness and quality. I note that the Council in their request for additional information sought details of experience and qualifications of field survey team involved in the biodiversity chapter of the EIAR. The EIAR and supplementary information provided by the applicant complies with Article 94 of the Planning and Development Regulations. The limitation of the EIAR set out in Section 1.10 of the EIAR are noted, however, none are considered material to the assessment or result in a defective assessment which occurs below. The EIAR concluded that there would be no likely significant adverse impacts post mitigation.

8.2.4 The third party appeal does not raise any specific concerns relating to the EIAR. This assessment has had regard to the application documentation, including the Environmental Impact Assessment Report, and all other supporting reports submitted, as well as all written submissions. Issues will be addressed under the relevant heading and as appropriate in the reasoned conclusion and recommendation including conditions if considered necessary.

8.2.5 In accordance with the requirements of Article 3 of the EIA Directive and Section 171A of the Planning and Development Act, 2000 (as amended), the environmental assessment is carried out against the following factors:

(a) population and human health,

(b) biodiversity, with particular attention to protected species and habitats protected under the Habitats Directive and the Birds Directive,

(c) land, soil, water, air and climate,

(d) material assets, cultural heritage and the landscape,

(e) the interaction between the above factors

8.3 Consideration of Alternatives

8.3.1 Article 5(1)(d) of the 2014 Directive requires : " a description of the reasonable alternatives studied by the developer, which are relevant to the development and its specific characteristics, and an indication of the main reasons for selecting the

chosen option, taking into account the effects of the development on the environment." Annex IV of the Directive (Information for the EIAR) provides detail on reasonable alternatives – "A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

8.3.2 On the basis of the previous consent for this wind energy project on the site dating from 2011 no alternative locations were assessed. Regarding alternative methodologies, alternative layout and design were also not considered. Regarding alternative rotor type and diameter it is noted that the use of smaller turbines would not make as efficient use of the wind resource or would result in greater footprint and increased environmental impact. Turbines of a similar height with a reduced rotor would be similar to that of the original wind farm which would mean an installed capacity of approximately 2MW per turbine which is approximately 45% less generation than the 117m rotor diameter proposed. Regarding the "do nothing" alternative, if the windfarm was not developed the socio economic benefits associated with the development would be lost, and the displacement of 525,660 tonnes of carbon dioxide envisaged during the lifetime of the proposal would not occur. Regarding alternative processes the management of processes that affect volumes and characteristics of aspects such as emissions, traffic and the use of natural resources has formed a key part of alternative considerations in the course of project development. Regarding alternative mitigation, mitigation by avoidance has been a key aspect throughout the evolution of the design. Design refinement has evolved in the development selection process. Having considered the detail submitted, I am satisfied that the issue of alternatives has been adequately addressed in the EIAR.

8.4 Vulnerability to risks of major accidents and/or disasters

8.4.1 Article 3(2) of the Directive requires a consideration of the vulnerability of the project to risks of major accidents and/or disaster that are relevant to the project concerned. The submitted EIAR does not provide a dedicated chapter to risks from major accidents or disasters. It is appropriate therefore to have regard to such risks in the

assessment of effect under the factors detailed in Article 3(1). I note that given the location of the site and having regard to the nature of the proposed project, the risk and vulnerability to natural disasters to such is limited. I consider that the risk of disasters such as fire or flooding occurring, affecting the project and causing it to have significant environmental effects is limited. The risk of flooding is addressed in Chapter 8 hydrology and hydrogeology where it is noted that the site is not identified as at risk of river flooding or pluvial flooding on OPW floodmaps and there is no record of previous flood events at the site. The risk of land slippage is assessed in Chapter 9 land and soils and is not a significant risk. The site is not proximate to any SEVESO site regulated under the control of major accident Hazards involving Dangerous Substances) Regulations therefore there is no likelihood for cumulative effects or interactions which such sites arising. I consider that there are unlikely to be any significant effects deriving from major accidents and or disasters.

Likely Significant Direct and Indirect Effects.

8.5 Population and Human Health

8.5.1 Chapter 14 of the submitted EIAR addresses population and human health in terms of direct and indirect significant effects. The assessment addresses effects of the construction operation and decommissioning of the wind farm development exploring how the proposal could affect population, employment, human health and amenity including health and safety. The assessment of cumulative effects considers the development, and the consented grid route. The study area for the purpose of the assessment is confined to the local study area namely the electoral division of Rathornan within which the site is located.

8.5.2 With regard to the local receiving environment the local rural area is dominated by agricultural and commercial forestry. The rural setting and natural landscape provides that the adjacent roads and local area is used for recreational activities

such as walking and cycling. The Slieve Margy Way a local level walking route passes the site along the L7129 public road.

8.5.3 It is anticipated that the proposed windfarm and grid connection construction will be undertaken in tandem and will require approximately 19 months to complete. At a local level there may be a short term increase in population as a result of construction workers temporarily migrating to the area for the duration of the construction period with approximately 40 job roles across the windfarm and grid connection development. This increase would be short term and not significant. Operational employment, one long term position and 2-3 maintenance positions would not be significant. No loss of residential dwellings arises and there will be no displacement of existing population. In terms of economic impact increased benefit arises from indirect supply chain opportunities and indirect job creation. A community development fund will be provided as part of the development resulting in positive socio economic benefit to the local community.

8.5.4 In terms of amenities there will be no severance, loss of rights of way or public amenities during the operational phase. I note the submission of Mr Michael Monahan, which suggested that an amenity use on the site should be developed on the site. I note according to details submitted that there are no existing designated footpaths or rights of way on site and it is not proposed as part of the development to develop such amenities. I note that this a request for additional information by Carlow County Council during the course of the 2011 application (11/154) noted the apparent use by locals of walking routes through the site and sought details of rights of way or agreed walking routes. The response noted that *"Coillte were the previous owners of the land who on sale of the land stated there were no rights of way or other rights affecting the land save what were apparent from an inspection of the property and title furnished. An examination of the title to the lands does not disclose any registered right of way or similar entitlement as a burden on the lands. It was further stated that as Coillte operate an open forestry policy they would have allowed unlimited access to the Coillte estate to people on foot under the Coillte recreation policy. This would not have been a legal right of way and would have been a "permissive access" only. Coillte would have been fully entitled to remove said access. Upon sale of the land Coillte demonstrated to the purchaser, Kilcarrig Quarries, that there were no rights of way or legally agreed walking routes through*

*this land. The current owner is under no legal obligation and chooses not to operate an open forestry policy or allow access to their lands"." (Page 11 Response to Further information request received by Carlow County Council 27 September 2011. W*hilst I note and would commend the public benefit of a dual use incorporating recreational access I observe that it is not possible to impose any such obligation in this regard having regard to property rights. I note that in response to the request for additional information it was acknowledged that ongoing engagement with the local community and feedback revealed a desire for an amenity trail The applicant committed in the response to seeking planning permission for an amenity trail as part of the community benefit scheme either adjacent to the windfarm or on the windfarm lands. A boardwalk structure allowing access to the bog to be restored is envisaged. Such an amenity would in my view be of significant benefit. Based on the details as submitted I am satisfied that the development as proposed does not give rise to any significant negative effects on established recreational use rights.

8.5.5 As regards impact on the local population wind farm and grid connection construction works will have a temporary effect in terms of disruption to road users, local residents and landowners however given the short term duration this impact is not significant. It is not anticipated that the project will result in significant effects resulting from the risk of major accidents and disasters and is not vulnerable to such risks including fire and flooding. Impact on health and wellbeing arising from the effects of the construction and operational phases in terms of noise, dust and air, visual and landscape and amenity aspects are considered under the respective sections within the EIAR. Significant residual impact on human health is not anticipated subject to implementation of the mitigation measures.

8.5.6 As regards shadow flicker the desk based assessment of 25 potential residential dwellings within the shadow flicker study area of 1170m . One dwelling (location 14) has the potential to experience shadow flicker effects, theoretically potentially experiencing up to 26 minutes per day and 36.7hours per annum of shadow flicker effects. This would exceed the 30 hours per year or 30 minutes per day limit identified within the guidelines. The applicant proposes to agree a shadow flicker mitigation plan with the local authority involving the shutting down the turbines during

certain times to reduce shadow flicker effects. The exact design will be subject to final turbine procurement. No cumulative effects expected during operation.

8.5.7 I have considered all the written submissions made in relation to population and human health and assessed the relevant details provided in the application including the EIAR. I am satisfied that the potential for impacts on population and human health can be avoided and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures and by way of suitable conditions. I am satisfied therefore that the potential for direct or indirect impacts on population and human health can be ruled out. I am also satisfied that cumulative effects in the context of existing wind development in the surrounding area and other existing and proposed development in the vicinity of the site are not likely to arise.

8.5.8 Based on the evidence presented in the EIAR, it is my view that the proposed development would not significantly affect the local population in the study area. The temporary and limited scale of the construction and decommissioning workforce will not lead to a lasting change in the population size or composition. The slight increase in population falls within the capacity of the existing community and services to accommodate without significant impact. The provision of long-term employment is modest and unlikely to drive substantial demographic change. The rural and sparsely populated nature of the study area provides a context within which there is no potential for significant population impacts. The absence of evidence for substantial cumulative effects indicates that the development will not lead to significant population changes. I am satisfied that the proposed development will not have any unacceptable direct or indirect impacts in terms of population and human health.

8.6 Biodiversity

8.6.1 Chapter 7 of the submitted EIAR addresses and evaluates the potential for significant impacts on biodiversity. The impact on designated European Sites is addressed in detail below in Section 9.0 Appropriate Assessment below. Both the River Nore and River Barrow catchments fall within the footprint of the development.

The watercourses to the north west and southwest of the site drain to the Dinin [South] SC010 sub-catchment which drains to the Nore to the north-east and south-east (including Rossmore stream which intersects the grid cable route) drain to the Barrow SC110 sub-cathment. The River Barrow and River Nore SAC lies 2.3km instream distance from the site (2.5km from access track crossing on Boolvannan). The River Nore SPA is 18.5km instream distance and c 26km from access track crossing point on the Boolyvannan. Other designated sites within 10k of the project include Coan Bogs NHA (2km), Cloghristick Wood pNHA (4.6km), Mothel Church Coolcullen pNHA (5km) and Whitehall Quarries pNHA (8.1km). Ballykeefe Wood Nature Reserve (c30km west) and Timahoe Esker Nature Reserve (36km northwest) while the closest Ramsar sites are the Slieve Bloom Mountains circa 41km northwest and Pollardstown Fen c 47km northeast.

8.6.2 Potential impacts on biodiversity associated with the proposed development include loss of habitat and disturbance or displacement of species. Impacts affecting the hydrological regime of the area are examined in chapter 8 of the EIAR and an assessment of the impacts on relevant habitat will be assessed in further detail under this heading below. The assessment of impacts is supported by an ecological assessment, a desk top study and field surveys in relation to habitats were completed on 9th and 21st July 2020 and 27th September 2020 to provide comprehensive overview of the baseline ecology in the study area. A detailed botanical survey of peatland habitats on was carried out on 27th September 2020 to undertake a detailed botanical survey of peatland habitats to define a detailed

description of habitat type to assess whether the vegetation composition correspond with any Annex I habitats.

8.6.3 Ornithological surveys were carried out over two years for the development including VP surveys during winter and breeding seasons 2019/2020. A total of 49 bird species were recorded during both breeding and winter season surveys.

8.6.4 Detailed targeted surveys were carried out for bats, otter, and other mammals.

Habitats

8.6.5 With regard to habitats on site the dominant coniferous plantation habitat does not provide suitable habitat for rare or protected flora. Access tracks are categorised as buildings and artificial surfaces and to a lesser extent recolonising bare ground provide. Areas of remnant raised bog are present and areas of cutover bog which are recolonising and have links with degraded wet heath. Aquatic habits on site comprise eroding upland rivers other artificial lakes and ponds and drainage ditches. Limited areas of scrub, dense bracken, recently felled woodland and wet grassland are also present. Habitats are mapped in Figure 7.6a. The habitats are classified ranging from locally important lower to higher value.

8.6.6 All five turbines T1-T5 are located within conifer plantation habitat consisting of sitka spruce and lodgepole pine. The densely planted monoculture offers little in terms of botanical biodiversity however less dense areas may provide habitat for mammals such as badger and red squirrel. The artificial lake and pond habitat located near the site entrance (likely a flooded quarry), notwithstanding fly tipping, was found to support a reasonable level of macrophytes including bulrushes and common spike ruse, and pondweed was also present. Pond edges included rose bay willow herb greater plantina brambles, nettles, foxglove and small grew willow saplings. Use by spawning frogs a variety of dragonfly and damselfly species were observed. Due to its character and suitability for invertebrates it was classified as local importance higher value.

8.6.7 Raised bog habitat at the centre of the site in two areas and relevé survey in relation to same are provided in appendix 7.6. The degraded nature is noted with evidence of

invasion of sitka spruce saplings, peat harvesting in adjacent areas and drying out of the bog. It is noted that restoration measures are proposed to allow the bog to regenerate. Following these measures to be carried out in conjunction with wind farm construction, the habitat will correspond with the Annex 1 habitat 'degraded bogs still capable of natural regeneration and cutover bog /wet heath mosaic habitat. This habitat is outside the footprint of the development. A small area is overlapped by the T3 felling buffer however this area is outside the infrastructure footprint and is unlikely to be subject to disturbance from felling activities. Cutover bog wet heath mosaic also found at the centre of the site, abutting the remnants of raised bog, are considered to have once formed part of larger area of raised bog. This does not correspond with Annex 1 habitat. This habitat lies partly within the footprint of the grid application proposed access road and within the proposed felling buffer for T2.

8.6.8 Eroding river habitat type in the northern part of the site. The Boolyvannana and Dinin (South) is classified as being of local importance (higher value). Wet grassland found in a small section to the northwest of the site adjacent to an onsite access track is classified as local importance (higher value) due to its semi natural character. Riparian woodland along the northern access track site boundary near the Dinin River South is classified as local importance higher value. Grid connection habitat classifications are set out at 7.5.5.2 of the EIAR and mapped at Figure 7.6.b. The grid connection is predominantly located along existing roads and forestry tracks however it also traverses an area of conifer plantation. The majority of habitats along the grid connection are common habitats and are set back from the route and as such not subject to potential impacts. The Rossmore Strem (Fushoge) near the north of the route and an intermittent/seasonal stream which is not mapped by the EPA running parallel to a section of grid connection within the site woodland is also noted. The remainder of habitats along the grid connection route are common low value habitats and/or are set back from the route.

8.6.10 It is evident from the details submitted that there is no annex I habitat present within the site. No invasive species were observed to be present at the windfarm site. Eight invasive species were recorded during the walkover of the grid connection route comprising two high risk species including japanese knotweed one medium risk

species, two low risk species and three species whose invasiveness has not yet been determined.

Species.

8.6.11 Regarding terrestrial mammals eight protected mammal species historically recorded d within grid squares overlapping and adjacent to the site namely, pine marten, Irish hare, Eurasian badger, red squirrel, Irish stoat, hedgehog, otter and pygmy shrew. Five invasive mammal species for which records exist were identified including American mink, brown rat, eastern grew squirrel greater white toothed shrew and European rabbit. Signs and sightings of five mammal species were recorded within the site study area namely badger, red fox, red squirrel, pine marten and American mink (invasive species). In addition deer tracks which were not identified to species level were recorded within the site study area. The range of both sitka and red deer is considered to extend to the adjacent 10km grid square.

8.6.12 No otter holts or evidence of otter was recorded within the study area. It is acknowledged that the small streams in the study area could potentially be used as commuting corridors by otters travelling between catchments, while the Dinin in the vicinity of the development may also be of low-moderate value to foraging otter. Other mammal species previously recorded in the study area but not observed during surveys may also occur, including Irish hare, red deer, sika deer, Irish stoat, hedgehog, brown rat, grey squirrel greater white toothed shrew and European rabbit. The treelines as well as edge of woodland and scrub habitats and adjacent field edges are suitable for Irish stoat utilising habitat edges to hunt.

8.6.13 Bat survey of the site is outlined at 7.5.7 and in accompanying Bat Report at Appendix 7.1. Four of the nine known Irish species of bat have been recorded in the study area. Four bat activity surveys using static detectors were carried out in 2020 are presented at Table 7-37 and 7-40. Eight bat species were recorded namely

common pipistrelle, soprano pipistrelle, nathusius pipistrelle leisler's bat brown long eared bat, natterers bat, daubenton's bat and whiskered bat.

Ornithology

8.6.14 Regarding avifauna, desktop study and examination of NPWS and NBDC records indicate a total of 52 species of ecological importance recorded historically in the 10km grid squires which overlap the study area. Ornithological surveys were carried out over two years including VP survey undertaken during both winter and breeding seasons. A total of 49 bird species were recorded during the breeding and winter season surveys.

Likely Significant Effects.

8.6.15 In relation to designated sites, I refer the Board to Section 9.0 of this report which deals with the Natura Impact Statement and details impacts to SACs and SPAs. The construction phase of the development will give rise to potential effects including habitat loss, disturbance / displacement of species, pollution of rivers streams, drainage of the site and potential spread of invasive species. Regarding Natural Heritage Areas and Proposed Natural Heritage Areas there are no direct effects. Regarding indirect effects. No effects are noted to Coan Bogs pNHA due to lack of hydrological connectivity and nature of the designation. Cloughristick Wood pNHA will not be affected due to local of ecological connectivity. Mothel Church Coolcullen pNHA located southwest is of interest due to the presence of a nursery colony of Natterer's Bat. The species may forage at the site and surrounding areas. As night time work is not planned in general no disturbance is predicted. Occasional night time work may occur giving rise to the possibility of limited disturbance to foraging natterer's bat. However the limited occurrence, infrequent recorded occurrence of natterer's bat onsite (average 1.44 recordings per night or .25% of all records using static detector surveys) distance to the pNHA and abundance of similar foraging habitats in the landscape means any such disturbance is not predicted to result in effects. Whitehall Quarries p NHA (8.1km south) is of interest for peregrine falcon. A total of four observations of peregrine falcon recorded during winter 2020 and three observations in summer 2021 would suggest that there may be infrequent instances where foraging peregrine would avoid hunting at the site due to human presence

during construction. This would not result in effects on pNHA due to the abundance of similar habitats in the landscape. As the site is outside the core range of breeding peregrine (2km) it is unlikely that breeding birds from Whitehall Quarries pNHA would use the site regularly.

Habitats

8.6.16 The loss of linear habitat - forestry tracks classified as buildings and artificial surfaces will arise from the development however this artificial habitat will be replaced with similar habitats following construction. Approximately 802m of drainage ditches running adjacent to access tracks may be subject to disturbance but will not be lost. Clearance of trees will enhance non woodland habitats (cutover bog/degraded wet heath mosaic). Felling and transport activities will result in temporary disturbance to vegetation while localised soil compaction could potentially be a persistent effect. A total of 18.01 ha or 15.9% of conifer plantation will be lost due to felling and scrub area 0.54ha. Peatland habitat within the felling zones will be disturbed but not lost.

8.6.17 Felled areas will be maintained as treeless areas for the lifetime of the windfarm but shall form other semi natural habitats as vegetation recolonises these areas. Recolonisation of scrub following construction is likely therefore loss of this habitat is short term imperceptible reversible effect. The loss of the artificial pond within the borrow pit footprint will be reinstated following construction.

8.6.18 A total of 0.09ha or 2.6% of the cutover bog / degraded wet heath mosaic will be lost within the section of access track between T2 and T3 (consented under the grid application and outside the current redline site boundary). Measures to restore/rewet this surrounding this peatland habitat and minimise drainage arising from access track construction are proposed. Of the 3.45 ha total present 0.07ha of this habitat is within the proposed felling buffer around T3. Disturbance by felling and timber extraction activities is expected but will not be lost. Considering the temporary nature of disturbance and limited percentage of habitat affected a short term slight reversible effect is predicted. An area of 2.28ha or (1.9%) of degraded bog which has been altered by historical drainage and peat cutting activities is outside the

felling buffer and is not directly impacted. Restoration (Re-wetting) measures are proposed to allow regeneration.

8.6.19 No direct effects to watercourses are predicted. Indirect effects to watercourses (eroding/upland rivers and drainage ditches) arising from transport of pollutants into the hydrological network are noted and require mitigation.

8.6.20 The restoration of peatlands which form a key element of the proposed development is a significant positive outcome of the development. The submission of the NPWS welcome the bog restoration measures to be carried out as outlined the Habitat and Species Management Plan. The NPWS recommend that a specific management plan to be produced by an ecologist/eco hydrologist with experience in peatland restoration. Monitoring the restoration process to determine ecological responses and assess effectiveness of selected measures will be crucial. Hydrological monitoring in tandem with ecological monitoring to enable better understanding of the process. As regards meadow planting proposed along the margins of the access tracks the NPWS submission noted that the all Ireland pollinator plan advises against planting of wildflower seed outside a garden setting. Regarding the proposal to reinstate a pond at the southern end of the site as a biodiversity feature I have noted the concerns raised in the submission of the IFI regarding potential introduction/spread of non-native fish and other species. These concerns can be addressed by way of condition.

Mammals

8.6.20 The permanent loss of approximately 19.06ha of habitats (predominantly conifer plantation 94.03%) and alteration of habitat (arising from the maintenance of buffer zones surrounding turbines) is unlikely to give rise to significant negative effect on the distribution of local protected mammal fauna including pygmy shrew, Irish hare, Irish stoat and hedgehog, given the widespread nature of the predominant habitat and the small scale loss.

8.6.21 The magnitude of unmitigated direct effect would be long term significant in respect of badger to short term significant in respect of red squirrel, pine marten and otter. Prior to mitigation the potential for indirect effects to otter through the transport of

pollutants and or contaminants which would negatively impact aquatic animals such as salmonids on which otter depend resulting in short term significant impact. In order to prevent such effects from arising it is proposed to employ mitigation measures such as pre-construction surveys and the avoidance of felling during affected mammal breeding season and the implementation of water quality mitigation measures outlined in the CEMP. Mitigated effects are not expected to be significant in terms of magnitude. I am satisfied based on the information provided within the EIAR that the proposed development will not result in significant effects to mammals within the development site and surrounds. I also note that there is an abundance of suitable habitat adjacent to the proposed development lands and as such should displacement occur it will be short term in duration.

8.6.22 As regards **bats** the habitats within the site identified as having a high ecological value for bats include access tracks and conifer plantation due to their linear and edge features which are of value to both foraging and commuting bats. Scrub is of low to moderate value for bats and is fragmented. Degraded raised bog and cutover bog/heath limited areas within the site are of low value for bats. Foraging or commuting bats may be subject to disturbance effects during construction phase. No direct effects are identified. Potential indirect effects include reduction in insect biomass and loss of insect prey species arising from vegetation clearance, disturbance due to increased human activities. Unmitigated effects are classified as temporary slight to moderate. Operational effects arise mainly from the rotation of blades of the wind turbines and to a lesser extent from vehicular movement through the site associated with wind turbine maintenance. Potential for effects on Mothel Church Coolcullen pNHA via their mobile species Natterer's bat were identified given rise to long term imperceptible to slight effects prior to mitigation.

8.6.23 Given the infrequency of human activity associated with maintenance any effect to mammals is considered to be long term slight in effect. With regard to collision risk to bat species and barotrauma are assessed. In the absence of mitigation two of the turbine locations T1 and T3 are assessed as having potential moderate-high impact to four high risk species (leislers' bat, common pipistrelle, nathusius pipistrelle and soprano pipistrelle) T2 andT4 are assessed as having potential moderate effects while T5 was assessed as having low-moderate effects. Overall effects on bats are predicted to be long term significant on a local level. Mitigation in the form of

feathering blades and curtailment with an intensive bat activity monitoring programme over the first year of the operational phase is proposed to ensure that fatalities do not arise. Vegetative buffer zones will be implemented and maintained to ensure that edge habitat is set back from turbines and does not endanger foraging or commuting bats and therefore reduces the risk of barotrauma. Lighting will be directional and overspill will be prevented. Residual impacts to bats are expected to be of a magnitude of slight to imperceptible.

Avifauna

8.6.24 Ornithological surveys carried out over two years during both winter and breeding season recorded a total of 49 bird species. In terms of collision risk based on activity levels and recorded flight heights and patterns. The species considered buzzard, golden plover, hen harrier, kestrel, lesser black backed gull, peregrine falcon, snipe sparrowhawk and grey heron. Collision risk evaluation ranged from imperceptible to slight.

8.6.25 Indirect effects may occur in relation to species linked to aquatic habitats via water pollution arising from sediment laden run off and or pollution events. The magnitude of such affects after the implementation of mitigation measures is considered to be imperceptible.

8.6.26 The impact of disturbance and barrier effects was determined for each key receptor species ranging from imperceptible to not significant for most species. With respect to kestrel effects from disturbance and barrier effect were evaluated as long term moderate effects. In relation to operational effects for effect on Whitehall Quarries pNHA via Peregrine Falcon were identified as giving rise to ling term imperceptible to slight effects prior to mitigation. In terms of cumulative effects the nearby Gortahile windfarm no significant cumulative effects are foreseen.

8.6.27 Mitigation measures with regard to avifauna include clearance of vegetation outside the bird breeding season. Where required during breeding season inspection by suitably qualified ecologist under license by NPWS in line with best practice. Construction will take place during daylight hours to minimise disturbance to roosting

birds or active nocturnal species. Pre construction surveys are proposed to determine up to date conditions.

8.6.28 Regarding cumulative effect this is addressed at 7.12 of the EIAR. Cumulative effects may arise in combination with activities such as afforestation, agriculture, land drainage and reclamation. The replant lands at Carrigthomas Macroom Co Cork form part of the overall project and are considered cumulatively with other elements of the project. Other developments including windfarms at Gortahile (operational) and Pinewoods Windfarm Co Laois are considered within the EIAR. I have also had regard to recent permission for Whitehill Windfarm[2] and proposed Seskin Windfarm[3] and the Freneystown windfarm project[4].

I note the queries raised in the request for additional information, by the Planning Authority as advised by consulting Ecologists Blackstaff Ecology, in relation to timing and extent of breeding bird survey. It was acknowledged that while weighted to some degree towards daylight hours rather than crepuscular periods, the stratification of surveys employed is appropriate for the proposed site and target species present and provides a robust and representative sample of site use.

Conclusions

8.6.28 I have considered all of the written submissions made in relation to biodiversity and the relevant contents of the file including the EIAR. Overall I am satisfied that the EIAR has adequately considered the value of the development site and surrounding area in terms of habitats flora and fauna. I am satisfied that the potential for impacts on biodiversity can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures or with suitable conditions. Potential for significant direct or indirect impacts on biodiversity can be ruled out. I am also satisfied that cumulative effects, in the context the proposed grid

[2] ABP-315365-22
[3] Carlow County Council ref 24/60122
[4] Public consultation currently underway

connection and other existing and proposed development in the vicinity of the site are not likely to arise.

8.7 Land and Soils

Lands and Soils

8.7.1 Chapter 9 of the submitted EIAR deals with land and soils taking into account the potential direct effects arising from the proposed construction activities. Indirect effects associated with the operation of the development are not anticipated for land and soils. The chapter is supported by technical appendix documents including Appendix 9.1 Assessment of peat stability, 9.2 Factual Ground Investigation and 9.3a-b further peat probing.

8.7.2 Published sources indicate that the underlying geology of the site comprises a heavily faulted sequence of shale, sandstone and siltstones. Fault trend northeast to south east with bedding generally perpendicular dipping to the northeast. The site is underlain by a repeating sequence of clay gall sandstone, moyadd coal formation, bregaun flagstone formation and kileshin siltstone formation separated by three main faults and several minor faults. The GSI identified non-metallic coal mineral localities to the immediate (c100m) north of the site boundary and also closed mines and collieries to the immediate north of the site.

8.7.3 From detailed site investigations the ground conditions of the site were recorded typically as peat overlying glacial till or topsoil and the bedrock was generally sandstone, siltstone with some mudstone and shale. Peat at the site was generally thin recorded at thicknesses between 0 and 1.2m with deepest peat in the surroundings of T4. No signs of past peat failures or instability is noted in relation to peat. The peat slide risk assessment for each of the turbines showed that the factor of safety was greater than the required minimum value of 1.3-1.5 and therefore it

was concluded that there was minimal potential for peat failure, and therefore insignificant risk.

8.7.4 In terms of likely significant effect the sensitivity of receptors are considered to be low in terms of peat and soil disturbance. In terms of peat excavation 11,885m3 is the estimated volume. Construction, handling and storage of peat and reinstatement and restoration is to be carried out in accordance with best practices and overseen be ecological clerk of works. Risk of peat destabilisation / peat failure is insignificant.

8.7.5 In terms of effects on land and land use, the overall loss of commercial forestry land is not considered to be significant in the connect of the abundance of similar land use in the immediate vicinity. I am satisfied that no significant effects on land use are adverse effect on soils are likely to arise during the construction phase. I note that the developed areas and buffer zones will be unavailable for forestry use during the lifetime of the project but could be reinstated following the decommissioning phase.

8.7.6 In terms of cumulative effect the grid access and Gortahile windfarm are considered within the EIAR. No significant effects are predicted. No significant effects on land and soils are predicted with best practice implementation of drainage, micro siting, geotechnical monitoring and the use of experienced construction personnel recommended to mitigate the potential for disturbance and destabilisation of peat. Such mitigation measure are common practice and known to be effective. No significant negative residual impacts are envisaged in terms of land and soils following the development and operation of the project.

Conclusion

8.7.7 I have read and considered all the submissions made in relation to land and soils. The EIAR has presented adequate information in relation to the proposed development in terms of land, soils and geology, including mitigation and monitoring proposals. I am satisfied that the proposed mitigation will adequately protect the surrounding environment and no significant residual effects are expected. I am satisfied that the potential for direct or indirect impacts on lands and soils can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures and with suitable conditions. I am

therefore satisfied that the potential for unacceptable direct or indirect impacts on lands and soils can be ruled out I am also satisfied that such cumulative effects, in the context of existing and permitted development in the surrounding area and other existing and proposed development in the vicinity of the site, are not likely to arise and no significant residual impacts are anticipated.

8.8 Water

8.8.1 Chapter 8 of the EIAR examines the effects of the proposed development on the hydrology and hydrogeology resource. The assessment is compiled using information from the previous EIAs 2011 and 2020, and further information submitted with respect to more recent applications as well as additional ecology surveys and ground investigation works. The key receptors identified in relation to the water environment were the minor surface watercourses that ultimately drain to the River Barrow (River Barrow and River Nore SAC) and the groundwater units which are poor aquifers of unproductive (low yielding) strata, but highly vulnerable to pollution.

8.8.2 In terms of surface hydrology the development lies on the watershed between the upstream surface water catchment of the River Dinin a major tributary of the River Nore, in the north of the site and the river Barrow catchment in the south. The southwest of the site is approximately 7km from the River Barrow, to which it drains via three small tributaries which join together approximately 3km downstream from the stream flowing under Rathornan Bridge and joining the Barrow upstream of Leighlin Bridge. Both the River Barrow and River Nore are part of the River Barrow and River Nore SAC. The upstream section of the River Dinin and minor tributary within the cire study area has an overall Water Framework Directive WFD river water body status of ‘moderate’. The streams which discharge to the south do not have WFD status but drain to the Barrow which has an overall WFD waterbody quality status of ‘moderate’.

8.8.3 The Hydrology of the site is classified as bedrock which underlies the site as a poor aquifer which is generally unproductive. The vulnerability of the aquifers underling a localised area to the southeast of the site is rated as Extreme by the GSI due to the

presence of rock at the surface. The rock at the surface coincides with the exposure of Namurian Shales along the edge of the Castlecomer Plateau. Aquifers underlying the rest to the site are rated as ‘high to low’.

8.8.4 GSI bedrock maps indicate the underlying geology as a heavily faulted sequence of shale, sandstone and siltstones. Faults trend northwest to southeast with bedding generally perpendicular, dipping to the northwest. Published geology indicates that the development is underlain by till superficial deposits, primarily in the east. Till superficial deposits are derived from sandstone, limestone and shales and (Namurian) are largely impermeable. The aquifer units associated with the bedrock are poor aquifer (Pl) which is unproductive meaning low yield of water, except for localised zones where fracture or weathering results in minimal yields. Recharge to this aquifer is likely to be in areas of higher topography at the top of slopes and recharge is considered minimal due to the relatively impermeable nature of bedrock unit and overlying impermeable superficial deposits. The majority of the study area is within the Shanragh groundwater body and has an overall WFD status of ‘good’.

8.8.5 The groundwater vulnerability of the site is rated as extreme due to the presence of rock outcropping at surface and minimal peat coverage, however the aquifer unit is confined by the overlying till deposits, with a very small proportion of the aquifer being exposed at the surface.

8.8.6 As regards private and public water supplies Table 8.5 within the EIS details 4 boreholes, 5 dug wells and 2 springs for private water supply use and one borehole for public supply use within 2km of the proposed development. A number of small supplies to the west of the development (Agharue) are located upstream of the development and greater than 1km from the development therefore not at risk. The Paulstown public water supply is located approximately 6.2km south of the development and is hydrologically disconnected therefore there is no prospect of effects on this supply. As regards Bilboa public water supply a borehole is located 1.6km northeast of T3. It is believed that the well may be 30m deep but indeed may be significantly deeper. Given the distance from the groundwater unit and base of turbine excavations the potential for direct interaction with supply source from turbine foundations Is unlikely. Indirect effects relating to chemical pollution from concrete pouring, oil and fuel storage failure, soil and fuel leakage are mitigated by way of

best practice measures outlined in the CEMP. Ballinabranna Group Water scheme has two boreholes approximately 5km and 4.7km east of the development. Based on the distances involved and differing geology there will be no interaction with the proposed windfarm.

8.8.7 Regarding Private Water Supplies it is noted that prior to confirmation of source location and source water the development is considered to potentially reduce the yield of existing supplies and or deteriorate quality slightly. Mitigation Measures outlined within Technical Appendix A4.1 CEMP in relation to private water supplies include a programme of private water supply water quality monitoring. It is stated that in the unlikely event that mitigation measures fail or a period of dewatering is required which will impact supply to a private water supply an emergency response plan will be actioned. I note that the HSE has indicated satisfaction with the proposals with regard to the protection of drinking water supplies on the basis that these measures are considered to be sufficient to address potential impacts arising.

8.8.8 In terms of likely significant effects the impact of the development on hydrological receptors is considered for the construction operation and decommissioning phases. The effects of the construction phase including chemical pollution, sedimentation, physical alterations and impediments to flow of surface and groundwaters, increased run off, and effects to third party water supplies. The operational phase is assessed with regard to the potential increase in surface water run off as a result of permanent hardstanding.

8.8.9 Embedded mitigation measures relating to the hydrological environment include provision of 50m buffer to watercourses, 20m buffer around mapped artificial drains and adoption of good practices methods and works for protection of hydrological receptors. These measures to be implemented through the environmental management plan EMP and construction environmental management plan CEMP. Other sustainable drainage systems measures such as the uses of settlement lagoons, swales and interception bunds will prevent sediment entering watercourse via drainage ditches adjacent to access tracks. Following mitigation the magnitude of

effect of chemical pollution on watercourses and groundwater is considered to be negligible.

8.8.10 Regarding flooding the site is not within an area identified as at risk and there is no record of previous flood events. Predictive flood extents do not identify a probability of flooding into the future. Increased run off from hardstanding is addressed by way of appropriately sized drainage management and attenuation which would ensure render potential effect imperceptible and not significant. Cumulative effects are assessed for other developments which are hydrologically connected including the consented grid connection routes. No significant cumulative effects are envisaged.

8.8.11Overall it is stated within the EIAR that subject to the implementation of mitigation measures outlined, no significant impacts on the water environment from the proposed development will occur during construction, operation, or during decommissioning phases of the wind farm and the grid connection. Cumulative impacts have been considered in conjunction with all other existing, approved or proposed projects and given the nature of the proposed works are considered to be unlikely. I note the submission of Inland Fisheries Ireland IFI which notes that the Dinan and Rathornan are important salmon spawning tributaries. Requirements are set out with regard to works to prevent deleterious matter reaching surface water systems directly or indirectly including strict implementation of buffer zones and the application of the precautionary principle throughout. I note in response to the request for additional information in relation to the proposed pond biodiversity wildlife feature to be created within the footprint of the borrow pit, it was confirmed that the pond will not be directly hydrologically connected to other watercourses and the introduction of fish species is not proposed and is unlikely. Continuous monitoring is to be carried out through the lifetime of the development.

Conclusion

8.11.12I have considered all of the written submissions made in relation to water and the relevant contents of the file including the EIAR. I am satisfied that the potential for impacts on water can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures and with suitable conditions. I am therefore satisfied that the potential for direct or indirect impacts on

water can be ruled out. I am also satisfied that cumulative effects, in the context of existing and permitted development in the surrounding area and other existing and proposed development in the vicinity of the site, are not likely to arise.

8.12 Air and Climate

8.12.1Chapter 13 of the EIAR details with Air Quality and Climate. As regards baseline conditions it is noted that the rural location and predominantly agricultural environment provides that there is no individual source of substantial air pollution in the study area. In terms of Air Quality Regulations the site is classified as Zone D – Rural Ireland and Rural east Air Quality Index for Health (AQIH) region. The three nearest stations to the site is located in Carlow Town, Kilkenny and Emo Court classify the baseline air quality as 'good'. In terms of climate ecological ornithological and hydrological receptors are considered to be the most sensitive environmental receptors to long term changes in climate trends. Air quality receptors in the area are residential, properties and construction workers. Three non-residential receptors, Bilboa Post Office, Scoil Bhríde Primary School and Bilboa Church of Ireland are noted to be high sensitivity receptors.

8.12.2Potential air quality impacts are anticipated to be short term confined to the construction phase of the development. The embedded mitigation set out within the CEMP relating to the construction of the development include good practice methods and works that are established and proven to be effective. The predicted increase in traffic volumes resulting from the construction phase is predicted to be low.

8.12.3Regarding effects on climate, a positive effect on carbon savings and therefore on climate is predicted. As a result of the development 17,522 tonnes of Co2 will be displaced per annum resulting in 525,660 tonnes of displaced CO2 during the development's 30 year lifetime. The development is assessed to have an imperceptible positive effect on climate that is not significant. The cumulative effect in conjunction with other windfarm developments represents a fundamental change

in climate effects of Irish energy supply which is a profound substantial positive effect.

8.12.4Mitigation in the form of a Construction Environmental Management Plan is proposed and will guide development in a manner which reduces dust and fugitive machinery emissions arising at the development site. Measures will include the prevention of idling vehicles and the maintenance of vehicles in good working order so as to prevent leakages and unnecessary air emissions. No significant residual emissions are expected in this regard.

Conclusions

8.12.5The main potential for significant effects will arise during the construction stage in terms of the generation of dust and other emissions at the site or indirectly en route to the site. The construction stage will also involve the operation of plant and machinery that will generate exhaust emissions. Subject to the mitigation measures proposed in the EIAR, which generally comprise best practice methods and measures for such proposals, I am satisfied that no significant adverse effects on air quality and climate are likely to arise during the construction phase. During the operational phase there will be a positive residual impact on air quality and climate due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions. Air quality in the area is likely to remain typical of a rural environment with a low level of pollutants save for short term periods associated construction. Such impacts would not be considered significant in this context. I am satisfied that the potential for impacts on Climate and Air can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures or with suitable conditions. I am therefore satisfied that the potential for direct or indirect impacts on Climate and Air can be ruled out. I am also satisfied that unacceptable cumulative effects, in the

context of existing wind development in the surrounding area and other existing and proposed development in the vicinity of the site, are not likely to arise.

8.13 Material Assets

8.13.1 Chapter 12 deals with materials assets roads and traffic. The report evaluates the effects of the proposed windfarm on roads and traffic resource. During the course of construction a total of 24.058 vehicle movements are expected made up of 19.240 car or van movements and 4,590 HGV movements. The increase in overall traffic is negligible in terms of existing traffic flow levels and is likely to be within the existing daily variation in traffic flow and negligible overall. No significant effect on driver delay, pedestrian amenity and safety is predicted. The effect on severance is negligible given the short term construction period. The effect of the development on accidents and safety is negligible. The construction of the windfarm coinciding with the construction of grid croute is addressed by combined construction programme.(Appendix 12.2).

8.13.2 The peak level traffic does not exceed threshold of significance therefore no significant cumulative effects are anticipated. With regard to the operation of the development, effects are expected to be imperceptible, due to the low levels of traffic associated with the operation of the windfarm. Decommissioning of the windfarm will give rise to similar effects associated with the construction of the development. Mitigation measures including the phasing of construction to minimise peak traffic effect on roads within the vicinity of the development.

8.13.3 I am satisfied that the potential for impacts on traffic and transportation can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, by the proposed mitigation measures or with suitable conditions. I am therefore satisfied that the potential for direct or indirect impacts on traffic and transportation can be ruled out. I am also satisfied that cumulative effects, in the

context of existing wind development in the surrounding area and other existing and proposed development in the vicinity of the site, are not likely to arise.

Telecommunications and Aviation

8.13.4 Chapter 15 of the EIAR entitled other considerations includes an assessment of a number of issues including electromagnetic interference, television and communication and air navigation. No significant effects are predicted in terms of electromagnetic interference telecommunications interference,. The applicant indicates a commitment to mitigate against any potential television interference noting an agreement with Radio Telifis Eireann which guarantees that the developer will fix any problems arising from the windfarm with regard to television reception. Prior to construction a further search for all television and communication links and utilities will take place to identify any new or updated services. Adverse effects will be avoided through the implementation of safe systems of work. No significant effects are envisaged as a result of the development. Cumulative effects are not significant.

8.13.5 With regard to air navigation it is noted that the site is not located within any areas or zones identified by the Irish Aviation Authority. No direct or indirect effects are predicted. Further to consultation with the IAA and in the interest of are navigation safety turbines T1 T3 and T5 will be fitted with Type C medium intensity fixed red obstacle lighting with a minimum output of 2.000 candelas to be visible in all directions at all times and development also to be fitted with incandescent (or of a similar type of night vision lighting) obstruction lighting. I have noted the third party submission suggesting that helicopters fly over the site. I note the submission of the Irish Aviation Authority outlining no objection to the proposed development subject to notification requirements and aeronautical obstacle warning lighting.

Conclusion

8.13.7 With regard to other material assets I am satisfied that they are addressed in various sections of the EIAR, including landscape and cultural and archaeological heritage. The potential for unacceptable direct or indirect impacts and cumulative effects on traffic and transportation can be ruled out. With regard to telecommunications the

EIAR provides evidence of consultations with the various service operators. Based on compliance with best practices as set out I consider it is unlikely that the proposed development will result in any significant electromagnetic or other interference with telecommunications infrastructure or services. With regard to aviation no concerns arise subject to suitable conditions. The application does not propose any connection to public water or wastewater services.

8.13.8 The proposal will give rise to a positive residual impact on electricity supply arising from the operation of the proposed windfarm. Given the nature and scale and location of the proposed development, no significant cumulative impact on material assets are likely to occur. I am satisfied that the potential impacts on material assets can be avoided, managed or mitigated by measures that form part of the proposed development, proposed mitigation and through suitable planning conditions. Accordingly, I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on material assets.

8.14 Cultural Heritage and the Landscape

8.14.1 Chapter 10 of the EIAR deals with cultural heritage and archaeology. The baseline conditions are informed by desktop assessment and field survey undertaken as part of 2011 EIA and 2020 EIA report. In terms of baseline environment it is noted that there are no archaeological monuments within the site boundary and only three monuments located within the wider 2km study area including a schedule bowl barrow (CW011-012) and earthwork CW011-004 and a moated site (CW011-001). Protected structures in within 2km are Bilboa Church of Ireland (Reg No 10300601) and Three Counties bridge Ref No 12400611. A number of townland boundaries are located within the site.

8.14.2 In terms of construction phase effects. no effects on known archaeology are predicted. Given the potential for archaeological finds within peat deposits archaeological monitoring is proposed during construction and any geotechnical investigation. As regards operational phase effects no effects is predicted on the setting of the recorded monuments due to the distance and intervening forestry. No significant visual effect is predicted on the setting of Bilboa Church of Ireland on the

basis of the visual barrier comprising the surrounding forestry perimeter. This is discussed further below in terms of the landscape and visual impact assessment. As regards the Three Counties Bridge its significance relates to its function and architectural characteristics within the landscape setting limited by the river. The proposed development is not within this setting and does not affect the bridge's association with the watercourse therefore no change is predicted. On the basis of the foregoing no significant effects are predicted. As regards cumulative effects no significant cumulative effects are anticipated.

8.14.3 Mitigation measures to be implemented during construction include archaeological monitoring of groundworks, archaeological method statement to allow for preservation in situ or full archaeological excavation of any identified archaeological features, liaison with the national monument services and recording and reporting of results of monitoring. Residual effects following mitigation are considered to be not significant.

8.14.4 I note that the submission of the Development Applications Unit, Department of Housing Local Government and Heritage indicated satisfaction with the proposed mitigation strategy and recommended standard conditions with regard to archaeological monitoring and reporting.

8.14.5 Having considered the EIAR and submissions in relation to archaeology and cultural heritage I am satisfied that the potential for significant adverse effects on archaeology architectural and cultural heritage can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on archaeology, architectural and cultural heritage.

Landscape and Visual Impact

8.14.6 Chapter 6 of the EIAR deals with the landscape and visual impact assessment. The Landscape and visual impact assessment methodology is set out in regard to the assessment of landscape effects on the landscape as a resource in its own right and assessment of visual effects on specific views and general visual amenity. The site

lies within the Uplands Landscape Character Type LCT and Killeshin Hills Landscape Character Area LCA. Landscape Sensitivity Map 9.3 shows a sensitivity the uplands to have the greatest level of sensitivity (5) while Table 9.2 Land Use Capacity Matrix indicates that the Killeshin Hills have a moderate capacity for wind farming. Scenic Routes 6,7, 8 and 9 within 5km radius of the site and scenic viewpoints No 32 and 31 within and 5km south of the site.

8.14.7 Regarding viewpoint assessment, eight viewpoints where selected to represent typical views from key receptors. Viewpoint locations are shown on Figure 6.16. Visualisations include wirelines and photomontages of the development. Viewpoint analysis is provided at Table 6.5. It is reported that there is no change in the overall visual assessment from the previous assessments 2011 EIS LVIA and 2020 EIAR LVIA with the exception of viewpoint 4 representative of third class road to the south. A new build residential property built since the 2011 EIS LVIA and after the original windfarm permission is noted. A summary of viewpoint analysis is provided in Table 6.5. where impact significance ranges from Significant – Moderate at Bilboa Village VP1 to Moderate VP 2, VP3, VP4 and VP8 to Significant Moderate VP 5 and Slight – Not significant VP 6 and VP7.

8.14.8 Regarding visual effects from residential receptors, it is noted that there are 25 properties within a 1km radius of the proposed development. Regarding those to the north within the village of Bilboa the dwellings are clustered around the cross roads junction within the village and along the main road which borders the landholding boundary to the north. It is noted that the existing Gortahile Windfarm is located circa 1.3km to the north of these dwellings. The change of effect due to the development is deemed to be slight – imperceptible. Regarding dwellings to the south there are a number of properties along the local road bordering the site to the south three of which are within 500m of the closest turbine. It is noted that the Gortahile Windfarm is not visible from here. The magnitude of change is deemed to be small and a moderate minor change of effect. A number of dwellings to the east of the site towards Whelan's Crossroads and along the local road at Tomard Lows the closest being 1km of the nearest turbine. The Gortahile Windfarm is visible on the horizon

circa 2.2km from the properties and the magnitude of change arising is deemed negligible and slight imperceptible change of effect.

8.14.9 Regarding visual effects from settlements the only settlement within 5km is Bilboa which lies circa 1.4km from the nearest turbine. The existing Gortahile Windfarm is visible to the north at a distance of c1.4km. The magnitude of change is deemed to be negligible with a slight imperceptible change of effect. Regarding visual effect on views from NIAH buildings and gardens the two protected structures within 2km namely Bilboa Church of Ireland (Reg No 10300601) and Three Counties Bridge (Ref No 12400611). Bilboa Church of Ireland (RPS CW 268) is 1.04km from the nearest turbine and is located to the west of Bilboa village and on the northern edge of the woodland within which the proposed development is situated. It is described within the RPS as "A First Fruits style church dated 1846. It is built of coursed-rubble limestone with granite dressings and has a simple hall-type nave of three bays and a substantial, three-stage tower. The tower has octagonal, clasping buttresses with pinnacles, pointed openings and English crenellations. The nave has tall, pointed window with four-centred heads and the original Y mullions and small panes of glass." Given the extensive mature roadside tree and hedgerow cover, open views are limited along this road. Where there are clearances Gorthahile windfarm is visible to the north of the road. The magnitude of change arising from the development is deemed to be negligible and change of effect slight – imperceptible.

8.14.10 Three Counties Bridge is described within the NIAH as "Single-arch rubble stone road bridge over river, c.1800. Ivy-clad random rubble stone walls with rendered coping to parapets. Single round arch with rusticated cut-granite voussoirs, and squared rubble stone soffits having traces of render over. Sited spanning Dinin River with overgrown grass banks to river." The bridge is located west of Bilboa and within 500m north of the development. Views of Gortahile Development are visible from the top of the bridge where there is clearance in vegetation. There are no available views from the river bank and bridge below. The magnitude of change would be small and change of effect minor- moderate.

8.14.11 Regarding visual effects on views from scenic routes scenic viewpoints and the Barrow way these are addressed at Table 6.9. (VP 5 and VP 7 Fig 6.21 and Fig 6.23). In relation to Scenic Route 6 - Ridge Cross Road which is located to the

south at a distance of 3km from the nearest turbine. The scenic view offers views across the broad valley lowlands to the east and the Blackstairs Mountains on the horizon. Views to the north and south are screened by mature hedgerow and tree cover but views open up at the northern end go the route. Gortahile windfarm at a distance of 5.25km north is not visible. The magnitude of change would be negligible and change of effect slight imperceptible at the northern end only.

8.14.12 Regarding Scenic Route 7 which is 3.1km to the southwest of the nearest turbine. (VP 5 is to the north along the local road of Scenic route 7.) The existing Gortahile windfarm is visible. There would be a negligible magnitude of change arising and slight imperceptible level of effect. Scenic Route 8 is immediately along the local road to the south of the proposed development and within 400m of the nearest proposed turbines. The designated route offers panoramic views across the broad valley lowlands to the east and the Blackstairs Mountains on the horizon. Views to the north are screened. The existing Gortahile Windfarm is not visible. The magnitude of the change arising is small and change of effect minor to moderate. Regarding scenic route 9 to the east within 1.63m of the nearest proposed turbine the route offers views across the broad valley lowlands to the east and south east and the Blackstairs mountains on the horizon. Views to the north and north west are screened. The eastern end of the route is outside the zone of theoretical visibility. The existing Gortahile windfarm is not visible. There would be a negligible magnitude of the change and change of effect considered to be slight – imperceptible. Scenic viewpoint 31 to the south is circa 3.9km from the nearest turbine. The designated view is to the east and screening to the north prevents views of the proposed development. Scenic Viewpoint 32 Touolocreen Crossroads is circa 1.3km to the southeast is directed to the east and southeast. Views to the north are largely screened. Gortahile Windfarm 3.1km is not visible. The magnitude of change is deemed to be negligible and slight-imperceptible change of effect.

8.14.13 Regarding the Sport Ireland National Trail Barrow Way a recreational route along the river Barrow at its closest circa 4.5km to the east. The route is heavily screened by mature tree and hedgerow cover. Where there are views to the site the development would be viewed at an elevated location alongside the Gortahile wind

farm. Magnitude of change would be negligible and slight-imperceptible change of effect.

8.14.15 Regarding visibility from major transport routes the proposed development would be experienced transiently. The M9 is within 4km at its closest to the east and southeast. Views to the west and east are filtered along the route by riparian mature tree and hedgerow cover, screening views to the west and Killeshen Hills. Where views are available the development would be viewed at an elevated location and in conjunction with the Gortahile windfarm. The magnitude of change is considered negligible and change of effect imperceptible. In terms of the local road network, the extensive roadside vegetation and cover provides that open views are limited. Magnitude of change is negligible and change of effect slight imperceptible within 3km radius to minor within 0.6km radius.

8.14.16 The proposal relies on embedded mitigation by design. No specific mitigation measures are proposed given the highly visible nature and of the development whereby screening is not feasible. Regarding cumulative impacts the EIAR predicts cumulative effects of the proposed development, Gorthile windfarm and the consented grid route. It is noted that the consolidation of windfarms within the landscape provides an opportunity to reduce pressure elsewhere and meet renewable energy targets. It is noted that in terms of many viewpoints there is intervisibility between the development and Gorthile Wind farm the cumulative landscape and visual effects are not significant. Cumulative effects with the grid connection works would be temporary during the construction period. The proposed cumulative development will not change the landscape character of the site or surrounding area and visual effects would be minor to moderate within 0.6km radius and slight-imperceptible within a 3km radius and imperceptible beyond that distance. Significant landscape and visual effects are not predicted either visually or cumulatively.

8.14.17 I note that the third party appeal and observer submissions outline concern regarding visual intrusion of wind turbines and destruction of scenic views. I note that by their nature and height (136.5m to tip height) the proposed wind turbines will be visible however, visibility does not equate to visually obtrusive. I am satisfied that it has been demonstrated that the site is suitable for wind energy development and this

has been previously decided by the Board. The design and layout of the proposal incorporating an irregular clustered layout addresses the landform and landcover context. In my view the proposed development can be successfully integrated into the landscape at this location without impacting negatively on scenic views.

Conclusion

8.14.18. I consider that the landscape and visual impact assessment as provided within the EIAR is reasonably well considered. The proposal would not be out of place in the working upland context and as previously determined by the Board the proposed wind energy development is an acceptable form of development at this location. I consider that the baseline has been adequately described and the selected viewpoints represent a comprehensive and reasoned consideration of landscape and visual impact arising.

8.14.19 I note in relation to cumulative effects, the submitted EIAR does not reference the recently permitted White Hill Wind Farm (ABP.315365) or proposed Seskin Wind farm (Carlow Co Council 2460122) and proposed Freneystown project. I have however had regard to the information available in relation to the cumulative context. I have noted that both applications (ABP315365 and 2460122) have regard to the proposed development on the basis of it having been the previously permitted. I have reviewed the EIAR documentation submitted with these adjacent applications including the landscape visual impact assessment, cumulative ZTV maps and wireframes which include an assessment of existing baseline and future potential baseline should all wind energy projects be constructed. The potential future baseline is in my view likely to give rise to a marked cumulative impact in terms of creating a linear cluster of turbines. I note that some weight must be given to the fact that the proposal has previously been deemed by the Board to be appropriate in terms of its visual and landscape impact. While increased visibility from a number of viewpoints will arise and the potential for windfarm proliferation is acknowledged, I am satisfied that due to its scale design and layout, separation distance and nature of the intervening undulating landscape, the proposed development does not give rise to a dominant unacceptable impact. I note that the cumulative effects will

continue to be considered as part of future applications. Overall, I am satisfied that the proposed development is acceptable in terms of cumulative visual impacts.

8.14.20 I have read and considered the submissions made in relation to landscape and visual amenity. Overall, I am generally satisfied that the EIAR has considered the potential effects on the landscape and in terms of visual impacts within the local area. I am satisfied that potential impacts have been fully considered and that the proposal will not result in an unacceptable dominant feature in the landscape. I am satisfied that in combination visual impacts and effects are acceptable in terms of the receiving landscape. I conclude that the proposal will not have any unacceptable direct indirect or cumulative effects in terms of landscape and visual amenity.

8.15 Interactions between Factors and Cumulative Effects.

8.15.1 I have considered the interrelationships between factors and whether these may as a whole affect the environment even though the effects may be acceptable when considered on an individual basis. Chapter 16 of the EIAR addresses the issue and provides a matrix, Table 16.1, of the impact interactions.

8.15.2 Regarding landscape and visual impact there is potential for interaction with population, human health, archaeology and cultural heritage and other considerations. However effects identified are not significant and best practice measures minimise further effects to the extent that such effects are of a limited magnitude of change and unlikely to interact with other effects to result in a significant effect. There is potential for population and human health to interact with all of the other factors (biodiversity, water, air and climate, noise and material assets – traffic). Impacts on land and soil resource within the construction phase are considered for potential to impact on air quality and climate arising from dust, pollution of air quality as a result of construction activities. Potential interactive effects in relation to hydrology, biodiversity, land and soil, population and human health are not significant and CEMP best practice construction measures will ensure no significant effects. The interactive effects on biodiversity with land and soils, hydrology air and climate have potential for effect on principal receptors including

ecological designations, habitats, flora and fauna however, such effects following best practice and mitigation are not significant. No significant effects are anticipated as a result of interactive effects.

8.15.3 I am satisfied that effects as a result of interactions, indirect and cumulative effects can be avoided, managed and / or mitigated for the most part by the measures which form part of the proposed development, the proposed mitigation measures detailed in the EIAR, and with suitable conditions.

8.16 Reasoned Conclusion

8.16.1 Overall, the submitted EIAR and appendices represents a comprehensive and detailed consideration of the matters pertinent to Environmental Impact Assessment. Having regard to the examination of environmental information contained above, to the EIAR and supplementary information provided by the applicant and the submissions received, the contents of which I have noted, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Negative impacts on human health and population arising from construction include noise, traffic and dust disturbance to residents of neighbouring dwellings. All of these impacts are low to moderate. Adequate mitigation measures are proposed to ensure that these impacts are not significant and include adequate mitigation for operational noise. Negative traffic impacts arising during the construction phase of the development will be mitigated through the implementation of a traffic management plan and a construction management plan, and significant traffic impacts can therefore be ruled out.

- One residential dwelling could potentially experience 26 minutes per day and 36.7 hours per annum of shadow flicker effects thereby exceeding the 30 hours per annum or 30 minutes per day identified in the guidelines. A shadow flicker mitigation

plan involving shutting down of turbines during certain times / weather conditions will ensure that significant effects can be ruled out.

- There will be visual impacts associated with the proposed development which were assessed from a range of receptors within the study area. There are no significant landscape and visual effects identified as a result of the development. No specific mitigation measures are proposed and cumulative effects are not significant.

- Noise disturbance from the operation of turbines is not likely to arise given the separation distances between turbines and residential properties. Impacts arising from noise and dust disturbance during both the construction and operational stage can therefore be ruled out.

- The proposed development will have a significant positive effect on air and climate human health and population due to the displacement of CO2 from the atmosphere arising from fossil fuel energy production.

- Negative impacts on Water could arise as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the waterways thereafter during the construction and operational phases. These impacts will be mitigated by robust measures outlined within the application and can therefore be ruled out.

- In terms of biodiversity, the majority of habitat loss involves conifer plantation which is of low importance. Mitigation measures are proposed to minimise impacts on

terrestrial habitats, hydrology. Following mitigation no significant effects are predicted on ecological receptors.

The EIAR has considered that the main significant direct and indirect effects of the proposed development on the environment. These would be primarily mitigated by

environmental management measures. I am satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment.

9.0 Appropriate Assessment

Screening Conclusion (Refer to Appendix 1 for Screening Determination)

In accordance with Section 177U(4) of the Planning and Development Act 2000 (as amended) and on the basis of objective information it has been concluded that the proposed development is likely to have a significant effect on the designated fish and aquatic species of the River Barrow and River Nore SAC and on the Kingfisher designated spaces of the River Nore SPA ‘alone’ in respect of effects associated with siltation / pollution.

It is therefore determined that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act 2000] is required on the basis of the effects of the project ‘alone’.

9.2 Appropriate Assessment – Stage 2.

9.2.1 Appropriate Assessment

The requirements of Article 6(3) as related to appropriate assessment of a project under part XAB, sections 177U and 177V of the Planning and Development Act 2000 (as amended) are considered fully in this section.

The areas addressed in this section are as follows:

• Compliance with Article 6(3) of the EU Habitats Directive

• Screening the need for appropriate assessment

• The Natura Impact Statement and associated documents

• Appropriate assessment of implications of the proposed development on the integrity each European site.

9.2.2 Compliance with Article 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 before consent can be given.

In accordance with these requirements the Board, as the competent authority, prior to granting a consent must be satisfied that the proposal individually or in combination with other plans or projects, is either not likely to have a significant

effect on any European Site or adversely affect the integrity of such a site, in view of the site(s) conservation objectives.

The proposed development is not directly connected with or necessary to the management of a European site and therefore is subject to the provisions of Article 6(3).

9.2.3 Screening Determination.

Following the screening process, as detailed in Appendix 1, it has been determined that appropriate assessment is required as it cannot be excluded on the basis of objective information that the proposed development either individually or in combination with other plans or projects will have a significant effect on the following European sites:

- River Barrow and River Nore SAC (002162)
- River Nore SPA (004233)

The possibility of significant effects on the other European sites has been excluded on the basis of objective information. The following European sites have been screened out for the need for appropriate assessment:

- Lisbigney Bog SAC (000869)
- Ballyprior Grassland SAC (002256)
- Slaney River Valley SAC (Site Code 000781)
- Holdenstown Bog SAC (Site Code 001757)

Measures intended to reduce or avoid significant effects have not been considered in the screening process.

9.2.4 The Natura Impact Statement

The Board will note that a Natura Impact Statement (NIS) compiled by Fehily Timoney and dated August 2022 was submitted as part of documentation provided in

the application for permission for the proposed development. The NIS seeks to assess the likely or possible significant effects, if any, arising from the proposed development on the following European sites.

River Barrow and River Nore SAC (002162)

River Nore SPA (004233)

The assessment is based on surveys undertaken in connection with the proposed development over the period 2019-2020 and 2020-2021. The applicants NIS was prepared in line with best practice and provides an assessment of the impact of the proposed development on the above listed European sites. The applicants NIS concludes that "Taking cognisance of measures incorporated into the project design and mitigation measures to avoid effects …… the proposed development will not have any adverse effect on the integrity of the River Barrow and River Nore SAC and River Nore SPA in light of the site's conservation objectives and status."

In terms of consultations and submissions no specific issues were raised with regard to the Appropriate Assessment. The submission from the NPWS recommended the implementation of all proposed mitigation measures, as outlined in the NIS and CEMP, to protect the River Barrow and River Nore SAC and stressed the importance of hydrological and ecological monitoring to be carried out in relation to bog restoration.

The Planning Authority was advised by consulting ecologists Blackstaff Ecology, who concluded in relation to the Appropriate Assessment that "the Appropriate Assessment process has been carried out and completed effectively. All relevant factors have been considered and the report conclusion that the proposed project will not have any adverse effect on the integrity of the River Barrow and River Nore SAC and River Nore SPA in light of the site's conservation objectives and status is valid."

Having reviewed the documents, submissions and consultations undertaken, I am satisfied that the information allows for a complete assessment of any adverse

effects of the development , on the conservation objectives of the following European sites alone, or in combination with other plans or projects.

- River Barrow and River Nore SAC
- River Nore SPA

9.2.5 Appropriate Assessment of Implications of the Proposed Development

The following is a summary of the objective scientific assessment of the implications of the project on the qualifying features of the European sites using the best scientific knowledge in the field. All aspects of the project which could result in significant

effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are considered and assessed.

• 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, Dublin.

• 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 92/42/EC.

9.2.6 European Sites

The following European sites are subject to Appropriate Assessment.

- River Barrow and River Nore SAC
- River Nore SPA

A description of the sites and their conservation and qualifying interests are set out as follows including Table 1 setting out the qualifying interests:

Table 1 European Sites and Qualifying Interests.	
European Sites	**Qualifying Interests**
River Barrow and River Nore SAC (Site Code 002162)	[1130] Estuaries [1140] Tidal Mudflats and Sandflats [1170] Reefs [1310] Salicornia Mud [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [3260] Floating River Vegetation [4030] Dry Heath [6430] Hydrophilous Tall Herb Communities [7220] Petrifying Springs* [91A0] Old Oak Woodlands [91E0] Alluvial Forests* [1016] Desmoulin's Whorl Snail (Vertigo moulinsiana) [1029] Freshwater Pearl Mussel (Margaritifera margaritifera) [1092] White-clawed Crayfish (Austropotamobius pallipes) [1095] Sea Lamprey (Petromyzon marinus) [1096] Brook Lamprey (Lampetra planeri) [1099] River Lamprey (Lampetra fluviatilis) [1103] Twaite Shad (Alosa fallax) [1106] Atlantic Salmon (Salmo salar) [1355] Otter (Lutra lutra) [1421] Killarney Fern (Trichomanes speciosum) [1990] Nore Freshwater Pearl Mussel (Margaritifera durrovensis)
River Nore SPA (Site Code: 004233)	[A229] Kingfisher (Alcedo atthis)

River Barrow and River Nore SAC

This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the

tidal elements and estuary as far downstream as Creadun Head in Waterford. The site includes larger tributaries which include the Dinin River.

The site is a Special Area of Conservation (SAC) selected for a number of habitats and/or species listed on Annex I / II of the E.U. Habitats Directive, which are detailed in the table 1. Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds. Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. m. durrovensis), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail Vertigo moulinsiana and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, M. m. durrovensis, and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: Neoascia obliqua (Order Diptera: Syrphidae), Tetanocera freyi (Order Diptera: Sciomyzidae) and Dictya umbrarum (Order Diptera: Sciomyzidae).

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a

threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron ponticum). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore, it is of high conservation value for the populations of bird species that use it.

River Nore SPA, Site Code 004233:

The River Nore SPA is a long, linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co. Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5 km stretch of the River Goul upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island, Co. Kilkenny. The site includes the river channel and marginal vegetation.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the Kingfisher. A survey in 2010 recorded 22 pairs of the species within the SPA. Other species known to occur in the SPA site include Mute Swan, Mallard, Cormorant, Grey Heron, Moorhen, Snipe and Sand Martin. The River Nore SPA is of high ornithological importance as it supports a nationally important

population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

Conservation Objectives.

The Conservation Objectives for the River Barrow & River Nore SAC and the River Nore SPA, emulate the overall aim of the habitats directive is to maintain or restore the favourable conservation status of habitats and species of community interest. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, are stable or increasing and 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: 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 there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Detailed Conservation Objectives for the River Barrow and River Nore SAC (002162) are included in the NPWS Conservation Objectives Series for the site, dated 19th July 2011, (Version 1) with the overall objective being to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been designated.

Conservation Objectives for the River Nore SPA (004233) are included in the NPWS Conservation Objectives Series for the site, dated 12th October 2022, with the overall objective being to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA, ie the Kingfisher.

Aspects of the Proposed Development.

The potential effects of the development in combination with other plans and projects are considered in this assessment. In particular, the potential effects in combination with the permitted grid connection route and replant lands are considered in this

assessment. The main aspects of the proposed development that could adversely affect the conservation objectives of European sites include:

• Impacts arising from the excavation of turbine bases and other construction activity resulting in mobilisation of silt and other contaminants to surface waters.

• Impacts arising from the use of construction materials and equipment on site and potential discharge to surface and ground waters.

• Potential loss or fragmentation of foraging habitat of importance to European sites.

• Potential disturbance impacts from construction,

• Potential spread of invasive species.

• Potential impacts arising from collision risk.

Having regard to the NPWS Conservation Objectives and associated maps for the SAC and SPA, together with the information presented in the NIS, there are a number of QI species which are noted to be sensitive to changes in water quality and which have the potential to be impacted by the proposed development. The QIs, together with their main Attributes and Targets are summarised in Table 2 below.

The following sections address the potential for adverse effects on the conservation objectives of the above listed European sites that have been brought forward to Stage 2 assessment on foot of the screening for Appropriate Assessment undertaken.

Table 2 Summary of the appropriate assessment of adverse effects on the integrity of the River Barrow and River Nore SAC.

River Barrow and River Nore SAC – Site Code 002162

Summary of key issues that could give rise to adverse effects

- Water Quality and water dependent habitats
- Disturbance of QI species
- Spread of invasive species.

		Summary of Appropriate Assessment			
Qualifying Interest Feature	**Conservation Objective To maintain or restore the favourable conservation condition Main relevant targets and attributes**	**Potential Adverse effects**	**Mitigation measures**	**In combination effects**	**Can adverse effects on integrity be excluded ?**
Demoulin's Whorl Snail	Maintain favourable conservation condition	No – This QI Only known from two sites Borris Bridge, Co Carlow & Boston Bridge, Kinaseer, Co Laois. Neither location hydrological connection with development site.	None required	None predicted	Yes Adverse effects on site integrity can be excluded as there is no doubt as to the absence of effects on these habitats in view of the conservation objectives.

Freshwater Pearl Mussel	The status of the freshwater pearl mussel (Margaritifera margaritifera) as a qualifying Annex II species for the River Barrow and River Nore SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species. The Nore freshwater pearl mussel (Margaritifera durrovensis) remains a qualifying species for this SAC. (see below)	Not present in the study area and does not occur in the main channel of the River Barrow. Freshwater pearl mussel were not recorded during surveys. No records of Nore freshwater pearl mussels Margariffera m. durrovensis occurring in the River Dinin sub catchment of the River Nore which drains part of the site. The main Nore population of freshwater pearl mussel is located on the main channel upstream of the Dinin confluence. There are a few other freshwater pearl mussel margaritfera records on the River Nore including downstream of the Dinin confluence at Kilkenny.	Mitigation in terms of separation of turbines from watercourses sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS	None predicted	Yes Adverse effects on integrity can be excluded given the absence of a hydrological pathway to known mussel sites and mitigation measures proposed. There is no doubt as to the absence of effects on the species in view of its conservation objectives.

White Clawed crayfish	Distribution: No reduction from baseline Population Structure: Juveniles and/or females with eggs in at least 50% of positive samples Negative indicator species: no alien crayfish species. Disease: No instances Water quality: At least Q3-4 at all sites sampled by EPA Habitat quality heterogeneity: No decline	- White clawed crayfish were not recorded during surveys but may occur in low densities within the catchment. Current distribution and range encompasses the windfarm site, the grid connection and turbine delivery route. Potential effects in the event of pollution /siltation. - Adverse effects could occur in the event of siltation/pollution resulting in reduction in juvenile density of the species. Introduction of invasive species/biohazards during construction potential for adverse effect on population density Potential introduction of alien crayfish species via contaminated machinery/ tools. Potential introduction of disease via contaminated machinery/ tools - Adverse effects could occur in the event of siltation/pollution resulting in deterioration of water quality and resulting in physical changes to aquatic habitats.	Mitigation in terms of separation of turbines from watercourses, sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS	None predicted	Yes. Adverse effects on site integrity can be excluded given the absence of a hydrological pathway to known crayfish locations. There is no doubt as to the absence of effects on this species in view of the conservation objectives.

Sea Lamprey	Distribution: extent of anadromy. Geater than 75% of main stem length of rivers accessible from estuary. Population structure of juveniles: At least 3 age/size groups present. Juvenile density in fine sediment ; at least 1/m^2 Extent and distribution of spawning habitat: No decline in extent and distribution of spawning beds <u>Availability of juvenile habitat</u>: More than 50% of sample sites positive.	No sea lamprey recorded during 2020 survey. Current distribution and range of the species does not encompass the windfarm site, grid connection or turbine delivery route. Species not likely to be present however cannot be ruled out. Adverse effects could occur in the event of pollution/ siltation or introduction of invasive species /biohazards resulting in negative changes in the population structure reduction in juvenile density. Siltation event may affect spawning gravels. Introduction of invasive species/biohazards during construction potential for adverse effect on spawning habitat. Siltation / pollution event or introduction of invasive species / biohazards could result in reduction in availability of juvenile habitat.	Mitigation in terms of separation of turbines from watercourses , sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS.	None predicted	Yes Adverse effects on site integrity can be excluded given the absence of a hydrological pathway to known sea lamprey locations. There is no doubt as to the absence of effects on this species in view of the conservation objectives

Brook Lamprey	Distribution: Access to all watercourses down to first order streams Population structure: At least 3 age/size groups Juvenile density in fine sediment: Mean catchment juvenile density of at least 2/m^2 Extent and distribution of spawning habitat: No decline in extent and distribution Availability of juvenile habitat: More than 50% of sample sites positive.	Brook lamprey were not found to be present in the catchment in 2020 surveys. Current distribution and range of the species encompasses the windfarm site grid connection and turbine delivery route. Development will not cause barriers to lamprey. Adverse effects could occur in the event of pollution/ siltation or introduction of invasive species /biohazards resulting in reduction in juvenile density. Siltation / pollution event or introduction of invasive species / biohazards could result in negative effects to spawning habitat. Proposal will not cause barriers to lamprey accessing suitable habitats. Siltation / pollution event or introduction of invasive species / biohazards could result in reduction of availability of juvenile habitat.	Mitigation in terms of separation of turbines from watercourse, sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS.	None predicted	Yes Adverse effects on site integrity can be excluded given the absence of a hydrological pathway to known brook lamprey locations. There is no doubt as to the absence of effects on this species in view of the conservation objectives

River Lamprey	Distribution: Greater than 75% of main stem and major tributaries down to second order accessible from estuary Population structure: At least 3 age/size groups present Juvenile density in fine sediment: Mean catchment juvenile density of at least 2/m^2 Extent and distribution of spawning habitat: No decline in extent and distribution Availability of juvenile habitat: More than 50% of sample sites positive.	Development will not cause barriers to river lamprey. Current distribution and range of this species does not encompass the development site, grid connection or turbine delivery routes. Siltation/pollution event or introduction of invasive species/biohazard could result in reduction in juvenile density, and reduction in juvenile density in fine sediment adverse effect on spawning habitat. Proposal will not cause barriers to lamprey accessing suitable habitat. Siltation/pollution event or introduction of invasive species/biohazard could result in reduction in juvenile density in fine sediment.	Mitigation in terms of separation of turbines from watercourse, sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS.	None predicted	Yes Adverse effects on site integrity can be excluded given the absence of a hydrological pathway to known river lamprey locations. There is no doubt as to the absence of effects on this species in view of the conservation objectives

Twaite Shad	Distribution: Greater than 75% of main stem length of rivers accessible from estuary Population structure: More than 1 age class present Extent and distribution of spawning habitat: No decline in extent and distribution Water Quality: Oxygen levels. No lower than 5mg/l Spawning habitat quality, filamentous algae, macrophytes sediment Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.	Species not recorded during 2020 surveys. Species is limited to the lower stretches of the SAC. Current distribution and range does not encompass the windfarm site, grid connection route or turbine delivery route. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect on population structure. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect on spawning habitat quality.	Mitigation in terms of separation of turbines from watercourse, sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS.	None predicted	Yes Adverse effects on site integrity can be excluded given the absence of a hydrological pathway to known twaite shad locations. There is no doubt as to the absence of effects on this species in view of the conservation objectives

Atlantic Salmon	Distribution: Extent and anadromy 100% of river channels, down to second order accessible from estuary Adult spawning fish Conservation limit (CL) for each system consistently exceeded Adult spawning fish (CL) for each system consistently exceeded Salmon fry abundance Maintain or exceed 0+fry mean catchment wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling Salmon fry abundance. Maintain or exceed 0+fry mean catchment wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling Out migrating smolt abundance No significant decline Number and distribution of redds No decline in number and distribution of spawning redds due to anthropogenic causes Water Quality: At least Q5 at all sites sampled by EPA	Atlantic salmon present downstream of windfarm. Proposal will not cause barriers to upstream migration. Current distribution and range of the species encompasses the windfarm. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect on distribution. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect on spawning habitat quality. Siltation/pollution event or introduction of invasive species/biohazard could result in reduction in salmon fry abundance. Smolt abundance can be affected negatively by estuarine pollution and predation. Siltation/pollution event or introduction of invasive species/biohazard could result in reduction in number and distribution of redds. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect on water quality.	Mitigation in terms of separation of turbines from watercourse, sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS.	None predicted	Adverse effects on site integrity can be excluded as there is no doubt as to the absence of effects on this species in view of the conservation objectives

Otter	Distribution: No significant decline Extent of terrestrial habitat: No significant decline. Extent of marine habitat No significant decline. Extent of freshwater river habitat- No significant decline Extent of freshwater (lake) habitat. No significant decline Couching sites and holts. No significant decline Fish biomass available. No significant decline	Historic records for otter in this area. No otter holts identified in survey. Current distribution and range encompasses the windfarm site and cable route. Potential for disturbance effects to otter during construction phase. Existing crossings in place where grid connection intersects Rossmore Stream and un-named tributary of Dinin. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect. No marine habitat. Indirect hydrological link. No lake habitat within the site. No otter holts identified in the study area. Siltation/pollution event or introduction of invasive species/biohazard could result in adverse effect.	Mitigation in terms of separation of turbines from watercourses sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS	None predicted	Yes adverse effects can be excluded as there is no doubt as to the absence of effects on this species in view of the conservation objectives.
Killarney Fern	Maintain favourable conservation condition. No decline in areas identified	3 known locations none within Co Carlow. This QI not considered further in the assessment.	None required	None predicted	Yes Adverse effects can be excluded as there is no doubt as to the absence of effects on these habitats in view of the conservation objectives.

Nore Freshwater Pearl Mussel	Restore favourable conservation condition	No records of Freshwater Pearl Mussel Margaritifera m durreovensis occurring in the River Dinin sub catchment of the River Nore which drains part of the development. Main Nore population occurs upstream of the Dinin confluence. Not present in the Barrow system. This QI not considered further in assessment.	None required	None predicted	Yes. Adverse effects can be excluded no doubt as to absence of effects in view of the conservation objectives
Estuaries	Habitat area. Stable or increasing subject to natural processes. Community Distribution: Maintain habitats in a natural state: Muddy estuarine community complex, sand to muddy sand community complex, fine sand with fabulina fabula community. Community Extent: Maintain natural extent of Sabellaria alveolota reef, subject to natural processes	Low potential for effect due to distance >30km downstream.	Mitigation in terms of separation of turbines from watercourses sediment and water control measures and invasive species management measures - 7.4 NIS	None predicted	Yes Adverse effects can be excluded no doubt as to the absence of effects on these habitats in view of the conservation objectives
Mudflats and sandflats not covered by water at low tide	Habitat area – stable or increasing subject to natural processes Community distribution- Maintain the following habitats in a natural state. Muddy estuarine community complex, sand to muddy fine sand community complex	Low potential for effect due to distance.	Mitigation - separation of turbines from watercourses sediment & water control measures & invasive species management measures - 7.4 NIS	None predicted	Yes. Adverse effects can be excluded no doubt as to absence of effects in view of the conservation objectives

Salicornia and other annuals colonising mud and sand	Habitat area. Stable or increasing. Habitat distribution: No decline subject to natural processes. Physical structure: Sediment supply- Maintain and where necessary restore natural circulation of sediments and organic matter without physical obstructions. Flooding regime – Maintain natural tidal regime Creeks and pans- Maintain restore creek & pan structure subject to natural processes including erosion and succession. Vegetation structure Zonation Height . Vegetation Cover Negative Indicator Species. Maintain range. Vegetation Composition Maintain range of subcommunities with typical spaces	Low potential for effect due to distance, Main area of interest for this habitat is >50km downstream	Mitigation in terms of separation of turbines from watercourses sediment and water control measures and invasive species management measures as per Section 7.4 of the NIS	None predicted	Yes Adverse effects can be excluded no doubt as to the absence of effects on these habitats in view of the conservation objectives

Atlantic salt meadows (Clauco Puccinellietalie maritimae)	Habitat Distribution: No decline subject to natural processes Physical Structure. Maintain /restore subject to natural processes. Sediment supply. Floding regime. Creeks and Pans. Vegetation Structure. Zonation, Height, vegetation cover. Vegetation Structure. Maintain range of saltmarsh habitat zonations. Maintain structural variation within sward. Negative indicator species. No significant expansion of Spartina Vegetation composition :Maintain range of subcommunities with typical species.	Low potential for effect due to distance, Main area of interest for this habitat is >50km downstream	Mitigation in terms of separation of turbines from watercourses sediment and water control measures and invasive species management measures - 7.4 NIS	None predicted	Yes Adverse effects on site integrity can be excluded as there is no doubt as to the absence of effects on these habitats in view of the conservation objectives.

Mediterranean salt meadows (Juncetalia maritime)	Habitat area -stable or increasing due to natural processes Physical structure. Flooding regime, creeks and pans sediment supply. Maintain/restore natural circulation of sediments and organic matter without physical obstructions. Maintain natural tidal regime. Maintain/restore creek and pan structure subject to natural processes including erosion and succession. Vegetation structure. Maintain structural variation within sward. Maintain more than 90% of areas outside creeks. No significant expansion of spartina anglica Maintain range of saltmarsh habitat zonations Vegetation composition maintain range of subcommunities with typical species.	Low potential for effect due to distance. Main area of interest for this QI >50km downstream	Mitigation in form of separation of turbines from watercourses and sediment and water control measures and invasive species control measures as per 7.4 of the revised NIS.	None predicted	Yes Adverse effects on integrity can be excluded as there is no doubt as to the absence of effects on this habitat in view of the conservation objectives.

Watercourses of plain to montane levels with Ranunculion fluitantis and callitricho batrachion vegetation	Habitat Distribution: No decline Habitat area: Stable or increasing, Hydrological regime River Flow Groundwater discharge Maintain appropriate hydrological regimes. Groundwater flow to habitat permanent & sufficient to maintain tufa formation Substratum composition: particle size range - Water chemistry minerals - sufficient concentrations of minerals to allow deposition & persistence of tufa deposits. Water Quality. Suspended Sediment Nutrients: Concentration of nutrients sufficiently low to prevent changes in species composition or habitat condition. Vegetation composition Typical species of the relevant sub-type present & in good condition. Flood plain connectivity..	Water quality impact from siltation /pollution event could give rise to potential effect. No potential effect on hydrological regime Water quality impact from siltation /pollution event could give rise to potential effect. No potential for effect on floodplain connectivity.	Mitigation in form of separation of turbines from watercourses and sediment and water control measures and invasive species control measures as per 7.4 of the revised NIS.	None predicted	Yes Adverse effects on site integrity can be excluded as there is no doubt as to absence of effects on this habitat in view of the conservation objectives
European dry heaths	Habitat area - No decline from current distribution subject to natural processes.	Terrestrial habitat low potential for effect.	None required	None	Yes Adverse effects on site integrity can be excluded as there is no doubt as to absence of effects on this habitat in view of the conservation objectives

Hydropilpous tall herb fringe communities of plains and of the montane to alpine levels	Habitat distribution: No decline Habitat Area Stable or increasing subject to natural processes Hydrological regime: Maintain appropriate regime Vegetation structure 30-70% of sward is between 40 and 150cm in height Vegetation composition Broadleaf herb component of vegetation between 40 and 90%. At least 5 positive indicator species present. Negative indicator species especially non-native invasive species absent or under control.	Low potential for effect. Potential for introduction of invasive species from grid connection route.	Mitigation in form of separation of turbines from watercourses and sediment and water control measures and invasive species control measures as per 7.4 of the revised NIS.	None predicted	Yes Adverse effects on site integrity can be excluded as there is no doubt as to absence of effects on this habitat in view of the conservation objectives.
Petrifying springs with tufa formation	Habitat area stable or increasing subject to natural processes Habitat distribution – no decline Hydrological regime. Maintain appropriate hydrological regime. Water Quality: Maintain oligotrophic and calcareious conditions Vegetation composition: Maintain typical species.	No potential for effect. This habitat known at one location on the river Barrow and River Nore SAC 31km downstream.	None required	None predicted	Yes Adverse effect on site integrity can be excluded as there is no doubt as to absence of effects on this habitat in view of the conservation objectives.

Old sessile oak woods with Ilex and Blenchnum in the British Isles	Woodland structure indicators of local distinctiveness. – No decline Vegetation composition No decline native tree cover not less than 95% Variety of native species present depending on woodland type. Negative indicator species particularly nonnative absent or under control.	Low potential for negative effects die to distance and terrestrial nature of this habitat.	None required	None predicted	Yes adverse effects on site integrity can be excluded no doubt as to absence of effects on this habitat in view of the conservation objectives.
Alluvial forests with Alnus glutinosa and Frazinus	Habitat area stable or increasing. Habitat distribution– no decline Woodland Size Area stable or increasing. Woodland structure. Diverse with relatively closed canopy containing mature trees subcanopy layer with semimature trees and shrubs and well developed herby layer. Indicators of local distinctiveness, Maintain diversity and extent of community types Hydrological regime. Appropriate regime necessary for maintenance of alluvial vegetation. Vegetation composition No decline native cover. Variety of typical native species present negative indicator species absent or under control.	Low potential for effect due to distance and terrestrial nature of this habitat type. Alluvial Forests downstream of the site on both the River Barrow and River Nore. No direct effect and indirect effect unlikely due to distance and nature of the development.	Not necessary	None predicted	Yes adverse effects on site integrity can be excluded as there is no doubt as to absence of effects on this habitat in view of the conservation objectives.
Overall conclusion: Integrity test. Following the implementation of mitigation the construction and operation of the proposed development will not adversely affect the integrity of this European site and no reasonable doubt remains as to the absence of such effects.					

Table 3 Summary of the appropriate assessment of adverse effects on the integrity of the River Nore SPA.

River Nore SPA – Site Code 004233

Summary of key issues that could give rise to adverse effects

- Indirect effects on Water Quality affecting key species.

Summary of Appropriate Assessment					
Qualifying Interest Feature	**Conservation Objective To maintain or restore favourable conservation condition. Main relevant targets and attributes**	**Potential Adverse Effects**	**Mitigation Measures**	**In-combination effects**	**Can adverse effects on integrity be excluded ?**
Kingfisher	Restore favourable conservation condition. Fish biomass available No significant decline.	In the event of siltation pollution event affecting prey potential effects could result.	Mitigation in form of separation of turbines from watercourses and sediment and water control measures and invasive species control measures as per 7.4 of the revised NIS.	None predicted	Yes adverse effects on site integrity can be excluded as there is no doubt as to absence of effects on this species in view of the conservation objectives.

Overall conclusion: Integrity test.

Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of this European site and no reasonable doubt remains as to the absence of such effects.

9.3 Appropriate Assessment Conclusion

The proposed Bilboa windfarm has been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act as amended,

Having carried out a screening for Appropriate Assessment of the project. It was concluded that it may have a significant effect on the following two European Sites: River Barrow and River Nore SAC and River Nore SPA. Consequently an appropriate assessment was required of the implications of the project on the qualifying features of these sites in light of their conservation objectives.

Following an appropriate assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects, would not adversely affect the integrity of any of the above European sites in view of their conservation objectives. This conclusion is based on a complete assessment of all aspects of the proposed project, including an assessment of in combination effects with other plans and projects, and there is no reasonable scientific doubt as to the absence of adverse effects.

10.0 Recommendation

Arising from my assessment of this case, I recommend that the Board grant planning permission for the proposed development subject to the reasons and considerations below, subject to the attached conditions and in accordance with the following Draft Order.

Reasons and Considerations

In coming to its decision, the Board had regard to the following:

(a) Project Ireland 2040 – the National Planning Framework,

(b) The Government of Ireland Climate Action Plan 2021,

(c) The Regional Spatial and Economic Strategy for the Southern Region, 2020

(d) The provisions of the Wind Energy Development Guidelines – Guidelines for Planning Authorities issued by the Department of the Environment, Heritage and Local Government in June 2006, and Draft Amendments 2019

(e) The policies of the Planning Authority as set out in the Carlow County Development Plan 2022-2028 including the Wind Energy Strategy for County Carlow,

(f) The character of the landscape in the area and of the general vicinity, and the planning history on the site including permissions (ABP 240424 Carlow Co Co 11/154, 20/180 and 21/15.)

(g) The distance to dwellings and other sensitive receptors from the proposed development,

(h) 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 a European Site,

(i) the submissions and observations received in relation to the proposed development,

(j) The Environmental Impact Assessment Report submitted,

(k) The Natura Impact Statement submitted,

(l) the report and recommendation of the person appointed by the Board to make a report and recommendation on the matter.

Appropriate Assessment:

The Board considered the Screening Report for Appropriate Assessment, the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment screening exercise and an appropriate assessment in relation to the potential effects of the proposed development on the following designated European Sites:

• River Barrow and River Nore SAC (Site Code: 002162)

• River Nore SPA (Site Code: 004233)

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:

i. the likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects,
ii. the mitigation measures which are included as part of the current proposal, and
iii. the conservation objectives for the European Sites.

The Board noted that the proposed development is not directly connected with or necessary for the management of a European Site and considered the nature, scale and location of the proposed development, as well as the report of the Inspector. In completing the appropriate assessment, the Board adopted the report of the Inspector and concluded that, by itself or in-combination with other plans and projects in the vicinity, the proposed development would not be likely to have an

adverse effect on any European site in view of the sites' conservation objectives and there is no reasonable significant doubt as to the absence of such effects.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development taking account of:

(a) the nature, scale, location and extent of the proposed development on the site,
(b) the Environmental Impact Assessment Report (EIAR) and associated documentation submitted in support of the application,

(c) the submissions received the prescribed bodies and observers, and

(d) the Inspector's report.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, adequately considers alternatives to the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment. The Board agreed with the examination, set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application.

Reasoned Conclusion on the Significant Effects:

The Board considered that the main significant direct and indirect effects of the proposed development on the environment are, and would be mitigated, as follows:

- Positive environmental impacts would arise during the operational phase from the generation of renewable energy.
- The impacts on residential amenity during the construction and operational phases would be avoided by the implementation of the measures set out in the Environmental Impact Assessment Report (EIAR) and associated Construction and Environment Management Plan (CEMP) which include specific provisions relating to the control and management of dust, noise, water quality, traffic

movement, noise monitoring and turbine pre- programming, as well as a mitigation strategy to control the level of daily shadow flicker experienced at affected dwellings.

- The impacts on biodiversity during the construction phase include disturbance to birds and bats with potential for collision risk during the operational phase.
- Changes to water quality potentially impact aquatic habitats and species due to run-off and sedimentation of watercourses. Impacts will be mitigated by the implementation of the measures set out in the Environmental Impact Assessment Report (EIAR) and associated Construction and Environment Management Plan (CEMP) which include specific provisions relating to the control and management of water quality, avoidance of watercourses /streams and habitat management measures, pre-construction mammal surveys, bat protection measures and the appointment of an Ecological Clerk of Works as well as post construction monitoring.
- Positive environmental effects would arise in terms of restoration of peatland habitat.
- Roads and traffic impacts associated with the construction phase will be mitigated through preparation of a Construction Traffic Management Plan which will be agreed with the local authority prior to the commencement of development.
- The risk of pollution of ground and surface waters during the construction phase which would be mitigated by the implementation of measures set out in the Environmental Impact Assessment Report (EIAR) and associated Construction and Environment Management Plan (CEMP) which include specific provisions relating to groundwater, surface water and drainage.
- Visual and landscape impacts would arise during the operational phase of the development due to the presence of the turbines and associated infrastructure in the upland area. The site is located within an area which has been identified as having a moderate capacity to absorb a development of this nature and scale in landscape and visual terms. The location of the site and the existing topography and landscape features provide a level of assimilation of the development into the landscape.
- The impact on cultural heritage would be mitigated by archaeological monitoring with provision made for resolution of any archaeological features or deposits that may be identified.

The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed, and subject to compliance with the conditions set out below, the effects of the proposed amendments to the permitted development on the environment, by itself and in combination with other plans and projects in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions of the Inspector.

Conditions

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application, including further information received by the Planning Authority on the 2nd day of June 2023, 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 interest of clarity.

2. This permission shall not be construed as any form of consent or agreement to a connection to the national grid or to the routing or nature of any such connection.

   Reason: In the interest of clarity.

3. The period during which the development hereby permitted is constructed shall be 10 years from the date of this Order.

   Reason: In the interests of clarity.

4. This permission shall be for a period of 30 years from the date of the first commissioning of the wind farm.

Reason: To enable the planning authority to review its operation in the light of the circumstances then prevailing.

5. The following design requirements shall be complied with:
   (a) The wind turbines shall have a maximum tip height of 136.5m.
   (b) Final details of the turbine design shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development.
   (c) Cables within the site shall be laid underground.
   (d) The wind turbines shall be geared to ensure that the blades rotate in the same direction.
   (e) No advertising material shall be placed on or otherwise be affixed to any structure on the site without a prior grant of planning permission.

   Reason: In the interest of visual amenity.

6. The developer shall ensure that all construction methods and environmental mitigation measures set out in the Environmental Impact Assessment Report, Natura Impact Statement and associated documentation are implemented in full, save as may be required by conditions set out below.

   Reason: In the interest of protection of the environment.

7. A suitably qualified Project Ecological Clerk-of-Works and Licenced Ecologist shall be retained by the developer to undertake pre-construction surveys at the various project elements, including any river crossings, immediately prior to commencing work in order to check for the presence of protected species in the vicinity.

   Reason: In the interest of nature conservation and the protection of ecology and wildlife in the area.

8. A bog (restoration) rewetting plan and an ecological and hydrological monitoring programmes of the bog restoration shall be agreed with the planning authority prior to the commencement of development.

Reason: To guide the restoration process and to determine whether restoration measures are successfully contributing to the achievement of its objectives.

9. Wildflower and grass seed shall only be introduced to the site if the prior written agreement of the planning authority has been obtained.
Reason: To conserve biodiversity which includes genetic biodiversity.

10 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 Arts, Heritage and the Gaeltacht, 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.

11 The developer shall prepare an Invasive Species Management Plan for the written agreement of the planning authority and all plant and machinery used during the works should be thoroughly cleaned and washed before delivery to the site to prevent the spread of hazardous invasive species and pathogens.

Reason: In the interest of the proper planning and sustainable development of the area.

12. 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) L90,10min above background noise levels, or 45 dB(A) L90,10min, at wind speeds of 5m/s or greater

ii. 40 dB(A) L90,10min at all other wind speeds

(b) 43 dB(A) L90,10min at all other times where wind speeds are measured at 10m above ground level.

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.

13. Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a shadow flicker compliance monitoring programme for the subject development, including any mitigation measures such as the use of appropriate equipment and software to suitably control shadow flicker at nearby dwellings, including control of turbine rotation, in accordance with details which shall be submitted to, and agreed in writing with, the planning authority. 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.

    Reason: In the interest of residential amenity.

14. Mitigation measures detailed to prevent interference with telecommunications or broadcast signals, shall be implemented to minimise interference with said signals in the area. Details of these measures, which shall be at the developer’s expense, shall be submitted to, and agreed in writing with, the planning authority prior to commissioning of the turbines and following consultation with the relevant authorities and / or providers. All measures known to be required in the first instance shall be completed prior to the erection of the turbines at the site.

Reason: In the interest of protecting telecommunications and broadcasting signals and of residential amenity.

15. Details of aeronautical requirements shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. Prior to commissioning of the turbines, the developer shall inform the planning authority and the Irish Aviation Authority of the as constructed tip heights and co-ordinates of the turbines and wind monitoring masts.

    Reason: In the interest of air traffic safety.

16. Prior to commencement of development, a transport management plan for the construction stage shall be submitted to, and agreed in writing with, the planning authority. The traffic management plan shall incorporate details of the road network to be used by construction traffic, including over-sized loads, and detailed arrangements for the protection of roads, bridges, culverts or other structures to be traversed, as may be required. The plan shall also contain details of how the developer intends to engage with and notify the local community in advance of the delivery of oversized loads. Any works, including reinstatement works, to existing junctions on the national road network shall comply with Transport Infrastructure Ireland (TII) standards as outlined in TII Publications and shall be subject to Road Safety Audit as appropriate.

    Reason: In the interest of traffic safety and the proper planning and sustainable development of the area.

17. The developer shall facilitate the archaeological appraisal of the site, and shall provide for the preservation, recording and protection of archaeological materials or features which may exist within the site. In this regard, the developer shall:

    (a) notify the relevant Planning Authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development,

(b) employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works, and

(c) provide arrangements, acceptable to the planning authority, for the recording and for the removal of any archaeological material which the authority considers appropriate to remove.

In default of agreement or any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any archaeological remains that may exist within the site.

18. Prior to the commencement of development, the community gain proposals and a programme for delivery, 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.

19 On full or partial decommissioning of the windfarm, or if the windfarm ceases operation for a period of more than one year, the masts and the turbines concerned (including foundations) 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.

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 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 site.

21. 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 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 the satisfactory reinstatement of the site.

22 The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme.

Reason: It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to this permission.

Bríd Maxwell

Planning Inspector

28th June 2024

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Appendix 1

Appropriate Assessment Screening Determination

Screening for Appropriate Assessment Screening Determination
Step 1: Description of the project I have considered the Bilboa Windfarm in light of the requirements of S177U of the Planning and Development Act 2000 as amended. The subject site is located at Bilboa Co Carlow. There are no European sites within the footprint of the proposed development. There are six European (Natura 2000) within a potential zone of impact of Bilboa Wind Farm Development namely: River Barrow and River Nore SAC (Site Code 002152) which is hydrologically linked and the turbine delivery route also crosses the SAC. Lisbigney Bog SAC (Site Code 000869) lies 14.9km from turbine delivery route Ballyprior Grassland SAC (Site Code 002256) 7km from turbine delivery route.

River Nore SPA (Site Code 004233) indirect hydrological link. Site 14.1km direct distance from turbine delivery route
Slaney River Valley SAC (Site Code 000781) 10.2km from turbine delivery route.
Holdenstown Bog SAC (Site Code 001757) 14.2km from turbine delivery route.

The proposed development comprises:

- 5 no wind turbines, each with a height to blade tip of 136.5m, a hub height of 78m, and a rotor diameter of 117m;
- Control building.
- Substation (21 MW capacity)
- Turbine laydown area
- Temporary crane hardstanding areas (30m x 62.5m)
- 1 no borrow pit
- Upgrading of existing access track
- Construction of new access tracks
- Temporary construction compound
- Underground cabling
- Anemometer mast, and
- Up to 18ha of forestry felling
- Enhancement measures to include rewetting to restore the peatland habitats within the windfarm site.
- Permission is sought for an operational lifetime of 30 years.

It is noted that the AA screening Documents and NIS submitted by the first party undertake an assessment of the potential for the whole development incorporating the windfarm, grid connection and haul route (Authorised July 2021 Planning Reference Carlow County Council 20/180) and replant lands (located at Carrickthomas Co Cork) to have significant effects on European sites. The assessment undertaken in this section relates to the potential for the proposed windfarm development, in combination with the other permitted plans and projects to have significant effects on European sites.

The development site comprises established coniferous forests and transitional woodland scrub. A tributary of the River Dinin flows through the western portion of the site and another tributary flows along the southern boundary while the River Dinin itself flows along the northern boundary. The surrounding lands are predominantly pasturelands. The site is between the Barrow and Nore catchments. The River Barrow is located circa 4.6km to the south east of the site. The Dinin (South) River a main tributary of the River Nore, is located c700m to the northwest of the site. A number of small tributaries and sub-tributaries of the Barrow and the Nore drain the area around the proposed wind farm site.

Step 2: Potential impact mechanisms from the project [direct, indirect, temporary/permanent impacts that could occur during construction, operation and decommissioning]

- Direct impact causing habitat loss or deterioration. – No direct effect
- Ex situ species disturbance or mortality
- Surface water pollution (silt/ hydrocarbon/ construction related) from construction works resulting in changes to environmental conditions such as water quality/ habitat degradation.
- Ground water pollution/ alteration of flows- effects on groundwater dependent habitats

- Human disturbance/ noise/ lighting - resulting in disturbance and displacement effects to QI species
- Barrier effect, collision risk, avoidance for mobile species
- Emissions (release to land, water or air)
- Invasive species

Step 3: European sites at risk

Table 1 European Sites at risk from impacts of the proposed project

Effect mechanism	Impact pathway/Zone of influence	European Site(s)	Qualifying interest features at risk
A. Habitat Loss / deterioration	No potential for direct effects on habitat loss deterioration given that the site does not lie within any European site.	River Barrow and River Nore SAC – 2.3km direct line distance. Hydrologically connected via site drains / streams.	No potential for direct effect
Species disturbance or mortality (Ex situ)	Collision risk to QI species and bat species from surrounding SACs SPAs using the site.	No SPAs within 15km	Hen harrier and golden plover recorded infrequently at the site. Hen harrier core range 2km and max range 10km closest SPA for which hen harrier is designated is Wexford Slobs SPA 45km E, Peregrine falcon core range 2km max range 18km Wicklow Mountains SPA 40km NE Golden plover core range 3km max range 11km closest SPA for Peregrine Falcon is Wicklow Mountains SPA 40km NE. Golden Plover core range 3km max range 11km closest SPA Wexford Harbour and slobs SPA 45km SE. - Screened out due to low activity levels within the site and distance to nearest

			SPA designated for these species.
Surface water pollution (silt/ hydrocarbon/ construction related) from construction works resulting in changes to environmental conditions such as water quality/ habitat degradation.	Potential for siltation of River Barrow River Dininn and tributaries of the Rover Nore due to construction works. 2.3km direct line distance. Hydrologically connected via site drains / streams Potential eutrophication due to contaminated runoff entering River Barrow, River Dinin & tributaries of the River Nore during tree felling and construction works Potential pollution resulting from wet concrete operations, fuel spillages, leaks or leaking foul effluent Biohazard introduction to River Barrow River Dinin and River Nore via construction drain culverts	River Barrow and River Nore SAC River Nore SPA Lisbigney Bog SAC, Slaney River Valley SAC, Holderstown Bog SAC, Ballyprior Grassland SAC – not hydrologically connected to the development site. No effects predicted due to the size and scale of the development and distance and lack of hydrological connection. Potential eutrophocation of streams lowers capacity of streams to support fish and aquatic fauna which may be indirectly connected, to the River Barrow and River Dinin.	Water Quality and Water Dependent Habitats
Human disturbance/ noise/ lighting - resulting in disturbance and displacement effects to QI species		River Barrow and River Nore SAC River Nore SPA	Screened out No direct disturbance to aquatic species Potential for effects on Kingfisher via pollutants
Barrier effect, collision risk, avoidance for mobile species			Screened out
Emissions (release to land, water or air)	Run off from temporary material storage areas Inappropriate management of drainage of concrete areas leading to loss of contaminants to surface waters	River Barrow and River Nore SAC	Reduction in prey densities for Otter and Kingfiisher as result of potential changes I water quality in the River Barrow and River Nore SAC and River Nore SPA. Reduction in water quality and foraging

	Peat removal peat stability. In the event of peat slide sediment run off could result in pollution. Inappropriate management of blocking of drains proposed for peat restoration enhancement measures could lead to pet washing into local drains and watercourses,		potential for aquatic species such as river lamprey, freshwater pearl mussel atlantic salmon, white clawed crayfish or otter in the River Barrow and River Nore SAC and River Nore SPA. Pollution event could give rise to mortality of designated species Pollution event resulting in reduction of available breeding habitat for designated species and aquatic habitats resulting in decline in species population or Annex 1 habitats downstream of the site.
Invasive species	Absence of mitigation to prevent spread of invasive species or introduction of aquatic invasive species /biohazards to streams/	River Barrow and River Nore SAC – indirect hydrological connection River Nore SPA	Indirect effect to designated fish and aquatic species. Indirect effect on otter via prey availability.

River Barrow and River Nore SAC

This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site includes larger tributaries which include the Dinin River.

The site is a Special Area of Conservation (SAC) selected for a number of habitats and/or species listed on Annex I / II of the E.U. Habitats Directive, which are detailed in the table 1 below. Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds. Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. m. durrovensis), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail Vertigo moulinsiana and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, M. m. durrovensis,

and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: Neoascia obliqua (Order Diptera: Syrphidae), Tetanocera freyi (Order Diptera: Sciomyzidae) and Dictya umbrarum (Order Diptera: Sciomyzidae).

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron ponticum). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore, it is of high conservation value for the populations of bird species that use it.

The **River Nore SPA** is a long, linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co. Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5 km stretch of the River Goul

upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island, Co. Kilkenny. The site includes the river channel and marginal vegetation.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the Kingfisher. A survey in 2010 recorded 22 pairs of the species within the SPA. Other species known to occur in the SPA site include Mute Swan, Mallard, Cormorant, Grey Heron, Moorhen, Snipe and Sand Martin. The River Nore SPA is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

Step 4: Likely significant effects on the European site(s) 'alone'

Table 2: Could the project undermine the conservation objectives 'alone'

European Site and qualifying feature	Conservation objective	Could the conservation objectives be undermined (Y/N)?			
		Effect A Surface Water pollution	Effect B Emissions		
River Barrow and River Nore SAC	To maintain/ restore the favourable conservation condition of key species for which the European site has been designated.	Yes	Yes		
River Nore SPA	To maintain or retore the favourable conservation condition of the bird species listed as Special conservation interest for this site. Kingfisher	Yes	Yes		

Likely significant effect on the River Barrow and River Nore SAC and River Nore SPA has been identified as a result of indirect effects from the proposed windfarm development. In the absence of mitigation which has not been taken into account at screening stage, likely significant effects on qualifying interest of the River Barrow and River Nore SAC and River Nore SPA cannot be excluded.

Having revied the NIS and the supporting documentation, which I consider provides adequate information in respect of baseline conditions, clearly identifies the potential impacts, and uses best scientific information and knowledge, together with the information available on the NPWS website, the scale and nature of the proposed development and likely effects, separation distance and functional relationship between the proposed works and the European sites, their conservation objectives I am satisfied that no pathways for likely significant effects on Lisbigney Bog SAC, Ballyprior Grassland SAC, Slaney River Valley SAC and Holdenstown SAC have been identified therefore these sites can be screened out from further assessment.

I conclude that the proposed development would have a likely significant effect 'alone' on designated fish and aquatic species including inter alia white clawed crayfish and salmon, otter and

Kingfisher, river lamprey, freshwater pearl mussel of the Barrow and River Nore SAC and River Nore SPA from effects associated with water quality changes arising or a pollution event. An appropriate assessment is required on the basis of the effects of the project 'alone'. Further assessment in-combination with other plans and projects is not required at this time.
Overall Conclusion- Screening Determination In accordance with Section 177U(4) of the Planning and Development Act 2000 (as amended) and on the basis of objective information I conclude that the proposed development is likely to have a significant effect on the designated fish and aquatic species of the River Barrow and River Nore SAC and on the Kingfisher designated spaces of the River Nore SPA 'alone' in respect of effects associated with reduction in water quality surface water pollution /siltation. It is therefore determined that Appropriate Assessment (stage 2) [under Section 177V of the Planning and Development Act 2000] is required on the basis of the effects of the project 'alone'.