Inspector's Report ABP 309121-21

Development	Wind farm and associated infrastructure.
Location	Lyrenacarriga, Co. Waterford and Lyremountain Co. Cork
Planning Authorities	Cork County Council Waterford City and County Council
Applicant	Curns Energy Ltd.
Type of Application	Application under the provisions of Section 37E of the Planning and Development Act, as amended.
Prescribed Bodies	1. Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (Development Applications Unit) 2. Irish Water 3. Transport Infrastructure Ireland 4. Inland Fisheries Ireland

	5. Irish Aviation Authority 6. An Taisce
Observer(s)	679 submissions, names set out in Appendix 1
Dates of Site Inspection	30th and 31st March, 2023
Inspector	Pauline Fitzpatrick

Contents

1.0 Introduction

1.1. Pre-Application Consultation

1.1.1. Innogy Renewables Ireland Ltd. entered into pre-application consultations with the Board under Section 37B of the Planning and Development Act, 2000, as amended, for the development of a wind farm of up to 17 wind turbines, 1 substation, ancillary works and infrastructure (file ref. ABP 301740-18). Two pre-application consultation meetings were held on 30/08/18 and 11/06/19. The Board determined on 15/05/20 that the proposed development constitutes strategic infrastructure development as defined by section 2(1) of the Planning and Development Act, 2000, as amended, and that a planning application should be made directly to it.

1.2. Submission of Application

The application was received by the Board on 08/01/21.

The applicant, Curns Energy, is a joint venture between RWE Renewables Ireland Ltd. (previously Innogy Renewables Ireland Ltd.), a subsidiary of the RWE Energy Group and Highfield Energy Ltd.

Reports from Cork County Council and Waterford City and County Council were received on the 16/03/21 and 18/03/21 respectively and are summarised in section 8 of this report. Submissions were received from 6 no. prescribed bodies which are summarised in Section 9. 679 observations were received and these are summarised in Section 10.

1.3. Further Information

The Board sought further information on 08/04/22, a response to which was received on 11/10/22. Following correspondence from the Board the applicant published notices advising of the submission of the further information and the date by which submissions were to be made to the Board.

Submissions were received from 3 no. prescribed bodies which are summarised in section 12.1 of this report. 196 observations were received and these are summarised in section 12.3. No submissions from the planning authorities were received.

1.4. Oral Hearing

The Board directed on 08/05/23 that an oral hearing in respect of the application should not be held.

Consequent to this direction the applicant was invited to make a submission in response to the observations received on foot of the further information. A response was received on 23/06/23.

2.0 Site Location and Description

2.1. The proposed development, covering an area of approx. 724 hectares, straddles the administrative boundaries of Co. Waterford and Co. Cork. The development works and accommodation works on the turbine delivery route are within the townlands of Lyrenacarriga, Dunmoon South, Coolbeggan West, Propoge, Ballycondon Commons, Ballynatray Commons, Shanapollagh and Killea in Co. Waterford and Lyremountain, Lyre, Ballyanthony, Knockanarrig, Breeda, Rearour North and Rearour South in Co. Cork. The site is located approx. 5km to the south/south-east of Tallow Co. Waterford and c. 9 km to the north-west of Youghal in Co. Cork. Two clusters of turbines are proposed. The cluster in Waterford consists of 11 turbines (T1-T11) and that in Cork consists of 6 (T12-T17).

2.2. The lands are comprised of a mix of coniferous forestry and lands in agricultural use. They are accessed via local roads from the R634 Regional Road that connects Tallow and Youghal and the R627 Regional Road that connects Tallow and Midleton. The site is served by a number of existing forestry roads and accesses. There is sporadic one off housing along the local road network in the vicinity.

2.3. The western cluster, which has an area of approximately 206 ha, is located between the R627 and R634 regional roads. The northern half of the western cluster is largely coniferous forestry while the southern half is agricultural grassland. It is proposed that 6 no. turbines will be located in the western cluster (3 no. in forestry and 3 no. in grassland area). The forestry is accessible via a network of existing forest tracks. Ground elevation ranges from approx. 203m OD to the north to approx.130 m OD to the south with the overall slope (gentle to moderate) to the south – southeast.

2.4. The eastern cluster, which has an area of approx. 518ha, is located c.1.7km to the southwest of the western cluster and comprises mainly coniferous forestry with areas of grassland to the centre and south-east. The eastern cluster is located immediately east of the R634 and has a ground elevation range of between 200 m OD at the south to 120 m OD along the eastern boundary with the overall ground slope (gentle to moderate) to the east. It is proposed that 11 no. turbines will be located in the eastern cluster (7 no. in forestry and 4 no. in grassland).

2.5. The existing Knockraha-Woodhouse 110kV overhead line (OHL) traverses the southern section of the eastern cluster.

3.0 **Proposed Development**

The application was lodged with the Board on the **08/01/21** with further plans and particulars received **11/10/22** following a request for further information dated 8th April 2022. A further response to observations were received on **23/06/23**.

3.1. Overview

3.1.1. The development comprises the construction of a wind farm and associated infrastructure comprising up to 17 wind turbines within two clusters, 11 (T1-T11) within the eastern (Waterford) cluster and 6 (T12-T17) within the western (Cork) cluster. The two clusters are to be connected via an underground collector cable connection of c.3.3km. in length. A substation is proposed within the eastern cluster with a loop-in connection into the Knockraha – Woodhouse 110kV line via two 40m of overhead line.

3.1.2. Chapter 4 of the EIAR, as amended by the further information received 11/10/22, provides a comprehensive description of the proposed development with a Construction and Environmental Management Plan (CEMP) included in 4-4 of the EIAR.

3.1.3. The following table outlines the main elements of the proposal contained within each cluster:

Eastern Cluster	**Western Cluster**
11 turbines (T1-T11)	6 turbines (T12-T17)
One Borrow Pit (No. 3)	Two Borrow Pits (No. 1 & 2)
Temporary compound 1	Temporary compound 2
Substation	Met Mast

3.1.4. A 10 year permission is sought. The operational life of the development would be 30 years.

3.2. Turbines

3.2.1. While it is qualified that the exact make and model of the turbine will be dictated by a competitive tender process it is stated that it will not exceed a tip height of up to 150m with conventional three blades, grey matte in colour and designed to ensure rotors of all turbines rotate in the same direction at all times.

3.2.2. Plans submitted by way of **further information** provide details on the **turbine range** proposed. They are as follows:

Turbine Ranges (m)

	Minimum	**Maximum**	**Range**
Tip Height	150	150	-
Blade Length	56.5	66.5	10
Rotor Diameter	113	133	20
Hub Height	83.5	93.5	10

3.2.3. The 17 no. turbines have been numbered T1 to T17. The elevation (mOD) of the location of each of the proposed turbines is outlined in Table 4-1 of the EIAR with T13 at the highest elevation (197mOD).

3.2.4. By way of **further information** the applicant proposes the relocation of **T5** to a point 165 metres to the east of its original location in order to maintain a 700 metre setback distance from 2 no. dwellings granted permission by Cork County Council in 2021 and 2022 subsequent to the lodgement of this application with the Board. The relocated turbine remains within the red line planning boundary and the EIAR study area.

3.3. Turbine Foundations

3.3.1. The size of the foundation is dictated by the turbine manufacturer, subject to tender, and based on site geotechnical characteristics. A typical diameter of 20 metres is delineated in Figure 4-4. By way of **further information** it is stated that the maximum horizontal and vertical extent of the turbine foundation will be 20m (minimum of 18m) and 2.3m (minimum of 3.2m) respectively.

3.4. Hardstanding and Assembly Area for Each Turbine

3.4.1. Adjoining each foundation is a proposed hardstanding which consists of levelled and compacted hardcore required to facilitate access, assembly and erection. It is dictated by the turbine supplier with an envelope area of approximately 55m x 35m as proposed in Figure 4-4 and Drwg no. 17079-36 By way of **further information** it is stated that the layout plans and specific turbine drawings (Drwg nos. 170749-01 – 1707490-38) are accurate and show the location of the turbine and the extent of the proposed associated hardstand areas.

3.4.2. Levelled assembly areas are proposed either side of the hard standing with the exact location and number to be determined by the manufacturer with an envelope area within which the assembly area is to be located delineated.

3.5. Power Output

3.5.1. The turbines each have an anticipated rated output of between 3.5MW and 5 MW with an estimated installed capacity of between 60MW and 85MW depending on the model of turbine, which will be subject to a competitive procurement process. The minimum installed capacity of 60MW has the potential to produce c.183,960MWh of electricity per year which would supply approximately 43,800 households.

3.6. Site Entrance and Internal Access

Site Entrances

3.6.1. It is proposed to serve the development by way of three existing site entrances. Upgrade works are required at all three to accommodate access and egress of turbine vehicles and general construction traffic. The proposed access locations are as follows:

Eastern Cluster

Access A

3.6.2. Access junction A is on the east side of the R634 Regional road and is at the location of an existing forestry access. It is to be used for abnormal loads, only. The access will be closed at all other times. Following the construction phase it is proposed that the upgraded area of this entrance is closed by erecting fencing, however this may be reopened during the lifetime of the development should replacement blades or other abnormal loads be required to access the site.

Access C

3.6.3. Access junction C located on the L2003 is an existing forestry access and is proposed to provide access for all general construction traffic (i.e. non-turbine components), including construction staff and for maintenance staff when operational.

Western Cluster

Access B

3.6.4. Access junction B located on the L7806 is the sole proposed access to the western cluster of turbines providing access for the delivery of abnormal loads, the delivery of general construction materials, and all construction traffic and access for maintenance staff once operational.

Internal Access

3.6.5. A combination of the upgrading of approx. 10.7km of existing roads and tracks and the provision of 4.1km of new roads are proposed within the site. The general construction methodology for the upgrading and new roads is set out in the Geotechnical Assessment Report (Appendix 4.2). The works will require the

maintenance or upgrade of existing drainage infrastructure and installation of associated drainage infrastructure required for the new build. Tracks, both new and upgraded, are to be 5 metres in width along the straight sections and wider at bends. They are to be finished with selected granular fill up to 300mm on existing tracks and up to 500mm on new tracks, on geotextile membrane where required. Any surplus excavated material is to be placed along the side of sections of the tracks and dressed to assimilate with the surrounding landscaping.

3.7. Drainage Works

3.7.1. Two methods will be employed to manage drainage water within the site. The first involves keeping clean water clean by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage water from works areas within the site that may carry silt or sediment, to allow attenuation and settlement prior to controlled diffuse release.

3.7.2. The proposed development of turbine hardstands, internal access tracks, substation and the temporary construction compounds will include the construction of a drainage system alongside each element. Appendix 4-6 provides a drainage design scheme for the development.

3.8. Watercourse Crossings

3.8.1. Within the site 2 new stream crossings and 6 upgrades of existing stream crossings are proposed as part of the access road construction. These are all proposed within the eastern cluster. 3 no. upgrades and 2 no. new crossings are required on the proposed collector cabling route and at the proposed link road near Breeda Bridge. Watercourse crossings are proposed using bottomless, precast concrete structures avoiding the need for in-stream works.

3.9. Borrow Pits

Three borrow pits are proposed with the majority of all rock and hardcore material required obtained from same. Rock breaking and, where necessary, rock blasting will be the methods for rock extraction.

3.9.1. The following table outlines the details of each pit:

	Borrow Pit 1	**Borrow Pit 2**	**Borrow Pit 3**
Location	Western Cluster 350m W of T12	Western Cluster 100m SW of T14	Eastern Cluster 50m SE of T10
Area	5,850 sq.m	14,220 sq.m	25,900 sq.m
Approximate Depth*	Up to 6 - 8m	Up to 5 – 6m	Up to 7m
Intended Use within the Development	Supply hardcore for turbines and works in western cluster and grid connection.	Supply hardcore for turbines and works in western cluster and grid connection.	Supply hardcore for turbines and works in eastern cluster and substation.

*As shown in sections on Figures 4-7, 4-8 & 4-9

3.9.2. Following extraction the borrow pits will be reinstated with excavated spoil generated from construction activities.

3.9.3. It is anticipated that a certain volume of finer, crushed stone, used to provide the final surface layer for site roads and hardstanding areas, will also be required. Additional off-site material sourced from 6 quarries within 25km of the site are identified (locations shown in Figure 4-10).

3.10. Management of Spoil

It is estimated that approximately 198,980m^3 of spoil will be generated within the development site from the excavation required within the 17 turbine sites, the access roads, substation, temporary compounds and borrow pits. This includes a factor of 20% (bulking factor of 15% and contingency factor of 5%) which has been applied to allow for expected increase in volume upon excavation and variation in ground conditions across the site. It is proposed to use the spoil in the restoration of the borrow pits and along the access roads. There are no peat deposition areas required as part of the development.

3.11. Temporary Construction Compounds

3.11.1. Two temporary construction compounds are proposed, one in each cluster. Compound 1 in the western cluster is c.150m northeast of T13 with Compound 2 in the eastern cluster 600m southeast of T1. They each measure 80m by 50m, with a footprint of 4,000 sq.m in area and are proposed to accommodate temporary site offices, staff facilities and car-parking areas for staff and visitors. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by a permitted waste collector to wastewater treatment plants.

3.12. Electrical Substation and Control Buildings

3.12.1. The proposal comprises the construction of an onsite electrical substation with a footprint of c 2.9 hectares within the eastern cluster adjacent to an access road north-east of T6. The site is located to the south of the existing Knockraha-Woodhouse 110kV overhead line. It is proposed to place two towers/masts (150A & 150B) on this overhead line with two lengths of new overhead line connecting into the substation.

3.12.2. The substation compound will accommodate two wind farm control buildings and the electrical substation components required to consolidate the electrical energy generated by each turbine, and export that electricity from the substation to the national grid.

3.12.3. Control building 1 has an area of approximately 375 sq.m and 8 m in height and control building 2 has an area of approximately 215 sq.m. and 7m in height. The wind farm control buildings include staff welfare facilities. It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off site by a permitted waste collector to wastewater treatment plants. A 2.4m high palisade fence is proposed around the compound.

3.12.4. The construction and exact layout of electrical equipment will be subject to EirGrid/ESB Networks specifications.

3.13. Battery Storage Facility

3.13.1. A battery storage compound is proposed adjacent to the substation. It is to include 10 battery modules contained within steel units with dimensions of approximately

12.2 m x 2.4 m x 2.8 m high, similar in appearance to standard shipping containers placed on concrete foundations or plinths. The system proposed includes lithium-ion batteries, connected to inverters that convert direct current (DC) to alternating current (AC), which are, in turn, connected to step up/down MV/LV (medium voltage/low voltage) unit transformers feeding a common busbar located in the Independent Power Producer's (IPP) control building within the substation. The battery storage compound includes a switchgear (control) room which measures approximately 135 sq.m and 7 metres in height.

3.14. Grid Connection

3.14.1. As noted above the proposed substation site is located to the south of the existing Knockraha-Woodhouse 110kV overhead line. It is proposed to place two 13m high angle masts (150A & 150B) on this existing overhead line with two 40m lengths of new overhead line proposed from the new masts providing a loop-in connection from the substation.

3.14.2. Each turbine will be connected to the onsite substation via an underground 20 or 33kV electricity cable within cable ducts c.1.3m below surface level which adjoin the on-site access tracks.

3.14.3. As outlined above, the two clusters are proposed to be connected via underground cabling for a distance of c.3.3km. Approx. 620 metres is located along existing roads with the remaining 2.68km to be installed on agricultural land. The cable, ducting and trenching specifications provided with the application are in accordance with ESB and EirGrid standard specifications.

3.15. Meteorological Mast

3.15.1. By way of **further information** it is stated that the permanent meteorological mast of lattice steel construction, to be erected within the western cluster approximately 410 metres southeast of T17, will be 112m. high (see drg.no. 170749e-04FI). It is to be located on a hardstanding area and equipped with wind monitoring equipment at various heights. A single storey welfare and storage building approximately 54 sq.m in area and 4.3 metres in height is proposed adjacent to the met mast. The compound is to be enclosed by a 2.4 metre high palisade fence.

3.16. Tree Felling and Forestry Replacement

3.16.1. A total of 45.6 hectares of forestry is required to be permanently felled within and around the footprint of the proposal with an additional 5.4 hectares proposed to be temporarily felled (see Fig. 4-21). The tree felling activities required as part of the proposal will be the subject of a Felling Licence application to the Forest Service, in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. The policy requires that a copy of the planning permission for the wind farm be submitted with the felling licence applications; therefore, the felling licenses cannot be applied for until such time as planning permission is obtained for the proposal.

3.16.2. Replanting is a requirement of the Forestry Act. The replacement of the felled forestry can occur anywhere in the State subject to licence. A potential replanting site of 49.9 hectares has been identified in County Sligo. The lands have been granted Forest Service Technical Approval for afforestation, and these or similarly approved lands will be used for replanting should the proposed wind farm receive planning permission. A description of the proposed replanting lands and an assessment of the potential impacts are provided in Appendix 4-3 of the EIAR.

3.17. Turbine Transport Route

The proposed turbine transport route is shown on Figure 4-23 of the EIAR. From Waterford Port the turbines are to travel southwest along the N25 National Primary Road for approximately 30 kms to a roundabout just north of Youghal. From here, the route then travels northwest on the R634 Regional Road to the proposed access to the eastern cluster, situated on the eastern side of the R634. Approximately 3 kms to the south on the R634 Regional Road there is a fork in the road, with the route heading northwest on the L7806. This road provides access to the western site approximately 6 kms to the northwest of the junction with the R634.

3.17.1. Works are proposed at two locations on the turbine delivery route and are shown on Figure 4-23.

<u>Location No 1: Lombard's Cross Roads</u>

3.17.2. Minor road widening is proposed on the southeast corner of Lombard's Cross Roads comprising an area of hard-surfacing to be temporarily installed, measuring

approximately 70 sq.m of what is currently occupied by road verge and agricultural land. Once deliveries are completed the area and boundaries are proposed to be reinstated, restoring the junction to its current configuration.

Location No.2 - Breeda Bridge

3.17.3. A section of access road measuring approximately 300 metres in length (5m wide) is proposed off local road L7806 within agricultural land, to allow the turbine delivery vehicles to avoid a bend in the public road and to avoid the removal of mature roadside trees at this location. It will be used by turbine delivery vehicles only.

Other works

3.17.4. Other works on the route are considered to be minor, comprising the temporary removal of some street signs or furniture, or the temporary levelling of the centre island of some roundabouts.

3.18. Construction Period

3.18.1. The proposed construction duration is estimated to be 18-24 months.

3.18.2. A Construction and Environmental Management Plan (CEMP) is included in Appendix 4-4. It will be updated prior to commencement of development to address the requirements of any relevant planning conditions should permission be granted.

3.19. Operation and Lifespan

3.19.1. The expected physical lifetime of the proposal is approximately 30 years, and permission is sought for a 30-year operation period commencing from full operational commissioning of the wind farm.

3.19.2. During the operational period the wind turbines will operate automatically, responding by means of anemometry equipment and control systems to the changes in wind speed and direction. Each turbine will be monitored off site by the wind turbine supplier. The turbines will be subject to routine maintenance. There will also be the requirement for unscheduled maintenance which could vary between resetting of alarms to component replacements. The substation and site tracks will also require periodic maintenance.

3.20. Community Benefit Fund

3.20.1. it is anticipated that based on the requirement for all wind energy projects to contribute €2 per MWh of output, a community fund in the region of €6,000 per MW of installed capacity per annum could be available from the proposed wind farm. This equates to a minimum of €360,000 per annum (based on the minimum of 60 MW capacity) for the local community. It is anticipated that a panel of local community representatives would decide on the investment of the income.

3.21. Decommissioning

3.21.1. The turbines have an expected lifespan of 30 years. Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to fulfilment of planning requirements at that time, or the site may be decommissioned fully. It is proposed that the on-site substation will remain in place as it will be under the ownership of the ESB/EirGrid and will form a permanent part of the electricity grid. Upon decommissioning, all above ground turbine components would be separated and removed off-site for recycling with turbine foundations remaining in place underground to be covered with earth and reseeded as appropriate. Site roadways will be left in situ, as appropriate. Underground cables, including grid connection, would be removed and the ducting left in place. A decommissioning plan will be agreed with the relevant local authorities prior to decommissioning. The principles of such a decommissioning plan are contained in the CEMP in Appendix 4-4.

4.0 Planning History

A list of planning applications within 2km of the site is given in Appendix 2-1 of the EIAR. The Chief Executive's reports for the respective planning authorities also provide a synopsis of the relevant applications.

Of note:

Waterford City and County Council

Woodhouse Wind Farm (15km to north east of site)

04/1788 – permission granted for an 8 no. turbine wind farm in the townlands of Woodhouse, Tinakilly, Keereen Upper, Ballygambon Upper and Knocknamona. The

permitted turbines have a tower/hub height of 70 metres and blades of 42 metres in length, with an overall structure height of 112 metres.

10/45 – permission granted for modifications to the wind farm permitted under Ref. 04/1788.

10/175 – extension of duration of permission 04/1788.

Barranafaddock Wind Farm (18.5km to north of site)

PL93. 213290 (04/1559) – permission granted for an 11 turbine wind farm at Knocknabronem, Glenfooran, Parktobeen and Ballyduff, Co. Waterford. The hub height of 3 turbines (no. 10, 11 and 15) to be 60 metres with the other 8 to have a have a hub height of 80 metres. All to have a rotor diameter of 80 metres.

10/371 – extension of duration of permission.

11/400 – permission granted for modifications to permitted windfarm increasing the turbine hub height of the 3 no. turbines permitted 60 metres to 80 metres and increase in the rotor diameters of all turbines from 80 to 90 metres with micro-siting of 10 of the turbines.

13/465 – permission granted for amendments to conditions 2 and 3 which relate to the operational period of the wind farm.

Knocknamona Wind Farm (17km to north-east of site)

PL93. 244006 (14/600109) – permission granted on appeal for 12 turbine windfarm. at Knocknaglogh Lower, Barranastook Upper, Dungarvan, Co. Waterford. 4 no. turbines omitted by way of condition 2 resulting in permission for 8 no. turbines. The turbines have overall height of up to 126 metres and associated works

PL93.309412 (20/845) – permission granted for amendments to Knocknamona windfarm including an increase in the tip height of the 8 no. previously permitted wind turbines from 126 metres to 146.3 metres.

PL93.306497 – permission granted on appeal for a windfarm grid connection, Keereen Upper/Woodhouse or, Tinakilly/Knocknamona Townlands, Dungarvan, Co. Waterford.

Cork County Council

Within the red line boundary

20/5084 – permission granted for slatted shed and associated works.

In vicinity

Since the lodgement of the application the following applications for one off dwellings were granted on the R634:

20/6991 – dwelling, effluent treatment plant and associated works at Breeda, Lackaroe.

21/7120 – dwelling, effluent treatment plant and associated works at Breeda, Lackaroe.

5.0 Policy Context

The following are a list of EU Directives and Policies and National Policies and Guidelines of relevance with a summary of the more salient provided.

European Directives and Policies

- EU Renewable Energy Directive 2009/28/EC
- European 2020 Strategy for Growth
- 2030 Climate and Energy Framework
- Energy Roadmap 2050
- Recast Renewable Energy Directive (RED2)
- European Green Deal (2019)

National Policy

- Climate Action and Low Carbon Development Act 2015
- Project Ireland 2040: The National Planning Framework
- Project Ireland 2040: National Development Plan 2018-2027
- Climate Action Plan 2023
- Climate Action and Low Carbon Development (Amendment) Art 2021

- Department of Environment Heritage and Local Government Planning Guidelines for Wind Energy (June 2006)
- Draft Revised Wind Energy Guidelines (Published for Consultation on 12th December 2019)
- National Landscape Strategy for Ireland 2015-2025 (DAHG)
- Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (December 2016).

5.1. National Policy

5.1.1. Project Ireland - National Planning Framework 2040

Section 1.3 Shared Goals – National Strategic Outcomes

Transition to a Low Carbon and Climate Resilient Society

The National Climate Policy Position establishes the national objective to transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. This objective will shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework. 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 sources of that energy to the major sources of demand.

National Policy Objective (NPO) 55 seeks to promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.

5.1.2. Project Ireland 2040 – National Development Plan 2021-2030

The NDP sets out the investment priorities that will underpin the implementation of the NPF

National Strategic Outcome (NSO) 8 - Transition to a Low Carbon and Climate Resilient Economy.

The National Climate Policy Position on Climate Action and Low-Carbon Development identifies the achievement of a climate-resilient economy and society by 2050 as a central objective. This objective will shape investment choices over the coming decades in line with the National Mitigation Plan and the National Adaptation Framework.

Strategic Investment Priorities – Renewable Energy

Regular Renewable Electricity Support Scheme (RESS) auctions will deliver competitive levels of onshore wind and solar electricity generation which indicatively could be up to 2.5 GW of grid- scale solar and up to 8 GW of onshore wind by 2030

The RESS will also support the delivery of up to 5 GW of additional offshore renewable electricity generation by 2030

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

This is a framework to guide policy up to 2030. It sets out a vision for transforming Ireland's fossil fuel-based energy sector into a clean, low carbon system. Under Directive 2009/28/EC the government is legally obliged to ensure that at least 16% of all energy consumed in the state is from renewable sources by 2020, with a sub-target of 40% in the electricity generation sector. It notes that onshore wind will continue to make a significant contribution but that the next phase of Ireland's energy transition will see the deployment of additional technologies as solar, offshore wind and ocean technologies mature and become more cost-effective.

5.1.4. **Climate Action Plan 2023**

The plan seeks to identify how Ireland will achieve its 2030 targets for carbon emissions by sector and through a series of actions. The overarching requirement as it relates to electricity requires transformational policies, measures and actions, and societal change to increase the deployment of renewable energy generation, strengthen the grid, and meet the demand for flexibility in response to the challenge. The plan seeks to reduce the State's greenhouse gas emissions by 51% by 2030.

One of the plan's measures seeks to increase the proportion of renewable electricity to up to 80% by 2030, including a target of 9 GW from onshore wind, 8 GW from solar and at least 5 Gigawatts of offshore wind energy by 2030.

5.1.5. **Wind Energy Development Guidelines 2006**

The following sections of the Guidelines are considered to be of particular relevance:

- Section 5.6 - noise impacts should be assessed by reference to the nature and character of noise sensitive locations. In general noise is unlikely to be a significant problem where the distance from the nearest noise sensitive property is more than 500m.
- Section 5.12 - careful site selection, design and planning and good use of relevant software can help to reduce the possibility of shadow flicker in the first instance. Shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day. The potential for shadow flicker is very low at distances greater than 10 rotor diameters from a turbine.
- Chapter 6 - aesthetic considerations in siting and design. Regard should be had to profile, numbers, spacing, visual impact and the landscape character. Account should be taken of inter-visibility of sites and the cumulative impact of developments.

5.1.6. **Draft Wind Energy Development Guidelines 2019**

Of note:

Section 5.7.4 – Noise. The preferred draft approach proposes noise restriction limits consistent with World Health Organisation Guidelines, proposing a relative rated noise limit of 5dB(A) above existing background noise within the range of 35 to 43dB(A), with 43dB(A) being the maximum noise limit permitted, day or night. The noise limits will apply to outdoor locations at any residential or noise sensitive properties.

Section 5.8.1 – Shadow Flicker. Provision of evidence as part of the planning application that shadow flicker control mechanisms will be in place for the duration of the wind energy development project.

Section 5.10 - Community Investment.

Section 6.4- Visual Impact. Siting of Wind energy projects.

Section 6.18.1 – Set back. The potential for visual disturbance can be considered as dependent on the scale of the proposed turbine and the associated distance. The size of the turbine should be key to setting the appropriate setback. A setback distance for visual amenity purposes of 4 times the tip height should apply between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres. An exception may be provided for a lower setback requirement from existing or permitted dwellings or other sensitive properties to new turbines where the owner(s) and occupier(s) of the relevant property or properties are agreeable to same but the noise requirements of these Guidelines must be capable of being complied with in all cases.

5.2. Regional Policy - Southern Regional Spatial and Economic Strategy (RSES)

Both Counties Cork and Waterford are within the Southern RSES area. Its sets out the strategy to implement the National Planning Framework in the Southern Region.

The RSES recognises and supports the many opportunities for wind as a major source of renewable energy. Opportunities for both commercial and community wind energy projects should be harnessed, having regard to the requirements of DoHPLG Guidelines on Wind Energy.

Objective RPO 99 Renewable Wind Energy – 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.

Section 8.2 - there is significant potential to use renewable energy across the Region to achieve climate change emission reduction targets. With costs actively driven down by innovation in solar, onshore and offshore wind in particular, the renewable industry is increasingly cost competitive. The RSES supports renewable industries and requirements for transmission and distribution infrastructure.

5.3. Local Policy

5.3.1. **Cork County Development Plan 2022**.

The plan came into effect on 06/06/22 and so postdates the lodgement of the application with the Board.

Chapter 13 -- Energy and Telecommunications.

Section 13.6.2 - Cork County currently has 38 commissioned wind farms with capacity of 603MW, equivalent to approximately 16% of the national capacity. However, if Ireland is to meet its renewable energy target then it needs to double capacity nationally over the next ten years. On a pro rata basis, that could see capacity in Cork expand to 1,100MW. At present there are valid but unimplemented permissions in the county for a further 200MW of wind power.

Objective ET13 -4 Wind Energy

In order to facilitate increased levels of renewable energy production consistent with national targets on renewable energy and climate change mitigation as set out in the National Energy and Climate Plan 2021-2030, the Climate Action Plan 2021, and any updates to these targets, and in accordance with Ministerial Guidelines on Wind Energy Development, the Council will support further development of on-shore wind energy projects including the upgrading, repowering or expansion of existing infrastructure, at appropriate locations within the county in line with the Wind Energy Strategy and objectives detailed in this chapter and other objectives of this plan in relation to climate change, biodiversity, landscape, heritage, water management and environment etc.

Section 13-6 sets out the Wind Energy Strategy. It identifies 3 categories for large scale commercial wind energy developments – acceptable in principle, open to consideration and normally discouraged.

As per Figure 13.3 the site subject of this application is in an area designated as open to consideration.

Objective ET 13-5: Wind Energy Projects

a) Support a plan led approach to wind energy development in County Cork through the identification of areas for wind energy development. The aim in identifying these

areas is to ensure that there are minimal environmental constraints, which could be foreseen to arise in advance of the planning process.

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

The definition of Open to Consideration is set out in Section 13.6.7 and is stated to comprise about 50% of the county. Within these areas there are locations that may have potential for wind farm development but there are also some environmental issues to be considered.

Objective ET 13-7: Open to Consideration

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

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

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

Objectives ET 13-09 and ET 13-10 require development to be in accordance with national wind energy guidelines and best practice.

Objective ET 13-11: requires Public Consultation and Community Support.

Section 13.7 requires that all planning applications for wind energy development should include a comprehensive assessment of the potential impacts of the proposed development on the receiving environment and landscape. The Planning

Authority will require a schedule of listed criteria to be covered by prospective applicants.

Chapter 14 – Green Infrastructure and Recreation:

Objective GI 14-9: Landscape

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

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

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

d) Protect skylines and ridgelines from development.

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

Objectives GI 14-10 - Draft Landscape Strategy

Seek to ensure that the management of development throughout the County will have regard for the value of the landscape, its character, distinctiveness and sensitivity as recognised in the Cork County Draft Landscape Strategy and its recommendations, in order to minimize the visual and environmental impact of development, particularly in areas designated as High Value Landscapes where higher development standards (layout, design, landscaping, materials used) will be required.

The Draft Landscape Strategy has categorised sensitivity into 4 ranging from Low sensitivity landscapes which are robust and tolerant to change to very high sensitivity landscapes which are likely to be fragile and susceptible to change.

Note: As per the Landscape Character assessment undertaken as part of the Draft Cork Landscape Strategy (2007) and included in Appendix F of the Plan the subject site is within:

LCT 10b – Fissured Fertile Middleground - Medium landscape sensitivity; Low Landscape Value; and County Landscape Importance.

Objective GI 14-12: General Views and Prospects

Preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountains, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty as recognized in the Draft Landscape Strategy.

Objective GI 14-13: Scenic Routes

Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this plan.

Objective GI 14-14: Development on Scenic Routes

a) Require those seeking to carry out development in the environs of a scenic route and/or an area with important views and prospects, to demonstrate that there will be no adverse obstruction or degradation of the views towards and from vulnerable landscape features. In such areas, the appropriateness of the design, site layout, and landscaping of the proposed development must be demonstrated along with mitigation measures to prevent significant alterations to the appearance or character of the area.

b) Encourage appropriate landscaping and screen planting of developments along scenic routes (See Chapter 16 Built and Cultural Heritage).

The following Scenic Routes are within 20km of the site.

S6 – Local road to Coolbaun with views of pastoral landscape and the Bride River Valley. (north-west of site)

S43 – R626 regional road between Lisgould and Carrigogna. Views of wooded landscape and intermittent views of open countryside. (south west of site)

S44 – local road between Monaleen Bridge, Arglass and Gurteen Cross Roads. Views of hills and rural landscape. (west of site)

S45 – section of R634 regional road between Youghal and Tallow. Distant mountain views and rural landscape. (immediate vicinity of site)

S46 – N25 national primary route between Coolaha and the county boundary. Intermittent views of Youghal Bay, distant mountain views and views of the Tourig and Blackwater Rivers. (to south of site)

S47 – Local road between Garryvoe and Knockadoon. Views of Youghal and Ballycotton Bay, Knockadoon Head, Capel Island and coastline. (to south of site)

Chapter 16 - Built and Cultural Heritage.

HE 16-2: Protection of Archaeological Sites and Monuments

Secure the preservation (i.e. preservation in situ or in exceptional cases preservation by record) of all archaeological monuments and their setting included in the Sites and Monuments Record (SMR) (see www.archaeology.ie) and the Record of Monuments and Places (RMP) and of sites, features and objects of archaeological and historical interest generally.

In securing such preservation, the planning authority will have regard to the advice and recommendations of the Development Applications Unit of the Department of Housing, Local Government and Heritage as outlined in the Frameworks and Principles for the Protection of the Archaeological Heritage policy document or any changes to the policy within the lifetime of the Plan.

5.3.2. **Waterford County Development Plan 2022**

The plan came into effect 19/07/22 and so postdates the lodgement of the application with the Board.

Chapter 6 – Utilities Infrastructure, Energy and Communication

Section 6.6 Renewable Energy - The targets set out in Table 6.3 are based on Waterford's capacity to locally deliver on available renewable energy resources, in meeting its potential contribution to the State's energy requirements and targets, as determined by available land, energy generation potential and environmental designations. This approach is considered to be in line with the increased ambition of the actions set out in the Climate Action Plan 2021.

Table 6.3 sets out the Renewable Energy Targets 2030 for the county. The target for on shore wind energy is 211.20 MW. With 97.72MW either operational or permitted but as yet undeveloped there is a shortfall of 113.48MW. The targets as detailed are considered to be minimum targets.

Policy Objective UTL 13 – Renewal Energy

It is the policy of Waterford City and County Council to promote and facilitate a culture of adopting energy efficiency/ renewable energy technologies and energy conservation and seek to reduce dependency on fossil fuels thereby enhancing the environmental, social and economic benefits to Waterford City and County. It must also be recognised that other sources of electricity generation such as natural gas, particularly renewable and indigenous gas, will continue to have a role to play in the transition to a low carbon economy. As such, renewable energy developments may require support from such sources in times of high energy demand. This will be achieved by:

- Supporting the delivery of renewable energy to achieve the targets identified in Table 6.3 of the Development Plan.
- Facilitating and encouraging, where appropriate, proposals for renewable energy generation, transmission and distribution and ancillary support infrastructure facilities including the necessary infrastructure required for the development of offshore renewable energy developments developed fully in accordance with the Waterford Renewable Energy Strategy, the wind energy designation map (Appendix 2 of the RES), the Waterford Landscape and Seascape Character Assessment undertaken to inform this Development Plan, and the National Wind Energy Guidelines, or any subsequent update/ review of these
- The Wind Energy Designation Map and the Landscape and Seascape Character Assessment Map identify different landscape character areas and associated landscape sensitivities. These designations encompass the concept of buffers between areas of sensitivity which vary across the different landscape character types and their different locations. These buffers allow for a gradual change between contrasting landscape sensitivities and associated wind energy designations to be considered, as necessary, when determining any development proposal.
- Promote and encourage the use of renewable energy, and low carbon resources, namely solar photovoltaic, geothermal, heat pumps, district heating, solar thermal, hydro, tidal power, offshore and onshore wind,

biomass as well as micro-generation among business, agriculture, education, health, and other sectors.

- Promoting, encouraging, ensuring, and facilitating community engagement, participation and implementation of/ in renewable energy projects.
- The preparation and implementation of a Climate Action Plan (including adaptation and mitigation measures) for Waterford.
- To support in conjunction with other relevant agencies, wind energy initiatives, both onshore and offshore, and wave energy, and onshore grid connections and reinforcements to facilitate offshore renewable energy development when these are undertaken in an environmentally acceptable manner.

At initial design stage full consideration should be given to reasonable alternatives and existing infrastructural assets. In this regard environmental assessments should address reasonable alternatives for the location of new energy developments, and where existing infrastructural assets such as sub-stations, power lines and roads already exist within proposed development areas, then such assets should be considered for sustainable use by the proposed development where the assets have capacity to absorb the new development.

All planning applications for Renewable Energy Projects such as wind farms and solar farms shall be accompanied by a Decommissioning and Restoration Plan (DRP) consistent with the Wind Energy Guidelines 2006 or any update thereof. Issues to be addressed shall include details of proposed restorative measures, the removal of above ground structures and equipment, the restoration of habitats, landscaping and/or reseeding roads etc.

Policy Objective UTL 14 - Energy Developments & Human Health

Proposals for energy development should demonstrate that human health has been considered, including those relating to the topics of:

- Noise (including consistency with the World Health Organisation's 2018 Environmental Noise Guidelines for the European Region developments must comply with the Wind Energy Development Guidelines (2006), or any subsequent update/ review of these),

- Shadow Flicker (for wind turbine developments, including detailed Shadow Flicker Study),
- Ground Conditions/Geology (including landslide and slope stability risk assessment),
- Air Quality; and,
- Water Quality.

Chapter 10 – Landscape, Coast/Marine and Blue Green Infrastructure

The site is within an LSCA classification of Low Sensitive. This is a common character type with a potential to absorb a wide range of new developments.

Policy Objective L02 – Protecting our Landscape and Seascape

To protect the landscape and natural assets of the County by ensuring that proposed developments do not detrimentally impact on the character, integrity, distinctiveness or scenic value of their area and ensuring that such proposals are not unduly visually obtrusive in the landscape, in particular, in or adjacent to the uplands, along river corridors, coastal or other distinctive landscape character units.

Policy Objective L03 – Landscape and Seascape Character Assessment

Assess all proposals for development outside of settlements in terms of the 2020 Landscape and Seascape Character Assessment (Appendix 8) and the associated sensitivity of the particular location….There will be a presumption against developments which are located on elevated and exposed sites and where the landscape cannot accommodate such development with reasonable and appropriate mitigation.

Policy Objective L04 - Scenic Routes and Protected Views

Protect the scenic routes and specified protected views identified in the Landscape Character Assessment (Appendix 8) including views to and from the sea, rivers, landscape features, mountains, landmark structures and urban settlements from inappropriate development that by virtue of design, scale, character or cumulative impact would block or detract from such views.

Chapter 11 – Heritage

Policy Objective BH 18 – Protecting our Demesnes

- Protect and promote the setting and visual amenity of historic gardens and designed landscapes,
- Proposed development which have the potential to visually or physically impact on the character and/or appearance of an historic designed landscape should be justified through a Design Landscape Assessment/Architectural Heritage Impact Assessment.

Policy Objectives AN01 – AN03 pertain to archaeological heritage and seek to protect and enhance, in an appropriate manner, all elements of the archaeological heritage, managing development and preservation of archaeological material. *Policy Objective AN04* sets out the matters for consideration in terms of archaeological impact.

Appendix 7 sets out the Renewable Energy Strategy 2016 – 2030 for Waterford

Section 13 sets out the strategic planning considerations for renewable energy.

Appendix 2 of the Strategy notes three wind designation areas – preferred areas, areas open to consideration and no go areas.

The site is within an area designated as preferred.

Appendix 8 – Landscape and Seascape Character Assessment

As per Map A8.1 the site straddles the farmed lowlands and foothills landscape character types.

The site is within at area considered to be low sensitive.

Section 4.3(a) Low Sensitive Areas

A large area of County Waterford is designated as a landscape of low sensitivity. These areas have potential to absorb a wide range of new development subject to normal planning and development control procedures, In these areas the Planning Authority will have regard to general restrictions to development such as scenic routes, siting, road setback etc.

Section 4.3(b) Areas Designated as Low Sensitivity

- Pasture Land
- Coniferous Plantations

Section 5 – sets out Scenic Routes and Protected Views.

Within a 20km radius the following are noted:

Scenic Routes

1. The R666 heading west from the County border to Cappoquin
2. The R668 north from Lismore and R669 north from Cappoquin

4. Third class route from the mouth of the Glendine River, crossing the River Bride and following the Blackwater north, turning west to Lismore

Protected Views

16. Blackwater Valley from a lay by west of Aglish to the east of the development site
26. View from L6040 to Ardsallagh Quay viewing north of Blackwater Valley to the south east.

6.0 **EIA Screening**

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

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

An EIAR accompanies the application.

7.0 European Site Designations

The nearest European Site is the Blackwater River (Cork/Waterford) SAC [002170] located adjacent to the north eastern boundary of the site. A Natura Impact Statement accompanies the application.

8.0 Planning Authorities Submissions

8.1. Waterford City and County Council Chief Executive's Report

The report includes sections which I have addressed in the preceding sections of this report and which I indicate in brackets in order to avoid undue repetition.

8.1.1. **Site description**

(see section 2 above)

8.1.2. **Planning history**

(see section 4 above)

8.1.3. **Internal Referrals**

The reports are summarised as follows:

Heritage Officer

- NIS doesn't mention risk of Bird Strike with reference to the qualifying interests of the Blackwater Callows SPA to the north of the site.

Road Design

- Bridge Engineer to be consulted with regard to bridge and culvert locations. All bridges and culverts on the haul route to be inspected and a Stage 2 Structural Assessment carried out to ensure their capacity. The assessment to be submitted to the Roads Engineering Support Section.
- Where runoff is delivered more rapidly to watercourses, bridges and culverts downstream to be checked for any impact.
- All haul routes to be identified and agreed with Senior Engineer and District Engineer, Roads Section.

- A PSCI survey of the proposed haul routes to be carried out and the road to be at the same standard post works (minimum).

Conservation Officer

- The 5km area in which the impact on built heritage is assessed is considered too limited.
- Difficult to properly assess the visual impact of the proposed development to and from the Country Houses and Demesnes in the River Blackwater valley, and along the section of the River Bride from Tallow to the confluence with the River Blackwater.
- Temporary protection or stabilising works along the haul route, in particular to bridges along the Regional and Local Roads, should be assessed.

Environment Section

- No consideration had of the 2019 draft guidelines.
- The 2019 guidelines requirement of no exposure to shadow flicker should be applied
- Noise limits proposed do not provide sufficient protection from annoyance to residents. Measures in line with 2019 draft guidelines should be applied.

Water Services

- Most significant risk to water quality will be during deforestation and construction phase.
- Recommend that a condition be attached requiring the Siltbuster technology to be deployed if the surface water leaving the site does not comply with <25mg/l TSS and pH 6-9.

District Engineer

- No surface water permitted on public roads.
- Haul routes must be agreed with Roads Section and roads resurfaced where construction vehicles will be in use.
- The surfacing can be completed by the applicant or a special contribution of €200,00 can be paid.

- Where roads are not wide enough for two-way vehicles along haul routes & permanent access routes to the windfarm, local widening/lay-bys should be strategically constructed so that forward visibility is satisfactory for a driver to pull in where necessary. This may include hedge cutting & vegetation removal to gain forward visibility.
- All public roads to be kept clean at all times.
- Advance notice of any works to be submitted.

8.1.4. **Planning Policy/Designation**

Note: The report pre-dates the adoption of the current Waterford City and County Development Plan, 2022.

See section 5 of this report where the following are referenced:

- National Planning Framework, Project Ireland 2040
- Climate Action Plan 2019
- National Landscape Strategy for Ireland 2015-2025
- Draft Revised Wind Energy Development Guidelines, December 2019
- Wind Energy Guidelines 2006
- Regional Spatial and Economic Strategy (RSES) for the Southern Region
- Waterford County Development Plan 2011, as varied and extended

8.1.5. **Habitats Directive**

- The nearest instances of the following are outlined - SAC, SPA, Wetland, Fresh Water Pearl Mussel Catchment Area, pNHA, NHA, and Rivers.

8.1.6. **Comments on Natura Impact Statement**

The contents and conclusions of the NIS are outlined. There are concerns regarding its adequacy and robustness as it does not give due consideration to the Blackwater Callows SPA to the north of the site with the potential for impacts on same such as bird strike with reference to its qualifying interests.

8.1.7. **Comments on Environmental Impact Assessment Report**

A summary of the chapters of the EIAR is provided which is not repeated here. The following comments are noted.

Population and Human Health

- It is considered that the turbines are so large they could give rise to negative residential amenities.

Shadow Flicker

- The applicant has not had full regard to the 2019 draft guidelines requirement for no exposure to shadow flicker. Further mitigation/redesign is required.

Ornithology

- Sufficient consideration has not been given to the potential impact of the proposed development on the Blackwater Callows SPA to the north with regard to the potential for bird strike.

Water

- The Siltbuster technology referred to in the mitigation should be deployed if the surface water leaving the site does not comply with <25mg/l TSS and pH 6-9.

Landscape and Visual

- VP1: Concern regarding the scale, extent and number of turbines visible on the horizon.
- VP2: Localised impact owing to proximity.
- VP3: The Waterford Cluster will be located along the horizon with the Cork cluster not readily obvious owing to localised screening.
- VP4: Concern regarding the presentation of the image. All turbines appear to be located along the horizon and are visible. There is a haze/cloud backdrop reducing the impact of same
- VP5: there is an overlap / visual confusion.
- At the time of the designation of the site as a preferred area for wind development turbines were significantly smaller. There are serious concerns

regarding the ability of these lands to visually accommodate the extent and scale of the turbines which have got bigger as the technology has evolved. The lands are designated as visually sensitive and visually vulnerable with both local and wider views significantly impacted upon.

- The VIA submitted is not sufficiently robust and additional viewpoints both locally having regard to dwelling locations and settlements, and from settlements further removed, should have been assessed. Such impacts should be assessed from open/worst case scenario locations and not from points where local features obscure or partially obscure the development.

Noise and Vibration

- Limits proposed do not provide residents sufficient protection from annoyance.
- Limiting noise to the 2019 Draft Guidelines should be considered.

Archaeology and Cultural Heritage

- There are concerns regarding the adequacy and completeness of the assessment of the potential impact of the proposed development on the character and assessment of the built heritage in the wider area. While some assessment has taken place within the 5km buffer there are significant protected structures including structures with associated demesnes which may be impacted upon. The submitted details are not clear.
- Further assessment required regarding the potential impact of construction traffic on historic bridges along the haul route.

8.1.8. **Key Issues and Conclusion**

It is concluded that, on the basis of the above shortcomings of the submitted EIAR and NIS documents, the development as currently presented should be refused as the developer has not robustly demonstrated that the proposed development would not have negative impacts on the visual and residential amenities of the local and wider area. The development may also result in negative impacts on the natural and built heritage of the area.

8.1.9. **Conditions, Contributions and Community Gain**

Conditions

Should the Board consider that the above issues can be addressed and ultimately decide to grant permission the following conditions should be considered for inclusion;

- 10 year permission
- All mitigation and monitoring details within the EIAR and NIS to be fully implemented
- 30 year operational life
- Noise threshold
- Shadow flicker controls
- Final turbine details to be agreed
- Final number and location of turbines
- Finished level of turbine foundations
- Construction and Environmental Management Plan
- Requirement for an Ecologist Clerk of Works
- Control of storage and stockpiling material
- Ground works to be overseen by geotechnical expert/geologist
- Surface water controls including silt management etc.
- Dust suppression and monitoring
- Consultation with District Engineer regarding pre and post condition survey, repair of damages at developers own cost, agreement re strengthening of haul routes
- Traffic Management Plan
- Advance notice for road closures and extraordinary loads
- Correct control of all fuels and chemicals on site
- Protocol for maintenance of telecommunications

- Irish Aviation Authority requirements
- Archaeological monitoring
- Full details of reinstatement/decommissioning
- Bond
- Appointed Community Liaison Officer for duration of construction works and initial period or commissioning / operation

Development Contributions

- An installed capacity of 60MW – 85MW would result in development contributions of between €600,000 and €850,000. In the event of the development being granted or reduced the final MW output must be clear.
- Special Contributions of €200,000 required for necessary works to the local road network to facilitate the development.

Community Fund

- The Community Gain / Benefit Fund proposal is directly linked to the MW output – details of same should be clear and the administration of same should also be clearly controlled by condition.

8.1.10. **Record of Meeting of Waterford City & County Council**

- Majority of members endorse and support the Chief Executive's report recommending refusal.
- Disappointment that applicant didn't delay application until pandemic restrictions were lifted to facilitate meetings and consultations.
- Lot of work has been undertaken to have the development plan changed in relation to wind energy.
- Should be two separate applications.
- Should be sited offshore, need for micro generation and retro fitting of houses.
- Concern with height, size and proximity to dwellings in comparison to other wind farms.

- Council should revisit/update collective view on policy on wind and renewable energy in current formulation of development plan.
- Recognise global challenge in relation to environment.
- Compensation required to directly affected homeowners.
- A number of members spoke against refusal noting that it is incumbent to carry out functions in light of impacts of global warming with wind generation key.

8.2. Cork County Council Chief Executive's Report

The report of the Chief Executive includes sections which I have addressed in the preceding sections of this report and which I indicate in brackets in order to avoid undue repetition.

8.2.1. Site Location Overview

(see section 2 above)

8.2.2. Description of Development

(see section 3 above)

8.2.3. Policy Context and Guidance

(see section 5 above which includes reference to the following):

<u>EU Directives and Polices</u>

- EU Renewable Energy Directive 2009/28/EC
- European 2020 Strategy for Growth
- 2030 Climate and Energy Framework
- Energy Roadmap 2050
- Recast Renewable Energy Directive (RED2)
- European Green Deal

<u>National Policy</u>

- Climate Action and Low Carbon Development Act 2015

- Project Ireland 2040: The National Planning Framework
- Project Ireland 2040: National Development Plan 2018-2027
- Climate Action Plan 2019
- Climate Action and Low Carbon Development (Amendment) Bill 2020
- Department of Environment Heritage and Local Government Planning Guidelines for Wind Energy (June 2006)
- Draft Revised Wind Energy Guidelines (Published for Consultation on 12th December 2019)
- National Landscape Strategy for Ireland 2015-2025 (DAHG)
- Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (December 2016)

Regional Level

- Southern Regional Spatial and Economic Strategy (RSES)

County Development Plan and Local Area Plans

- Cork County Development Plan 2014

8.2.4. **Planning History**

(see section 4)

8.2.5. **Reports of Internal Departments**

Reports of internal departments included as an appendix are summarised in Part 5 of the planning authority report which I summarise as follows:

Report of Senior Executive Engineer

- EIA(R) needs to assess legacy roads where proposed as haul routes with proposals to strengthen same or payment of development contribution towards the costs.
- Bearing capacity and condition of approx. 6.1km section of L-7806 proposed as access route/haul route has not been adequately considered.

- Assigned existing traffic demand on L-7806 is higher than observed/estimated during repairs in 2020. Traffic generated on L-7806 during construction period would have an unacceptable impact and would rapidly deteriorate the road with road strengthening and associated drainage required. Costs for same are estimated to be €1,011,950. The applicant should be required to contribute 50% by way of a special development contribution condition.
- Any damage to road surface at access point A to be repaired to satisfaction of Roads Authority;
- Access point B on L7806 requires surface upgrade. Special contribution of 100% of cost of €10,000 recommended.
- Access point to temporary haul route at Breeda bridge to be fully removed and reinstated.
- No objection to proposals regarding site drainage and attenuation measures.
- No objection to the underground cable route with a road opening licence required.
- Conditions proposed in relation to development contributions, bridge/culvert survey, surface water, reinstatement of temporary entrances and community liaison officer.

Traffic & Transportation Department

- Detailed site investigations will need to be carried out to establish the quantity of site won material that will be available during construction. This information is required to adequately establish the accuracy of the HGV movements provided in the EIAR.
- Table 15-7 (Chapter 15 of the EIAR) proposes a worst case scenario whereby a 'portion' of crushed rock will need to be imported onto the site. It is unclear what portion this is or how it has been calculated. Details should be provided of likely quarries etc. where suitable material can be sought.
- Details required to prove worst case scenario of employees travelling in twos by car.

- Details for the construction of lay-bys, bridge construction and other mitigation measures for transport of wind turbines should be prepared in consultation with the Traffic and Transportation Section.
- Full details of the construction traffic generated by the works associated with connection of the proposed development to the grid required, including timelines and cumulative impacts with the overall construction programme. Grid connection works should avoid conflicts with other major activities on site.
- Appointment of traffic management coordinator.
- Council to have an active role in preparation/review of the Traffic Management Plan with detailed timelines for preparation to be submitted prior to approval of permission

Ecologist Report

- Note conclusions of the NIS and the EIAR, and while applicants have submitted enough information to allow the assessment of the possible implications of the proposed development on qualifying habitats and species occurring within the designated sites that are hydrologically linked to the proposal, there are some concerns in relation to ex-situ species, namely otter and salmon.
- A desktop review noted that salmon fry occur within the Tourig River indicating that the river is utilised as a nursery habitat at the least. As such, any works adjacent to, or within, the Tourig River could have the potential to impact these protected species, which are noted to be qualifying species of the hydrologically connected Blackwater River SAC.
- More information is required on the potential implications the proposal will have on the aquatic environment and associated fauna of the Tourig River, particularly the sections of the river associated with the crossing points.
- Direct and indirect effects on water quality through siltation and/or contamination can have negative implications for fish and invertebrates.
- Signs of otter recorded downstream of Breeda Bridge. Reductions in fish biomass will potentially impact otter due to reduced prey availability.

- The proposed mitigation measures look reasonable and, provided no instream works are to take place, it is recommended that details of watercourse crossings, environmental monitoring and surface water monitoring programmes should be assessed and confirmed by a competent person prior to a grant of permission.
- Should instream works be required aquatic monitoring should take place prior to the commencement of such works and mitigation measures designed as appropriate to minimise any potential risks to the aquatic environment.
- Further clarification is required in relation to the presence of the invasive species Giant Hogweed and the measures required to control and remove this highly invasive species.
- It is not clear if peat soils exist on site and within the proposed works area. If it does issues in relation to peat stability would need to be addressed.
- Recorded levels of bat activity at this site are relatively high. Pre-construction bat surveys do not provide an accurate prediction of bat activity post-construction raising concerns that it may lead to variations of routes through the site bringing bats into closer proximity to turbines and, as such, at a greater risk of collision and/or barotrauma.
- A hedgerow in proximity to turbine 16 remains within the 50m buffer zone for bats with concerns that this could result in the increased mortality rates at this location. Consideration should be given to alteration of the turbine location so that there is a sufficient buffer distance between the turbine and any potential commuting/foraging linear habitats utilised by bats.
- Offset of loss of hedgerow habitat through replanting is welcomed. Any such planting should be done in such a way so as to maintain connectivity to the wider landscape including provision of a route that diverts bats away from the turbine locations. This would be preferable to a curtailment program which would not be easily enforced.
- Based on the information provided no potential for significant effects on populations of any key ornithological receptors has been identified. Surveys indicate that the area is not a critical breeding site, roosting site or foraging area

for any particularly sensitive species, and the site is not identified to be on any significant bird migration route. The proposal does not represent a significant threat to protected or qualifying avian species of nearby SPA's

- Should circumstances change as to the usage of the site either as breeding or foraging habitat or a migration route for avian species listed as qualifying interests of the nearby SPAs or listed under Annex I of the birds Directive, and which could result in significant effects on their populations, then a fluid approach should be taken so as to avoid any such impacts e.g. ceasing of specific turbine operation during certain seasons.
- The EIAR does not take into consideration the risk of direct mortality of fauna as a result of collision with vehicles during the construction phase given the number of HGV's traversing the site. Badger, deer and pine marten recorded on site. The risk of collision to these species should be assessed and appropriate measures be designed to reduce any such impact.
- Conditions recommended (1) location of T16 to be altered to provide minimum 50m buffer between the turbine and any adjacent linear habitat likely to be utilised by commuting and/or foraging bats, (2) ecological protection plan, (3) conservation and environmental management plan to be agreed, (4) prior to construction works being carried out between March & August, survey for breeding birds to be carried out by qualified ornithologist covering an area of 500m from proposed works, (5) survey for breeding and resting places of protected terrestrial species.

Environment Department (Air, Noise & Vibration)

- It should be clarified by the developer if background dust monitoring has been or is proposed to be conducted in the vicinity of the proposed development. This could be used to quantify the existing environment and as a baseline for any future monitoring undertaken to support and evaluate the effectiveness of the proposed mitigation measures.
- Having regard to the specific nature of a wind farm noise impact assessment, the Board should seek their own acoustic expertise to peer review the methodologies and modelling followed in the noise impact assessment.

- The wind energy guidelines 2006, states that in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the $L_{A90, 10min}$ be limited to an absolute level within the range of 35-40 dB(A). The applicant has applied the upper 40 dB(A) limit for the applicable assessment. This should be clarified and the rationale explained.
- The respective number and distances of all noise sensitive receptors within 500m, 1000m,1500m and 2000m of the turbines should be presented and quantified.
- As per section 13.6.3.5 the predicted operational noise levels will be within the relevant best practice noise criteria curves for wind farms at all but one noise sensitive location, which is a landowner dwelling. Therefore, no mitigation measures are required. This should be clarified as this does not appear to be indicated and highlighted in Table 13.22.
- Conditions related to noise and air recommended.

Environment Department (water)

- The nearest private well appears to be approx. 130m from Turbine 16 supplying a farm. The farmer is owner of the land where T16 is proposed. All other dwellings appear to be more than 300m from the nearest main construction location, therefore it is assumed that their water supplies are well separated from the main construction activities.
- The applicant has submitted detailed proposals to protect water quality during the construction & operational stages of this proposed development. The CEMP & Surface Water Management Plan will be finalised following the appointment of the contractor for the main construction works.
- No objection to grant of permission on environmental grounds with conditions recommended.

Archaeology

- Satisfied with the report and concur with all the mitigation measures outlined in section 14.4.3.3.

8.2.6. **Comments on EIAR & NIS**

EIAR

- The comments of the above reports noted.
- The Board should take into account the degree to which the applicant has consulted with the local community and facilitated public participation.
- Nearest property appears to be property number 61 and not 53 as stated in EIAR.
- Proposal will not result in a significant loss of agricultural land.
- The proposed emergency response plan and a health and safety plan should be secured by condition.
- The Board should have due regard to the draft Revised Wind Energy Development Guidelines and ensure that every effort is made to reduce, offset or eliminate completely the impacts from shadow flicker.
- The Board should ensure an assessment of the geotechnical information is carried out by a suitably qualified person and that mitigation measures are sufficiently robust particularly with regard to slope instability and landslides,
- It should be clarified if any background dust monitoring has been conducted or is proposed to be conducted in the vicinity of the site. It could be used as a baseline for any future monitoring undertaken to support/evaluate mitigation measures.
- Applicants have not assigned the area a character type based on the draft guidelines but have assessed the proposal relative to the landscape character type assigned to it in the Cork County Draft Landscape Strategy. The most significant impact is deemed to be on the Broad Bay Coast landscape character type, which has a very high sensitivity to wind farm development. While magnitude of the change is deemed to be slight, given the sensitivity of the landscape, this slight change was deemed significant.
- There is concern with the approach taken in considering the visual impacts on the Fissured Fertile Middle ground landscape character type. A more

nuanced assessment is required that considers the more localized visual impacts on the landscape.

- The Board may wish to consider the proposal in light of the six character types set out in the draft guidelines which would allow for a more meaningful assessment of the visual impacts on the landscape. The PA would deem the landscape within which the western cluster of turbines is proposed as “Hilly and Flat Farmland”.
- The spatial extent of the clusters with a somewhat random arrangement of turbines is a concern when viewed from viewpoints 9 and 13.
- Based on topographical conditions, the ZTV could extend beyond the 20 km radius, particularly in the areas to the north and north west, towards Mitchelstown.
- Need to consider impact on scenic route S45 (R634 between Youghal & Tallow) noting that Appendix 12-1 does not describe the viewpoint (7) as a scenic route. There are serious reservations about the visual sensitivity afforded to receptors at this viewpoint.
- VP 9 is taken from S47 with the wind farm reading as two distinct clusters. Particular attention will need to be paid to the spatial extent of the wind farm when viewed from this vantage point with T1 and T6 giving this cluster an elongated form. It lacks a distinct rhythm. This impact requires consideration.
- The spatial extent of the turbines when viewed from VP 13 (S6) to the north west merits consideration due to the elongated irregular form of the eastern cluster and the isolated location of T1 a concern.
- There are concerns that views from several important vantage points have not been considered including from L7806, which runs immediately west of the western cluster of 6 turbines with T16 c.125 metres from this road in an open field. Visual impact along this road requires further consideration.
- A more comprehensive assessment of potential visual impact along the R627 between Midleton and Tallow is required.
- The applicant has only considered the impact on 4 groupings of properties (22 units in total) in the area between the two clusters. The visual impact of

the turbines on residential properties to the west of the western cluster or those to the south of the eastern cluster have not been considered. Objective ED 3-5 of the county development plan requires the consideration of impacts on residential amenity in respect of visual impact.

NIS

- Comments of the Ecologist set out as above (section 8.2.5.). The comments of the IFI should be sought.

8.2.7. **Overall Considered View**

The above reports are endorsed and recommendations repeated. In addition:

Transboundary Aspects

- Given the transboundary aspects of the application contact was initiated by Cork County Council with Waterford City and County Council during the report preparation to discuss key aspects of the proposal which are likely to affect both local authorities especially visual impact, noise impact, traffic and transport impacts and water supply provision.
- The Board should consider the full transboundary impacts.

Principle of Development

- The project will assist in meeting national renewable energy targets and will also result in significant reductions in carbon emissions.
- The site is within an area identified as open to consideration for windfarm development subject to number of considerations.

Landscape and Visual Impact

- ABP may wish to have regard to Planning Register no 15/6587 (ABP Ref PL4.246824) for a wind farm c.13 kms to the west of the subject site, also in the 'Fissured Fertile Middleground' landscape character area.

Water & Hydrology

- Given the proximity to public water abstraction points, due regard will need to be given to any observations received by Irish Water and the requirement for any additional mitigation measures so as to ensure water quality in the area is protected.

Population, Human Health & Material Assets

- Proposed health and safety management plan should be secured by condition.

Shadow Flicker

- Should permission be granted any conditions imposed with regards to shadow flicker should require the applicant to implement mitigation measures to ensure zero shadow flicker is attained and therefore protect residential amenity in accordance with best practice.

Traffic & Transportation

- Condition of the L7806 is a particular concern, especially as this is a dedicated haul route. A special contribution of €505,975 is required for road strengthening, and associated drainage improvement works.
- Access point A – needs to be monitored and any damage locally to road surface to be repaired to satisfaction of roads authority.
- Access point B – special levy of €10,000 for upgrades arising from damage caused by turning movements of abnormal loads is required.
- Details for the construction of lay-bys, bridge construction and other mitigation measures for transport of wind turbines should be prepared in consultation with the Traffic and Transportation Sections.
- Full details of the construction traffic generated by the works associated with connection of the proposed development to the ESB Networks should be provided to the Traffic and Transportation Section.
- Traffic and Transportation Section should have an active role in the preparation/review of the Traffic Management Plan (TMP). A detailed timeline for the preparation of a TMP should be provided to the Cork County Council.

Natura Impact Statement

- The proposed windfarm will not have a significant negative effect on the ecology of the area and does not represent a significant threat to protected or qualifying avian species of nearby Special Protection Areas.
- Risks associated with increased contamination and/or sedimentation of watercourses located within the proposal site has not been fully considered.

To that end, given that there is a hydrological connection between the site and the Blackwater River (Cork/Waterford) SAC and Blackwater Estuary SPA, details of watercourse crossings, environmental monitoring and surface water monitoring programmes should be assessed and confirmed by a competent person.

- Should instream works be required aquatic monitoring should take place prior to the commencement of such works and mitigation measures designed as appropriate to minimise any potential risks to the aquatic environment.
- Comments of Inland Fisheries Ireland should also be sought.

Conclusion

Based on the information submitted and the detailed assessment provided above further information should be sought by the Board to enable a full assessment of the application to determine the acceptability or otherwise of the proposed development.

8.2.8. **Conditions, Community Gain and Contributions**

Conditions

The conditions that are outlined below are, for the most part, based on an assumption that any issues forming the basis of further information requests have already been dealt with. They are recommendations for conditions more as a topic heading, rather than an exhaustive list:

- Location of T16 altered to provide buffer of 50m
- Requirement for an Ecological Protection Plan
- Prior to construction works being carried out between March and August, a survey for breeding birds to be carried out by a suitably qualified ornithologist.
- Survey for breeding sites and resting places of protected terrestrial species, in particular bats, otter, badger, red squirrel and pine marten to be carried out prior to construction works.
- Construction Environmental Management Plan
- Limit on Noise levels
- Noise and Vibration Monitoring Programme

- Designated member of company's staff to interface with planning authority and public regarding complaints or queries in relation to environmental emissions;
- Control of light nuisance from safety/navigation lights on turbines;
- Limits on hours of operation of construction activities to mitigate noise, vibration and traffic congestion.
- Mitigation to ensure zero shadow flicker.
- Dust monitoring, limits and controls during construction phase.
- Surface water and ground water protection.
- Safety and Health Management Plan.
- Advance notice of requirement for road closures and speed limit restrictions. Provision of evidence of appropriate liability and indemnity insurance for works to public roads.
- Details and requirements for reinstatement works to public roads.
- No dust, mud or debris from the site to be carried onto road and road cleaning requirements.
- Adequate sight lines at all entrances.
- Requirement for pre-commencement road surveys.
- Construction management plan and traffic management plan.
- Consultation and agreement with Local Authority regarding turbine haul route.
- Consultation and agreement with Local Authority regarding Grid Connection Works.
- Requirement for a Traffic Management Co-Ordinator.
- Requirement for a Traffic Management Plan. Haul and delivery route should be as per set out and no deviation from this route will be allowed.
- Requirement for a peer review of the geotechnical information.
- Requirement for a peer review of the submitted noise assessment.
- Bond for reinstatement/decommissioning of turbines.

- Bridge/Culvert survey before and after the development to be carried out along the haul route on the L-7806. The survey to be submitted prior to commencement of construction.
- All surface water to be contained within the site and no surface water to flow onto the public road from the site.
- Temporary entrances at the access points to temporary haul road at Breeda Bridge to be fully removed and reinstated on completion.
- All watercourses in or adjacent to the works area shall be monitored on a daily basis by the Environmental Clerk of Works to ensure they are not being impacted by silt/sediment laden storm water run-off from works area. A record of this monitoring shall be maintained on site.
- All over ground tanks containing hydrocarbons shall be contained in a waterproof bunded area, the capacity of the bund is to be as outlined. The bunded area shall be fitted with a locking valve that shall be opened only to discharge storm water. The developer shall ensure that this valve is locked at all times.
- Instream works shall only take place during the period July to September. All instream works shall take place with written agreement of IFI.
- The developer shall appoint a Community Liaison Officer with a dedicated contact number for the duration of the construction phase.

Community Gain

- A condition should be attached clearly detailing the structure, particulars and procedures under which funding and grants are to be administered and implemented.

Contributions

- The total general contributions due are stated to be €881.28 with a special contribution of €515,975 for rehabilitation of roads on approaches.

8.2.9. **Record of Meeting of Cork County Council**

The Chief Executive sought the views of the Members on the proposed application at the meeting of 8th March 2021 where they resolved as follows:

"*That this Council recommends rejection of this application from Curns Energy Ltd and that this recommendation is attached to the Planning Authority's report to An Bord Pleanála together with the Meetings Administrator's record of the meeting*".

- Majority of members expressed the need to reject the application as a Council.
- Concerns about location of turbines and proximity to homes.
- Inadequate public consultation in the area and citizens are not being listened to. Workshops should have been held with the communities
- Lack of proper guidelines regarding wind turbines
- Clarification of location of the townlands of Rearour North and Rearour South
- Concerns raised on how close the proposed development is to the main water supply for Youghal
- Some Members supported the Planning Authority's recommendation as set out in the report and were in favour of wind turbines.

9.0 Prescribed Bodies

Submissions were received from 6 no. prescribed bodies.

9.1. An Taisce

The submission can be summarised as follows:

- The Lower Munster Blackwater has a particular concentration of historic castles, country house demesnes and associated woodlands. These include the Dromana estate on the east bank, and Ballinatray, Strancally and Tourin on the west bank. Inadequate consideration has been given to the impact on these historic houses and associated landscapes.
- The landscape evaluation needs to identify key receptor viewpoint areas, particularly on both sides of the Blackwater Valley and within and around the

historic demesnes and associated woodlands which have an undulating river valley topography. There is potentially greater impact from more elevated locations on the east bank of the Blackwater than lower areas on the west side.

- The adoption of a Zone of Theoretical Visibility is not integrated with an assessment of the potential impact on cultural and historic landscapes in the vicinity, in particular the estates along the river Blackwater.
- It is not clear on what basis the claim is made that the skyline that is shown on the Scenic Landscape Evaluation as 'Visually Vulnerable' within Co. Waterford was found not to be particularly distinctive relative to the surrounding topography.

9.2. Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (now Department of Housing, Local Government and Culture)

The submission can be summarised as follows:

Blackwater River cSAC

- Turbine 12 and the nearby borrow pit are on a slope upstream of the Glenaboy River which is part of the cSAC
- Although the frequency and location of the slope roadway settlement ponds are well designed, the detailed design of the ponds themselves and how they will be maintained is not stated in the NIS. In heavy rain events on unvegetated soils the outflow from a settlement pond can often be breached by silt-laden water, and this needs to be avoided wherever possible.

Blackwater Estuary SPA

- The windfarm is within 2.5km of the SPA. Flocks of golden plover originating from the SPA can use open areas in the surrounding landscape for feeding and roosting, and although they generally avoid large turbines, collision casualties are still reported.
- The detailed field data on the golden plover in the NIS is welcome. For completeness, in-combination collision risk with other wind farms in the range of the Blackwater Estuary SPA golden plover (12km) needs to be calculated.

Forestry Felling

- The forest compensation area should be in the Munster Blackwater catchment. If it has to be in Co. Sligo then it should have as high a broadleaf component as feasible.

Further information recommended.

9.3. Inland Fisheries Ireland

The submission can be summarised as follows:

- The footprint of the proposed development encompasses a number of tributary catchments within the Munster Blackwater system, including that of the Tourig, Bride and Glendine rivers.
- While the EIAR states that there will be no in-stream works associated with the project, any activity which may potentially impact upon the pre-existing hydrology of receiving river catchments should be approached utilising all relevant mitigation in order to minimise potentially negative impacts on the fisheries resource.
- There should be no interference or alterations without prior consultation.
- Pre-cast concrete should be used whenever possible. When cast-in-place concrete is required, all works to be done in the dry and effectively isolated from any water that may enter watercourses.
- Best practices in construction methods to be used.
- Silt traps should be constructed at locations that will intercept run-off to watercourses. Buffer zones to be maintained between silt traps and watercourses with natural vegetation left intact.
- All natural watercourses that have to be crossed during construction should be effectively bridged prior to commencement. The crossing of watercourses at fords is unacceptable because of the amount of uncontrolled sedimentation that would be generated by their use.
- Measures to be put in place to prevent silt run-off concurrent with the road construction itself.

- Any new structure or structural modification must ensure the free passage of migratory fish species. Bridging should not interfere with the natural streambed, stream width or its gradient. Clean span designs to be used.
- Culvert pipes are not generally acceptable in fish bearing waters.
- Increased volumes of surface water runoff from hardcore areas must not impact on the river habitat by giving rise to erosion. Attenuation measures should be designed to avoid damaging discharges during flood events and which effectively mimic run-off from previously undeveloped lands.
- Monitoring of ground stability to be kept under constant review in areas such as those influenced by new hard standing areas or road chainage or drainage networks. Such site development works to be carried out in such a manner as not to result in unstable ground conditions, or subsequently lead to critical instability and the occurrence of landslides.
- Approval system is recommended to assess suitability of borrow pit sourced materials. Where excavated materials are found to be substandard controlled washing at the borrow pit may be required or, if this is impractical, then the importation of materials should be considered. This would avoid the undesirable occurrence of dirty road materials being washed en-situ by precipitation.
- All storage areas to be adequately bunded.
- Employment of effective bio-security measures during construction are an important mitigation against the introduction and spread of invasive species.
- On-going liaison should permission be granted.

9.4. Irish Aviation Authority

Should permission be granted the applicant should be required to agree an aeronautical obstacle warning light scheme, provide as constructed coordinates with ground and tip height elevations, and notify the authority of its intention to commence crane operations at least 30 days prior.

9.5. Uisce Eireann

The submission can be summarised as follows:

- The proposal is located 0.65km upstream of the abstraction on the Glendine River for the Youghal public water supply. The scheme is sensitive to changes in surface water turbidity and requires manual adjustment based on testing of raw water inflows. The scheme is supplied from the Glendine River and the Tourig River. Various tributaries of both rivers run through the development area. Road realignment works are proposed at a crossing of the Tourig River.
- Such a development within 1km of a public water abstraction can present significant risks to the supply.
- The treatment process serving the water supply is sensitive to changes in the raw water from the Glendine River. There is very limited spare capacity in the system to tolerate shutdowns due to a deterioration in river water quality or a reduction in water availability.
- The risk of impact to public water supply source cannot be fully eliminated. The onus is on the applicant to ensure appropriate mitigation and measures are in place to protect water availability and quality throughout the life of the development, as well as the liability for additional efforts required to maintain normal supply or to recover from an incident preventing sufficient abstraction.
- It is critical that any and all surface/ground water source(s) within proximity are protected from any possible pollution arising from the proposed development. It is an objective of the Water Framework Directive to protect drinking water sources and ensure no additional treatment is required.

<u>Recommended conditions:</u>

- No negative impact on any Irish Waters Drinking Water Source(s).
- Monitoring of water quality including continuous turbidity and hydrocarbon monitoring.
- Engagement with Irish Water to agree an appropriate monitoring programme. Turbidity trigger levels and exceedances of these levels shall be reported to

Asset Operations Section. In addition, water quality data should be compared to the Drinking Water Standards and any exceedances reported to Irish Water.

- Notification of commencement of works and notification of any environmental incidents that could impact on the water source. If raw water quality supplying treatment plants are impacted at any time during felling or construction, operations must cease and mitigation measures reassessed.
- Proposed amendment to mitigation measures to be agreed prior to recommencement of operations.
- Connection agreement if seeking connection to water and wastewater infrastructure.
- All works to be carried out in compliance with Irish Water's standards codes and practices.
- Irish Water does not permit build over of its assets. Details of any diversion to be submitted for assessment of feasibility.
- Separation distance as per Irish Water's standards, codes and practices.

9.6. Transport Infrastructure Ireland

The submission can be summarised as follows:

- Any works including reinstatement works to existing junctions on the national road network shall comply with TII standards subject to Road Safety Audit as appropriate.
- Subject to the outcome of the Road Safety Audit it has no objection in principle but works should ensure the ongoing safety for all road users and safeguard the strategic function of the national roads concerned.
- Condition requiring consultation with the relevant road authorities on any works proposed recommended.
- An abnormal load assessment should be undertaken. Condition to this effect recommended.

10.0 **Observations**

679 no. observations were received. One submission was in support with the remainder objecting to the proposal. In view of the commonality of the issues arising the following provides a summary of same. A list of observers is included as Appendix 1 of this report.

10.1. Procedural Matters

10.1.1. Process

- Two separate developments, 3km apart (8km by road) cannot be considered as one application in order to be deemed SID. The proposed grid connection is not sufficient reason to make a single installation. Neither element would comply with SID thresholds.
- Details of power output requires clarification as to compliance with criteria to satisfy threshold for SID. Inadequacy of information on turbine design and drawings means calculation is not possible.
- The applicant, site description, location and townlands have changed since the pre-application consultation.
- The direct application to the Board undermines the democratic planning process.
- Sporting rights at Coolbeggan Woods and vicinity have not been conceded.
- Insufficient legal title of all lands facilitating the grid connection.

10.1.2. Consultation/Timing of Application

- Inadequate consultation
- Environmental, social, governance (ESG) criteria not adhered to given timing of application in a pandemic.

10.1.3. Access to Documentation

- No access to a hard copy of the application during covid undermines public participation under EIA Directive and Aarhus convention.
- A significant proportion of those directly affected have no internet access or capability to allow for adequate participation.

- Requirement to pay €50 to object is disenfranchisement of the poor

10.1.4. Adequacy of Public Notices

- The public notices are deficient in that the nature and extent of the proposal and detail provided is inadequate. The nature, extent and design of the turbines is not provided with no measurements of rotor blades given.
- The reference to availability of documents is incorrect as the documents were not available.

10.1.5. Adequacy of Plans and EIAR

- The plans do not meet articles 18, 19, 22 and 23 of the Planning and Development Regulations, 2001.
- Failure to give specific dimensions of the turbines undermines the EIAR. Without accurately defined turbines it would be impossible to enforce planning conditions.
- There are material deficiencies, omissions and inaccuracies in the EIAR with detail not up to date. Some parts of EIAR are over 5 years old.
- Dwellings are omitted from site layout plans and there are discrepancies in distances to dwellings.
- The amount of forestry felling required is underestimated as turbine specification is not known.
- A minimum set back distance of 700m from residential properties is proposed. The measurement is taken at the centre of a turbine and not the top of the blade.
- Omissions in details on settlement ponds undermine adequate hydrological assessment.
- Local ground conditions not specified in any plans and it is not possible to evaluate extent of excavation undermining assessment.
- Little detail is provided on the battery storage facility.
- Design and detailed plans of borrow pits are required for site specific measurement of bedrock to assess suitability as source of aggregate.
- Where monitoring is mentioned there is no mention of who would be responsible for it.

10.2 Precedent

- Ardglass windfarm which was on a comparable upland plateau to the subject site and further away from the Blackwater Valley was refused permission by the Board on grounds of impact on landscape/scenic routes (ABP ref. 243630).
- A windfarm was refused at Ballymacarbery under ref. ABP 245211. The site was within a preferred area for wind and a vulnerable scenic landscape. There are inherent conflicts between wind energy polices and polices relating to landscape and scenic routes.
- Refusal of blade length increase at Knocknamona wind farm (ref. 20/8454).
- Landfill refused on the site of proposed substation due to concerns of water supply contamination

10.2. Carbon Balance

- The EIAR (section.11.3.1.1.6) overstates by a factor of 2 the quantity of electricity to be produced. The figure of 183,960 MWh assumes all 17 x 3.5MW turbines run at full capacity for 12 hours a day 365 days a year and that 70% of electricity produced reaches the grid.
- Section 1.3.4.3.2 of the EIAR refers to a load factor of 35% in calculating carbon saving. The SEAI Renewable Energy in Ireland 2020 update notes that between 2005 & 2019 wind generation capacity factor is typically 28% and has not exceeded 30.4%.
- Carbon loss is underestimated when the number of HGV's and distances travelled is considered, in addition to sourcing of materials for turbine parts etc.
- Felling of 45 ha of forestry is a significant loss. The carbon losses on a peat site in Sligo are significant and are not comparable to the application site. This is likely to add to the carbon footprint. A mineral soil site is the only alternative for meaningful compensation.
- The Scottish Government tool used to calculate carbon savings is not an accurate reflection.

10.3. Principle of Proposal

- The proposal is not sustainable when measured against the three pillars of sustainable development. namely environmental, social and economic.
- Remote and sparsely populated locations at less intrusive heights are the appropriate locations for windfarms.
- Offshore wind projects could provide enough supply to meet Ireland's electricity needs and are more cost effective. Onshore wind production is not an efficient method of energy production.
- Wind generation is prone to problem of capacitance especially when turbines are barely turning. Battery storage is not a solution for winter blocking high pressure events.
- Wind power at the site is not sufficient. The met mast was only operational for a few weeks and was not able to provide credible data.
- Wind energy provision in Ireland is not community based with no benefit to surrounding communities. Such projects divide communities.

10.4. Planning Policy

10.4.1. National Policy

- It is clear from NPF 2040 (NPO23) that national locational policy and strategy has shifted from onshore to offshore wind energy.
- The Draft Renewable Electricity Policy and Development Framework referenced in section 2.4.2.2 of the EIAR is not available.

10.4.2. Wind Energy Guidelines

- The Wind Energy Guidelines 2006 are out of date. They do not comply with the SEA Directive. JEU ruling 290/15 Patrice D'Oultremont & others vs. Region Wallonne cited.
- No decision should be made until the 2019 draft guidelines are adopted. The proposal is premature pending same.

10.4.3. Local Policy

- The applicant's statement that the lands are not zoned is incorrect. In Waterford the site is zoned agriculture. In Cork the established use is agriculture.
- The wind strategy maps do not have an express statutory land use function.
- Wind energy strategy does not override development plan zoning objectives for agriculture, landscape and scenic amenity protection. Only where wind energy development is compatible with landscape and amenity objectives can it be positively considered.
- Waterford's Wind Strategy dates back to 2006 and was not subject of SEA. The Wind Strategy map is out of date. The scale of the proposal could not have been anticipated in 2006.
- The proposal would materially contravene both Cork County and Waterford City and County Development Plan policies and objectives.

10.5. Alternatives/Alternative locations

- There has been inadequate consideration of alternatives. Consideration of alternatives in the EIAR is essentially a justification of the changes in the project between the pre-app and application stages.
- Offshore alternatives for similar generating capacity have not been considered.

10.6. Biodiversity

10.6.1. General

- The proposal is contrary to the Convention on Biological Diversity.
- No assessment of impact of haul route (91km) in terms of loss of hedgerows and trees and impact on foraging by protected species.

10.6.2. Avifauna

- Ballymacoda SAC was not identified for further assessment which is a fundamental flaw. The site is on a flight path for whooper swans.
- Need to monitor empirical impacts in terms of bird collision and strike. Little or no monitoring is taking place and that being done is inadequate.

- It is not known how to conduct cumulative assessment. The approach has been to accept each of the reports from developers of other windfarms where individually there may not be a significant impact, however, incrementally they may be significant and impact flight paths and migration routes.
- Black tailed godwits and golden plover are present in large numbers with flight routes across the site from Blackwater Callows SPA to Blackwater Estuary SPA.
- Hen harrier roosts present in vicinity but not included in the EIAR.
- Consideration of barn owl was very limited with no evidence of night time torch surveys and no roost surveys undertaken on eastern side. No mitigation is proposed. There are barn owl nests in the vicinity including in the disused barn 50m from T16 and at Temple Valley House 3.3km to nearest turbine. Barn owl nest in hedgerows.
- Impact on peregrine falcons. Species relies heavily on the habitat in the area.
- Displacement from other wind farm sites causes raptor species to move sites. The proposed development results in further loss of habitat.
- The presence of common snipe during breeding seasons is of concern as scientific studies record that the species breeds in lower abundance where wind turbines are located.
- Pair of buzzards regularly seen in locality
- Tagged Sea Eagle seen in area.
- No mention of operational impact of small passerine birds in cleared areas.
- Mitigation by means of monitoring is insufficient.

10.6.3. Terrestrial and Aquatic Species

- The common frog and its habitat is in decline. T12 is located on one of most suitable breeding grounds for frogs.
- There is a significant population of fallow deer on the site. Construction works will drive the deer out of the forestry, increasing risk of road accidents. Deer is very sensitive and stress can lead to death.

- Recorded evidence of badger activity in same location as Turbine 17 and close to junction works at Breeda. Badger sett on the site as not been identified on a map. Direct and indirect impacts on badger population in vicinity of the site not clear.
- Bat monitoring was insufficient with soprano pipistrelle roosting and breeding in several areas within 0.5km but not recorded in the study. There will be loss of habitat and foraging areas for bats including along the haul route and alongside tracks. Impact of lighting not assessed. Mitigation measures for bats are inadequate and monitoring is questioned. No survey work for bats along cable route, where road widening is required or at Breeda Bridge where works are proposed.
- Otters will be displaced from their habitats due to works and changes to character of the site.
- Impact on red squirrel, pygmy shrew and cuckoo not addressed.
- Impact of run off on Blackwater and Bride Rivers and to aquatic habitats including populations of salmon, trout and freshwater pearl mussel.

10.6.4. Habitats

- The botanical assessment is inadequate. No attempt was made to contact BSBI County Recorder for East Cork or Waterford. Flora and habitats scantly described with no description of plants along forestry paths, or stream banks.
- Habitats evaluation fails to identify a wetland habitat with drainage pathways to the headwater stream of the Glendine River.
- The replacement areas for wet woodland on edge of fields are unsuitable.
- Impact of removal of hedgerows for road widening not considered.

10.7. Health Effects

- The applicant has not addressed the impacts on health sufficiently.
- There is a direct relationship between wind turbines noise and adverse health effects.

- WHO Environmental Noise Guidelines for the European Region provide evidence that wind turbine noise is one of the top environmental hazards to both physical and mental health.
- Adverse impacts on individuals with existing medical conditions and adverse impacts on children. Health effects experienced by residents in proximity to windfarms at Barranafaddock and Woodhouse detailed.
- Wind turbine syndrome associated with low frequency noise. It is recommended that no turbine be located within 2km of a house.
- Pollution from construction traffic will cause breathing difficulties.
- Impact/annoyance of aviation safety lights.

10.8. Noise

- Background sound monitoring locations do not follow appropriate guidance (IoA GPG) with several locations remote from residential dwellings and not representative of external amenity. It fails to adequately establish a baseline background noise level at any of the homes that will experience noise pollution.
- The information on prevailing background sound level, predicted turbine noise levels and derived turbine noise limits is not provided graphically which precludes comparison of impact.
- The EIAR assumes that noise limits equate to long term averages of already averaged short term periods and that regression analysis can be applied to monitoring. Regression analysis should not be applied.
- The assessment undertaken is relative to compliance with noise limits rather than assessment of impacts relative to background noise. Differences between background noise and projected levels are, in some cases 20dB(A), which shows a profound adverse noise impact which has not been properly identified.
- A noise limit of 45dB is applied when 2006 guidance recommends 35-40dB(A) in low noise environments. Given the quiet nature of the area 35dB(A) should be applied. If an absolute limit of 35dB(A) is applied then the proposal would exceed noise limits at a number of locations.

- Inappropriate night time criteria allows for higher turbine noise limits than during the day.
- The assessment fails to take account of differences between noise level, rated noise level, L_{A90} and L_{Aeq}. It fails to include AM as a penalty.
- There is uncertainty in assessment regarding sound power levels and could underestimate impact by approx. 0.5dB(A)
- Noise modelling is based on a Nordex N117 turbine model with a hub height of 91m, blade diameter of 116.8m and sound power level of 105dB. Larger turbines with greater rotor diameters have not been assessed.
- Computer modelling cannot produce accurate results of the complex natural environment.
- Infrasound oscillation frequencies, amplitude, direction and distance the waves will travel will be subject to complex variables none of which have been detailed or considered in the EIAR. The audio profile of this or any wind farm cannot be guaranteed. Wave propagation inside a structure can effectively increase the amplitude so eternal measurement can give a misleadingly low reading.
- It is unclear if iNoise software considered effects of wave interference i.e. constructive interference multiplying loudness for multiple turbines and generation of beat frequencies.
- It is unclear if allowance was made for atmospheric factors affecting sound propagation such as refraction caused by atmospheric temperature inversions.
- Larger turbines produce noise with greater low frequency noise (LFN) content.
- Amplitude modulation (AM) is likely to occur far more frequently than the EIAR suggests. It is a common feature on other wind farm sites. High wind shear conditions are common at this site, which increases likelihood of AM arising.
- Low rotational speeds of turbines would result in low sound frequencies and wave interference.
- The reference to best practice and not to address AM by condition is outdated.

- Effect of erosion of blades on emitted noise levels over time is missing.
- A noise assessment for a 3km radius is required as noise catchment extends significantly where amplitude modulation and low frequency noise occurs.
- The issue of sub noise which does not register on the dBA scale not addressed.
- The 2019 draft guidelines are not addressed. The development should be required to adhere to the recommendations therein.
- There is no guarantee the mitigation measures can be implemented. Basing mitigation strategy on LiDAR will not work as it is dependent on weather. There is also a delay between a noise event and noise reduced mode.
- Construction noise assessment is insufficient. Use of rock breaker should be limited.

10.9. Shadow Flicker

- The assessment is not fit for purpose. Assumptions made regarding size of windows not accepted. It does not allow for changes in elevations.
- The 2006 guidelines are followed rather than the draft guidelines which seek to avoid/eliminate shadow flicker.
- The proposed mitigation where homeowners are to log shadow flicker and notify the applicant is unacceptable.
- No assessment of potential traffic hazard and impact on cyclists and drivers.
- No mention of hazards to horses or their handlers.
- A permitted dwelling has not been included in the shadow flicker modelling.
- Proposal to mitigate by turning turbines off will take time.

10.10. Hydrology and Hydrogeology

- The substation is to be located on a wetland habitat containing the spring source for the Glendine River and the Youghal public water supply. The risk to water supply is compounded by the location of the battery storage with risk of fire and chemical contamination. This is contrary to the Water Framework Directive and EC Drinking Water Regs 2007.

- The Youghal water treatment plant is likely to become overwhelmed with suspended soils ingress. Enhanced chemical dosing will be required to expediate separation of suspended soils with potential to unbalance the pH value of the water.
- No assessment of impact on water quality has been carried out on the stream that runs into Tourig River and the Tourig River itself from the new road at Breda bridge.
- Potential impact on Glenaboy river.
- The Board has no delegated powers to characterise water bodies or decide if they are at risk of noncompliance.
- Mitigation measures for management of surface water runoff are generic and are not site specific. No calculations demonstrating the adequacy of the scheme to treat run-off have been provided.
- It is not possible to maintain a 75m buffer from rivers when constructing stream crossings and when tree felling. Many sediment settlement ponds and other sediment control measures are located within the 75m buffer elevating risk of downstream contamination.
- The presence of discharge outlets within forested/formerly forested areas elevates risk of contamination. It is unclear how the drainage proposals and mitigation measures can prevent silt and other pollutants getting into the tributaries of the Glendine River.
- Forestry clearance will impact site water balance with more rapid runoff. There is the risk of the engineered measures designed to prevent suspended sediment entering into watercourses being overwhelmed.
- The approach to monitoring on-site conditions appears inconsistent between the NIS and EIAR. Turbidity meters mentioned in NIS. The detail and locations are not presented in the EIAR.
- The statement regarding bedrock aquifer as locally important but generally unproductive is contradicted by locally available data with a significant proportion of the local population deriving drinking water from wells. There is no guarantee in the EIAR that wells will not dry up.

- Claims that trench/borrow pit excavation won't have a significant impact on groundwater levels cannot be defended.
- There is no mention of egress of ground water into the borrow pits from natural fissures in the rock which was identified in 2000 with potential to lower the water table with impacts on local water supply. Water ponding in the borrow pits could be a potential pathway for leachate into the local water supply.
- Groundwater regime has significant implications for flow and ecology of streams. Impact of the proposal on stream discharges during prolonged dry periods remains unknown and compounded by the absence of stream flow data. Trial pits were completed during a dry period with lower groundwater levels and are unrepresentative of winter conditions.
- Use of rainfall data unclear and it is questioned how the stream flow duration curves and intensity-depth-frequency rainfall data is used to assist in development design.
- There is a significant risk that imported aggregate to the site could potentially alter the geochemical water composition and ecology of the catchment area draining to the Glendine River a tributary of the Blackwater SAC and source of Youghal water supply.
- Ground conditions were deemed unsuitable for a landfill in 2000. There is a greater risk of pollution to ground water supply now than in 2000 with increased development/expansion of dairy herds and increased sudden rainfall events.

10.11. Geology and Soil

- The trial pit data is spatially biased. There is no data for the central third of the site. Only 2 of the 15 pits in the eastern part of the site are in the southern portion even though this is the location of borrow pit 3.
- While the trial pits did not identify significant areas of peat, the spatial bias in sampling data cannot rule out occurrence, with Teagasc subsoil maps for the area showing peat occurring locally.
- Depth and extent of bedrock weathering has not been provided.

- There is risk of failure of borrow pits with inadequate evidence on same to understand rock formation/extent of materials to be sourced.
- Data concerning suitability of the rock as a source of aggregate is limited with the trial pit logs suggesting the top of the rock is weathered indicating lower crushing strength which would be less suitable for road construction. This is consistent with GSI data which notes rock in the area has very low to low crushed aggregate potential and, therefore, little use as aggregate. There are implications for the construction phase if bedrock is unsuitable with the need to import material. Also if borrow pits are unsuitable then disposal plans for soil are invalid with no alternatives provided.
- The majority of the external aggregate sources identified are unsuitable.
- Depth to bedrock varies across the site which may impact on installation of cable in trenches of 1.25m deep with potential to hit hard ground and requirement for rock breaker with consequent noise/amenity issues.
- Data suggests material on site contains a high proportion of fine grained material which can become suspended sediment in water upon erosion.

10.12. Heritage

- The significant and unspoilt character of the Blackwater Valley warrants its designation as a UNESCO site. The proposal would overwhelm the valley, potentially undermining such designation.
- The proposal would have an adverse impact on protected structures in the vicinity and the wider area.
- Four of the turbines are within 10km of 4 different national monuments.
- 13-17 turbines may be visible from the majority of recorded monuments within 5km. Their visual context will be impacted.
- Coillte code of practice for protection of unidentified monuments is not referenced in the EIAR. Assessment of unidentified monuments referred to in EIAR is deficient.
- EIAR does not confirm that there are no above ground archaeological or cultural heritage features noted in the area of the borrow pit to the west of T12.

- Approximately 150m of an access track to an old settlement will be destroyed by construction works associated with T16.
- A rushy field located along the cable route between the two clusters could be regarded as an area of archaeological potential.
- The proposal contravenes the development plans of both counties in terms of protection or archaeology and protected structures.
- The proposal should be refused to ensure monuments are protected in accordance with 1985 Convention for Protection of Architectural heritage of Europe (Granada Convention).
- Adverse impact on falconry. It has been practiced in this area for centuries with falconry recognised by UNESCO as an Intangible Cultural Heritage of Mankind which needs to be safeguarded for future generations. Falconers no longer able to practice in the area due to danger of blades.

10.13. Visual/Landscape Impact

- There are 3 windfarms in the Blackwater River Valley with no ability to absorb more. The cumulative visual impact is far greater than claimed in the EIAR.
- The application is silent on the receiving landscape character types as per the 2006 guidelines.
- The proposal would adversely impact on the visual character and cultural significance of the landscape and would undermine the intrinsic importance of the qualities of the Blackwater Valley. There is a need for a full and comprehensive integrated assessment of the impact on all of the demesne estates in the Blackwater Valley. To sustain the historical and scenic location as a tourist attraction, the landscape needs to be protected.
- If permitted it will set a precedent in similar, special cultural landscapes.
- To visually desensitise an area based on presence of commercial forestry is wrong, it is still an upland skyline.
- With a height of 150m the zone of theoretical influence should extend to 45km rather than 20km.
- The horizontal spatial spread of the proposal is almost 5km presenting unusual difficulties in representing visual impact.

- The viewpoint coverage is inadequate. Very few of the viewpoints represent the immediate or intermediate distances, particularly in the north eastern quarter and from the banks of Blackwater River. Only 3 of the 15 viewpoints are within 2km of the site.
- Impact on views enjoyed from residential homes will be destroyed. The EIAR does not consider the visual amenity of the 93 dwellings within 1.3km.
- With over 100 occupied properties within 1500m of a turbine the applicant should have considered whether a Residential Visual Amenity Assessment (RVAA) would have been appropriate.
- Appendix 12-1, whilst giving a description of photomontages, does not explain how they are constructed nor what turbine has been modelled.
- The guidance which recommends that camera siting be such as to avoid foreground clutter is disregarded in a number of viewpoints.
- The image quality of the photography is generally low and is very dark in some cases providing a misleading impression of the view and landscape. Basic and vital principles in terms of visualisations have been disregarded.
- The substation and battery storage located on an area of high ground will have an adverse visual impact.

10.14. Residential Amenity/Impact on Homes/Devaluation of Property/Impact on Livelihood

- The EIAR conclusion that the proposal will have an imperceptible impact on residential amenity is not credible.
- An ESRI survey in Feb 2021 shows there is a reluctance to live within 5km of wind farm.
- Devaluation of property is inevitable. Numerous studies confirm same with losses ranging between 10 and 55%.
- Adverse impact on amenity/use of gardens/outdoor spaces.
- Current accepted formula for calculation of minimum precautionary safe setback distance is 10 times the tip height of the rotor tip circumference which would be 1.5km and not 700m as proposed.

- Distances between houses and nearest turbines is incorrectly determined. Distances should be determined from the circle of rotor blade and not the centre of the turbine. There are dwellings less than 700 metres from turbines.
- No account has been taken of the impact of topography where a turbine is located at a higher elevation than a dwelling.
- The CEMP is not fixed and is to be agreed with the local authorities precluding residents from the process. Night-time deliveries and road closures would have an adverse impact on residential amenity. Details are required in advance to assess impact.
- No details on compensation for future structural or other changes to properties to address shadow flicker have been provided. This should be conditioned.

10.15. Impact on Farms

- There has been no assessment of impact on farming
- There are reports showing a 30% reduction in milk yield from dairy herds exposed to noise and infrasound with birth defects also a concern.
- Impacts on sheep from noise and shadow flicker.
- The potential displacement of deer and badger increases the possibility of outbreaks of TB.
- Impact on access to farms during construction.

10.16. Equine Industry

- The significance of the equine industry in the local area has been completely disregarded. References given to studs and stables in support of the applicant's case are not comparable to the facilities in the vicinity of the proposal.
- The importance of the economic impact of Irish breeding and racing is known. There is potential risk to the viability of the equestrian industry with the serious threat of flight of capital from Irish studs and stables.
- Impact on foal/fertility from noise and vibration is queried.

- There are many international references to thoroughbreds being adversely affected by wind turbines in their range of vision due to use by horses of 'flight response' to stimuli. Thoroughbreds are bred to accentuate this flight response and are less able to acclimatise to such stimulus.
- The 2014 Joint Statement by the Irish Thoroughbred Breeders Association, Irish Jockey's Association, Irish Racehorse Trainers Association and Association of Irish Racehorse Owners to the Department state that any new wind energy guidelines should consider giving special status to thoroughbred operations.
- The British Horse Society Advice note 2015 does not apply to Scotland and it is questionable if it is applicable to Ireland. It says that every site is considered independently.
- British Horse Association says it cannot be assumed that it is safe to introduce turbines near equestrian routes.
- Many competitors of the Camphire Horse Trials stable horses in the area. This will cease if the wind farm is developed.
- Employers have statutory obligations and cannot reasonably send out employees on horses where there is an identifiable risk (above normal) that a horse might spook with the potential for the rider to fall off. Getting employer liability insurance would be impossible leading to business closure.
- Precedent has been set where there are concerns regarding impact on the equine sector. File ref. ABP-225138 for a biogas and diesel production at Rosegreen Co. Tipperary noted.
- Precedent has been set where there are concerns regarding impact on the equine sector. File ref. ABP-225138 – biogas and diesel production at Rosegreen Co. Tipperary noted.

10.17. Access and Traffic

- There is a need for the haul route to be clearly identified and for a full assessment of its ability to accommodate abnormal loads. Details of levels and obstructions on roundabouts have not been identified to determine feasibility. O'Grianna judgement of relevance. Environmental significance of loss of hedgerows is not identified or assessed in EIAR or NIS.

- The letter from the applicant's solicitor makes no reference to consent from relevant authorities to undertake works on roads or roundabouts.
- No letters of consent from relevant landowners along haul route. Baker J in Daly v Kilronan Wind Farm judgement established that consent of the owner of the road bed must be obtained as a condition to laying of a cable (grid connection) along the edge of the public road.
- Estimate of vehicles using local road L7806 is inflated. It is narrow with a degraded surface.
- Works to the road network arising from abnormal loads are cited as mitigation measures which is incorrect as they are necessary works arising from the application. Experience with other windfarms has been the removal of ditches and road widening with impacts on biodiversity and amenity without any permission or assessment.
- There is no evidence of a road safety audit and road safety impact assessment which are indicated as necessary.
- It is unclear if all the 221 abnormal loads are to be transported at night.
- Impact of community severance and access during construction not assessed.

10.18. Community Benefit Fund

- No information provided on how it is to be implemented.
- It will not compensate for devaluation of property.
- A condition should be attached requiring payment of the stated €360,000 per year.

10.19. Loss of Amenity/Recreation Area

- EIAR statement (s.5.8.3.8) that there are no designated walkways on site is incorrect as all forestry lands are open as public walkways.
- Loss of woodland areas for amenity purposes.
- There is a public right of way through the development site and through the site compound adjacent to T13. A barrier recently installed by Coillte was removed following a solicitor's letter from locals. The EIAR does not address

how it is proposed to mitigate the effect on local people from loss of this right of way

10.20. Tourism

- The report on tourism is out of date.
- The proposal would have an adverse impact on the tourism potential of the area.
- The proposal would have an adverse impact on walking routes in the area including St Declan's Way.
- The proposal would have adverse impacts on scenic routes including R634 between Youghal and Lismore and along L2004 from the N25 to Lismore.
- The adverse impact on the Camphire International Horse Trials would have a knock-on adverse impact as it is a tourist attraction.
- The proposal would impact on Dromore Yard which is the location of the Blackwater Valley Opera festival. It is successful due to the unspoilt nature of surroundings. The proposal will destroy part of the greatest attraction and significantly compromise the visitor offering.

10.21. Sustainability of Development/Decommissioning

- Turbine blades made from fibre glass cannot be recycled and have to go to landfill. Waste arising from decommissioning set out in Table 4.4 makes no reference to the unrecyclable fibre glass.
- Applicants do not hold monies in escrow to make good the concrete bases of turbines at end of life, leaving areas irreparably damaged.
- Final disposal solution for the grid connection, substation and battery storage not identified.
- It is queried who will be responsible for decommissioning.

10.22. Major Accidents

- EIAR assessment of vulnerability to risks of major accidents is inadequate and precludes the Board from conducting an EIA.
- Mechanical and weather-related design and maintenance failures of blades should have been investigated.

- Accident analysis of blade shear and contributory factors should have informed potential risk for the site.
- Limited information is provided in the EIAR about the battery storage facility. The technology is new and unproven with difficulty in assessing risks. The risk of fire/explosion at the facility which is 450m from the nearest residence and within the catchment of a school is not addressed. It requires a high level of cooling and can be unstable.
- No consultation with local fire service in terms of emergency services access.
- Should be required to demonstrate compliance with Machinery Directive. A technical file should be included with the planning application and EIAR.
- Risk of safety in the transport of abnormal loads.

10.23. Miscellaneous Issues

- Impact on school enrolment if people move away/don't move into the area.
- Impact on safety of children using the school bus and waiting along roads during construction phase.
- The application is silent on wind take issues.
- Impact of proposal on internet access for remote working.
- Turbines will affect satellite path depending on exact location and which satellite is in use.
- Impact of the grid connection on the old bridge at crossing from Coughlan's to Walsh's farm. It is extremely close to a dwelling & merging of waterways.
- Potential impact on flight paths to Cork and Waterford airports
- Impact on route for flight training school.

11.0 Further Information and Response

Further information was sought from the applicant on the 08/04/21. A response to same was received **11/10/22** with copies of revised public notices received **04/11/22**. The response is accompanied by a schedule of appendices pertaining to the matters arising with the applicant addressing issues raised in observations throughout. In summary:

FI Point 1 – Details of Proposed Turbines

- A refined turbine range is established (see table at section 3.2.2).
- The meteorological mast will be 112 metres in height.
- Total windfarm output would be between 60 and 85MW.
- The maximum horizontal and vertical extent of the turbine foundation will be 20 m (minimum of 18 m) and 3.8m (minimum of 3.2) respectively.
- The final turbine type can only be selected once it is known when the development is to be brought forward and the available turbine types appropriate for the site are made known by the various manufacturers at that time as part of the competitive tendering process.

FI Point 2 – Biodiversity

- Additional surveys were carried out at the nine existing water crossings proposed for upgrade and four proposed new water crossings associated with the wind farm access roads, the collector cable route, and the turbine delivery route. The Stream Characterization report details the results of the additional surveys and provides the background information that supports the conclusions of the EIAR. It states that the report provides an up-to-date baseline against which any potential effects on the aquatic environment can be monitored and details the results of the additional field surveys including the faunal surveys, characterization of the watercourses and associated biological water quality assessments.
- Multi-disciplinary ecological walkover surveys were undertaken in accordance with National Roads Authority (NRA) Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009) on the 7th and 8th of July 2022. This survey provided baseline data on the ecology of the study area and assessed whether further, more detailed habitat or species-specific ecological surveys were required. This is detailed in Section 1.2 of the FI Ecology Report.
- Giant hogweed was not recorded within the site.
- Design process to size the settlement ponds provided.

- A detailed design of the settlement ponds is provided in Drawing no. P1453-0-0121-A1-D501-00A.
- Acid mine drainage is not anticipated or documented as a risk in the area of the proposal.
- A further review has been undertaken of available information to address the potential in-combination risk on golden plover within a 12km radius of the Blackwater Estuary SPA. Other windfarms within the radius were considered. It is determined that significant cumulative impacts are not predicted.
- A regularly used commuting corridor by whooper swan was not identified during surveys. The species was recorded once during vantage point surveys. There were no observations during dusk hen harrier winter roost surveys. In the absence of evidence of a regularly used whooper swan commuting corridor that crosses the site, the infrequent occurrence of the species and the high rate of turbine avoidance demonstrated by the species, significant collision risk is unlikely.
- Snipe was addressed in the EIAR for which no significant effects were identified. The majority of the development site is located in commercial forestry, a habitat not favoured by the species.
- Following 2 years of survey in strict accordance with SNH 2017 barn owl was not recorded.
- Numerous wetlands birds species (including blacktailed godwit) were not recorded on or near the site, likely due to a lack of suitable waterfowl habitat.
- In the collision risk analysis a precautionary approach was taken whereby the maximum turbine dimensions were assessed. They are the most relevant for ornithological impact assessment. The larger the rotor swept area the greater the risk window for a bird in flight.
- Flight activity information (vantage point survey data) was collected in the height bands of 0-20m, 20-140m and 140-175m. As the turbine range of 17-150 metres overlaps with all height bands all three bands were included in the collision risk analysis. The precautionary approach ensured all scenarios within the turbine range were assessed and meant that the likely collision risk

regardless of the actual turbine selected within the turbine range is as reported.

- It is considered premature to remove the section of hedgerow to the east of T16 based on the potential for its retention to result in bat fatalities. Should the Board consider this approach to be unsatisfactory a condition requiring the removal of the treeline can be attached. Revised sections of EIAR allowing for this scenario provided.

FI Point 3 – Wind Energy Guidelines and Noise

- In line with best practice which includes ESTU and IOA methodologies as described in section 13.4.2.1. of the EIAR, the assessment presented therein is based on current best practice guidance outlined in the 2006 guidelines which are, in an expert opinion, still best practice in terms of assessment of wind turbine noise. It is considered that the draft 2019 guidelines does not outline a best practice approach in terms of the assessment of wind turbine noise.
- If updated guidelines are published during the application process for the proposal it is anticipated that any relevant changes affecting the noise limits will be addressed through an appropriate planning condition, or where a supplementary assessment is necessary, through provision of additional information.
- Additional candidate turbine models have been assessed and submitted as part of the FI.
- There will be no changes to the potential impacts or predicted effects irrespective of which turbine configuration is selected within the turbine range.
- The noise assessment contained in the EIAR considered a hub height of 91m. The range considered in the FI includes hub heights ranging from 83.5m to 93.5m.
- Predicted noise levels for a series of turbine models within a hub height range height of 93.5m were considered. There were no predicted exceedances of the operational noise criteria curves for any of the turbine models considered in the assessment.

FI Point 4 – Wind Energy Guidelines and Shadow Flicker

- The guidelines state that careful site selection, design and planning and good use of relevant software can help avoid the possibility of shadow flicker in the first instance, all of which have been employed at the site.
- The findings of the shadow flicker re-run for the minimum hub height of 83.5m and the maximum of 93.5m are provided. The model results assume worst case conditions.
- Regardless of the make or model of the turbine eventually selected it will have a maximum tip height of up to 150 metres and the potential shadow flicker impact it will give rise to will be no more than that predicted in the assessment.
- With the benefit of mitigation measures as outlined any turbine will be able to comply with the 2006 guidelines thresholds of 30 minutes per day or 30 hours per year, or with the revised guidelines requiring zero shadow flicker if required through the use of turbine control software.

FI Point 5 – Landscape

- Additional photomontages have been prepared which represent viewpoints from the perspective of the local community, the wider landscape along the Blackwater River and the R627 south of Tallow.
- The impact on residential visual amenity is not considered to be significant.
- The development does not interfere with the primary scenic views of the river valleys and cultural heritage sites.
- Views of the turbines from locations outside of 20km radius are unlikely to be substantial and are highly unlikely to result in significant landscape and visual effects.
- A turbine with a max. hub height of 93.5m, min. blade length of 56.5m, 150m tip height has been identified as the most representative for assessment, on the basis that the greatest extent of the entire turbine structure (blades and tower) would potentially be visible from the viewpoints assessed in the EIAR.
- Irrespective of which combination of hub height and blade length is installed the significance of residual landscape and visual effects will not be altered.

For the avoidance of doubt an alternative turbine configuration of the longest blade and lowest hub is presented for three viewpoints.

- It is submitted that the photomontages presented by 3rd parties are not an accurate depiction of the proposed development.

FI Point 6 – Cultural Heritage

- The Blackwater River Valley from Villierstown to Youghal Bridge is topographically lower than the surrounding landscape. Accordingly, the majority of the area including the river and lands to the east and west of same, are located outside the zone of theoretical visibility.
- Assessment of impact on Campshire House and Castle, 17th century house at Headborough and D'Loughtane House, Lisfiny House and Demesne, Kilmore House and Ballynaraha Castle undertaken.

FI Point 8 – Equine Industry

- There is an absence of policy or guidance on what constitutes an equine facility. Three sources were consulted to identify enterprises in the vicinity. There are 3 no. stud farms/equestrian facilities within 10km of the proposal.
- There is no reference to bloodstock activity and wind farms in the 2006 wind energy guidelines or in the 2019 draft guidelines.
- There have been no peer reviewed studies carried out in Ireland on the impacts of wind farms on the equine industry
- There is no published research which specifically relates to the effect of wind turbines on horses or horse activity. Marshall Day Acoustics 2014 Study 'Summary of research on noise effects on Animals' referenced. The study finds that horses exhibit adaptation and habituation after repeated exposure to noise and visual stimuli.
- Precedent set with file refs. PL16.221313 (County Mayo) and ABP 300746-18 (County Kildare) noted.
- In the absence of national policy or guidance regard was had to British Horse Society's 'Advice of Wind Turbines and Horses – Guidance for Planners and Developers'. It recommends a minimum separation distance of 200 metres or

three times blade tip height whichever is greater. This would require a setback distance of 450 metres. A minimum setback of 700 metres is to be maintained to dwellings.

FI Point 8 – Roads and Entrances

- Applicant commits to undertaking a pre-commencement strength and condition survey of L-7806 to be agreed with Cork County Council.
- Before and after surveys to be undertaken on R634, L7806 and L2003 and agreement re. extent of repairs required and financial contributions required.
- As part of the assessment of likely impacts on traffic as a result of the proposal, the trip generation considered a contingency where 20-25% of crushed rock would have to be imported which would account for 2,763 truckloads as estimated in the EIAR.

FI Point 9 – Other Matters

- The estimated volumes of crushed rock required for construction is 146,060m^3. The volume of rock available on site in the 3 no. borrow pits is estimated at 148,000m^3.
- As the development is not of a category that typically gives rise to dust once operational it is held there is no scientific environmental rationale for carrying out background dust monitoring.
- A solar project of similar capacity on the site would require a total area of c.210 hectares of panels. While it is not possible to directly compare the amount of forestry which would need to be permanently felled to facilitate c. 210 ha. of panels, they would cover approx. 28.65% of the total site area.
- Details of permitted windfarms within 20km radius provided.

FI Point 10 – Observations/Submissions

- Responses to issues raised in observations/submissions received including those from the planning authorities and prescribed bodies.

Turbine 5 Relocation

- As Cork County Council granted permission for two dwellings on the R634 since the lodgement of the application it is proposed to relocate T5 165 metres to the east so as to maintain a setback of 700 metres. Table 3.3 sets out the EIAR assessment of the relocation.

12.0 Further Submissions

12.1. Prescribed Bodies

12.1.1. An Taisce

- Procedural concerns in terms of receipt and availability of the further information and compliance with Articles 3 and 5 of the EIA Directive in terms of public participation.
- It is unclear if the assessment provided on country houses relates to the physical location of the actual house or the demesne/grounds in which the house is set including avenue approaches. Houses to the east and west of the river have demesne land integral in forming their setting at a higher contour level.

12.1.2. Transport Infrastructure Ireland refers to its previous comments.

12.1.3. Irish Aviation Authority in its submission details the applicant's obligations prior to the erection of the turbines and details to be provided including coordinates of each turbine, height above ground and elevation above sea level, whether the windfarm will be standalone or will merge with others, rotor diameter and blade length and lighting.

12.2. Planning Authorities

None received.

12.3. Observers

195 no. submissions were received on foot of the further information. Issues raised in the original submissions (summarised in section 10) and which are reiterated are noted. In addition:

12.3.1. Procedural Issues

- Failure to communicate with residents and to advise of their ability to make further submissions on the further information.
- The Board's decision to request further information gives rise to objective bias. The Board did not advise objectors of its request for further information.
- The manner in which the Board has made the planning file available on its website does not accord with the proper principles of public participation e.g. it does not contain any of the public submissions, a copy of the request for further information or the corresponding reply. While it can be accessed on the developer's website this is not sufficient considering the Board's own obligations in terms of public participation under the EIA Directive.
- It has not been demonstrated how the development will be managed between two different administrative locations.
- The revised public notices are in breach of EIA Directive obligations in that they fail to indicate the measurements of the rotor blade which is a critical dimension in the determination of power output and environmental impacts (Balscadden judgement IEHC 586).
- The further information fails to provide certainty as to the precise dimensions of the proposed turbines. The environmental effects are all interrelated and changing the dimensions of the options have consequential impacts which have not been properly assessed or even identified.
- The Board's decision on PL88.308244 whereby a condition was attached which provided for a varied design envelope, whilst postdating Derryadd, is at variance with the judgement and is ultra vires for lack of certainty.

- The response to cumulative impacts of windfarms are inadequately considered both in terms of biodiversity, residential amenity and equine stud farms.

12.3.2. **Principle of Development**

- Wind farms are doing little to mitigate climate change. They make the electricity system all the more reliant on gas imports.
- Wind turbines only function at approx. 30% capacity.
- Lack of overall country wide masterplan for renewable energy.

12.3.3. **Biodiversity**

- The applicant has refused to acknowledge the submissions made regarding the inadequacies of the biodiversity assessment.
- There is research that whooper swan is vulnerable to collision with static pylon lines in certain conditions. It will be just as vulnerable to static wind turbines.
- The failure of the applicant's survey to record whooper swans save only once is an acknowledgement that there is no comprehensive assessment of flight patterns and the underlying risk of collision remains for which there is no mitigation.
- The potential scale of the problem is evident as the only resolution offered by the ecologist is the potential shut down of the entire wind farm for over 6 months. This scenario points to the location being unsustainable given the potential biodiversity impacts.

12.3.4. **Appropriate Assessment**

- In view of the significant number, scale and international importance of the various SACs and SPAs affected by the proposal, the competent authority to undertake appropriate assessment in this instance should be the EPA or the Department of Environment, Climate and Communications.
- On the basis of the total lack of certainty in the information submitted it is not possible for the Board to make a decision to grant permission.

12.3.5. **Noise**

- The further information fails to address the substance of the criticisms and concerns including the inadequacies of its noise monitoring.
- Every dwelling within 2km should be assessed with in-depth study of the topography and location of each house as these factors are of significant importance.
- WHO has recently stated that there is evidence that low frequency noise, tonal impulse and amplitude modulation noise can have an effect on individuals living within a 2km radius of a windfarm.
- Excessive amplitude modulation is a common feature of large turbines. Numerous research papers have been published.
- The ratio of hub to rotor blade length with a 133m diameter would be 0.64 and would breach EPA guidance. It is a significant factor in terms of giving rise to Amplitude Modulation.
- AWN suggest the change in background noise levels is small but this is because they ignore amplitude modulation and tonal noise and use the unacceptable practice of averaging the noise limits which contributes to significant masking of true noise impact.
- The measurements that are made that assert compliance with the guidelines use 'A' weighting which essentially filters out low frequencies.
- It has not put forward any credible solutions on how to deal with LFN other than saying there would be an investigation in the event of an issue. This is not a mitigation proposal.
- The measurement protocol only measures one turbine in isolation rather than the effects of multiple turbines operating in concert that can cause infrasound in the first place.
- The applicant's response does not address the use of regression analysis during wind farm compliance testing. If permission is granted compliance testing should be judged on the short-term averaged noise values only.

- The reliance on the 2006 guidelines for assessment of noise outlines the failure to engage in assessment in line with contemporary best practice and the experience of nuisance cited.

12.3.6. **Shadow Flicker**

- Shadow flicker and turning off of turbines is not an option due to cost of restarting.
- Distraction to motorists along the Tallow - Youghal Road.

12.3.7. **Landscape and Visual**

- Residential visual amenity assessment remains deficient. It ignores the impact of the topography of the site relative to residential dwellings which are generally at a lower level.
- The photomontage locations do not reflect the worst affected properties. The photomontages do not give an accurate assessment of how intrusive the turbines are. The turbines will have an overwhelming negative impact on the landscape setting of nearby residences.
- The larger rotor diameter configuration produces a profound adverse impact on landscape (photomontages in support).
- Lack of visual assessment from local road L7806 in Cork and from local roads that run through the two pockets.
- It is not just the views from heritage landscapes but towards heritage landscapes that are important.
- The elevated nature of the site relative to the surrounding landscape has profound adverse impacts on the character of the landscape form irrespective of low level screening from forestry. This screening will need to be removed to provide adequate wind draught in the vicinity of the turbines.
- The Blackwater Valley is formed by the surrounding ridgelines and landscape form and cannot be seen in isolation merely as a lowland river. It must be assessed within its wider landscape character context. The proposal would result in the most radical and dramatic alteration of the landscape character so that the skyline is no longer the defining principal landscape feature. It

would be dominated by turbines that would stretch east - west forming an arc across the Blackwater Valley.

- There would be dramatic changes to the wider landscape and views (V16 Propoge, V17 Ballydaniel, V19 Ballyanthony, V20 Coolbagh, V21 Coolbagh and V22 Dromore).
- The impact of the ad hoc, random spatial layout accentuates the spatial extent of the visual impact and is at variance with the pastoral order of the rural landscape.
- Light pollution by the aviation lights is not considered. Should be sensor activated.

12.3.8. **Cultural Heritage**

- It is not acceptable to say that monuments are not identifiable because they are overgrown. This is in direct conflict with the Coillte Code of Practice and Waterford City and County Development Plan.
- The applicant has failed to review the majority of heritage structures on the basis that they were located outside a theoretical 5km visibility zone.

12.3.9. **Health Impacts**

- Health impacts not acknowledged.
- 2018 WHO guidelines identify windfarm development as being a major concern in respect of public health finding it comparable to aircraft, rail and road traffic noise.

12.3.10. **Equine Industry**

- Failure to address equine industry concerns.
- No assessment of the impact of shadow flicker on the equine establishments undertaken.

12.3.11. **Water**

- The further information fails to address the inadequacy of information relating to impacts on ground water reserves or on the public water supply for Youghal. There is also a failure to identify final excavation levels for

foundations, or for borrow pits and to identify the impact of the chemical composition and nature of imported fill material on the chemistry of the Glendine and Tourig River, both of which supply water for Youghal.

- The generic design of the settlement ponds is problematic in terms of impacts on the aquatic environment.
- It is a mathematical certainty that the proposed silt traps will fill to capacity quite quickly and will ultimately overflow. Even with regular cleaning there is the issue of disposal of silt with limited options. There will be knock on impacts on water treatment systems including that at Boola which serves the town of Youghal with public health concerns.
- There has not been proper consideration of the Water Framework Directive.
- The US EPA as proven that wind turbines can have a detrimental effect on surface and ground water supplies.

12.3.12. **Soil and Geology**

- The potential for increased excavation and depth of foundations and scale of borrow pits arising from different combination of options is not precisely defined and could have knock-on consequences for the biochemistry impacts of the borrow pits and risk of bird collision.
- The differences in volume of material in the figures given for the foundations equates to an additional 6,451.73m^3 of spoil which equates to 421 dumper loads.
- Greater consideration needs to be given to the nature of the rock in the area.

12.4. Applicant Response

The above observations were circulated to the applicant for further comment. The response states that the issues raised were adequately addressed in the EIAR and further information. In addition the following are noted:

12.4.1. ***Compliance with article 3 and 5 of the EIA Directive***

- The notices advising of submission of further information were published in the same newspapers as the original notices with site notices re-erected

12.4.2. ***Cultural Heritage***

- The further information, in assessing the impact of the proposed development on cultural heritage of the Blackwater Valley, considered both houses and demesnes including grounds and avenue approaches.

12.4.3. ***Birds***

- The habitat present on the subject site is not deemed appropriate for foraging or roosting for black tailed godwit, bar-tailed godwit, brent goose, curlew, dunlin, little egret, redshank, ringed plover, shelduck, shoveler and wigeon.
- Disturbance to foraging golden plover may occur during the construction phase although this is an unlikely impact due to the limited ecological value of the impacted lands. The same may be said for the operational phase of the proposed development as the subject site consists primarily of commercial forestry. Therefore, significant displacement effects are not predicted.

12.4.4. **Tourism**

- The Cork County Development Plan identifies strategic tourism areas, none of which are located within the subject site. Key tourist attractions located in Co. Waterford are not located within the proposed development site.

12.4.5. **Population**

- WEI Public Attitudes Monitor on Wind Energy 2022 note that 80% nationally are in favour of wind power with 85% of rural residents registering favourable attitudes to wind power. 1 in 10 rural residents registered as being opposed to development of wind farms locally.

12.4.6. **Property Value**

- Various studies conducted on the topic have consistently disproven the perception that wind farm development negatively impacts property value.

13.0 **Assessment**

Having regard to the requirements of the Planning and Development Act, 2000, as amended, the assessment of the proposed development is divided into three parts to include the planning assessment (section 14) environmental impact assessment (section 15) and appropriate assessment (section 16). Invariably there is a significant overlap in the assessments, notably between the former two, and to avoid undue repetition the issues arising in both are addressed in the environmental impact assessment (EIA) section.

14.0 **Planning Assessment**

I consider that the issues arising in this section can be assessed generally under the following headings:

1. Procedural and Legal Matters
2. Principle of Development and Policy Context
3. Residential Amenity
4. Landscape and Visual Impact
5. Impact on Equestrian Facilities
6. Community Benefit
7. Health and Safety Concerns

14.1. Procedural and Legal Matters

One Application for Two Clusters

14.1.1. A number of observers are of the view that the proposed development comprises of two distinct and separate clusters of wind turbines straddling two counties and should, more appropriately, be subject of separate applications. It is also suggested that should the proposal be split into two separate applications then each subsection may not meet the threshold at which they would be classified as strategic infrastructure having regard to the provisions of the 7th Schedule of the Planning and Development Act, 2000, as amended.

14.1.2. I submit that there is no legal impediment precluding the applicant from making the application in the manner and configuration as before the Board. The Board in its conclusions on the pre-application consultation process directed that the proposal as presented constitutes strategic infrastructure. This direction stands following the outcome of legal proceedings wherein the case seeking certiorari of the Board's decision was dismissed (2020 No.480 JR).

Public Consultation

14.1.3. A significant number of observers are critical of the timing and manner of public consultation undertaken by the applicant.

14.1.4. Section 2.6 of the EIAR and the Community Report provided in Appendix 2-4 detail the scoping and consultation conducted prior to the lodgement of the application and, in terms of public engagement, details the measures undertaken including door to door house calls to properties within 2 km, newsletters and public events dating back to February 2018. I acknowledge that the period of consultation overlapped with the Covid 19 pandemic where restrictions would have precluded/curtailed in-person engagement. In response, the applicant moved to online, postal and media platforms.

14.1.5. Whilst observers are disappointed that the applicant lodged the application with the Board during the pandemic there was no legal impediment to the making of the application during this time. I would also consider that a delay in the lodgement of the application for a development which is proposed to contribute to the national objectives in terms of addressing climate change would not have been appropriate or expedient in light of the urgency arising. The application was accessible to the public by electronic and hard copy means with adequate times afforded for submissions in accordance with the requirements of Article 6 of the EIA Directive.

14.1.6. I consider that the applicant has taken all reasonable steps to engage with the local community including in the context of the extraordinary circumstances of the pandemic. As legally required the application is accompanied by copies of the relevant notices and the website on which the documentation could be accessed. Following the submission made in response to the further information request, further public notices were issued.

14.1.7. I consider that the engagement has been effective in terms of advising the public of the proposed development and that 3rd parties were not disenfranchised. In my opinion this is evident from the extent of observations received following the lodgement of the application and consequent to the further information submission.

Adequacy of Public Notices and Documentation

14.1.8. A number of observers to the application consider that the public notices are inadequate with failure to reference certain elements of the development including, but not restricted to the blade measurements and the haul route.

14.1.9. I submit that the wording of the notices provides for sufficient detail to alert the public to the nature and extent of the proposed development and, in my opinion, meets the requirements of article 18 of the Planning and Development Regulations, 2001, as amended.

14.1.10. I submit that the documentation accompanying the application, as supplemented by the details submitted as further information including details on the turbine range assessed, foundations, borrow pits and settlement ponds, is adequate to allow for a full and proper assessment of the proposed development. I note that the elevation (mOD) for each turbine is given in Table 4-1 of the EIAR.

European Court Judgement C24-19

14.1.11. A number of observations to the application refer to the decision of the European Court of Justice (C24/19) relating to a wind farm in Belgium. A case was taken by local residents seeking the annulment of a development consent for a wind farm on the basis that the decision was based on national instruments which were not subject to an environmental assessment and thereby infringed Articles 2(a) and 3(2)(a) of the Directive 2001/42. The European Court ruled that the concept of plans and programmes in Article 2(a) covers an order and circular, adopted by the government of a federated entity of a Member State. It also ruled that Article 3(2)(a) of the Directive must be interpreted as meaning that an order and a circular, both of which contain various provisions concerning the installation and operation of wind turbines, including measures on shadow flicker, safety, and noise level standards, constitute plans and programmes that must be subject to an environmental assessment in accordance with that provision. The Court in its ruling stated that where it appears that an environmental assessment within the meaning of Directive

2001/42 should have been carried out prior to the adoption of the order and circular on the basis of which a consent, which is contested before a national court, was granted for the installation and operation of wind turbines with the result that those instruments and that consent do not comply with EU law, that court may maintain the effects of those instruments and that consent only if the national law permits it to do so in the proceedings before it and if the annulment of that consent would be likely to have significant implications for the electricity supply of the whole of the Member State concerned, and only for the period of time strictly necessary to remedy that illegality. It is for the referring court, if necessary, to carry out that assessment in the case in the main proceedings.[1]

14.1.12. The observers to the application contend that the decision is directly applicable in that the Wind Energy Development Guidelines 2006 to which regard and reliance is had in planning decisions constitutes a plan/programme which should be subject to Strategic Environmental Assessment (SEA).

14.1.13. The preparation of guidance is within the remit of Government and the ramifications, if any, for same in terms of the above decision is a matter for Government to address. The matter is not within the remit or scope of the Board in the context of the current application.

Other Matters

14.1.14. I am not aware of any legal impediment to the **applicant** of the proposed development being different from the prospective applicant engaged in the pre-application discussions (file ref.ABP 301740-18). The applicant, Curns Energy, is a joint venture between RWE Renewables Ireland Ltd. (previously Innogy Renewables Ireland Ltd. which was the prospective applicant in the pre-application discussions), a subsidiary of the RWE Energy Group and Highfield Energy Ltd. The substance of the pre-application discussions was about the prospective development as it pertained to the identified site. The site boundary subject of this application is marginally smaller than that as presented in the prospective applicant's last submission to the Board dated 25/03/20 on the pre-application file.

14.1.15. There are a number of concerns expressed in terms of **property ownership** including absence of consent from property owners for works along roads including

[1] CJEU Case C-24/19 / Judgment | European Union Agency for Fundamental Rights (europa.eu)

along the haul route with ownership extending to the middle of the road, a right of way in the vicinity of the proposed site compound adjacent to T13 and legal title along the cable route. I also note reference made to shooting rights at Coolbeggan Woods and vicinity which have not been relinquished.

14.1.16. A grant of permission does not permit the applicant to encroach on 3rd party lands to facilitate any works including road improvement/realignment works. In addition, should permission be granted the development would be required to be carried out strictly in accordance with the plans and details accompanying the application. The applicant should also be advised of Section 37H(6) of the Planning and Development Act, as amended, which states that a person shall not be entitled solely by reason of a permission under section 37G to carry out any development.

14.1.17. Reference is made in a number of observations to **precedent** set by decisions to refuse permission for windfarms in the vicinity. Of note is the refusal of permission under ref. PL04.243630 in July 2014 for 11 turbines at Ardglass Co. Cork which is c.12km to the south-west of the proposed site. Observers consider that the application site has the same landscape character context as that to which the refusal referred. Reference is also made to the refusal of permission under ref. PL93.245211 in February 2016 for 8 turbines for a wind farm at Ballymacarberry Co. Waterford c. 30 km to the north of the subject site. In that instance the Board concluded that there were inherent conflicts between wind energy polices and polices relating to landscape and scenic routes.

14.1.18. Whilst every application is assessed on its merits I submit that both national and local policy context has evolved since the time of these decisions with the imperatives in terms of the climate crisis and need for the significant increase in renewable energy solutions of particular import. I note that the application will be assessed in the context of the respective development plans of Cork and Waterford, both of which were adopted in 2022. On this basis I do not consider that the said decisions establish a precedent which dictates that permission cannot be considered in principle at the subject site.

14.1.19. The potential for **windtake** of adjoining lands has been raised by a number of observers. The proposed development complies with the 2006 wind energy

guidelines in this regard and the turbine layout is designed to ensure the minimum separation distances to site boundaries as required by the guidelines.

14.1.20. Reference is made by a number of observers to compliance with **Machinery Directive** 2006/42/EC. It concerns machinery and certain parts of machinery with mandatory specifications in health and safety combined with voluntary harmonized standards. It applies to machinery as well as interchangeable equipment, safety components, lifting accessories, chains/ropes/webbing, removable mechanical transmission devices, and partly completed machinery. Compliance and enforcement of the provisions is not a planning matter and is outside the remit of the Board.

14.2. Principle of Development and Policy Context

14.2.1. The importance of renewable energy is clearly acknowledged at a national, regional and local level and there is a suite of policy documents that support and promote the transition to a low carbon and climate resilient society. Under the **National Planning Framework**, National Policy Objective 55 seeks to "promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050." In the **White Paper - Ireland's Transition to a Low Carbon Energy Future, 2015-2030**, the significant role and contribution of onshore wind in this transition is recognised and that to achieve the 2020 40% target, the average rate of build of onshore wind generation will need to increase to up to 260MW per year. This is further endorsed in the **Climate Action Plan 2023** which stresses the importance of decarbonising electricity consumed by harnessing the significant renewable energy resources. In order to meet the required level of emissions reduction, by 2030 it is required to increase electricity generated from renewable sources to 80% comprising of up to 9 GW of increased onshore wind capacity.

14.2.2. Whilst a number of observations argue that off shore is the future of wind energy the above quoted figures for onshore wind energy are in parallel to the targets set for the offshore wind contribution and do not present an either/or scenario. It is apparent from the above provisions that onshore wind energy has, and will continue to be the main contributor of renewable energy in the country and a significant increase in on shore wind energy production is endorsed at national level.

14.2.3. The **Southern Regional Spatial and Economic Strategy** (RSES), in setting out the strategy to implement the NPF in the Southern Region, recognises and supports the many opportunities for wind as a major source of renewable energy noting that wind energy technology has an important role in delivering value and clean electricity for Ireland. Due regard is had to objective 99 which seeks 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.

14.2.4. Since the lodgement of the application with the Board the **Waterford City and County** and **Cork County Development Plans** (2022) have been adopted and are now in force, both which endorse the national and regional policies in terms of renewable energy.

14.2.5. A number of observers dispute the applicant's contention that the lands within both administrative areas are not zoned and counter that the lands, by reason of their predominant use, are de facto zoned agriculture and thus the proposal would contravene materially the zoning objectives seeking the protection of agriculture which includes the equine industry. I would not concur with this view and I could not identify a statement in either plan supporting such a supposition. I consider that each application in such areas is required to be assessed on its merits with due regard to the policies and objectives of the said plans.

14.2.6. The cluster in **County Cork** is within an area designated as 'open to consideration' for wind energy. This is the same designation as pertained to the area in the previous development plan. The current plan notes that in 2020 the County had 38 commissioned windfarms with a capacity of 603MW, equivalent to approx. 16% of national capacity with further valid, but unimplemented permissions, within the county accounting for a further 200MW. The plan acknowledges that if Ireland is to meet its renewable energy targets then it needs to double capacity nationally over the next 10 years. On a pro rata basis that could see capacity in Cork expand to 1,100MW. In terms of landscape the site is not within an area designated as being 'high value'.

14.2.7. In terms of the cluster in **County Waterford** the site is within a 'preferred' area for wind energy. The nearest 'exclusion' zone is immediately to the north of the site in the townland of Dunmoon South. I note that this is the same designation as pertained to the area in the previous development plan. From the details provided in Table 6.3 of the current plan the existing windfarms in the county have an output of 62.87 MW with permitted but not yet built developments equating to 34.85 MW. With a pro rata target on a national basis of 211.20MW there is a shortfall of 113.48MW within the county. In terms of landscape character the site is within an area considered to be of low sensitivity with the potential to absorb a wide range of new developments.

14.2.8. I note that Waterford City and County Council in its submission to the Board expressed concern that the technology at the time of the 2016 Development Plan designation was not as advanced with significantly smaller turbines than now proposed. With the evolution of the technology it has serious concerns regarding the ability of the lands to visually accommodate the extent and scale of the turbines proposed with both local and wider views significantly impacted upon. I note that the said comments were made prior to the adoption of the 2022 development plan. I note that the Council, in carrying out the landscape character assessment in its preparation of the 2022 development plan, assigned the area 'low sensitivity' and saw fit to retain it as a 'preferred' area for wind energy. It is reasonable to surmise that the application of this designation would have been done in the knowledge of the current scale and extent of wind energy projects and the attributes of the receiving environment.

14.2.9. Observers to the application contend that the proposed development is contrary to more general policies contained within the development plans and I would accept that whilst both documents are supportive of wind energy this is subject to the proviso that such development does not have an undue adverse impact on residential amenity, landscape character, designated sites and cultural heritage. Whether or not the proposed development adversely impacts on these issues is assessed under various headings below.

14.2.10. On the basis of the above I consider that the proposed development is acceptable in principle at this location. However, as noted, the suitability is predicated on other planning and environmental considerations being satisfied.

14.2.11. A significant number of observers ae of the view that the **2006 Wind Energy Guidelines** are not fit for purpose having been prepared at a time when the technology provided for smaller turbines and are not applicable for the size and extent of turbines now proposed. At the time of writing the 2019 Wind Energy Guidelines remain in draft form with no indication available as to when they are anticipated to would come into force. On this basis the applicant has appropriately assessed the proposed development against the requirements of the 2006 Guidelines which remain in force and are the relevant section 28 guidelines that the Board must have regard to in coming to its decision.

14.3. Residential Amenity

14.3.1. I would concur with the applicant's statement as set out in section 5.7 of the EIAR that residential amenity is influenced by a combination of factors including site setting and local character, land use activities in the area and the relative degree of peace and quiet experienced. Many of the observers express serious concerns as to the potential impact of the proposal on such residential amenities with specific reference made to noise, shadow flicker, health effects and devaluation of property. Visual impacts as they relate to residential amenity are also raised. These matters are considered in detail in the EIA section of this report.

14.3.2. In terms of minimum **separation distances** from dwellings I note that the applicable 2006 guidelines require a setback of 500 metres. The applicant states that the design approach adopted was to increase this to 700 metres with a number of drawings/figures in the EIAR delineating the location of dwellings in the vicinity. This exceeds a setback of 4 times the turbine tip height as proposed in the 2019 draft guidelines.

14.3.3. A number of observers contend that the 700 metre setback is breached and are critical of how the separation distance is measured. In this regard I note that the separation distance is measured from the turbine tower to the respective dwelling and not from the diameter of the rotor blades to a property boundary/line. From my interrogation of the details accompanying the application and provided in the EIAR I conclude that the 700 metre setback is maintained. This materially exceeds the 500 metre requirement of the said 2006 guidelines. During the course of the preparation of the further information response the applicant identified two permissions which

were granted for dwellings at Breeda on regional road R634 within the Cork County Council administrative area. Their location is delineated on Figure 3-1 of the further information response. Whilst the permitted dwellings would exceed the 500 metre setback from the nearest turbines they would fall short of the 700 metre design distance. To address same the applicant proposes to relocate turbine T5 165 metres east of its existing location. With regard to the amenities of residential properties this amendment is acceptable and can be ensured by way of condition should the Board be disposed to a favourable decision. I address the matter of separation distances further in the EIA below.

14.3.4. A number of observers contest that the provisions of the **Construction Environmental Management Plan** (CEMP) and are critical of the fact that its final iteration would be subject to agreement with the planning authorities without 3rd party participation. Particular concerns are raised about abnormal deliveries including night time deliveries and impact on residential amenities. I submit that the draft plan as provided in Appendix 4-4 provides for an acceptable level of detail to allow for a proper assessment of the impacts on residential amenity. It is accepted that a level of disruption both in terms of road closures and increased noise during the construction phase will arise but would be temporary in duration and impact. The CEMP states that deliveries of abnormal loads will take place at night outside of peak traffic hours with Figure 9-1 setting out the anticipated phasing and scheduling of main construction task items.

14.4. Landscape and Visual Impact

14.4.1. The majority of observations to the application raise concerns about the visual impact of the proposal. Waterford City and County Council in its submission expresses concerns as to the impact on the wider landscape with Cork County Council requiring consideration of impacts on the proposal from designated scenic routes. It is clear from the photomontages provided and the landscape assessment that the proposal will alter the visual amenities of the area. The environmental effects of this are addressed in section 15.11 of the EIA below.

14.4.2. As noted above since the application and further information response were submitted the 2022 Cork County and Waterford City and County development plans have been adopted. While the policy references differ from the previous plans

referenced in the applicant's documentation I submit that the context and content of the policy objectives remain largely the same. The area of the site within the administrative boundary of Cork and Waterford, whilst having an innate rural quality, is not of a specific visual quality as to warrant specific designation in either development plan. I submit that the general area is relatively lightly populated dominated by commercial forestry interspersed with agricultural and related enterprises. It presents itself as a moderated, managed working landscape.

14.4.3. As per the Cork County Development Plan the section of the site within its administrative boundary is within the **landscape character area** 'Fissured Middle Ground' and is open to consideration for wind energy development. The area of the site within the administrative area of Waterford City and County Council straddles 'Farmed Lowlands' and 'Foothills'. The development plan classifies the area of the site as low sensitivity and a preferred area for wind farm development.

14.4.4. I note the high level objectives of the development plans to protect the visual and scenic amenities. In Cork, policy objective GI 14-9 is noted whilst within Waterford policy objective L02 is noted. Within that broad context and, as noted above, neither plan identifies the area of the site as being of specific scenic value or sensitivity and both identify the site as open to consideration/preferred for wind energy.

14.4.5. Both development plans seek to protect the views and prospects available from **scenic routes**. In terms of Cork, policy objectives GI13-13 and 14-14 are relevant with policy objective L04 in the Waterford plan noted. The fact that a scenic view has been assigned along certain sections of roads does not place a moratorium on development along and/or viewed from same but that the developer is required to demonstrate that there will be no adverse obstruction or degradation of the views. Of substance is whether a change would adversely affect the quality of the view. I address this in section 15.11 below.

14.4.6. In terms of impacts on **visual amenities from dwellings** certainly the views will be altered and, in some instances, this alteration will be material. This impact must be balanced against the imperative to address the climate change crisis in terms of the need to harness alternative energy resources and the fact that such type

developments are dependent on extensive sites at a remove from built up areas with appropriate wind speeds.

14.4.7. I note that a number of observations state that the difference in ground levels between dwellings and houses exacerbates the impact of the height of the turbine. It is acknowledged that the view of a turbine uphill can have a more overbearing effect than a similarly distant turbine at the same ground level. I refer to the fact that a separation distance in excess of 4 times the turbine height is being maintained from the nearest dwellings in accordance with the 2019 draft guidelines with respect to residential visual amenity considerations.

14.4.8. The impact on the **tourism** potential of the area has been raised by a number of observers. As noted elsewhere the area, whilst having an innate rural quality, is not identified as being of particular landscape and scenic sensitivity and is not a significant destination in terms of tourism. Whilst the concerns expressed that events such as the Blackwater Valley Opera Festival (which uses a number of venues in the wider area including Lismore, Villierstown Church and Dromore Yard) and the Campshire Horse Trials would be adversely affected, the said events are not reliant on, and are held at venues at a remove from the site. They, of themselves, are the visitor offering. I will address the environmental impact of the proposal on the landscape in further detail in section 15.4 of the EIA below.

14.4.9. In terms of impacts on **recreation and amenity** I note that there are no dedicated waymarked routes through or in the immediate vicinity of the site. The windfarm, of itself, will not impact on the use of the area for walking, albeit some tracks will be required to be closed temporarily during the construction phase. As noted elsewhere recreational activities co-exist with windfarm development and in some instances additional recreational activities have been facilitated by the development of tracks and trails.

14.4.10. The St. Declan's Way waymarked long distance walking route connects Ardmore Co Waterford to Cashel in Co. Tipperary over a distance of approx. 96km and is located between c.8-10km to the east of the proposed development at its closet point. As evident from the landscape assessment in the EIAR and supplemented by further information the development may be visible at points on St. Declan's Way however, due to the intervening distance, this is not considered unacceptable.

14.4.11. The 99km looped waymarked Sean Kelly Cycle Route – The Heritage Route travels along the local road network to the east/south-east of the site. Whilst the visual context may change of foot of the proposed development it is not considered material as to adversely affect the offering of the route.

14.5. Impact on Equestrian Facilities and Agricultural Enterprises

14.5.1. The number of equine facilities in the area is disputed by a number of observers with many citing names and locations of facilities in the vicinity of the site. An appendix attached to the submissions by Patrick Massey and Michael and Gianni Alen Buckley (Appendix 2-1) lists 55 equine establishments. The applicant in response to the further information request clarifies that the 3 no. studs farm/equestrian centres referenced in the EIAR are within a 10km radius of the turbine locations, the nearest being The Old Road Stud 1km from T17. The sources for this figure are stated as being The Irish Thoroughbred Marketing, Irish Racing and a digital map search. Mr. Ian Hannon and Mr. James Hannon of The Old Road Stud consider the compilation to be inadequate and state that there are further sources available to the applicant which would provide for a more accurate representation. I acknowledge the details provided by the observers in this regard and the locations of the other facilities cited, and it is somewhat unfortunate that the applicant did not interrogate other sources to provide for a more comprehensive list. Notwithstanding, I note that the nearest facility, namely The Old Road Stud, has been identified by the applicants.

14.5.2. The presence of equine establishments in the vicinity and the wider area of the site in addition to the holding of equestrian events such as the Campshire Horse Trials are noted, and the importance of the equestrian industry to the national economy and its international standing is not disputed.

14.5.3. Several observers have submitted detailed submissions on the impact on the health and wellbeing of horses with health and safety issues arising including from 'fright and flight' which is stated to be heightened in thoroughbreds. The assessment and findings of the EIAR as set out in Section 5.2.7.1 are contested, with the 2014 Marshall Day Acoustics document **'Summary of research of noise effects on animals'** referenced not considered to be directly applicable to the facilities in the vicinity many of which are stud farms. It is also contended that the application of

guidance from the British Horse Society to be misplaced. Articles and papers are cited to support the contentions.

14.5.4. To date there is an absence of peer reviewed studies undertaken in Ireland which relate to the effects of wind turbines on horses with no national policy or guidance to which regard can be had. The current 2006 guidelines make no reference to equine establishments. Observers make reference to submissions made by the main bodies in the horse industry to the review of the wind energy guidelines and the negative impact such type development has/would have. Notwithstanding these submissions the current iteration of the draft document (2019) makes no reference to same.

14.5.5. In this vacuum I submit that reference to guidance from other jurisdictions is a reasonable course of action. The British Horse Society's '**Advice on Wind Turbines and Horses – Guidance for Planners and Developers'** 2015 (copy included in Appendix 5-1 of EIAR) recommends a minimum separation of 200 metres or three times the blade tip height whichever is greater between a turbine and any route used by horses or a business with horses. The guidance notes that the said minimum separation distances may not be appropriate in all situations with factors which may affect the separation distance detailed.

14.5.6. The Hannons note that the boundary of The Old Road Stud is 600 metres from T17 and not 1km as stated (1km to the dwelling on site). This materially exceeds the 450 metre (3 times blade tip height) recommendation. In addition whilst the local road network in the vicinity is used by horse riders, routes are available where a setback from the turbines can be maintained. Save for T16 all turbines are set back over 200 metres from the nearest road.

14.5.7. It is contended that precedent is set by the Board's refusal of permissions on previous cases. That referenced under ref. PL23.225138 pertains to a decision to refuse permission in July 2008 for a biogas and biodiesel production facility at Castleblake, Rosegreen, Cashel, Co. Tipperary on the basis of its adverse impact on equine related activities and the undermining in the confidence therein. I submit that the subject development is not comparable to that currently before the Board. In terms of windfarm development I am not aware of any refusal of permission whereby the Board has referenced adverse impact on the equine industry or agriculture. The

case referenced under PL92.247190 whereby 8 wind turbines were refused permission at Curraghadobbin Hill Co. Tipperary did not refer to the equine industry in the Board's two reasons for refusal.

14.5.8. A number of observations raise concerns as to the impact on the viability of **agriculture** in terms of livelihoods and the potential impact on livestock health. It is also contended that the proposal would contravene the respective County Development Plans' policies and objectives seeking to support and encourage sustainable agriculture. In this regard Cork County Development Plan objective EC:8-15 and Waterford City and County Development Plan objective ECON 12 are noted. I do not consider that the proposed development, of itself, would materially contravene these objectives and I note the existence of windfarms at countrywide level which operate within and adjoining farming operations.

14.5.9. In the absence of any peer reviewed studies which indicate that windfarms have a negative impact on farms and/or agriculture I conclude that the proposal would not have an adverse impact on farms and agriculture in the vicinity of the proposed development.

14.6. Community Benefit

14.6.1. Observers have expressed concern that the proposal offers little if any benefit to the local community and that the proposed community benefit fund is a divisive rather a positive attribute.

14.6.2. The applicant proposes a scheme comparable to that operated at other locations in line with the requirements under the Renewable Energy Support Scheme. These consist of a fixed level of funding, based on the installed capacity of the farm, that is made available each year for community led projects in the area.

14.7. Health and Safety Concerns

14.7.1. Concerns have been raised by a number of observers about the fire and hazard risk associated with the **battery storage facility** in view of its proximity to dwellings and a school. I refer the Board to section 5 of the EIAR and the draft emergency response plan set out in the CEMP provided in Appendix 4-4. I also refer to the further information response, specifically the report by Hydro Environmental Services

in Appendix 2. In same it is noted that there is a potential for mechanical failures and fires in any given energy generation facility/industrial facility but that mechanical/technical failure and fires at substations/battery storage areas are very rare.

14.7.2. Whilst somewhat generic in detail section 5.8.21 of the EIAR states that a site specific Emergency Response Plan (ERP) will be prepared. In addition an Operational Phase Emergency Response Plan is referenced in the Construction Environmental Management Plan with Mitigation Measure MM52 stating that an operational phase Health and Safety Plan will be developed including providing for access by emergency services at all times.

14.7.3. Fire safety and control is covered by a separate legislative code to which the Board has no remit. I consider that for the purposes of informing the Board as to land use and environmental effects, sufficient details has been provided to allow for a proper assessment. I note that Knockanore school is c. 3km from the substation site with the nearest dwelling c.350 metres. I consider that the separation distances and mitigation measures proposed are such that the risk to surrounding properties is not considered significant.

14.8. Replant Lands

14.8.1. A total of 45.6 hectares of forestry is required to be permanently felled within and around the footprint of the proposed development with an additional 5.4 hectares proposed to be temporarily felled. The tree felling activities required as part of the proposal will be the subject of a Felling Licence application to the Forest Service, in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. The policy requires that a copy of the planning permission for the wind farm be submitted with the felling licence applications; therefore, the felling licenses cannot be applied for until such time as planning permission is obtained for the proposal.

14.8.2. Replanting is a requirement of the Forestry Act and is primarily a matter for the statutory licensing processes that are under the control of the Forest Service. The replacement of the felled forestry can occur anywhere in the State subject to licence.

A potential replanting site in County Sligo with an approved area for planting of 49.9 hectares has been identified. The lands have been granted Forest Service Technical Approval for afforestation, and these or similarly approved lands will be used for replanting should the proposed wind farm receive planning permission.

14.8.3. A description of the proposed replanting lands and an assessment of the potential impacts including cumulative impacts associated with afforestation at this location are provided in Appendix 4-3 of the EIAR. Given that the Board is not the consenting authority for either the felling or replanting I will not be addressing this document in my assessment. For the sake of clarity the replant lands will only be considered in this report in the context of cumulative impacts/in-combination effects.

15.0 Environmental Impact Assessment

15.1. Introduction

Statutory Provisions

15.1.1. This section sets out an environmental impact assessment (EIA) of the proposed development.

15.1.2. The 2014 amending **EIA Directive (Directive 2014/52/EU)** is applicable.

Content and Structure of EIAR

15.1.3. The EIAR consists of 4 volumes, grouped as follows:

- Volume 1 – Non Technical Summary and Main Report
- Volume 2 – Photomontage Booklet
- Volume 3a - Appendices 2-1 to 5-4
- Volume 3b – Appendices 7-1 to 15-1

15.1.4. Further information dated 11/10/22 was submitted in response to the Board's request of 08/04/22 and includes a proposal for the relocation of Turbine T5 which is accompanied by an EIAR Impact Assessment for same. The response also provides for additional photomontages supplementing those provided in volume 2. The applicant contends that the said further information including relocation of T5 does not alter the conclusions reached in the EIAR.

15.1.5. The EIAR, as supplemented by the details submitted by way of further information, provides a description of the project comprising information on the site, design, size and other relevant features. It identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the project on the following environmental factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape and it considers the interaction between the factors referred to in points (a) to (d). It provides an adequate description of forecasting methods and evidence used to identify and assess the significant effects on the environment. It also provides a description of measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects. The mitigation measures are presented in each chapter and are summarised in Chapter 17 of the EIAR. Where proposed, monitoring arrangements are also outlined. Any difficulties which were encountered in compiling the required information are set out under the respective environmental topics.

15.1.6. I am satisfied that the information provided in the EIAR and supplementary information provided by the developer as part of the response to the further information request is up to date, adequately identifies and describes the direct and indirect and cumulative effects of the proposed development on the environment, and complies with article 94 of the Planning and Development Regulations 2001, as amended. I note the details of the project team members, their qualifications and experience provided at the start of each chapter in the EIAR with CVs provided in Appendix 8-8. I am satisfied that the EIAR has been prepared by **competent experts** to ensure its completeness and quality,

15.1.7. I am satisfied that the information provided is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. I am also satisfied that the information contained in the EIAR complies with the provisions of Articles 3, 5 and Annex (IV) of EU Directive 2014/52/EU amending Directive 2011/92/EU and Article 94 of the Planning and Development Regulations 2001, as amended.

15.1.8. I have carried out an examination of the information presented by the applicant, including the EIAR, the response to the further information request, and the submissions made during the course of the application. A summary of the results of the submissions made by the prescribed bodies and observers, including submissions received following the request for Further Information have been set out in sections 8, 9, 10 and 12 of this report. The relevant issues arising are addressed below under the relevant headings and, as appropriate, in the reasoned conclusion and recommendation.

Consultations

15.1.9. Details of the consultations entered into by the applicant as part of the preparation of the application and EIAR are set out in chapter 2. I refer the Board to section 14.1 of my assessment above. I consider that the applicant has taken all reasonable steps to engage with the local community including in the context of the extraordinary circumstances of the Covid 19 pandemic. As legally required the application is accompanied by copies of the relevant notices and the website on which the documentation could be accessed. Following the submission made in response to the further information request further public notices were issued. I consider that the engagement has been effective in terms of advising the public of the proposed development and that 3rd parties were not disenfranchised.

Vulnerability to Risk of Major Accidents and/or Disaster

15.1.10. The requirements of **Article 3(2) of the Directive** include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned. This aspect is addressed under each environmental topic of the EIAR. In summary there is limited potential for significant natural disasters to occur at the proposed wind farm site. Potential natural disasters that may occur are flooding and fire. The risk of significant fire affecting the wind farm and causing the wind farm to have significant environmental effects is limited. I refer the Board to section 14.7 of my assessment above with respect to the substation and battery storage. The report by Hydro Environmental Services in Appendix 2 of the further information response notes that there is a potential for mechanical failures and fires in any given energy generation facility/industrial facility but that mechanical/technical failure and fires at

substations/battery storage areas are very rare. I refer the Board to the draft emergency response plan set out in section 5 the CEMP provided in Appendix 4-4.

15.1.11. In terms of potential flooding, all proposed turbine locations, substation, construction compounds, mast, and access roads are outside the fluvial indicative 100 year flood zone. I also note that the potential for peat slide is negligible.

15.1.12. Modern turbine design incorporates mechanisms that come into play under extreme weather conditions including automatic shut down in periods of excessively high wind-speeds. I am satisfied the wind turbines themselves pose no threat to the health and safety of the general public. The wind farm site is not regulated or connected to or close to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e. SEVESO and so there is no potential effects from this source.

15.1.13. It is considered that having regard to the nature and scale of the development there are unlikely to be any effects deriving from major accidents and or disasters and I am satisfied that this issue has been addressed satisfactorily in the EIAR.

Cumulative Impacts

15.1.14. I address cumulative impacts under each environmental heading below. At this juncture I would note that the projects considered in the EIAR for the purposes of cumulative assessment are outlined in **sections 2.5 and 2.7.2** and include existing, permitted and proposed windfarms within a 20km radius of the site, details of which are set out in Tables 2-1 and 2-2. This is supplemented by the details given in the further information request (Item 9b response). In summary they are Barranafaddock windfarm which comprises of 12 wind turbines 18.5 km from the site, Woodhouse (Parts 1 and 2) comprising of 8 wind turbines c.15 km from the site and a permitted windfarm at Knocknamona comprising of 8 turbines c. 17 km from the site. Plans for the area including the county development plans and RESS are also taken into consideration. I consider that the applicant has provided a comprehensive list of projects for consideration in respect of cumulative impacts.

15.2. Reasonable Alternatives

15.2.1. **Article 5 (1) (d) of the 2014 EIA Directive** requires:

"(d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;"

15.2.2. **Annex (IV) (Information for the EIAR)** provides more detail on 'reasonable alternatives':

"2. 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 electing the chosen option, including a comparison of the environmental effects."

15.2.3. The matter of alternatives is addressed in **Chapter 3** of the EIAR. The range of alternatives considered span from 'do nothing', alternative locations, technologies, turbine numbers and models and alternative configurations with details of 11 no. layout iterations considered provided. Alternative arrangements for the internal road layout and location/arrangement of construction compounds, borrow pits and the electricity substation were also considered. Alternatives were also considered for the grid connection, transport routes and site access, in addition to alternative mitigation measures.

15.2.4. In terms of **alternative technologies** for the site section 3.4 addresses solar energy with additional detail provided by way of further information in which it is clarified that to provide an equivalent capacity as the proposed windfarm in the region of 210 hectares of solar panels would be required. This would equate to approx. 28.65% of the total site area. The footprint of the wind farm is approx. 23.3 ha (c. 3% of the site area).

15.2.5. Many observers consider the absence of consideration of **off shore windfarms** as an alternative to the proposed development to be a material deficiency. I submit that off shore wind is not a feasible alternative at this location given it is an on shore site. Notwithstanding the absence of reference to such technology I refer the Board to my

assessment in sections 14.2.1 and 14.2.2 above in terms of the imperative national objectives to address climate change and that in order to meet the necessary level of emissions reduction by 2030 it is required to increase electricity generated from renewable sources to 80% comprising of up to 9 GW of increased onshore wind capacity. This figure is in parallel to the targets set for offshore wind contribution and the targets do not present an either/or scenario. Furthermore, the off shore proposals likely to materialise in the short to medium term will not have the required capacity to render on shore wind no longer necessary.

15.2.6. I consider that the process of site selection, consideration of alternative layouts and configurations and grid connection followed a comprehensive process. It indicates how the proposed development evolved and how it was adjusted to take into consideration environmental effects. On balance, therefore, I consider that the requirements in terms of reasonable alternatives have been satisfactorily discharged and the requirements of the EIA Directive in this regard have been met.

15.3. Likely Significant Direct and Indirect Effects

15.3.1. This section of the EIA identifies, describes and assesses the potential direct, indirect and cumulative effects of the project under each of the environmental factors referred to in Article 3 (1) of the Directive. I will address the environmental factors in the following chronology in line with that set out in the Directive :

- Population and Human Health (to include assessment of noise and shadow flicker)
- Biodiversity
- Land and Soil
- Water
- Air and Climate
- Material Assets
- Cultural Heritage
- Landscape
- Interrelationship of the above

15.4.

15.5. Population and Human Health

Environmental Impact Assessment Report

15.5.1. I consider that this environmental topic appropriately encompasses the subject issues as raised in the EIAR chapter titled 'Population and Human Health' in addition to shadow flicker and noise.

15.5.2. **Chapter 5** addresses **population and human health** under the sub headings population, tourism, health impacts, property values and residential amenity. **Chapter 6** addresses **shadow flicker** and **Chapter 13** addresses **noise and vibration**

15.5.3. The relevant supporting appendices are

Appendix 5-2 – Wind Farms and Health Literature Review

Appendix 5-3 – Electromagnetic Interference Booklet

Appendix 5-4 – Climate Exchange Houses Prices Study 2016

Appendix 13-2 – Noise Modelling Parameters

Appendix 13-3 – Calibration Certificates

Appendix 13-4 – Data Processing Graphs

Appendix 13-5 – Noise Contour

15.5.4. Supplementary detail on the above matters was provided by way of further information.

15.5.5. Other matters which would have a direct bearing on population and human health such as water, air and climate, landscape and material assets will be addressed under the corresponding headings below. Invariably there is an overlap and I recommend that they be read in tandem.

Receiving Environment

Population

15.5.6. The site is located in a rural area traversing a number of townlands and straddles the county boundary between Co. Waterford and Co. Cork. The nearest urban areas

are Tallow c. 5km to the north and Youghal c.9 km to the south-east with the settlement of Inch c. 3.8km to the south. The District Electoral Divisions comprising the study area (as per the 2016 census) have a population of 3,445 persons. Population trends for the period 2011-2016 indicate that the area experienced an overall population growth of 2% although this is below the national increase of 3.8%. The rate of population increase is uneven across the DEDs with some having experienced material population increases and others a population decline. The population density of 19.45 persons per hectare is materially lower than the national average of 68.06 persons per hectare. Table 5-5 sets out the economic status of the population which is similar to that recorded at county and national levels.

Land Use

15.5.7. The lands to be developed comprise of coniferous forestry and agriculture, the mix reflective of the land uses in the wider area. As clarified by way of further information Table 5-7 details the stud farms/equestrian facilities within 10 km of the turbine locations, with the nearest being The Old Road Stud.

Tourism

15.5.8. There are no key identified tourist attractions within or close to the site. There are many tourism, recreational amenities and walking routes in the wider area.

Noise Environment

15.5.9. In terms of methodology it is stated that 'The Assessment and rating of Noise from Wind Farms' (1996) published by the Department of Trade and Industry (UK) Energy Technology Support Units (ETSU) and Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and rating of Wind Turbine Noise', (May 2013)(IOA GPG) have been used to supplement the guidance contained in the Wind Energy Development Guidelines publication as necessary

15.5.10. The prevailing noise environment is typical of such a rural area with background levels mostly determined by distance from the surrounding road network. In determining the baseline noise environment a difficulty was encountered in the siting of noise measurement equipment in line with IOA GPG due to access issues. Proxy locations using professional judgement were used. While none of the measurement locations were within 20 metres of dwellings as per IOA GPG, the locations were

deemed representative of typical low levels likely to be experienced in the vicinity of a dwelling(s) (see Figure 13-2).

15.5.11. The calculations provided in the EIAR are based on a turbine hub height of 91 metres. By way of further information the range of turbine configurations being considered were provided with hub heights of between 83.5 and 93.5 metres. As the background noise criteria is a function of hub height and would be lower for the highest hub height the regression analysis of the background noise data was rerun for a hub height of 93.5 metres. The derived daytime and nighttime background noise levels for this hub height are set out in Table 2 of Appendix 4 accompanying the further information. The data presented indicates that background day time noise levels range from 21.9 dB $L_{A90,10\ min}$ at low wind speeds to 45.1 dB $L_{A90,\ 10\ min}$ at higher wind speeds. Night-time levels ranged from 16.6 to 44.2 dB $L_{A90,10min}$. The derived background noise levels for a turbine height of 93.5m are presented for all scenarios in the review on the basis that they are the lowest and therefore present a conservative approach.

Do Nothing

In a do nothing scenario the site would continue to function as it does at present, with no changes made to the current land use, commercial forestry and agriculture and no changes to the noise environment.

Likely Significant Effects

Employment and Investment

Construction Phase

15.5.12. Up to 100 additional jobs will be created during the construction period, the duration of which is expected to be 18-24 months. It is anticipated that the majority of workers will be from the local area. There will be positive, knock-on secondary effects to the local economy in terms of provision of services and supply chains.

Operational Phase

15.5.13. The development will create approx. 2 jobs during the operational phase in maintenance and control of the wind farm.

15.5.14. During the operational phase benefits to the local community will arise from the proposed community benefit scheme which will provide additional investment into community projects that will benefit local residents and businesses.

Decommissioning

15.5.15. The impacts arising will be similar to that which occurs during the construction phase, save to a lesser extent. The substation will remain in place.

Property Values

15.5.16. Although there have been no empirical studies carried out in Ireland on the impacts of wind farms on property prices, it is considered a reasonable assumption based on the available literature and evidence, that the wind farm would not impact on property prices. Section 5.6 refers to and summarises the findings of a number of studies both from USA and Great Britain.

Shadow Flicker

15.5.17. Shadow Flicker is only applicable during the operational phase.

15.5.18. Specialist computer software package Windfarm Version 4.1.2.3 has been used. The modelled turbine has a rotor diameter of 133 metres, total height of 150 metres and hub height of 83.5 metres. The shadow flicker calculations are carried out based on 4 no. notional windows facing north, south, east and west each measuring one metre by one metre with zero tilt. The centre of each window is assumed to be 2 metres above ground. No screening either by buildings or vegetation is accounted for.

15.5.19. The predictions are considered a worst case scenario in that it is assumed the sun is shining during all daylight hours, the turbine is operating at all times and that it presents its maximum aspect to the observers in all directions. It is also assumed that all receptors would have windows facing in all directions onto the wind farm.

15.5.20. Weather data presented shows that on average the sun shines approx. 31% daylight hours per year.

15.5.21. A total of 93 no. dwellings were modelled as part of the assessment. These include dwellings within 10 rotor diameters from the turbines in addition to houses outside this study area but situated between the two clusters. The figures are shown in Figure 6-3. Table 6-1 sets out the maximum potential daily and annual shadow

flicker at the 93 no. dwellings assessed. 50 no. may experience daily shadow flicker in excess of the thresholds set out in the 2006 guidelines with 44 properties experiencing annual shadow flicker in excess of the thresholds. The application of the 31% for annual sunshine sees the latter figure reduced to 4 properties.

15.5.22. As part of the further information response and the refinement of the turbine range being considered the model was rerun for a range of turbines within the 150 metre envelope

	Overall Height (m)	Hub Height (m)	Blade Length (m)	Rotor Diameter (m)
Turbine Option 1	150	83.5	66.5	133
Turbine Option 2	150	93.5	56.5	113

15.5.23. The two options are modelled for 2 scenarios; the 1st where T5 maintains its original location; the 2nd where the T5 is relocated 165 metres to the east so as to maintain a 700 metre setback to two sites on the R634 on which planning permission has been granted for dwellings. The details as provided require some interrogation and are spread across two separate appendices attached to the further information. Appendix 8 presents the model rerun for the 2 no. turbine configurations with T5 in its original location. Appendix 10 presents the model rerun for the 2 no. turbine configurations with the T5 relocated.

15.5.24. In Scenario 1 - Turbine Option 1 60 no. dwellings experience daily shadow exceedances with 7 no. dwellings experiencing annual shadow flicker exceedances. For Scenario 1 - Turbine Option 2 the respective figures are 36 no. (daily) and 1 no. (annual) exceedances. For Scenario 2 – Turbine Option 1 60 no. dwellings experience daily shadow exceedances with 8 no. dwellings experiencing annual shadow flicker exceedances. For Scenario 2 – Turbine Option 2 the respective figures are 38 no. (daily) and 0 no. (annual) exceedance.

Noise

Construction Phase

15.5.25. The main noise sources during construction include heavy machinery and support equipment used to construct the various elements of the wind farm and associated infrastructure including the potential for blasting and rock breaking in the borrow pits.

15.5.26. The EIAR in section 13.6.2 considers each element of the construction phase including construction traffic and noise from the borrow pits in two scenarios (a) blasting and (b) rock breaking. It is accepted that individual blast events would be audible at some locations.

15.5.27. There is no statutory Irish guidance relating to the maximum permissible noise levels that can be generated by the construction phase. Best practice guidelines are taken from BS5228-1:2009 A1:2014 'Code of practice for noise and vibration control on construction and open sites – Noise. The approach adopted requires each noise sensitive location to be assigned a specific category – A, B or C based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates a potential significant noise impact is associated with the construction activities. Given the rural nature of the site all noise sensitive locations (NSLs) have been afforded Category A designation with a threshold of 65 dB L_{AeqT} .

15.5.28. Table 13:12 sets out the typical construction noise emission levels for various activities. The cumulative construction noise as predicted at a distance of 700 metres is 44 dB L_{AeqT}.

15.5.29. It is predicted that construction works would have potential to exceed the Category A designation threshold while within close proximity of a number of NSLs. These properties are in proximity to the proposed construction of internal roads, existing road upgrade works and cabling works. As the works progress the worst case predicted impacts will reduce. It is anticipated that the works would be no more than 2/3days at the closest position to the said properties.

Operational Stage

15.5.30. The proposed operational limits for the development are:

- 40 dB $L_{A90, 10min}$ for quiet daytime environments of less than 30 dB $L_{A90, 10min}$
- 45 dB $L_{A90, 10min}$ for daytime environments greater than 30 dB $L_{A90, 10min}$ or a maximum increase of 5dB above background noise (whichever is higher),

- 45 dB $L_{A90,\ 10\ min}$ for landowner daytime environments of a maximum increase of 5dB above background noise (whichever is higher), and;
- 43 dB $L_{A90,\ 10\ min}$ or a maximum of 5dB above background noise (whichever is higher) for night time periods.

15.5.31. The amended details provided in the further information submission (Appendix C attached to Appendix 4) sets out the predicted noise levels at 80 NSLs at wind speeds ranging from 4m/s to 10 m/s for a number of turbine models with hub heights of 83.5 metres and 93.5 metres corresponding with the minimum and maximum hub heights being considered. The turbine models have varying rated outputs (see Table 1 of Appendix 4 for the list of turbine models). It is assumed that all the NSLs are downwind of the turbines which presents the worst case scenario. At all locations and all wind speeds the predicted noise emissions for all the turbine models do not exceed the above limits. To aid in simplification of assessment the background noise levels for an assessment hub height of 93.5 metre are presented for all scenarios. As noted above the derived background noise levels will be lowest for the highest hub height of 93.5 metres. I accept that it presents a conservative assessment. As the change in background noise levels from that originally calculated is small the turbine noise criteria remains as stated in Table 13-21 and Section 13.6.3.1 of the EIAR.

15.5.32. The substation will operate on a 24 hour basis. The predicted noise levels at the nearest receptors are set out in Table 13-24 ranging between 22- 29dB L_{AeqT}. The contribution of noise emissions associated with the operation of the battery storage compound will not give rise to an increase in the total noise emissions associated for the proposed substation.

Decommissioning Phase

15.5.33. The noise impacts would be similar to the construction phase but of reduced magnitude as there would be less heavy earth moving machinery and excavation works. Traffic levels would also be lower.

Health

15.5.34. The impacts of the development on human health are discussed in the context of health impact studies, turbine safety, electromagnetic interference and vulnerability

of the project to natural disasters/major accidents. Chapter 13 which deals with noise also provides for comments on human health impact (section 13.4.2.3).

15.5.35. It is stated that while there are anecdotal reports on negative health effects on persons living and working in close proximity, peer reviewed research has generally not supported these statements. The main publications supporting the view that there is no evidence of any direct link between wind turbines and health are summarised in section 5.5.1 and include journal articles, literature reviews and reports by the HSE and WHO.

15.5.36. The low frequency (ELF) electric and magnetic fields (EMF) associated with the operation of the proposed underground electric cable comply with international guidelines for ELF-EMF set by the International Commission on Non-Ionising Radiation Protection (ICNIRP)

15.5.37. Potential impacts on human health associated with the impact on public and private water supplies is addressed in detail in section 15.7 below.

15.5.38. Turbines pose no threat to the health and safety of the general public. The potential for natural disasters is limited to flooding and fire risk. There is no flood risk with the risk of fire occurring affecting the wind farm and causing it to have significant environmental effects is limited. The site is not connected to or near any SEVESO sites and there is no potential effect from this source.

Mitigation

Health and Safety

Construction Period

15.5.39. Standard health and safety measures and best practice measures are proposed to protect both workers on the site and amenities of the local population including in terms of construction noise and dust. A traffic management plan will be put in place in order to minimise the effects of the additional traffic.

Operational Period

15.5.40. A Health and Safety Plan will be developed to address identified health and safety issues associated with the operation of the site.

Employment and Investment

15.5.41. A Community Benefit Scheme is proposed which will have a positive impact in terms of investment into community projects.

Shadow Flicker

15.5.42. Shadow flicker would only arise during the operational phase. No mitigation measures are required during the *construction phase*.

15.5.43. During the *operational phase* should exceedances be experienced a site visit will be undertaken to determine the level of occurrence, existing screening and window orientation.

15.5.44. Where exceedances occur turbine shut down/curtailment procedures shall be initiated. The Supervisory Control and Data Acquisition (SCADA) turbine control system will be programmed to cease operation where shadow flicker exceeds the relevant thresholds. This action would be taken when the particular weather conditions relating to a potential shadow flicker exceedance limits event occurs etc. particular wind speed, direction and direct sunlight present.

15.5.45. Further measures with the agreement of the houseowner including planting of screening vegetation and installation of appropriate blinds in affected rooms are proposed.

15.5.46. Within 12 months of the commissioning of the wind farm field investigation/ monitoring will be carried out at potentially affected properties to assess the effectiveness of the mitigation measures.

15.5.47. Notwithstanding the above should shadow flicker be perceived to cause a nuisance the property owner will be invited to engage with the developer and to keep a log of incidences, date, time and duration on at least 5 different days. This will be assessed against the predicted effects and, if necessary, a field investigation will be carried out.

15.5.48. A report on the effect of the shadow flicker mitigation measures will be compiled and submitted to the local authority.

15.5.49. As shadow flicker is possible only during operation of the turbines no impact would arise during the *decommissioning phase*.

Noise

Construction Phase

15.5.50. Best practice measures for the reduction of construction noise at source are outlined in BS5228: Part 1:2009 which will be incorporated in the CEMP. Best practice measures where blasting is proposed at the borrow pits are detailed, including trial blasting to obtain scaled distance analysis, accurate setting out and drilling, blast monitoring etc.

Operational Phase

15.5.51. Predicted noise levels associated with the proposed development would be within the best practice noise criteria recommended in the Wind Energy Development Guidelines for Planning Authorities (2006). No mitigation measures are required.

15.5.52. One post commissioning noise monitoring survey to ensure compliance with noise conditions is recommended. Should exceedance of the noise criteria arise, the assessment guidance outlined in the noise conditions, ESTU-R-97, IoA GPG and Supplementary Guidance Note 5: Post Completion Measurements (July 2014) will be followed and relevant corrective actions taken e.g. curtailment of specific turbines in specific wind conditions. Such curtailment can be applied using the wind farm LiDAR system and is a standard technology.

15.5.53. In the unlikely event that an issue with low frequency noise is associated with the development an appropriate detailed investigation should be undertaken.

Decommissioning Phase

15.5.54. Mitigation measures would be similar to the construction phase but of reduced magnitude as there would be less heavy earth moving machinery and excavation works. Traffic levels would also be lower.

Residual Impact

15.5.55. No significant residual impacts are predicted for any phase of the development.

Cumulative Effects

15.5.56. No significant cumulative effects on population and human health as a result of the proposed development in combination with any other existing or permitted development have been identified. There are no existing, permitted or proposed wind farms within 10km of the site.

EIAR Conclusion

15.5.57. The overall conclusion reached is that subject to mitigation the proposed development will not result in any significant direct, indirect or cumulative effects on population and human health.

Assessment

15.5.58. As noted at the outset I consider that this environmental topic appropriately encompasses the subject issues as raised in the EIAR chapter titled 'Population and Human Health' in addition to shadow flicker and noise.

Property Valuation

15.5.59. The applicant in the EIAR refers to the largest study of wind farms on property values which was carried out in the United States (updated 2013) in addition to two further studies undertaken in England (2014) and Scotland (2016). All conclude that there is no evidence of consistent negative effect on house prices. Observers consider that the studies chosen are selective and are countered by reference to other studies/reports including those from London School of Economics in 2014 and The Appraisal Journal in 2012 which state that property values in proximity to wind farms are adversely affected.

15.5.60. The quantum of seemingly divergent conclusions is noted. I consider that this, of itself, demonstrates that there is no definitive evidence to support the view that the wind farm would adversely impact on property values. As noted previously the area is lightly populated whilst a minimum setback of 700 metres is to be maintained to dwellings.

Tourism

15.5.61. The impact on the tourism potential of the area has been raised by a number of observers with concerns expressed that events such as the Blackwater Valley Opera Festival and the Campshire Horse Trials would be adversely affected. As noted previously the area, whilst having an innate rural quality, is not identified as being of particular landscape and scenic sensitivity and is not a significant destination in

terms of tourism. The above referenced events are not reliant on, and are held at venues at a remove from the site. They, of themselves, are the visitor offering.

Noise

15.5.62. A significant number of observations on the application raise concerns with regard to noise with multiple submissions citing research papers in support of their views. I note the Noise Impact Report prepared by MAS Environmental that accompanies the observations from Paddy Massey and Michael and Gianni Alen Buckley which critiques the noise assessment undertaken. The applicant in its further information submission provides a response to same. The issues arising form part of the assessment below.

15.5.63. With respect to the concerns as to the methodology and veracity of the **noise modelling** conducted and, as noted above, the applicant clearly acknowledged the difficulties encountered in carrying out the baseline noise surveys due to access issues and reluctance of 3rd parties to accommodate the applicant. Proxy measurement locations were identified in accordance with the principles of IOG GPG and all were sited further from the dominant noise sources e.g. road traffic noise, than the other NSLs in the area. I consider this approach to be appropriate and provides for a conservative scenario. The 6 no. monitoring locations are delineated on Table 13-7 and Figure 13-2.

15.5.64. The **derived background noise levels** presented in the EIAR were calculated based on the turbine type Nordex N117/3600 with a hub height of 91 metres and was stated to be an indicative candidate turbine, only. Following the request for further information and the refinement in terms of turbine range within which the development would operate, the derived background noise levels were revisited to align with the limited range of hub heights put forward in the said response, namely 83.5 metres and 93.5 metres. The results are presented in Appendix 4 of the further information request. The derived background noise levels will be lowest for the highest hub height of 93.5 metres. On this basis the applicant's approach whereby the background noise levels for an assessment hub height of 93.5 metres are presented for all scenarios is acceptable and presents a conservative assessment.

15.5.65. The predicted noise levels for the proposed development have been calculated for all noise sensitive locations identified within a 1.2km radius of the proposed turbines

and provide for 9 no. turbines makes of varying heights and power outputs all within the range as set out in the further information request (83.5 – 93.5m). I accept that the range of flexibility being sought is not material (10 metres) and has been fully assessed. The assessment assumed the typical worst case downwind conditions. The results as provided for each of the turbine types indicate that the predicted noise levels associated with the proposed development would be within the best practice noise criteria recommended in the Wind Energy Development Guidelines for Planning Authorities (2006) and no mitigation measures would be required.

15.5.66. A number of observers and Cork County Council in its submission query the application of the **40 dB(A) noise limit criteria** to areas where background noise levels are low (less than 30 dB). The applicant in its response to the further information request notes that the 2006 guidelines state that the application of 5dB(A) above background noise in very quiet areas is not necessary to offer a reasonable degree of protection and may unduly restrict windfarm development. On this basis the guidelines recommend that the daytime level be limited to within the range of 35-40 dB(A). The applicant in section 13.6.3.1 of the EIAR also refers to the EPA document 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)' in which a daytime noise criterion of 45 dB(A) in 'areas of low background noise' is recommended.

15.5.67. I consider the justification to be reasonable bearing in mind the 2006 wind energy guidelines state that an appropriate balance must be achieved between power generation and noise impact. As noted by the applicant, there are numerous examples of where the Board has attached a condition where the threshold of 40 dB L_{A90} has been imposed.

15.5.68. Many observations consider the Wind Energy Guidelines 2006 to be out of date and that the **2019 draft guidelines** should be the point of reference in order to protect residential amenity. Some observers consider that the development should be assessed against the criteria in the World Health Organisation document Environmental Noise Guidelines for the European Region 2018.

15.5.69. While the 2019 guidelines are in draft form I note the Balz Anor -v- An Bord Pleanala Supreme Court judgement [2016] [IESC 124] which states that the Board in deliberating on an application should have some regard to the guidance set out

therein. The preferred approach as set out in the Section 5.7.4 of the 2019 draft guidelines is for noise limit restriction limits consistent with World Health Organisation guidelines of 5 dB(A) above existing background noise within a range of 35 to 43 dB(A) with 43 dB(A) being the maximum noise limit permitted day or night. This criteria is below that permitted under the 2006 guidelines.

15.5.70. By way of response to the further information request the applicant submitted a copy of a joint response from a listed group of acousticians to the public consultation on the revised wind energy guidelines in which certain issues and concerns were raised about the noise section of the guidelines. The applicant considers that the draft document is not in accordance with the best practice approach.

15.5.71. In this context I note that the original ETSU-R-97 on which the 2006 wind energy guidelines are based underwent standardisation and modernisation in 2013 with the Institute of Acoustics publication of the 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' including 6 Supplementary Guidance Notes. I would accept the applicant's defence that IOA GPG and ESTU methodologies provide for best practice guidance and that the noise assessment in the EIAR has due regard to same.

15.5.72. I would concur with the applicant's views that if updated wind energy guidelines are issued prior to a decision being made on this application then the applicable noise parameters would be appropriately referenced by way of condition. Should any exceedances arise then curtailment measures would be required such as operating turbines in noise reduced mode. This would also be addressed by an appropriately worded condition.

15.5.73. The **WHO Guidelines 2018** and the recommended average noise exposure level is reviewed by the applicant in section 12.4.2.1.5 of the EIAR. The L_{den} metric in the WHO document is different to those in the in the 2006 Guidelines and the ETSU-R-97 and I note that the Institute of Acoustics has not made any changes to the good practice guidance set out in the IOA GPG to incorporate the said 2018 WHO guidelines.

15.5.74. I note that compliance with the applicable limit parameters can only be measured effectively once the turbines are commissioned into use and that turbines can be

programmed effectively to run in reduced noise modes to achieve the attenuation required.

15.5.75. **Amplitude modulation (AM)** is considered in the EIAR and is noted to be a recognised phenomenon which can give rise to annoyance. In ETSU-R097 a distinction is made between the AM which is expected at most windfarms and referred to as 'Normal' AM and 'Other' AM, the latter being AM observed at large distances from a turbine and is generally heard as a periodic 'thumping' or 'whoomphing' at relatively low frequencies. It is noted that on sites where it has been reported, occurrences appear to be occasional, although they can persist for several hours under some conditions, dependent on atmospheric factors, including wind speed and direction. However the likelihood of occurrence at a particular windfarm cannot be reliably predicted at planning stage and only becomes evident once the turbines are operational. The recommendation for a condition to be attached is at odds with the advice from the IOA A Good Practice Guide to the Application of ETSU-R-97 or the Assessment and Rating of Wind Turbine Noise (GPG). Paragraph 7.2.10 notes that research and guidance in relation to 'Excess' or 'Other' AM is still being developed and at the time of writing current practice is not to assign a planning condition to deal with same. The applicant in the further information response states that in the event of a legitimate complaint which indicates potential amplitude modulation the operator will engage an acoustic consultant to assess the level in accordance with best practice and which can be used to evaluate different operational conditions and mitigation measures accordingly.

15.5.76. In relation to **low frequency noise and infrasound** it is noted that wind farms do produce low frequency sounds but that the threshold of hearing is relatively high with low frequency noise usually going unnoticed. The applicant in the further information response reiterates that detailed investigation would be undertaken should it arise.

15.5.77. I note that the issues of infrasound and AM are not referenced in the current Wind Energy Guidelines. The draft Guidelines in section 3.3 state that there is no evidence that wind turbines generate perceptible infrasound and that downward designs which had a propensity to generate low frequency noise components along with significant AM. Downwind designs are no longer used for large onshore wind farms.

15.5.78. There will be an increase in noise levels in the vicinity of the proposed development site during the **construction phase** but this will be temporary in duration. The noisiest construction activities are associated with excavation, piling and pouring of the turbine bases. The type of activity and equipment that would generate the noise at this stage of development are much the same as those that would be used during other infrastructural works in the countryside. Similarly, the flow of traffic transporting material to and from the site is also likely to be a potential source of increased noise. Best practice measures are to be adhered to during the construction phase. The mitigation of the potential negative effects from construction noise by the imposition of a condition requiring the regulation of such activity is an established measure whose efficacy is established.

15.5.79. I accept that the proposed development will introduce a new noise source. However it is my opinion, based upon the analysis undertaken, that this will not have a significant adverse impact on residential properties. I have no reason to doubt the veracity of the information contained in the EIAR in respect of the noise analysis undertaken and as supplemented by way of further information which follows best practice. Notwithstanding this conclusion, there will be an onus on the applicant to comply with best practice as per the guidelines in relation to noise generation. I note that the 2006 wind energy guidelines acknowledge that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 metres. In this case the nearest property has a separation distance of 700 metres from the nearest turbine.

Shadow Flicker

15.5.80. A significant number of observers express concerns as to the impact of shadow flicker. The EIAR had regard and utilised the parameters set out in the 2006 Guidelines and, in line with best practice, the scope of the assessment extends to a distance of 10 times the maximum rotor diameter. The said guidelines state that at distances greater than ten rotor diameters from a turbine the potential for shadow flicker is very low.

15.5.81. By way of further information the model was rerun providing for two turbine types and in two scenarios as summarised above, with the results presented in two appendices attached to the further information response. 109 locations were

accounted for, an increase of 16 over the original modelling. **Scenario 1 – Turbine Option 1** results in a total of 60 no. dwellings experiencing daily shadow flicker exceedances and 7 no. dwellings experiencing annual shadow flicker exceedances. Similarly, **Scenario 1 – Turbine Option 2** leads to a total of 36 no. dwellings experiencing daily shadow flicker exceedances and 1 no. dwellings experiencing annual shadow flicker exceedances.

15.5.82. With respect to Scenario 2 where T5 is to be relocated, the results for the two turbine options are presented in the attached in Appendix 1 as Scenario 2 – Turbine Option 1 and Scenario 2 – Turbine Option 2 respectively. **Scenario 2 – Turbine Option 1** leads to a total of 60 no. dwellings experiencing daily shadow flicker exceedances and 8 no. dwellings experiencing annual shadow flicker exceedances. Similarly, **Scenario 2 – Turbine Option 2** leads to a total of 38 no. dwellings experiencing daily shadow flicker exceedances and 0 no. dwellings experiencing annual shadow flicker exceedances.

15.5.83. I consider that the turbine types modelled provide for a full assessment of the range of flexibility being sought, as per the further information response, and allows for certainty as to impacts arising. The results are reasonably assumed to be the worst case scenario in that the model makes various assumptions such as a bare earth scenario with no screening by vegetation, that the turbines will be rotating at all times and presents their maximum aspect to the observers in all directions, with all receptors having windows facing onto the windfarm and that the sun will always be shining during daylight hours with no cloud cover. The measures detailed to address exceedances including turbine shut down/curtailment via the Supervisory Control and Data Acquisition (SCADA) turbine control system is an acceptable mitigation measure which has been used in other wind farm developments.

15.5.84. A number of observers query the accuracy of the findings on the basis that the dimensions of windows of the modelled properties were not calculated. The applicant in response notes that while the actual size of a window will marginally influence the incidence and duration of any potential shadow flicker impact with larger windows resulting in slightly longer shadow flicker durations, any additional incidences of durations above those predicted can be countered by extending the mitigation strategies.

15.5.85. I am satisfied that subject to mitigation, no significant impact from shadow flicker will arise which would result in annoyance to local residents or impact on the amenity value of dwellings or other structures.

15.5.86. In terms of road users I submit that any impact would be transitory and would be akin to the motorist experience in terms of shadow and light when the sun is at a certain angle relative to surrounding vegetation.

15.5.87. The **2019 draft wind energy guidelines** set out more stringent controls than the 2006 document and do not allow for any potential periods of shadow flicker with specific measures including automated turbine shutdown to be required as a condition of the grant of planning permission. The draft guidelines note the technological ability of modern turbines to measure sunlight levels and reduce to stop turbine rotation if conditions were to occur which would lead to shadow flicker at any neighbouring property. This is further acknowledged by the applicant that technological mitigation is available to eliminate shadow flicker. In accordance with standard practice a condition is recommended which limits or curtails the operation of the turbines during periods where shadow flicker may arise.

Health Effects

15.5.88. A significant number of observers raise concerns about the potential for the wind farm to cause adverse health effects by way of impact on individuals with a range of medical conditions including, but not limited to, epilepsy, cancer and the impact on persons with neurological conditions cited to be of concern. Impacts on sleep and wellbeing are also raised as concerns. Observations from residents living in proximity to other windfarms including those at Woodhouse and Barranafaddock are also noted. Many contest the references given to support the conclusion that there would be no impact as set out in section 5.5 of the EIAR and a summary of the main conclusions reached in the 25 reviews of the research literature on wind farm and health set out in Appendix 5-2. Alternative research papers are referenced to contest the conclusions in many of the observations.

15.5.89. Whilst I acknowledge the concerns expressed, the limits and setbacks applicable with particular regard to shadow flicker and noise are designed to protect humans. I note the Position Paper on Wind Turbines and Public Health issued by the HSE in

February 2017[2] which determines that current scientific evidence on adverse impacts of wind farms on health is weak or absent with the need for further research and investigative process at a larger scale. The above referenced WHO Environmental Noise Guidelines for the European Union issued in 2018 whilst recognising the potential for increased annoyance risk at levels below 45 dB L_{den} said it cannot be determined whether this increased risk can impact health.[3] Neither paper reference exclusion of persons to whom the limits would be applicable.

15.5.90. On this basis on the information before the Board and given the proposed distance to receptors it is concluded that the proposal would not adversely impact population including vulnerable persons.

Population and Human Health - Conclusion

15.5.91. I have considered all of the written submissions made in relation to population and human health, noise and shadow flicker, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of population and human health.

15.6. Biodiversity

Environmental Impact Assessment Report

15.6.1. Chapters 7 and 8 of the EIAR relate to Biodiversity and Ornithology. They are supported by the following appendices:

Appendix 7-1 Botanical Survey

Appendix 7-2 Bat Survey

Appendix 7-3 Aquatic Sampling

Appendix 7-4 Badger Sett (confidential)

Appendix 8-1 Target Species

[2] Position Paper on Wind Turbines and Public Health: HSE Public Health Medicine Environment and Health Group, February 2017.
[3] Environmental Noise Guidelines for the European Region: WHO Regional Office for Europe, 2018

Appendix 8-2 Bird Survey

Appendix 8-3 Results Summary The EPA document 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)' proposes a daytime noise criterion of 45 dB(A) in 'areas of low background noise'.

Appendix 8-4 Core Bird Survey

Appendix 8-5 Supporting Survey Data

Appendix 8-6 CRM Assessment

Appendix 8-7 Bird Monitoring Programme

15.6.2. Further details were provided by way of further information pertaining to the Tourig River aquatic environment, avifauna and bats. The application is also accompanied by a Natura Impact Statement and I refer the Board to the appropriate assessment in section 16 below.

15.6.3. The assessment methodology included a combination of desk top studies using recognised ecological data bases, field surveys followed by detailed targeted surveys including a suite of bird surveys, terrestrial fauna surveys, aquatic surveys and invasive species survey.

15.6.4. The information provided by the desk top study indicates the Natura 2000 sites that occur within 15km of the site in addition to site where there is a potential for connectivity. As the potential for significant effects is considered in detail in the NIS, the designated sites are not considered further in these chapters of the EIAR.

15.6.5. The further information response providing for a limited flexibility within the turbine range and the proposed relocation of T5 have no effects on the footprint of the development.

Receiving Environment

Flora

15.6.6. The majority of the study is dominated by **plantation forestry** comprising mainly of Sitka Spruce and Lodgepole Pine of various ages (clear felled, immature, semi-mature and mature) was well as plantations of Eucalyptus. **Wet willow-alder-ash woodland** was recorded along watercourses that bisect the site. The remainder of

the site and the grid connection route is dominated by **improved agricultural grassland**. **Rhododendron** was encountered on the site.

Fauna

15.6.7. **Bat** surveys were conducted in 2017, 2018 and 2019. A total of 141 bat registrations were recorded during the 2019 manual transect surveys. Of these 78 were assigned to Soprano pipistrelle, 32 to Common pipistrelle, 23 to Leisler's bat, 5 to Myotis species and 3 to Brown long eared bat. Species composition and activity levels varied between surveys. Bat activity was concentrated along the linear features such as mature forestry edge habitats. Bat passes were recorded across all deployments of the ground level static surveys with the results provided in section 4.8 and Table 4-4 of Appendix 7.2. No potential tree roosts were identified. The National Biodiversity Centre Data mapping indicates that the development area has low to moderate habitat suitability for bat species.

15.6.8. A main **badger** sett was recorded within plantation forestry approx. 220 metres to the south of proposed Turbine No.5 (original location). The location of the sett is detailed in Appendix 7-4 (confidential).

15.6.9. A single **marsh fritillary** colony was identified along a 20 metre section of forestry access track adjacent to a junction with a local road. No marsh fritillary butterflies were recorded.

15.6.10. The watercourses located in close proximity to or downstream of the windfarm infrastructure and cable route were assessed as providing suitable commuting and foraging habitat for **otter** and the species may occur within the EIAR site boundary. The fisheries potential of the upper reaches of watercourses within the site is poor owing to the small, vegetated nature of the drainage ditches. Therefore, otter are more likely to utilise the lower reaches of the watercourses downstream of the site. Evidence of otter was recorded downstream of the connecter cable route along the River Tourig. Supplementary survey work undertaken at the proposed water crossings in response to the further information request found no indication of otter using the watercourses.

15.6.11. One sighting of **red squirrel** was recorded although lots of feeding signs were recorded. **Common frog** was recorded on the wet areas within the site. **Common Lizard** and **Smooth Newt**, while not recorded during site visits, are likely to occur

within the study area. **Fox** was recorded throughout the site. **Pine Martin** was recorded but the low levels suggest the site does not support a significant population. Incidental records of invertebrate were recorded during walkover surveys and are listed in section 7.5.2.6.2 of the EIAR.

Aquatic Species

15.6.12. The small streams that flow off the site and downstream watercourses were subject to biological evaluation and kick sampling, the results of which are provided in Appendix 7-3. This is supplemented by details provided by way of further information with additional surveys undertaken in June 2022 at all proposed water crossings. The watercourses with the highest value for fish species were the lower reaches of the main watercourses that drain the site. The small watercourses located in the upper reaches of the catchment that occur within the site are generally upland, eroding watercourses and often featured dry or partly dry features.

Avifauna

15.6.13. **Golden Plover** was recorded with flight activity associated with the foraging habitat available in the agricultural grassland. From the core vantage point surveys 20 no. flights were recorded within potential collision height of which 9 were recorded within or partially within 500 metres of the proposed turbine layout. All flight activity was associated with the wintering season, only. There were 3 no. observations recorded during the waterfowl surveys all of which were in excess of 4.5 km of the site. There were 14 observations during the dedicated golden plover surveys within the 12km survey radius of the proposed development. 3 no. of the observations were within the core foraging range of the proposed development area. Within the core foraging range of the site flock sizes ranged from 1000 to 6500 birds. No evidence of breeding activity was recorded. The core survey data is provided in Appendix 8-4 and supporting survey data provided in Appendix 8-5. The population recorded is assigned **County Importance**.

15.6.14. **Whooper Swan** was recorded once (7th November 2016) and consisted of a pair of birds in flight. There was no evidence of feeding or roosting activity or evidence to suggest that the site is located on a migratory corridor for the species. 23 no. observations were recorded during the dedicated waterfowl surveys, all of which were in excess of 4.5km from the site.

15.6.15. **Hen Harrier** was recorded in flight on 6 no. occasions during vantage point surveys between September 2016 and September 2018. 4 no. occurred within 500 metres of the proposed turbine layout with birds observed flying low while hunting. No evidence of breeding activity was recorded on the site. It is assumed that the individuals recorded during the winter season are associated with a wintering population of **County Importance**.

15.6.16. **Merlin** was recorded once in the two year survey. The flight was below the potential collision risk zone and was more than 500 metres from the proposed turbine layout.

15.6.17. 7 no. observations of **peregrine** were recorded. 5 no. flights were within 500 metres of the proposed turbines and 4 no. flights were within potential collision height. There was no evidence of breeding activity with no suitable breeding habitat on site. Taking a precautionary approach the population recorded was assigned **Local Importance (Higher Value)**.

15.6.18. 2 no. observations of **black headed gull** were recorded on or near the site with a flock of 3 birds observed flying within potential collision height. There were 55 no. observations during dedicated waterfowl surveys, all of which were in excess of 3km from the site. The site is not of significance to wintering or breeding populations.

15.6.19. **Woodcock** was recorded 10 no. times during the breeding season. The exact location of nesting birds can be difficult to estimate as males display over quite a large area. The population recorded was assigned **Local Importance (Higher Value)**.

15.6.20. **Lesser black-backed gull** was recorded on 43 no. occasions during the vantage point surveys. The vast majority occurred within 500 metres of the proposed turbine layout with 41 no. flights recorded within potential collision height. Numbers ranged from individuals to a flock of 120 birds. The population recorded was assigned **County Importance**.

15.6.21. **Buzzard** was recorded 128 no. times during the VP surveys of which pairs were observed 17 no. times. 82 no. flights were recorded within the potential collision height. The species was recorded once during the breeding raptor survey. **Sparrowhawk** was recorded on 31 no. occasions, 9 no. of which were within the potential collision height with evidence that it is breeding locally. **Kestrel** was observed 78 no. times with 35 no. flights within the collision risk height. **Common**

Snipe also recorded 17 no. times during vantage point and non-flight observations. It was recorded once during the breeding season. It was recorded on 2 no. occasions during the wildfowl distribution surveys both 5.7km to the north of the development site. The 1st entailing 60 no. birds the 2nd 14 no. birds. All of the said species were assigned **Local Importance (Higher Value).**

15.6.22. **Long eared owl** was observed once during a breeding woodcock survey more than 3km from the site. **Meadow pipit**, a BoCCI Red listed species, was recorded in the suitable breeding habitat primarily around the margins of the proposed development site.

Do Nothing

15.6.23. In a do nothing scenario the majority of the site would continue to be managed as commercial forestry and for agriculture. The general biodiversity would remain similar to that recorded.

Likely Significant Effects

Construction Phase

15.6.24. Loss of areas of habitat that are of Local Importance (Lower Value) and are not identified as Key Ecological Receptors, mainly improved agricultural grassland, arable crop, conifer plantation and buildings and artificial surfaces. Approx. 236 metres of **hedgerows** will be removed.

15.6.25. Loss of approx. 0.02 ha of **wet willow ash woodland** at the location of the proposed upgrade of an existing watercourse crossing to the southwest of Turbine No. T7.

15.6.26. Introduction or spread of **invasive alien plant species**.

15.6.27. Potential for disturbance/displacement of the local **badger** population.

15.6.28. Potential for construction activity to have indirect effects on **otter** in the form of habitat degradation through water pollution.

15.6.29. Loss or degradation of commuting/foraging habitat has potential to reduce feeding opportunities and displace **bat** populations.

15.6.30. There is potential for direct impacts on **marsh fritillary**.

15.6.31. Pollution of drains/streams draining the site and downstream watercourses and potential to effect **aquatic receptors**.

15.6.32. Habitat loss and displacement during construction for all identified **bird species.**

Operational Phase

15.6.33. Collision and displacement risk for Golden Plover, Hen Harrier, Peregrine, Lesser Black-backed Gull, Buzzard, Sparrowhawk, Kestrel and Common Snipe was undertaken. The details of the collision risk model are provided in Appendix 8-6.

15.6.34. There is the potential for collision risk for **bats**.

Decommissioning Phase

15.6.35. Impacts during the decommissioning phase are similar to those identified during the construction phase but of lesser scale and magnitude. There would be no additional or ancillary impacts.

Mitigation measures

Construction Phase

15.6.36. An appropriately qualified ecologist is to be retained to oversee construction works.

15.6.37. A Construction Environmental Management Plan is to be prepared (copy provided in Appendix 4-4). Best practice construction methods are to be applied.

15.6.38. A detailed drainage maintenance plan has been drawn up which sets out the measures to protect **water quality** during construction. In addition, a specified methodology has been prepared for water crossings including those on the cable collector route. Specific mitigation is also provided in relation to water quality. I refer the Board to section 15.7 below.

15.6.39. Proposed biosecurity measures and best practice to prevent the introduction or spread of **invasive alien species**.

15.6.40. Prior to commencement of construction works the extent of the proposed infrastructure required in the vicinity of the **wet willow-ash-alder-woodland** will be marked out with the area fenced off. If required limb removal of individual branches will be undertaken under the provisions of the Wildlife Act, as a preference to the loss of the entire tree. To offset the loss, planting of approx. 0.06 ha of alder, willow and birch saplings is to be undertaken. Indicative areas are provided in Figure 7.12 with the final location subject to landowner agreement.

15.6.41. To comply with SNH[4] recommendations in relation to habitat buffering to avoid **bat** fatalities, 236 metres of hedgerow in proximity to T7 will be removed. This will be mitigated by the replacement planting of 236 metres of hedgerow within large areas of agricultural/arable lands to increase connectivity locally. Indicative locations are provided on Figure 7.13 with the final location subject to landowner agreement.

15.6.42. A pre-commencement **badger** survey will be undertaken. If a badger sett is identified within or immediately adjacent to the development footprint a badger sett licence will be sought from NPWS. Exclusion zone fencing/berm and appropriate signage is to be put in place along the section of haul road in the vicinity of the identified badger sett.

15.6.43. A pre-commencement **otter** survey will be undertaken up and downstream. Should an otter holt be identified a derogation licence would be sought. Indirect impacts arising from potential water pollution are to be addressed by the detailed measures to be put in place during the construction phase. By design water crossings are to be constructed using bottomless, pre-cast concrete structures, avoiding the requirement for instream works. Therefore, there is no potential for the proposed development to result in any barrier to the movement of aquatic species including otter. Construction activity will mostly be confined to daytime hours thus minimising potential disturbance related impacts.

15.6.44. To avoid potential for impacts on the **marsh fritillary** colony the existing forestry access track will be retained and avoided. It will be blocked to vehicular access. The access layout at this location is shown on Figure 7-14. The area of suitable marsh fritillary habitat and associated colony is to be fenced off or clearly marked. Habitat condition monitoring during construction and in year 1 post construction will be undertaken.

15.6.45. Removal of woody vegetation is to be undertaken outside the bird breeding season. Stretches to be removed are to be replaced with suitable hedge/tree species.

15.6.46. Commencement and pre-construction surveys for **avifauna** to be undertaken.

Operational Phase

[4] Scottish Natural Heritage has been renamed NatureScot.

15.6.47. A detailed post construction **bird** monitoring programme has been prepared (provided in Appendix 8-7). Surveys are to be scheduled for years 1, 2, 3, 5, 10 and 15 of the windfarm lifetime.

15.6.48. With respect to **bats** a 50 metre buffer from the blade tip to the nearest woodland as recommended by Natural England (2014) and Scottish Natural Heritage (SNH) (2019) guidelines shall be implemented at each turbine with the exception of T16. There is approx. 80.2 metres of hedgerow located to the east of the turbine that falls within the 50 metre felling buffer of the blade width. By way of further information it is considered premature to remove this section of hedgerow, based on the potential for its retention to result in bat fatalities. In order to counter the potential risk the turbine will be monitored post construction. If significant bat fatalities are recorded adaptive mitigation in the form of bespoke curtailment or removal of the hedgerow will be undertaken.

15.6.49. As per SNH Guidance at least 3 years of post-construction monitoring will be conducted and will comprise of static monitoring at turbine bases and at nacelle level in addition to carcass searches. If the impact on the bat population is deemed significant, a bespoke curtailment programme will be implemented for the turbine. A range of measures are proposed including blade feathering, curtailment of turbines during certain conditions and increase of buffers around turbines. The proposed monitoring programme is provided in appendix 7.2.

Decommissioning Phase

15.6.50. A Decommissioning plan is to be agreed with the local authorities (copy provided in Appendix 4-4). Comparable mitigation measures to prevent impacts on water quality during construction will be applicable to the decommissioning phase.

Residual Impacts

15.6.51. With full implementation of mitigation measures through the construction, operational and decommissioning phases residual impacts are calculated to be low in all instances. There is the potential for the proposed development to increase the extent of available habitat on the site for marsh fritillary and also to increase the quality of the habitat on the site.

Cumulative Impacts

15.6.52. No significant effects as a result of the proposed development in relation to disturbance, displacement or mortality of faunal or avifaunal species has been identified. The details on cumulative collision risk for golden plover with reference to the nearest designated sites provided by way of further information does not come to an alternative conclusion. There is no potential for negative cumulative impacts identified including significant cumulative barrier for avifauna in terms of wind farms within 20km of the development.

EIAR Conclusion

15.6.53. The construction of the wind farm with the implementation of the proposed mitigation measures will not have a significant adverse effect on the biodiversity of the site and the surrounding area.

Assessment

15.6.54. A significant number of observations raise concerns with regard to the assessment of biodiversity with may querying the adequacy of the **baseline survey works** and consequent assessment. I submit that the EIAR has clearly set out the survey works and methods undertaken in accordance with best practice and by competent experts and that the nature and scope of the surveys are robust, acceptable and proportionate.

15.6.55. Specific criticism is levelled at the adequacy of and the nature and timing of different **bird surveys**. Bird survey works were undertaken over a two year period from September 2016 to September 2018, are in accordance with SHN guidance. The surveys include vantage point surveys, breeding raptor, breeding woodcock, hen harrier roost, waterbird and golden plover surveys. A further winter survey between October 2019 to March 2020 to record the distribution and abundance of golden plover locally was undertaken. The various survey types undertaken are described in sections 8.2.4.31 to 8.2.4.37. As above, I consider the surveys and methods undertaken to be in accordance with best practice, are robust and are sufficiently up to date to allow for a full and proper assessment.

15.6.56. Numerous observers cite papers and research on bird mortality and collision risk. The **Collision Risk Model** used is that developed by SNH[5], is peer reviewed and

[5] SNH (2000), Windfarms and Birds: calculating a theoretical collision risk assuming no avoiding action

widely accepted with the findings provided in Appendix 8-6. The model is based on flight data collected from the vantage point surveys. Percival's (2003)[6] methodology for assessing the effects of wind farms on birds has been applied to assess the sensitivity of a species to the development type, the magnitude of the effect and the significance of the potential impact. Table 8-3- Sensitivity, Table 8-4 – Magnitude of effect and Table 8-5 – Determination of significance, outline the assessment criteria for each stage. Effects identified as per the Percival 2003 criteria have been equated with EPA impact assessment criteria[7] with criteria for assessing impact significance and impact quality provided in Table 8-6 and Table 8-7. The EIAR states that EPA impact assessment criteria have been used in the assessment for consistency between the biodiversity and ornithology chapters. Percival (2003) has also been followed in the assessment of potential impacts given its specific focus on the interactions between wind farms and birds. The two assessment criteria have been used to independently characterise impacts to inform an assessment of potential impacts resulting from the subject development site on local avian communities.

15.6.57. In terms of **collision risk** I note that the proposed **tower configuration** and rotor diameter is a material consideration. The applicant in its further information response in addressing the range of turbine configurations under consideration notes that the maximum turbine dimensions are the most relevant in that the larger the rotor swept area the greater the risk window for a bird in flight. As per the Table 2-1 of Appendix 8-6 of the EIAR the assumed turbine, namely Nordex 133 has a rotor diameter of 133 metres which corresponds with the maximum rotor diameter proposed. The rotor diameter and the selected hub height influences the maximum and minimum swept height of the turbine. Therefore based on the proposed turbine range the minimum tip height would be 17m (i.e. the minimum ground clearance) and the maximum tip height would be 150m. Flight activity information (vantage point survey data) was collected in the following height bands of : 0-20m, 20-140m and 140- 175m. As the turbine range (17-150m) overlaps with all three of these

[6] Percival, S.M. (2003), Birds and wind farms in Ireland: A review of potential issues and impact assessment

[7] The 2017 EPA Draft Revised guidelines on information to be contained in Environmental Impact Statements has been superseded by the Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022. The criteria for assessing impact significance and impact quality remain unchanged.

height bands all three height bands were included in the collision risk analysis (as per Section 2 of Appendix 8-6 of the EIAR). I accept the applicant's assertion that this presents as a precautionary approach and ensured all scenarios within the turbine range were assessed in the analysis. Thus, the maximum likely collision risk regardless of the actual turbine selected within the Turbine Range is as reported in Table 3-7 of Appendix 8-6 of the EIAR.

15.6.58. Whilst is it contended that certain species listed as conservation interests in Special Protection Areas have been identified on the site this is not supported by the details of the above summarised bird surveys. The habitat present on the subject site is not deemed appropriate for foraging or roosting for black tailed godwit, bar-tailed godwit, brent goose, curlew, dunlin, little egret, redshank, ringed plover, shelduck, shoveler and wigeon or other waterbirds.

15.6.59. As noted above the bird surveys included a winter survey specially addressing local populations of **golden plover**. On foot of the findings the population was assigned County importance. No evidence of roosting was found on site. A flock was observed roosting at a site more than 1km away which is of sufficient distance to obviate any disturbance impacts. There was no evidence from the survey to suggest that the development lies on a migratory/commuting route for the species. Whilst the species was recorded within the potential collision risk zone during the VP surveys the collision risk model concludes that the proposed wind farm would increase the annual mortality of the county population by 0.24% which is considered insignificant in the context of the county population. Further consideration is given in the further information as to the in-combination collision risk for the species with other existing and permitted windfarms within a 12km radius. This includes the Woodhouse (existing) and Knocknamona (permitted) wind farms. In terms of the former the relevant EIS document reported no sightings of the species on the site. The document accompanying the latter application noted 2 no. sightings only and concluded that no significant impacts on the species would arise. I consider that this corroborates the conclusions of the EIAR.

15.6.60. The survey results as summarised above in which **whooper swan** was recorded only once during the two years of surveys do not support the assertions as to the presence of the species in any material numbers on or in the vicinity of the site, nor that the site is on flight paths of Blackwater Callows SPA, Blackwater Estuary SPA or

the foraging area at Campshire Bog. On the basis of this negligible flight activity a collision risk assessment was not considered necessary. As per the details provided by way of further information it was noted that no observations were made during dusk hen harrier winter roost surveys when whopper swan is known to commute to roost sites. Any observations were recorded during dedicated waterfowl surveys, all at least 4.5km from the site. I also note reference to SNH literature[8] in which it is stated the species shows a high rate of turbine avoidance (99.5%). I consider that the applicant has provided sufficient detail and evidence to support its assertions that the proposal would not have a significant impact on the species in terms of collision risk and that a collision risk assessment is not required.

15.6.61. Reference is made by a number of observers to **hen harrier** roosts in the vicinity including in the vicinity of Sandy Hill House c.1km to the west and at Ballinatray common and the suitability of the site for nesting and hunting. Hen harrier was considered in the EIAR with the potential for habitat loss, displacement and collision risk assessed which concluded there would be no material impact. There was no evidence of breeding activity on the site with no evidence to suggest that the development site is of significance to the species during the breeding season.

15.6.62. Concern as to the potential impact on **barn owl** was raised by a number of observers with anecdotal evidence of nests in the vicinity including within the barn c. 50 metres from T16, in hedgerows and locations in the vicinity of/at Sandy Hill House and Temple Valley House. The level of consideration given to the species is criticised. Notwithstanding, the species was not recorded in the two years of surveys undertaken which would have dictated the level of assessment of impact. I also note that in view of the low flight patterns of the species which is typically 2 to 4 metres, collision risk with larger turbines is limited. On the basis of the absence of the species in the surveys undertaken I consider it reasonable to conclude that the proposal represents a low risk to the species in the vicinity of the site

15.6.63. The Snipe Conservation Alliance notes that the common snipe was recorded on several occasions including during the critical breeding and wintering periods. Presence during breeding season is of particular concern. The study by Pearce-

[8] Scottish Natural Heritage (2018) Avoidance rates for the onshore SNH wind farm collision risk model.

Higgins et al 2009[9] record that common snipe breed in lower abundance where wind turbines are located with the study showing a drop in population which did not recover once construction completed. The occurrences during the winter period is of concern due to hazard of collision and interruption in flight path of incoming and outgoing wintering population of migrating common and jack snipe. As per Section 8.4.13 of the EIAR **common snipe** was recorded during site surveys, the majority of which were recorded in the winter months. The species was recorded once, only, during the breeding season. The species was also observed twice during the wildfowl distribution surveys at Newport East approx. 5.7 km to the north of the site. The population was assigned Local Importance (Higher Value). The species was assessed for loss of habitat, displacement and collision risk. The species favours open habitats for foraging and breeding with commercial forestry of limited ecological value for the species. It is acknowledged having regard to Pearce Higgins et. al (2009) that there can be a 50% reduction in breeding density of snipe within 500m of turbines. Habitat loss will be restricted to the small areas of open habitat onsite and its immediate surroundings. It is noted that the majority of proposed development infrastructure will be sited in commercial forestry, a habitat of very limited ecological value to this species. Should any potential displacement effect occur, there are extensive areas of suitable habitat in the wider area, to render this potential impact inconsequential. Significant impacts are not predicted. The species was recorded flying within the potential collision risk zone during VP surveys. A collision risk analysis has been undertaken and full details are provided in Appendix 8-6. The collision risk has been calculated at a ratio of 0.36 collisions per year or one bird every 2.8 years. The predicted collision risk is insignificant

15.6.64. The Irish Hawking Club and Irish Raptor Conservancy raise concerns with regard to loss of habitat, displacement and collision and mortality rates for bird species. Again, I reiterate that the survey work undertaken over a two year period was in accordance with SHN guidance including a breeding **raptor** survey with the respective species of hen harrier, merlin, peregrine, buzzard, sparrowhawk, kestrel and long eared owl recorded in low numbers. The vantage point surveys which were undertaken during daylight hours would have captured the period when raptors species would have been likely to be on the wing and most active. On the basis of

[9] Pearce-Higgins et al (2009) The distribution of breeding birds around upland wind farms.

the said results a collision risk assessment was undertaken for peregrine, buzzard, sparrowhawk, kestrel and hen harrier. The results conclude that the magnitude of effect range from none to low.

15.6.65. With respect of **merlin** there was no evidence to suggest that the site is of significance to the species with no direct habitat loss or displacement and was not recorded flying within the potential collision risk zone during VP surveys on which it was concluded that a collision risk assessment was not required. **Long-eared owl** was not recorded during the surveys with the nearest breeding activity more than 3km from the site.

15.6.66. Regard is had to **passerine** bird species (Red Listed) in the EIAR with specific reference to meadow pipit which was recorded during surveys and assigned Local Importance (Lower Value). Significant effects are not anticipated given the nature of the habitats within the development footprint and the assemblage of bird species recorded. As per SNH guidance[10], it is generally considered that passerine species are not significantly impacted by wind farms.

15.6.67. In terms of **cumulative impacts** windfarms, both constructed and permitted within a 20km radius have been considered. In all instances the potential for bird collisions was minimal with none on migratory routes or flight paths. No cumulative impacts have been identified.

15.6.68. In conclusion and on the basis of the information provided, which I consider to be proportionate and robust, I do not consider that the proposed development will result in significant effects on avifauna in terms of habitat loss, displacement or collision risk.

15.6.69. A number of observers raise concerns that a **wetland area** in the location of the proposed substation was not identified in the habitats evaluation and that drainage pathways to the headwater stream of the Glendine River could pose a risk to public water supply. The applicant in its response notes that trial pits carried out at the site of the substation show ground conditions comparable to the rest of the site. Whilst some surface water drainage was noted the below ground level no groundwater inflows were recorded.

[10] Scottish Natural Heritage (2017), Recommended bird survey methods to inform impact assessment of onshore wind farms

15.6.70. Concern is expressed that replacement areas identified for wet woodland are not suitable. The locations as delineated on Figure 7.12 are indicative only. Suitable locations with the input of the project ecologist to be retained during the construction phase can be identified.

15.6.71. Mr. Brian McCarthy expresses concern of the impact on **frogs** stating that T12 would be located on one of the most suitable breeding grounds for frogs in Europe. Frog was recorded in wet areas in the site and is likely to breed within the site. Taking into consideration the turbines' setback from drains/water channels and the limited footprint of the development I would accept the EIAR's statement that there would not be a significant loss of suitable habitat for same and, therefore, no likely significant effects on these species are anticipated.

15.6.72. The **invasive species** rhododendron was recorded within the study boundary area. I submit that section 7.6.3 of the EIAR adequately addresses how the species is to be addressed and to preclude the potential introduction or spread of invasive alien plant species.

15.6.73. **Deer** are present in the area and certainly the proposed development will displace the species from the site during construction. There is significant comparable habitat in the immediate vicinity for the species. The interaction of deer with vehicles along public roads is a common phenomenon with signage evident where occurrences can arise.

15.6.74. There is the possibility that other species may be present on site which may not have been recorded during the terrestrial surveys. Having regard to the limited footprint of the development relative to the overall size of the site and the abundance of similar habitat in the area I consider that it is reasonable to conclude that the proposed development is not likely to result in significant effects on species that use site.

15.6.75. Observers critique the consideration, surveying and assessment of the proposed impact of the development on **bats** with many referring to the prevalence of the species in the area and the presence of several roosts within 500 metres of the site. Bat surveys were undertaken in 2017, 2018 and 2019. The data from the 2019 surveys forms the core dataset for the assessment of effects on the species. The impact assessment and mitigation provided in the bat report are in accordance with

SNH 2019 Guidance[11]. Bat surveys included roost survey, manual transect surveys and ground-level static surveys.

15.6.76. Bat activity has been recorded on the site though no bat roosts were noted. Species that fly at rotor swept height are at particular risk of collision. Through the iterative design layout process the applicant endeavoured to maintain a buffer of 50 metres to the rotor swept areas. This is in line with SNH recommendations in relation to habitat buffering. This has not been achieved in two instances. By means of mitigation 236 metres of hedgerow adjacent to T7 is to be removed. This loss is not considered significant in the context of the extensive network of linear landscape features in the general area. In the second instance approx. 80.2 metres of hedgerow which is within the 50 metre buffer of T16 is to be retained. The reasoning for its retention is noted, namely its removal is considered to be premature based on the potential for its retention to result in bat fatalities. The further information response provides a revised impact assessment should the Board require the removal of the hedgerow. The amendments do not alter the conclusions of the EIAR. On balance and having regard to the SNH guidance which recommends that the 50m buffer should be applied universally, irrespective of whether curtailment is also considered necessary, I consider that its removal would be the appropriate course of action in accordance with best practice. The replanting of an equivalent length of hedgerow elsewhere in mitigation would be appropriate. In view of the minimal lighting associated with the development, namely obstacle lighting on the turbines, disturbance is not anticipated.

15.6.77. I note that the original EIAR assessment involved the longest turbine blade at the highest hub height combination. As a result, the area that is required to be buffered with regards to possible impacts for bats was the greatest within the proposed turbine range. All alternate rotor length and/or hub heights within the turbine range will result in a reduced buffer area, and as a result reduced associated impacts arising to bats and other biodiversity.

15.6.78. The **programme of monitoring** is not proposed in response to any identified significant effect but rather as a best practice measure in accordance with SNH 2009. The monitoring programme is considered reasonable and will be reported to

[11] Scottish Natural Heritage (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Note: document was undated in August 2021 with minor revisions.

the planning authority following each monitoring year and may include recommendations that may inform additional mitigation of adaptation as required.

15.6.79. I note that the works proposed at the 2 no. locations along the haul route (Lombard's cross roads and Breeda Bridge) form part of the project assessed in the EIAR. A number of observers are critical of the fact that the transportation of abnormal loads along the haul route will require cutting back of trees and hedgerows which has not been assessed. I consider that an assessment of the measures required along the haul route are set out in Section 15.1.8. I do not consider that significant impacts would arise.

15.6.80. The submission from Fearghal Duff makes reference to the **Convention of Biological Diversity**. The Board is advised that the convention is a multilateral treaty which came into effect in December 1993 with three main goals: the conservation of biological diversity: the sustainable use of its components: and the fair and equitable sharing of benefits arising from genetic resources. Mr. Duff contends that the EIAR has limited ecological surveys and does not provide an in-depth assessment of its structure and function and no assessment of how the integrity of the ecosystem will be maintained it the development proceeds. Having regard to the data which informed the EIAR, as supplemented by further information, with the relevant surveys undertaken in accordance with the appropriate best practice and timelines, are satisfactory and I would not accept that the surveys are limited.

Biodiversity - Conclusion

15.6.81. I have considered all of the written submissions made in relation to biodiversity, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of biodiversity.

15.7. Land and Soil

Environmental Impact Assessment Report

15.7.1. **Chapter 9** of the EIAR addresses land, soils and geology with the following supporting Appendices:

Appendix 4-2 Geotechnical Assessment Report

Appendix 9-1 Trial Pit Logs

Appendix 9-2 Particle Size Distribution Plots

15.7.2. The assessment methodology consists of a desk top study using published maps, aerial photography and recognised data sets. Field surveys were undertaken between August 2018 and May 2020 and included walkover surveys and intrusive site investigations.

Receiving Environment

15.7.3. The majority (>90%) of both cluster areas are overlain by tills derived from Devonian sandstone with localised areas of rock subcrop or outcrop on the most elevated parts. A localised area of cutover bog is mapped on the southwestern corner of the eastern cluster. The mapped cutover bog does not intercept any of the proposed development footprint. I refer the Board to Figure 9-1. No significant peat deposits were encountered anywhere on site during the trial pitting works. Some organic topsoils were noted. The underlying bedrock is mapped exclusively as the Ballytrasna Formation which comprises purple mudstone and sandstone (Figure 9-3). Bedrock encountered during the trial pit investigations comprised of weathered siltstone and sandstone at depths of between 0.8 to 2.05mbgl. There are no mapped faults in the area. Outcrop is relatively sparse on lower ground but is mapped locally on higher ground, particularly on the western cluster which has a slightly higher overall elevation than the eastern cluster.

15.7.4. Based on the Geotechnical Assessment Report there is no evidence of past ground/slope failures nor were there any signs of instability noted.

Do Nothing

15.7.5. In a do nothing scenario the current land use practices entailing commercial forestry and agriculture would continue with periodic felling when forestry reaches maturity. The land, soils and geology would remain largely unaltered.

Likely Significant Effects

Construction Stage

15.7.6. Excavation of soil, subsoil and bedrock will be required for site levelling and installation of infrastructure. Table 9-5 details the estimated construction spoil/overburden and rock excavation volumes arising from the construction of the 17 no. turbines and hardstands, access roads, substation, borrow pits and construction compounds. In total 198,080m^3 of overburden and 146,060 m^3 of rock is calculated. This will result in a permanent loss of soil, subsoil and bedrock. The estimated bedrock extraction volumes for each of the 3 no. borrow pits is set out in Table 9-6 totalling 148,000m^3.

15.7.7. Earthworks are required along the turbine delivery route. These include junction widening at Lombards crossroads, a new 300m stretch of access road on agricultural land at Breeda Bridge and temporary levelling of centre islands and roundabouts.

15.7.8. Plant and machinery will be run on oils and fuels. Accidental spillage during refuelling of construction plant with petroleum hydrocarbons a significant pollution risk to land, soils and associated ecosystems. The accumulation of small spills of fuels and lubricants during routine plant use can also be a pollution risk.

Operational Stage

15.7.9. Potential for accidental leaks or spills from maintenance plant and potential for spills from the transformer in the substation and transformers in each turbine.

15.7.10. There will be the requirement for site roads maintenance.

Decommissioning Stage

15.7.11. The potential impacts associated with decommissioning of the proposed development will be similar to those associated with construction but at a reduced magnitude due to the reduced scale of the works.

Mitigation Measures

Construction Phase

15.7.12. The existing forestry road network is to be used as much as possible to reduce soil/subsoil excavation and borrow pit volumes whilst a minimal volume of soil and subsoil will be removed to allow for construction works.

15.7.13. All excavation works will be completed in accordance with the Geotechnical Assessment Report and Construction and Environmental Management Plan, and material will be moved the least possible distance. Spoil removed from turbine

locations and access roads etc. will be used for landscaping, stored alongside designated access roads and used to reinstate the 3 no. borrow pits.

15.7.14. Where possible, the surface vegetation layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the stored soil within the borrow pits and restored areas. Re-seeding and spreading/planting of native species will also be carried out in these areas. These measures will prevent erosion of stored spoil in the short term until vegetation has established and binds the soils together and prevents erosion.

15.7.15. Any excess spoil will be moved to temporary storage areas or will be temporarily surrounded by earthen berms to prevent erosion. Silt fences will be installed around temporary stockpiles to limit movement of entrained sediment in surface water runoff. The use of earthen berms and silt fencing around earthworks and spoil mounds will prevent egress of water from the works.

15.7.16. In order to minimise erosion of mineral subsoils, stripping of topsoil will not take place during extremely wet periods. Temporary drainage systems (as outlined in Section 10.3.17 in Chapter 10) will be required to limit runoff impacts during the construction phase.

15.7.17. During tree felling, brash mats will be used to support vehicles on soft ground, reducing soil and mineral subsoil erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting.

15.7.18. Best practice methods to be employed during construction re fuel storage, re-fuelling, plant inspection and an emergency plan to deal with accidental spillages.

15.7.19. All waste tar material arising from the chipping and resurfacing of the temporary construction access road will be removed off-site and taken to a licenced waste facility.

15.7.20. The electrical substation will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor.

Operational Phase

15.7.21. Best practice measures to prevent and address fuel spillage from maintenance vehicles, turbine transformers and transformer in the substation. All transformers and substation will be bunded to 110% of the volume of oil used.

15.7.22. An emergency plan for the operational phase to deal with accidental spillages and breakdowns will be contained in the Environmental Management Plan for the operational phase.

Decommissioning Phase

15.7.23. Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant. Some of the impacts will be avoided by leaving elements of the development in place, including the bases which will be rehabilitated by covering with local topsoil/spoil in order to regenerate vegetation which will reduce runoff and sedimentation effects. Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by onsite plant will be implemented as per the construction phase mitigation measures.

Residual Effects

15.7.24. The excavation and construction requirements will result in a permanent loss of soil, subsoil and bedrock. The overall proposed development site area is extensive while the proposed development footprint (23.3 ha) represents approx. 3% of the overall development site area (733 ha).

Cumulative Impacts

15.7.25. Significant effects are unlikely due to the localised nature of the construction works. Impacts on land, soil and geology will not extend beyond the immediate vicinity of the site. Therefore, no cumulative impacts between the proposed development and other existing, permitted or proposed projects will occur as there can be no interaction due to distance and separation.

15.7.26. Tree felling has negligible effects on land, soils and geology as no significant excavations are required during tree felling and therefore the surrounding commercial forestry will not contribute to cumulative effects associated with wind farm or cable route construction.

15.7.27. The proposed replanting lands are located in Co. Sligo and therefore will not contribute to potential cumulative impacts with the proposed wind farm development in terms of impacts on soils and geology.

EIAR Conclusion

15.7.28. The conclusion reached in the EIAR is that the proposed development does not constitute a significant adverse effect on the land and soils environment of the site and the surrounding area, having considered cumulative effects with other existing and/or approved projects.

Assessment

15.7.29. The main issues raised in the submissions relate to the accuracy of the data provided, land stability and the underestimation of peat depths.

15.7.30. Based on the Geotechnical Assessment Report in Appendix 4-2 there is no evidence of **past ground/slope instability or failures** with reference had to the GSI database, nor were there any signs of instability noted during site investigation. The lands are generally flat to gently sloping with localised steeply inclined terrain with elevations between c.120 and 200 metres OD across the site. The slope angles at the proposed turbine locations are detailed in table 6.1 of the report.

15.7.31. Regarding the assertion that the **peat** recorded on site is underestimated I note that 27 no. trial pits were undertaken across the site, 15 no. on the eastern portion and 12 no. on the western portion. Their location is delineated on Figure 9-1 and are considered to be reasonable in terms of their distribution and were focussed on those areas of the site where infrastructure will be placed. No significant peat deposits were encountered anywhere on site during the trial pitting works. Some organic top soils were noted. The area of cut over raised peat in the eastern portion of the site is at a remove from the windfarm infrastructure and will not be affected.

15.7.32. I am satisfied that there is nothing in the findings of the above geotechnical investigations which have been prepared in accordance with best practice guidelines which would suggest that the site is not suitable for a wind farm development and I find no reason to question the veracity of the findings.

15.7.33. The suitability of the materials to be excavated in the **borrow pits** has been raised by a number of observers with the potential for knock-on impacts should material be required to be imported to the site. I would advise the Board that based on the

borrow pit footprints the pit numbering given in Table 9-6 does not appear to align with the details provided in Figure 4-1. This is not considered to be a material issue.

15.7.34. As noted above I consider trial pits were appropriately located throughout the site. TP21 and TP21A are in the area of Borrow Pit 2 (as labelled on Figure 4.1) where weathered bedrock was encountered at a depth of 0.85mbgl; TP23A and TP23B are in the area of Borrow Pit 1 (as labelled on Figure 4.1) where weathered bedrock was encountered at depths of 2.0mbgl, and 1.4mbgl respectively and TP16 is in the area of Borrow Pit 3 (as labelled on Figure 4.1) where weathered bedrock was encountered at a depth of 0.8mbgl. The bedrock comprises siltstone and sandstone from the Ballytrasna Formation. As noted above the estimated bedrock excavation volumes for each of the borrow pits is set out in Table 9-6. By way of further information the application confirms that this material is suitable for reuse within roads and hardstands as Class 1 granular fill material to the TII Specification (600 Series).

15.7.35. I note that a conservative approach has been taken in the assessment of the impacts on traffic and transport wherein importation of material from quarries to the vicinity would be required (20%-25%) and, thus, the potential knock on impact where the extent of materials worked on the site falls short of that estimated has been duly considered.

Land and Soil - Conclusion

15.7.36. I have considered all of the written submissions made in relation to land and soil. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of land and soil.

15.8. Water

Environmental Impact Assessment Report

15.8.1. The potential impacts of the development on the water environment are assessed in **Chapter 8** of the EIAR. The following appendices are of relevance:

Appendix 4-4 CEMP

Appendix 4-5 Siltbuster Washer

Appendix 4-6 Drainage Layout Drawings

Appendix 10-1 Flood Risk Assessment

Supplementary details were provided in response to the further information request including stream characterisation surveys of the existing and proposed water crossings within the site, along the collector cable route and the turbine delivery route. The applicant also responded to the issues raised in the observations received.

15.8.2. The assessment was undertaken using a combination of a desk top study (review of relevant datasets, on-line mapping, data bases and documentation sources) and walk over surveys/field work conducted between August 2018 and May 2020. The assessment methodology, guidance used in the assessment and relevant legislation is described in the EIAR.

Receiving Environment

15.8.3. On a **regional scale**, the Proposed Development site is located in the River Blackwater surface water catchment within Hydrometric Area 18 of the South Western International River Basin District (SWIRBD). The River Blackwater, which is transitional (i.e. estuarine) at this location, flows in a southerly direction approximately 5km to the east of the eastern cluster at its closet point. A regional hydrology map is shown in Figure 10-1. The Lower Blackwater Estuary has been assigned “Moderate Status”.

15.8.4. In terms of **local hydrology**, the northern part of the western cluster and the north-eastern tip of the eastern cluster (c.20% of the overall site) are located in the River Bride surface water sub-catchment (Bride(Waterford)_SC0_30). The River Bride flows in an easterly direction approximately 4km to the north of the western cluster and is a major tributary to the River Blackwater. It has been assigned ‘Good Status’.

15.8.5. In terms of proposed wind farm infrastructure, there is 1 no. turbine (T12) and 1 no. borrow pit from the western cluster located in the River Bride sub-catchment. The western cluster drains to the River Bride via the Glenaboy River (Glenaboy_010) and Kilbeg Stream with all the aforementioned proposed infrastructure being located in the Glenaboy River catchment. The Glenaboy River has been assigned ‘Moderate Status’. There is no proposed development in the Kilbeg Stream catchment. There

is no Water Framework Directive status for the Kilbeg Stream. There is no proposed wind farm infrastructure from the eastern cluster located in the River Bride catchment.

15.8.6. The remainder of the western cluster, in addition to the eastern cluster, are located in the Tourig River and Glendine River surface water sub-catchments respectively. Both have been assigned 'Good Status'. The turbine delivery works at Lombards Crossroads and Breeda Bridge are within the Tourig River catchment.

15.8.7. The Bride River, Tourig River and Glendine River are assigned "Not At Risk" while the Kilbeg Stream has been assigned "At Risk".

The following table provides a summary of sub-catchments and proposed infrastructure:-

Regional Catchment	Sub-Catchment	Main Development Infrastructure	Primary Drainage Features
River Blackwater	Tourig River (Tourig_010)	5 no. turbines, 1 no. borrow pit, 1 no. temporary compound and the collector cable (3.3km). Turbine delivery route works at Breeda Bridge and Lombards Crossroads	Tourig River
	Bride River (Bride(Waterford)_SC_030	1 no. turbine and 1 no. borrow pit	Glenaboy River
	Glendine River (Glendine(Blackwater)_010	11 no. turbines, 1 no. borrow pit, 1 no. temporary construction compound, 110 kV substation and the	Glendine River

		OHL grid connection loop-in	

15.8.8. A local hydrology map is shown in Figure 10-2 of the EIAR.

15.8.9. **Q-rating data** for EPA monitoring points on the Glenaboy river are available for two locations downstream of the western cluster; at Ballyclogh bridge and at an unnamed bridge, c. 0.75km and 1km northwest of the cluster landholding respectively. Most recent data (2018) shows that the river has a Q-4 rating (Good Status). Most recent data (2018) for the Tourig River (downstream of the western cluster) shows that it achieved a Q-4 rating (Good Status) at a monitoring point approximately 4 km south of the cluster. Most recent data (2018) for River Glendine are available for a monitoring point at Ballycondon approximately 1.5 km southeast of the eastern cluster. The latest Q rating is Q4 (Good Status).

15.8.10. In terms of **local and site drainage** the eastern cluster is drained by a relatively dense network of mainly first and second order streams, many of which are headwater streams of the Glendine River. One headwater stream emerges from the west and also from the south of the eastern cluster which flow towards the Tourig River. Most of the headwater streams of Glendine River (within the eastern cluster) emerge close to the northern and western boundaries and flow the full distance through the cluster landholding, in a general south-easterly direction. The headwater streams of the Glendine River converge into two main stream channels before leaving the eastern cluster landholding area at its south-eastern corner. The streams then merge approximately 300m downstream of the eastern cluster landholding boundary to form the upper reach of the Glendine River.

15.8.11. Two main headwater streams emerge from the western cluster. The stream emerging from the northwest of the cluster is a headwater stream of the Glenaboy River (Bride catchment) and the stream emerging from the east is a headwater stream of the Tourig River. The north-eastern section of the western cluster slopes towards the Kilbeg Stream which emerges approximately 0.5km to the east of the western cluster.

15.8.12. Within both cluster areas there are numerous manmade drains that are in place predominately to drain the forestry plantations. The current internal forestry drainage

pattern is influenced by the topography, soil type, layout of the forest plantation and by the existing road network. The forest plantations are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation. Culverts are generally located at stream crossings and at low points under access roads which drain runoff onto down-gradient forest plantations.

15.8.13. The forestry drains are the primary drainage routes towards the natural streams on the development site, but the flows in these drains are generally very low with the smaller ones being dry most of the year.

15.8.14. The proposed temporary haul route access road at Breeda Bridge crosses a field herringbone drainage network which ultimately drains into the Touring River which is located approximately 200m downstream (west) of the proposed works.

15.8.15. There are two **public surface water supplies** downstream of the Proposed Development site, the Tallow Public Water Supply (3100PUB1096) and the Youghal Public Water Supply (0500PUB2510).

15.8.16. The **Tallow PWS** (3100PUB1096) has a surface water abstraction point on the Kilbeg Stream which is located approximately 1km to the northeast of the western landholding. The scheme also has three production wells which are used to supplement the overall demand of the scheme which is approximately 240 – 280m^3 /day. The surface water abstraction point is located approx. 2km downstream of the western cluster (the eastern cluster is not in the Kilbeg Stream surface water catchment). Two of the wells are located within the same compound as the surface water off-take which is situated 1km to the northwest of the western cluster and 1 no. well is located at the Tallow reservoir site which is located approximately 2.5km to the northwest of the western cluster. During the summer period the groundwater / surface water proportion is typically 50:50. During winter the proportion is typically 85:15.

15.8.17. The **Youghal PWS** (0500PUB2510) has 2 no. surface water abstraction points on the Glendine River (located approximately 0.6 km and 2.5km to the southeast of the eastern cluster) and 1 no. surface water abstraction point on the Tourig River (approximately 4.5km to the southeast of the eastern cluster). Raw water from the 3

no. abstraction locations is piped to the Boola Water Treatment Plant (WTP) which is located in Co. Waterford, approximately 2.5km to the southeast of the eastern cluster.

15.8.18. The location of the above described water supplies is shown on Figure 10-5.

15.8.19. As extrapolated from the GSI database 2 no. **private wells** are mapped within 1km of the Proposed Development site (refer to Figure 10-5). GSI mapped wells with accuracy greater than 50m were not assessed due to the poor information/accuracy regarding their location. To overcome the poor accuracy problem of other GSI mapped wells (>50m accuracy) it is assumed (for the purpose of assessment) that every private dwelling in the area has a well supply.

15.8.20. There is no history of **flooding** with small localised areas of pluvial flooding mapped within the site within areas of low relief and/or relatively poorly draining soils/subsoils. The mapped pluvial flood zones do not affect any of the proposed wind farm infrastructure.

15.8.21. The site is located in the Glenville **Ground Water** Body (GWB: IE_SW_G_037) and is assigned 'Good Status'. The GSI mapped vulnerability rating of the aquifer within the proposed development site ranges between "High vulnerability" to "Extreme vulnerability" and this reflects the varying depth and permeability of the local subsoils. The bedrock is classified as a locally important aquifer.

Do Nothing

15.8.22. In a 'do nothing scenario' current land use practices will continue. In particular commercial deforestation and reforestation will continue at the site. Surface water drainage carried out in areas of forestry will continue to function and may be extended in some areas.

Likely significant effects

Construction Phase

15.8.23. There are a range of construction activities associated with the development of the wind farm with the potential to impact on hydrology and water quality during the construction phase. These include activities which could result in the mobilisation of sediment to water courses (including tree felling, earthworks and stock piling).

15.8.24. The construction of new infrastructure has also the potential to obstruct overland flow and the use of machinery during construction could result in spillages of fuels, oils, lubricants, other hydrocarbons and concrete.

15.8.25. Temporary dewatering of borrow pits and excavation for the turbine foundations has the potential to impact on local groundwater levels. The topographical and hydrogeological setting of the proposed borrow pits locations means no significant groundwater dewatering will be required during the works to the borrow pits during the construction phase

15.8.26. Diversion, culverting and bridge crossing of surface watercourses can result in morphological changes, changes to drainage patterns and alteration of aquatic habitats. Construction of structures over water courses has the potential to interfere with water quality and flows during the construction phase. It is proposed that 2 no. new stream crossing and 6 no. existing stream crossing upgrades will be required to facilitate the wind farm development. An additional 1 no. new crossing and 2 no. existing crossing upgrades will be required arising from the works required at Breeda Bridge along the turbine delivery route. There is a total of 2 no. watercourse crossings along the collector cable route, 1 no. existing culvert crossing and 1 no. open channel stream/watercourse crossing.

Operational phase

15.8.27. During the operational phase the main potential hydrological impact is an increase in run-off due to a decrease in ground water permeability at the turbine hardstands and substation locations. The potential increase in run-off is likely to be negligible due to the low permeability of the existing surface. Due to the elevated location and sloping nature of the majority of the lands no significant flooding issues are anticipated.

15.8.28. Oil will be used in cooling the transformers, with the potential for oil spills at the substation.

15.8.29. The Flood Risk Assessment (Appendix 10.1) concludes that the overall risk of flooding posed at the development site is estimated to be low which relates to the probability of being impacted by a 1000-year flood (i.e. the majority of the proposed development footprint is located in fluvial Flood Zone C); and that the risk of the wind farm contributing to downstream flooding is also very low, as the long-term plan for the site is to retain and slow down drainage water prior to release.

Decommissioning Phase

15.8.30. In the event of decommissioning the turbines would be removed off site and the hard stand areas would be remediated to match the surrounding land cover. The impacts would be similar to the construction stage, but of reduced magnitude.

Mitigation Measures

Construction Phase

15.8.31. An Environmental Manager will be employed for the duration of the construction phase to ensure that all of the mitigation measures are implemented, and a Construction Environmental Management Plan will be prepared in advance of the works. A Preliminary CEMP has been prepared for the project and is included as an Appendix of the EIAR.

15.8.32. Water quality protection will occur as part of a treatment train of mitigation, including source controls, in-line controls, treatment controls (including settlement ponds) and outfall controls. The design process to size the settlement ponds is set out in Section 2 of Appendix 2 of the further information response.

15.8.33. A 75 metre buffer zone to on-site streams/rivers is to be maintained. 2.9ha of the total proposed tree felling area (45.6 ha) will be required inside this 75-metre buffer zone. Additional mitigation will be required in such instances and is detailed in section 10.5.2.1 including silt traps, drain inspection and maintenance and surface water quality monitoring

15.8.34. All proposed new stream crossings will be bottomless or clear span culverts and the existing banks will remain undisturbed. No in-stream excavation works are proposed. 3no. possible crossing methods are proposed.

15.8.35. Best practise measures will be employed to prevent fuel/oil spills from entering watercourses (75m buffer to any watercourse, availability of spill kits, no refuelling within designated areas and the installation of permanent interceptors to cater for all substation surface water drainage). Temporary petrol and oil interceptors will be installed at the site compound for plant repairs/storage of fuels/temporary generator installation.

15.8.36. Surface water monitoring will be conducted throughout the construction period.

Operational stage

15.8.37. The potential for increased surface water runoff is the primary potential impact during the operational phase of the Proposed Development. The emplacement of the proposed permanent development footprint, (assuming emplacement of impermeable materials as a worst-case scenario) could result in an average total site increase in surface water runoff of approximately 16,543m^3 /month (Table 10-16). This represents a potential increase of approximately 4.8 % in the average daily/monthly volume of runoff from the site area in comparison to the baseline pre-development site runoff conditions. The operational phase drainage system of the proposed development will be installed and constructed in conjunction with the road and hardstanding construction work

15.8.38. There is the minor risk of oil spillages. This has been mitigated by design and the provision of adequate bunding which will be provided at construction stage. Vehicle movement will be restricted to the internal access roads and hard stands.

Decommissioning

15.8.39. There is potential for surface water run-off from exposed soil surfaces such as those that will cover the decommissioned turbine foundations, with the potential to result in slight negative effects on surface water quality. The site drainage and sediment control measures in place will prevent any silt laden run-off due to temporary disturbance and movement of soil from entering the local surface water network. No negative effect on surface water or ground water is envisaged during decommissioning.

15.8.40. It will be possible to reverse or at least reduce some of the potential effects caused during construction, and to a lesser extent operation, by rehabilitating constructed areas such as turbine bases and hard standing areas. This will be done by covering with vegetation to encourage vegetation growth and reduce run-off and sedimentation.

Residual Impacts

15.8.41. Subject to the implementation of the mitigation measures no significant residual effects on the water environment are predicted.

Cumulative Impacts

15.8.42. No significant cumulative impacts on any of the regional surface water catchment or groundwater bodies will occur from the proposed development including other wind farm developments.

EIAR Conclusion

15.8.43. The construction of the wind farm with the implementation of the proposed mitigation measures will not have a significant adverse effect on the hydrology and hydrogeology of the site and the surrounding area.

Assessment

15.8.44. The Board is advised that I address the potential for impact on designated sites in the appropriate assessment in section 16 below. As there is an overlap with this section I recommend that they be read in tandem.

15.8.45. A material number of observers have expressed concern as to the potential impact of the proposal on water quality and water supplies and I note the report from Ecohydrological Analysis Ltd. accompanying the submissions from Paddy Massey and Michael and Gianni Alen Buckley which critique the assessment and is of the opinion that there are significant shortcomings in the EIAR. The applicant's further information response refutes the criticisms made.

15.8.46. In response to the further information request on the geochemistry of the borrow pit near the entrance and risk of **acid drainage** the applicant notes, among other elements, that there is no history of mining in the area suggesting there is no significant mineral resource available in the local bedrock geology. The installation of existing forestry access tracks has created several cut and fill areas within the proposed wind farm site and there is no evidence of acid drainage from these exposures. It is concluded significant impacts on downstream water quality will not arise from this issue.

15.8.47. The **Tallow PWS** (3100PUB1096) has a surface water abstraction point on the Kilbeg Stream which is located approximately 1km to the northeast of the western

landholding. The scheme also has three production wells which are used to supplement the overall demand of the scheme which is approximately 240 – 280m^3 /day. Two of the wells are located within the same compound as the surface water off-take with the 3rd located at the Tallow reservoir site which is located approximately 2.5km to the northwest of the western cluster. During the summer period the groundwater / surface water proportion is typically 50:50. During winter the proportion is typically 85:15. Whilst approximately 82ha of the western cluster landholding (of the total 206 ha) is located within the Kilbeg Stream surface water catchment no proposed wind farm infrastructure is located within the catchment and, therefore, there is no potential for the development to impact on this existing surface water abstraction source. The estimated groundwater zone of contribution (ZOC) to the wells covers the elevated ground to the west of the surface water offtake compound and the lands to the southwest of the Tallow reservoir site. There is no proposed wind farm development in the ZOC of these Tallow PWS wells.

15.8.48. A number of observers express concern as to the potential impact on the Youghal PWS. Thomas Morley in his submission details his experience with projects relating to the upgrading of water treatment plants and outlines specific issues with the Youghal treatment plant. Uisce Eireann also raises the potential for impact on the water supply.

15.8.49. The **Youghal PWS** (0500PUB2510) has 2 no. surface water abstraction points on the Glendine River (located approximately 0.6km and 2.5km to the southeast of the eastern cluster) and 1 no. surface water abstraction point on the Tourig River (approximately 4.5km to the southeast of the eastern cluster). Raw water from the 3 no. abstraction locations is piped to the Boola Water Treatment Plant (WTP) which is located in Co. Waterford, approximately 2.5km to the southeast of the eastern cluster.

15.8.50. The abstraction points on the Glendine River are referred to as the Glendine Gravity Intake and the Glendine Pumped Intake. The Glendine Gravity Intake is 2km upstream of the Glendine Pumped Intake with the downstream distance from the eastern cluster being 1 and 3km respectively. The majority of the eastern cluster landholding (518 ha) which includes 11 no. turbines, substation, compound and 1 no. borrow pit is located in the Glendine River catchment upstream of the existing surface water abstraction locations. No part of the western cluster landholding is

located in the Glendine River catchment. The Tourig River abstraction point is located approximately 11km downstream of the western cluster. Approximately 159ha of the western cluster landholding (of the total 206 ha) is located within the Tourig River surface water catchment which includes 5 no. turbines, 1 no. borrow pit, 1 no. compound and the collector cable. Water from the Tourig abstraction location is pumped to the Boola Water Treatment Plant. All of Youghal PWS demand (approximately 110m^3 /hr) comes from the Boola Water Treatment Plant and the proportion form each of the abstraction points is as follows - Glendine Gravity Intake (59%), Glendine Pumped Intake (18%) and Tourig River (23%). Water treatment at Youghal PWS scheme comprises a mixture of coagulation, pH adjustment, Alum dosing, clarifiers and sand filters, with the final water receiving chloride and fluoride dosing. It is acknowledged that the scheme is very sensitive to changes in surface water turbidity and requires manual adjustment based on testing of raw water inflows. This sensitivity means effects of the proposed wind farm could be significant if adequate drainage mitigation and pollution prevention measures are not put in place.

15.8.51. Due to the public drinking water supply and proximity to designated sites the surface waters were given the highest possible sensitivity rating. In terms of constraints mapping, a 75m watercourse **buffer** is used which is 50% wider than the standard 50m buffer that would normally be used in wind farm layout design. I would accept that the increase in the buffer to 75 metres would provide for additional protection. Such a setback is not intended to be a complete exclusion zone but ensures there is adequate space between infrastructure and watercourses to install appropriate drainage controls. Due care will be required for the 2.9 ha tree felling within this buffer zone and for water crossings for which additional mitigation measures are set out in section 10.5.2.1.

15.8.52. In preparing the **drainage design** the stated objective is to prevent changes in surface water flows downstream and to utilise and integrate the existing forestry drainage where possible thereby limiting, as far as practicable, new construction/excavations. A surface water management plan and drainage plan has been prepared for the proposed development and incorporates best practice measures to ensure that surface water runoff from the developed areas of the site will be of a high quality and will, therefore, not impact on the quality of downstream

rivers. Detailed drainage management design and pollution prevention measures proposed during the construction phase are set out in Sections 10.5.2 and 10.5.3 with process flow diagrams for the borrow pit/spoil storage areas, hardstanding/turbine bases and proposed access roads submitted with the further information response (attached to Appendix 2).

15.8.53. The proposed design of the **settlement ponds** are provided in Appendix 4-6 of the EIAR with details on pond sizing provided by way of further information. They have been designed to accommodate a 100 year return period rainfall event. While settlement ponds form an important element of the drainage proposals for the site, they are not stand alone but occur as part of a treatment train of systems that will be applied in series to ensure protection of downstream watercourses. The treatment of site runoff occurs before and also continues after the settlement ponds, with the after treatment also utilising natural elements of the site such as the existing vegetated ground. Therefore, the final discharge effluent quality will not be achieved until the discharge passes through the last element of the treatment series train which is the vegetated ground. This makes use of the natural vegetation of the site to provide a polishing filter for the wind farm drainage before reaching the downstream watercourses. This is illustrated in the drainage design drawings in Appendix 4-6 of the EIAR. The wind farm drainage design seeks to achieve a design threshold for suspended solids at the point of discharge of <25mg/l in downstream receiving waters which is compliant with S.I. No. 293/1998 European Communities (Quality of Salmonid Waters) Regulations, 1988, and the Water Framework Directive requirements. If the discharge water from construction areas fails to be of a high quality then a filtration treatment system (such as a 'Siltbuster' or similar equivalent treatment train) will be used to filter and treat all surface discharge water collected in the dirty water drainage system. Regular inspections will be undertaken especially after heavy rainfall to assess the effectiveness of the water treatment trains and this will include a visual assessment of water quality and also portable probes for field hydrochemistry monitoring (turbidity, pH, electrical conductivity etc). See the CEMP in Appendix 4-4 for further details. Corrective measures will be carried out as appropriate such as silt build-up removal or replacement/upgrade works.

15.8.54. A number of observers express concern as to the possibility of settlement ponds being breached. Whilst such a scenario could arise during extreme weather events

this would be within the context of downstream watercourses already being in flood conditions and turbidity levels/sediment load being naturally elevated. As noted above the ponds are designed to accommodate a 100 year return period rainfall event.

15.8.55. Having regard to the concerns expressed by Uisce Eireann about the land use changes and alterations to drainage patterns I would accept the applicant's assertion that due to the relatively small scale of the proposed development with a footprint of 23.3ha with 6.4ha already in place (existing forestry roads and farm tracks) and the total catchment area upstream of the abstraction locations of c. 50km^2, the potential for effect is negligible. The proposed development footprint would account for <0.5% of the catchment to the Youghal water supply

15.8.56. A number of observers raise concerns that the **location of the substation** is a wetland area feeding into the Glendine River with video footage provided in the submissions by Paddy Massey and Michael and Gianni Alen Buckley. Trial pits carried out at the site of the substation (TP9 and TP10) show ground conditions comparable to the rest of the site. Whilst some surface water drainage was noted no groundwater inflows were recorded below ground level which would be expected were it a wetland. The drainage regime and minimum 75 metre setback from the Glendine headwater stream as discussed above will be applicable at this location.

15.8.57. I consider that sufficient detail has been provided to support the assertion that the public water supply would be adequately protected. I note that Waterford County Council recommend the use of Siltbuster or equivalent measures if the surface water leaving the site does not comply with <25mg/l TSS and pH6-9. Cork County Council, while noting the risk to surface water and groundwater quality, considers that the risk can be mitigated with no objection to a grant of permission subject to conditions. I also note the conditions recommended in Uisce Eireann's submission on the application. These can be ensured by way of condition should the Board be minded to a grant of permission.

15.8.58. The site is within the **Glenville Groundwater Body** and underlain by an aquifer of relatively low productivity with groundwater flow paths typically short (200 – 300 metres maximum). In the assessment each dwelling was assumed to be served by a **well**. Due to the nature of wind farm development being near surface,

construction activities impacts on groundwater are very small with the primary risk to groundwater arising from cementitious materials, hydrocarbon spillage and leakages. Mitigation measures to protect against such events are detailed. The closest dwelling downslope is at least 500 metres away which is at least 1.5 times the expected groundwater flow path distance (i.e. 200-300 metres) for the aquifer type of relatively low productivity. Thus pollution risk is extremely low. In addition excavations of 3-4 metres in depth for the turbines does not have the potential to alter the groundwater level in a well 500 metres away. Save for TP06 no water was encountered in any of the trial pits and I would accept that the site does not have a shallow groundwater table. TP06 was a point at a remove from the proposed wind farm infrastructure. Due to the location of the borrow pits and the relatively shallow excavations proposed on the side of hills/elevated ground issues with dewatering are not envisaged.

15.8.59. In terms of concerns expressed about **tree felling** the applicant notes that the said felling accounts for only 6.6% (46.6ha) of the existing forestry (c.690 ha) and is split between 3 no. sub-catchments (Glendine, Tourig and Glenaboy rivers) thereby further reducing the potential for downstream effects. The felling area accounts for less than 1% of the total catchment area to the Youghal public water supply intake (Glendine and Tourig combined). It is acknowledged that felling would occur with or without the development. The development footprint equates to 23.3 ha which is less than 3% of the total development site area of 833ha and I would accept that any increase in surface water would be small and can be satisfactorily dealt with prior to discharge to receiving waters.

15.8.60. An Operational Phase Emergency Response Plan will be put in place which would include measures to address any failure within the **substation** and **battery storage area**.

15.8.61. Whilst I note the reference by a number of observers to the fact that the area was previously determined to be unsuitable for a landfill I submit that the development as proposed is not comparable and must be assessed on its merits.

15.8.62. Adherence to the detailed mitigation measures will ensure that the development will not impact any surface water or groundwater body as it will not cause a deterioration in the status of the body and/or it will not jeopardise the attainment of good status.

The drainage system has been designed to achieve compliance with surface water Environmental Quality Standards in the downstream receiving waters. A **Water Framework Directive Compliance Report** is provided with the response by Hydro Environmental Services on behalf of the applicant to the further information request.

15.8.63. As noted above the site is not within an area identified as at risk of **flooding**. The proposed wind farm development intends to mimic the prevailing hydrology as much as possible and provides attenuation and water treatment proposals where required. It is a mitigation of the development to preserve and protect all existing watercourses by ensuring all surface water runoff is treated (water quality control) and attenuated (water quantity control) prior to diffuse discharge at pre-existing Greenfield rates. As such the mechanism by which downstream flooding is prevented and controlled is through avoidance by design.

Water – Conclusion

15.8.64. I have considered all of the written submissions made in relation to water, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of water.

15.9. Air and Climate

Environmental Impact Assessment Report

Chapter 11 address air and climate with Carbon Balance Calculations provided in Appendix 11-1.

Receiving Environment

15.9.1. EPA ambient air quality data is used to characterise the existing air quality in the area and is typical of that of rural areas in the south of Ireland i.e. Zone D. The ambient air quality monitoring carried out closest to the site is at Cork Harbour (within EPA Zone B) c. 30 km to the south-west. Table 11-9 sets out monthly and annual mean temperature, sunshine, rainfall and wind as recorded at the Met Eireann weather station at Cork Airport.

Do Nothing

15.9.2. In a do nothing scenario there would be no change to the prevailing air environment. The opportunity to reduce emissions of carbon dioxide, oxides of nitrogen (NO_x) and sulphur dioxide (SO_2) to the atmosphere would be lost due to the continued dependence on electricity derived from fossil fuels rather than renewable energy sources.

Likely Significant Effects

Construction Phase

15.9.3. The main emissions likely to be generated during the construction phase are dust and exhaust emissions from vehicles both within and transporting to the site. The construction phase will also involve the use of plant which will generate exhaust emissions. Given the scale of plant and machinery involved, the high levels of dispersion and the limited extent and duration of the construction phase significant impacts to air, climate and sensitive receptors are not predicted.

Operational Phase

15.9.4. Once operational there will be no direct emissions to the atmosphere from the windfarm. Emissions from service vehicles would be limited. The electricity generated will result in a reduction in CO_2 and other emissions associated with the generation of electricity from fossil fuels. The impacts will, therefore, be positive in terms of air quality and climate. The methodology set out in '*Calculating carbon savings from wind farms on Scottish Peatlands'* developed by the Scottish Government was applied to the development. As there is no peat within the development footprint of the site all potential carbon losses associated with a wind farm on peatland environments were discounted. The theoretical worst case carbon losses due to the wind farm are set out in Table 11-10 with copies of the output from Scottish Government's carbon calculator provided in Appendix 11-1.

Decommissioning Phase

15.9.5. The decommissioning stage is expected to result in similar impacts as the construction phase, but of reduced magnitude as elements of the development including substation and roads would remain in place.

Mitigation Measures

Construction Phase

15.9.6. During construction standard mitigation measures will be employed to control dust and air emissions. A Construction and Environmental Management Plan (CEMP) will be in place for the construction phase (see Appendix 4-4) and includes dust suppression measures. These measures include maintenance of construction vehicles and plant in good operational order. Turbines and construction materials are to be transported to the site via specific routes, only. When stationary, delivery and on-site vehicles are to be switched off. The transport of construction materials that have significant potential to cause dust will be covered. Dust suppression measures will be used along haul roads, site roads and around borrow pit areas during periods of dry weather. Agreed haul roads adjacent to the site are to be regularly inspected and any material deposits are to be removed. All plant and materials vehicles are to be stored in dedicated areas on site. Areas of excavation and stockpiling of materials are to be kept to a minimum. The transport of spoil will be minimised.

15.9.7. Tree felling will be carried out in accordance with Forest Service guidelines and in compliance with any felling licence granted.

Operational Phase

15.9.8. No mitigation is required during the operational stage. The loss of CO_2 will be offset quickly. Any trees felled will be replanted in another location resulting in no net loss.

Decommissioning Phase

15.9.9. Similar measures to mitigate dust and vehicle emissions as detailed for the construction phase are proposed.

Residual Impacts

15.9.10. No residual impacts are anticipated. The operational stage will have significant, long term beneficial effects on air quality and climate

Cumulative Impacts

15.9.11. There will be no significant cumulative impacts from the construction phase on either air or climate which are temporary in duration. The potential cumulative operational

impact with other renewable energy projects will be long term, significant and positive on air and climate.

EIAR Conclusion

15.9.12. The construction of the wind farm will have a long term, moderate positive impact on air and climate.

Assessment

15.9.13. The **carbon balance** of the proposed wind farm development has been raised by a number of observers. In the absence of an Irish equivalent the assessment uses the Scottish Government's carbon calculator which is an established methodology developed to determine the carbon impact of windfarm developments. The methodology calculates the carbon costs of windfarm development with the carbon savings attributable to the windfarm. The total carbon emissions savings from a wind farm are estimated with respect to emissions from different power generating sources and loss of carbon associated with the production, transportation, erection, operation and decommissioning of the windfarm. Carbon losses as a result of felling are also taken into account. It uses a full life cycle analysis approach and includes restoration of the site after decommissioning.

15.9.14. At the outset I note that the site is underlain by Sandstone Till and rock outcrop. There is no peat present within the development footprint of the site. Working within the parameters of the Scottish Government's carbon calculator the calculations are based on the entire development footprint being 'Acid Bog' which is one of two choices available. As the habitat impacted by the development comprises of commercial forestry and grassland underlain by Sandstone Till rather than acid bog the actual CO_2 losses arising from ground activities are expected to be lower than the 26,224 tonnes calculated. The worst case scenario, including the non-restoration of hydrology and habitats following decommissioning, equates to 154,257 tonnes. It is estimated that 2,429,706 tonnes of CO_2 will be displaced over the 30 year lifetime of the development. The 110,315 tonnes of CO_2 that will be lost to the atmosphere due to the construction and operation of the proposed development will be offset by the development in approx.18 months of operation.

15.9.15. I am satisfied that significant carbon savings will be achieved compared to power derived from more conventional forms of power generation and will have a positive impact in terms of climate.

Air and Climate - Conclusion

15.9.16. I have considered all of the written submissions made in relation to air and climate. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of air and climate.

15.10. Material Assets

Environmental Impact Assessment Report

15.10.1. Section 15 of the EIAR deals with material assets and addresses traffic and transport, telecommunications and aviation and is supported by Appendix 15-1 which provides Swept Path Analysis Figures. Further details are provided on roads and entrances in the response to further information.

Receiving Environment

Roads and Traffic

15.10.2. The site is located within a rural area well connected by a network of local and regional roads. The eastern cluster is accessed from an existing forestry access on the east side of the R634 regional road and will provide for abnormal load access only. An existing forestry access from the L2003 will provide for all general construction traffic, including construction staff. It will also provide access for maintenance staff to the eastern cluster when operational. An access from L7806 local road will be the sole access to the western cluster and will provide for the delivery of abnormal loads and the delivery of general construction traffic. It will also provide access for maintenance staff once the wind farm is operational.

15.10.3. A haul route from Waterford port for the large turbine components is identified via the R448, N25, R634 and onto the local road network. The delivery route for

general HGV construction traffic will vary depending on the location of materials suppliers.

15.10.4. Baseline traffic volumes have been determined. A continuous traffic counter is maintained by TII on the N25 to the north east of Dungarvan. Traffic data from this site together with a peak period classified turning count undertaken at the N25/R634 roundabout located to the north of Youghal, and an all-day count undertaken on the R634 adjacent to the proposed access on Wednesday 25th September 2019, were used to provide background traffic volumes on the local public road network.

Utilities

15.10.5. The existing Knockraha-Woodhouse 110kV overhead line (OHL) traverses the south-eastern section of the site.

15.10.6. The nearest operational airport to the site is Cork Airport, located approximately 40 kilometres to the southwest.

Do Nothing

15.10.7. In a do nothing scenario there will be no additional traffic generated or accommodation works carried out on the local road network and therefore no direct or indirect effects on roads and traffic. There would be no change to existing telecommunications and aviation operations in the area.

Likely Significant Effects

Construction Phase

15.10.8. The construction phase of the proposed development is expected to last approximately 18 to 24 months. While works could take up to 24 months, 18 months was assumed for the purpose of the assessment in order to test the worst-case scenario. For assessment purposes a standard 255 working days per annum was adopted, with 382 working days assumed for the entire construction stage of the Proposed Development.

15.10.9. **Stage 1** – Site Preparation , Ground Works and Concrete Pours (334 days). During this construction phase, there will be two distinct types of days with respect to trip generation. A total of 17 days will be used to pour the 17 concrete wind turbine foundations. Foundations will likely be poured one per day, with an estimated 75 concrete loads required for each turbine foundation delivered to the site over a 12-

hour period. This will result in just over 6 HGV trips to and from the site per hour. On the remaining 317 working days for this stage, other general construction materials will be delivered to the site. It is estimated that 5,591 two-way trips will be made to the sites by trucks and large articulated HGVs,

15.10.10. **Stage 2** – Turbine Component Delivery and Turbine Construction (48 days). During this stage 153 trips will be made to and from the site by abnormally large vehicles. There will also be 68 trips made by normal/conventional large HGVs, transporting cables, tools and smaller component parts.

15.10.11. It is estimated that a maximum of 100-120 staff members will be employed on the site at any one time during the site preparation and groundworks stage of construction, reducing to a maximum of 80 staff at any one time during the turbine construction stage. On the basis of a worst case scenario where all staff will travel to/ from the site by car, at an average of 2 persons per car, a total of 120 PCU movements (each trip is two way) will be added to the network during the groundworks stage of the development, reducing to 80 PCU trips during the turbine construction stage.

15.10.12. An assessment of the impact on link capacities in the study area was undertaken for the various construction stages as set out in Table 15.22 and Table 15.23. The capacity for each link in the study area is shown in Table 15-21.

15.10.13. During the 317 days for the site preparation and ground works when deliveries to the site will take place, the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from 1.3% on the N25, to an increase of 11.3% on the R634 and 16.2% on the local roads approaching the site. During the 17 days when the concrete foundations are poured the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from 3.4% on the N25, 29.3% on the R634 and 41.7% on the local roads leading to the site access junctions. During the 17 days of the turbine construction stage when general materials are delivered to the site, the delivery of construction materials will result in a negative impact on the surrounding road network, increasing traffic levels, ranging from 0.7% on the N25, 5.8% on the R634 and 8.3% on the local roads leading to the site access junctions. During the 31 days when the various component parts of the wind turbine plant are delivered to the site using

extended articulated HGVs, the effect of the additional traffic on these days will be moderate, resulting in increased traffic volumes of 1.0% on the N25, 8.7% on the R634 and 12.3% on the local road network. The delivery of the large plant is proposed to be done at night.

15.10.14. Along the turbine delivery route pinch points have been identified and are described in section 15.1.8.1. Save for two locations works on the route will be minor, only, for example the temporary removal of some street signs or furniture, or the temporary levelling of the centre island of some roundabouts.

15.10.15. Location 13 **– Bend on R634 at Lackarde Post Office** (see Figures A15.1.25 and A15.1.26). The swept path analyses undertaken at this location indicates that the blade transporter will require an area of local widening into the southwest corner of the road verge / field in order to accommodate this location opposite the post office located on the R634. The area impacted will be restored to its original state post construction.

15.10.16. Location 14 – **L7806 Breeda Bridge** (See Figures A15.1.27). A new local access track 5 metres wide and 300 metres long will be laid on agricultural land on the northern side of the existing L7806 in order that the abnormally sized turbine vehicles are able to negotiate this location. This temporary access road will be constructed using geogrid / geotextile with the area proposed to be re-instated to its original state post construction. The road will be closed by means of fencing at all other times during the construction period and will be closed off post construction.

Operational Stage

15.10.17. It is assumed that the wind farm will be unmanned once operational and will be remotely monitored. Traffic associated with the operational phase of the wind farm will be from the wind farm operator, Eirgrid personnel visiting the substation, and operation / maintenance personnel who will visit individual turbines. It is estimated that the traffic volumes that will be generated by the development once it is operational will be minimal.

Decommissioning Stage

15.10.18. It is proposed to leave turbine foundations and hardstanding areas in place, to be covered with soil/topsoil. The access roads are to be left in situ. This approach is considered to cause less environmental damage than removing and recycling them.

However, if removal is deemed to be required all infrastructure will be removed with mitigation measures similar to those during construction being employed.

Mitigation Measures

Construction Phase

Roads

15.10.19. Impacts on roads and traffic will be mitigated by a **Traffic Management Plan** which shall include standard measures to enhance safety, reduce delays, congestion and inconvenience to local residents and road users. A traffic management co-ordinator will be appointed for the duration of the project. Communications are to be maintained with the local community and local authorities regarding road closures, night time deliveries etc. Where required by the local authorities pre and post construction surveys will be conducted to verify the structural condition of the proposed turbine delivery route road network. All road surfaces and boundaries will be re-instated to predevelopment condition, as agreed with the local authority engineers.

15.10.20. The developer will provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking.

Utilities

15.10.21. Regarding television and telecommunications, no interference with television reception is anticipated. The final proposed turbine layout does not overlap with any of the telecoms links or clearance zones requested by operators. In accordance with standard practice, the developer will be responsible for resolving any issues should they arise. The applicant will sign a Protocol Document with RTÉ Transmission Network (operating as 2rn), which is a standard requirement for all wind farm developers. This document will ensure that the developer is responsible for rectifying any unanticipated broadcast interference arising to RTÉ television or radio reception as a result of the proposed wind farm.

15.10.22. The lighting requirements of the IAA in terms of lighting and entering of details into aircraft navigation databases will be complied with to ensure avoidance by aircraft.

Operational Phase

15.10.23. No mitigation measures required.

Decommissioning Phase

15.10.24. In the event that the windfarm is decommissioned after the 30 years of operation, a decommissioning plan, including material recycling / disposal and traffic management plan will be prepared for agreement with the local authority. This plan will contain similar mitigation measures to those implemented during the construction phase.

Residual Impacts

15.10.25. Subject to the implementation of the mitigation measures during the construction and decommissioning phases no residual impacts are anticipated.

Cumulative Effects

15.10.26. Although there are three permitted wind farms within 20 kilometres of the proposed development (Knocknamona Wind Farm, Barranafaddock Wind Farm and Woodhouse Wind Farm phases 1 and 2), there will be no cumulative impacts relating to the proposed Development and surrounding projects in relation to roads, telecommunications or aviation. During the development of any large project that holds the potential to effect telecoms or aviation, the developer is responsible for engaging with all relevant Telecoms Operators and Aviation Authorities to ensure that the proposals will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the developer for each individual project is responsible for ensuring that the necessary mitigation measures are in place. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise.

EIAR Conclusion

15.10.27. The conclusion reached in the EIAR is that the proposed development does not constitute a significant adverse effect on the material assets having considered cumulative effects with other existing and/or approved projects.

Assessment

15.10.28. Whilst I accept that the increases in traffic, the potential restrictions relating to lane/road closures and the transport of abnormal sized loads on the road network during the **construction phase** may cause inconvenience and annoyance to local residents and regular road users, these impacts will be temporary and relatively short in duration and will be managed in accordance with a **Traffic Management Plan** to be agreed with the relevant local authorities.

15.10.29. A number of observers contend that the consideration of the **haul route** is insufficient and does not provide for a comprehensive assessment of the impact of the overall development. I would not concur with this view. I consider that the haul route for turbine components has been clearly identified as delineated on Figure 15.2a with a route assessment set out in Section 15.1.8. The locations considered along the route are highlighted in Figures 15.2a and 15.2b. For these locations, preliminary road and junction alignments, based on site surveys, have been provided. A preliminary swept path analysis was then undertaken using autotrack in order to establish the locations where the wind turbine transport vehicles will be accommodated, and the locations where some form of remedial measure(s) will be required. The measures identified are mostly minor temporary alterations largely comprising of the removal of road signs, alterations to central reserves, roundabout alterations and local widening within the curtilage of the public road. The two locations where more substantial temporary works are required, namely on the R634 at Lackarde Post Office and on L7806 Breeda Bridge, are detailed in full.

15.10.30. Table 15-7 (Chapter 15) of the EIAR sets out the total vehicular movements estimated to be required for site preparation and ground works during the construction phase of the Proposed Development. Whilst it is anticipated that the volumes of rock available in the 3 no. borrow pits will be sufficient to meet the development's requirements the **trip generation estimates** provide for a scenario where 20-25% of the crushed rock would have to be imported on site. I consider that this provides for a conservative approach and is acceptable.

15.10.31. The applicant has committed to undertaking a **pre-commencement strength and condition survey** on sections of the L-7806 to be agreed with Cork County Council. Subsequent to the findings of the assessment the applicant will engage with the Council to discuss if road strengthening works are required, the extent of works and the appropriate level of financial contribution. In addition a **before and**

after condition survey will be undertaken on the R634, L-7806 and L-2003 in the proximity of the site access junctions. Based on the findings of the assessment the applicant will engage with Cork County Council and Waterford City and County Council to agree the extent of any repairs required and the appropriate level of development contribution required.

15.10.32. The issue of interference with **telecommunications** and impact on business/work practices has been raised by a number of observers and in this regard I note that the applicant endeavoured to give as a comprehensive list as possible and details of contact with stakeholders. Any impact in terms of electromagnetic interference or interference with telecommunications will be required to be resolved by the developer. Should the Board be minded to grant permission a condition should be attached which requires the applicant to introduce measures at its expense to minimise interference should such interference arise.

Material Assets – Conclusion

15.10.33. I have considered all of the written submissions made in relation to material assets. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of material assets.

15.11. Cultural Heritage

Environmental Impact Assessment Report

15.11.1. Chapter 14 of the EIAR addresses Archaeology and Cultural Heritage with supporting detail provided in the following appendices:

Appendix 14-1 Legislation and Policy

Appendix 14-2 Desktop Assessment

Appendix 14-3 Recorded Monuments List

15.11.2. Further details on historic houses and landscapes within the Blackwater River Valley from Villierstown to Youghal Bridge are provided in response to the Board's request

for further information. Additional photomontages are provided which should be viewed in conjunction with this assessment.

15.11.3. The assessment methodology included a combination of desk top studies using recognised data bases supported by mapping sources and aerial imagery followed by site inspections. The assessment also covers the proposed haul route. Limitations were encountered where, dense overgrowth in places, meant that some recorded monuments were not accessible or visible when accessed.

Receiving Environment

15.11.4. There are no **national monuments** within or in the vicinity of the site with the nearest c. 5.6 km to the south with a further 3 no. within a 10 km radius. There are 3 no. **recorded monuments** within or on the site boundary, details of which are given in Table 14-3, plates 14-76 and 14-77 and are delineated on Figures 14.7 and 14.8. The nearest RMP CO055-12, an enclosure, is c. 263 metres from T17. The area, while accessible, was overgrown and the monument was not readily visible. The 2nd RMP CO055-069/WA033-016, a ford, is c. 569 metres from T17 with no visible surface trace. The 3rd RMP CO056-09/WA033-14, a boundary wall, is c. 277 metres from T5 located within an overgrown inaccessible area. 170 monuments are identified within 5 km of the proposed turbines. RMP CO055-070, a standing stone, is located within the 100 metre corridor of the grid connection including the water crossing. The locations of the RMPs are shown on Figures 14.7 and 14.8.

15.11.5. No new sites were encountered but it is possible that previously unknown subsurface archaeological finds, features and deposits may be present within the site, along the grid connection route and the proposed road work locations along the haul road.

15.11.6. **Protected structures** within 5km of the site within the administrative area of Cork County are provided in Table 14-4, the nearest being Temple Valley House and Offices c.2.8km from T13. Due to the absence of digital datasets for the RPS in County Waterford the NIAH was consulted on which the RPS is largely based. The nearest is a Farm House located 742 metres from T1. RPS structures in Cork are delineated on Figure 14.12. The location of the NIAH sites for Cork and Waterford are listed in Table 14-5 and shown in Figure 14.13.

15.11.7. Local cultural heritage features which do not have any statutory standing are also identified with an historic settlement located outside the site to the north of T16.

15.11.8. Townland boundaries and county boundaries also occur within the site.

Do Nothing

15.11.9. In a do nothing scenario the site would continue to be managed as an existing commercial forestry with some agricultural uses interspersed. Any unknown subsurface archaeological sites would remain in situ.

Likely Significant Effects

Construction Phase

15.11.10. There is potential for construction stage impacts on unknown subsurface archaeological features. The 3 no. recorded monuments identified within the site are located at a remove from the proposed infrastructure.

15.11.11. Part of the historic road associated with the historic settlement north of T16 will be utilised as the new access to T16.

15.11.12. There will be direct impacts to a small section of some townland boundaries where they will be crossed by roads and the grid connection cable route.

Operational Phase

15.11.13. 4 of the 17 turbines could potentially be seen from the North Dominican Friary, Youghal which is a national monument.

15.11.14. The zone of theoretical visibility suggests that 13-17 turbines may be visible from the majority of the recorded monuments and NIAH structures located within 5km.

Decommissioning Phase

15.11.15. No direct or indirect decommissioning phase impacts are predicted.

Mitigation

Construction Phase

15.11.16. Protective buffer zones are to be provided around the known recorded monuments within the site to prevent incursion into the zone of influence.

15.11.17. Predevelopment licensed archaeological testing of the green areas within the site and along the haul route are proposed in addition to a licenced metal detection survey of the watercourse prior to cable route excavation. Licenced archaeological

monitoring is to be undertaken of any further geotechnical/engineering trial pits and investigations and during all ground works during the construction phase including the laying of the cable connection.

15.11.18. A photographic and descriptive record of the boundary removal associated with the historic road and settlement will be undertaken by the monitoring archaeologist in advance of groundworks associated with T16.

15.11.19. A photographic and descriptive record of any townland boundaries that are proposed to be removed during construction will be undertaken by the monitoring archaeologist.

Operational Phase

15.11.20. As it is not possible to mitigate the indirect effects of the turbines in the wider landscape setting there are no mitigation measures for this potential impact.

Decommissioning Phase

15.11.21. None proposed.

Residual Impacts

15.11.22. Sites/features, if detected, will be preserved by record or preserved in situ. Residual impacts are likely to be not significant.

15.11.23. The zone of theoretical visibility from recorded monuments and NIAH structures is based on the worst case scenario with natural screening/vegetation likely to minimise any potential effects on setting. The residual impacts are considered to be slight.

Cumulative Impacts

15.11.24. In the wider landscape setting the ability to view other wind turbines both existing, permitted and proposed from recorded monuments and RPS and NIAH structures is such that cumulative effects on setting of cultural heritage assets may occur. These cumulative effects are likely to be mitigated by natural screening, vegetation and distance.

EIAR Conclusion

15.11.25. The conclusion reached in the EIAR is that the proposed development would not have a significant adverse effect on cultural heritage having considered cumulative effects with other existing and/or approved projects.

Assessment

15.11.26. There is an overlap with my assessment on landscape in section 15.11 below in which I will also address the impact of the proposal on the Blackwater River Valley and I recommend that the sections be read in tandem.

15.11.27. A number of observers including Maurice Hennessy and Johnny and Mary Mills raised concerns regarding impact on **archaeological** sites including lack of access to the recorded monuments within the site. This lack of access to 2 of the 3 recorded monuments due to overgrowth is acknowledged as a constraint in the EIAR. I note that none of the recorded monuments are within the footprint of the infrastructural works and are to be appropriately protected during the construction phase. Whilst no new archaeological sites or monuments were recorded during site investigations including the collector network cable route and haul route the potential for, as yet, unrecorded subsurface sites/artefacts is acknowledged with the potential for direct impacts during the construction phase. The applicant proposes standard best practice measures including pre-development archaeological testing and construction stage monitoring which will ensure that potential impacts are effectively mitigated. The **Coillte Code of Practice** as referenced by Mr. Hennessy is the Code of Practice between Coillte and the Minister for the Environment and Local Government, the purpose of which is to provide a framework within existing legislation and policies to enable Coillte to proceed with the management of its forests in a manner that ensures the safeguarding of the State's archaeological heritage. It is not directly applicable to the applicant in its realisation of the proposed development.

15.11.28. I note reference by a number of observers to the application for **UNESCO World Heritage Site** status for the Lower Blackwater River including the submission by Eachtra Archaeological Services which is accompanied by a report titled Heritage Study: Blackwater Valley, Lismore to Youghal that was submitted to Waterford City and County Council, Cork County Council and the Department of Housing, Local Government and Heritage as part of a bid to have the area added to the tentative list

for consideration. I also note the submissions from Patrick Massey and Michael and Gianni Alen Buckley which are accompanied by a paper by Dr. John Oiley titled The Physical and Cultural Landscape of the Blackwater Valley.

15.11.29. At the time of writing this report the most recent World Heritage Tentative List for Ireland issued by the Department of Housing, Local Government and Heritage in July 2022 does not include the River Blackwater Valley.

15.11.30. A number of observers and Waterford City and County Council's Conservation Officer have queried the basis for the **5km radius** for the assessment of impact on recorded monuments, protected structures and structures in the NIAH raising concerns as to the adequacy and completeness of the assessment on the **archaeological** and **built heritage**. In this regard I note that there are no legislative requirements in terms of minimum radius distances to be applied nor guidance in terms of best practice. The 5km distance applied extending to 10km for consideration of National Monuments is therefore based on the professional judgement of the consultants retained to carry out the assessment. The reasoning provided is that, in the main, protected structures are largely in private ownership and have limited or no public access whilst national monuments are normally accessible to the public.

15.11.31. Following further information the assessment of the proposal on historic houses, castles and demesnes within the **Blackwater Valley from Villierstown to Youghal Bridge** was undertaken and are detailed in Table 1 of Tobar Archaeology Report. The nature of the valley, which is topographically lower than the surrounding landscape, results in the majority of the area being outside the zone of theoretical visibility. 3 no. of the 10 no. identified properties, only, are within the zone of theoretical visibility, namely Camphire House and Castle, 17th century house at Headborough and D'Loughtane House. I note that **Molana Abbey and Ballynatray House in Ballynatray Demesne** are located within the 5km assessment zone and were included within the original analysis. Due to their river valley location, lower than the surrounding landscape and mature tree cover, no visibility of the turbines would arise.

15.11.32. In terms of **Camphire House and Castle** views from the site are greatly constrained by the highly vegetated landscape. I would accept the conclusion that it is highly

unlikely that the development will be visible from this location due to the presence of a mature deciduous treeline upon the ridgeline.

15.11.33. In terms of the **17th century house at Headborough** which is located below the crest of the valley, both the topography and woodland enclosing the house to the west and south would screen any views in the direction of the proposed development.

15.11.34. Photomontage 23 is captured from **D'Loughtane House** c.6.4km from the nearest turbine (T6). The turbines of the eastern cluster are visible from this location, although I concur with the assessment they are small background elements located at the left hand extent of the views of the Blackwater Valley.

15.11.35. An assessment of houses, castles and demesnes along the **Bride River Valley** from Tallow to the confluence with the Blackwater was also undertaken. The river valley mainly falls within the ZTV, in particular, towards the western end. 3 of the 4 properties assessed have a theoretical visibility, namely Lisfinny house, demesne and castle, Kilmore House and Ballynaraha Castle

15.11.36. Viewpoint 26 shows a view from **Lisfinny House/Demesne and castle** over the valley of the River Bride and the settlement of Tallow. The proposed turbines are seen as background elements within the view, above and behind the ridgeline formed by the valley walls, above a tract of commercial forestry. I would concur with the assessment that changes to the view from the house/grounds would not be significant.

15.11.37. **Kilmore House** to which access could not be secured by the applicant is located on the edge of the ZTV. I accept the conclusion that this, coupled with existing vegetation, would result in limited to no visibility of the proposed development.

15.11.38. Viewpoint 24 shows a view from outside **Ballynaraha Castle**, which is located on private lands with no public access. A single turbine is seen above the treeline in this view. This turbine is also located to the right of the main view of the Blackwater Valley from this location, and consequently causes limited interference with views of the Blackwater Valley as a result.

15.11.39. Niall Slevin in his submission queries the impact on the **thatch cottage** at Glennaglogh which is a protected structure and is within 5km of the proposed development. By way of further information the applicant has advised that according

to the ZTV 13 to 17 turbines may theoretically be visible from the dwelling and the visual effects on setting are considered to be slight/moderate.

15.11.40. The potential impact of the proposal on **Kilcalf School House,** the gates and railings of which are protected structures, has been raised by Maria Conran. The building is approx. 1.5km km to the north of T12 and T13 and falls within the 5km study area in which it is acknowledged that within the zone of theoretical visibility between 13-17 turbines would be visible. Whilst a slight/moderate impact will arise this is not considered to be of a magnitude as to adversely impact on the setting of the said identified protected structure elements.

15.11.41. As noted previously the **Blackwater River Valley** from Villierstown to Youghal is topographically lower than the surrounding landscape and, thus, the majority of the area, including the river and lands to the east and west of same, are located outside the zone of theoretical visibility of the proposed development. I would concur with the view that the ability to see turbines from a structure does not necessarily indicate a significant or adverse effect. Taking into consideration these topographical variations, the location of the identified receptors relative to the proposed development, intervening mature vegetation and the separation distances I submit that the extent of visibility from protected structures and demesnes would be limited with impact on their setting also limited. None of the identified receptors are within protected views and prospects which I address in section 15.11 below. Whilst the protection of the setting of the above referenced protected structures and demesnes is an objective of the respective county development plans it must be acknowledged that the landscape within which they are set is constantly evolving as is evident from the interventions including extensive commercial coniferous forestry, agricultural enterprises, one off housing and telecommunications and energy infrastructure (overhead power lines). A balance must be struck between the protection of the landscape as is with the already sizeable interventions and the significant pressures arising from the need to provide for alternative energy sources.

15.11.42. I consider that the assessment provided in the EIAR and supplemented by the details provided by way of further information is reasonable and proportionate and allows for a full and proper assessment. Certainly, whilst the proposed windfarm may be visible within the view shot of some of the protected structures and associated demesnes I submit the impact is not so significant as to warrant a refusal

of permission. As will be assessed in further detail below neither the Waterford City and County Development Plan nor the Cork County Development identify the site or its vicinity as a protected landscape in which wind energy development is discouraged.

Cultural Heritage – Conclusion

15.11.43. I have considered all of the written submissions made in relation to cultural heritage, in addition to those specifically identified in this section of the report. I am satisfied that any potential impacts would be avoided, managed and mitigated by the measures which 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 effects in terms of cultural heritage.

15.12. Landscape

Environmental Impact Assessment Report

15.12.1. Chapter 12 addresses landscape and volume 2 of the EIAR consists of photomontages. These are supported by the following appendices:

Appendix 12-1 – LVIA Methodology

Appendix 12-2 – Landscape Character Tables

Appendix 12-3 – Viewpoint Assessments

15.12.2. Further details were submitted by way of further information including additional photomontages from the perspective of the local community, the wider landscape along the Blackwater River and from the R627 south of Tallow. A total of 28 no. photomontages have been prepared[12].

15.12.3. The assessment is conducted in accordance with the methodology set out in the Guidelines for Landscape and Visual Impact Assessment (2013) published by the UK Landscape Institute and the Institute for Environmental Impact Management and

[12] The photomontages are labelled Nos.1 to 15 accompanying the EIAR and Nos.16 to 29 in the further information response. There is no No.18 photomontage, giving a total of 28 photomontages.

Assessment (CLVIA). The EIAR also lists other guidance documents used in the assessment.

15.12.4. The assessment included a desktop study and site visits with the tools used to assist in the assessment of visual effects including ZTV maps and photomontages.

15.12.5. By way of further information it is stated that the range of turbines as clarified by way of further information was fully assessed with a number of photomontages used to compare alterative turbine configurations as viewed from the near and medium distant positions.

Receiving Environment

15.12.6. As noted previously the site is characterised by a mix of commercial coniferous forestry and agricultural land with sporadic one off housing.

15.12.7. ***Note***: Since the preparation the EIAR and the further information response the 2022 Cork County and Waterford City and County Council development plans have been adopted.

15.12.8. Under the provisions of both the **Cork County Development Plan 2022** and the **Waterford City and County Development Plan 2022** the site is not within a landscape designated as being of high scenic value.

15.12.9. As per the Cork County Development Plan the site is within the landscape character area Fissured Middleground and is open to consideration for wind energy development. This is comparable to the provisions of the previous 2014 development plan.

15.12.10. The Board is advised that the previous Waterford County Development Plan (2011-2017 as extended) did not have a landscape character assessment. For the purposes of the EIAR the applicant assigned the Waterford section of the site as South Western Upland Plateau. In terms of scenic landscape evaluation the 2011 plan classed the majority of the site was classed as ‘Normal’ with a small section identified as ‘Sensitive’. Appendix A9 described this ‘Sensitive’ category as ‘areas which are open and exposed with sparse or low growing vegetation cover’ and further states that tall vegetation unless it is ‘broadleaved, mixed forest and transitional woodland scrub’ would not be appropriate. Most of the area marked as ‘Sensitive’ within the site boundary have been planted with commercial coniferous

forestry and as such do not comply with the 'Sensitive' category as described. The site was also within a 'preferred area' for wind energy development. As per the current 2022 Waterford City and County development plan the site straddles the landscape character areas of Farmed Lowlands and Foothills, is within a landscape designated as low sensitivity with the potential to absorb a wide range of new development and is designated as 'preferred' for wind energy development.

15.12.11. The EIAR (section 12.5.2.1) considers the **2006 Wind Energy Guidelines** and the guidance provided on aesthetic considerations including siting and design. Although the majority of the site is under forestry it is considered to have the qualities of 'Hilly and Flat Farmland'. The majority of the study area is considered to have the same qualities as the site with some areas in the far north reflective of 'Transitional Marginal Land' with areas to the south and west reflective of 'coastal' areas.

15.12.12. There are several **scenic routes** within the study area, the nearest being within County Cork on regional road R634 between Youghal and Tullow (ref. S45).

15.12.13. In order to assess the extent of visibility i.e. **Zone of Theoretically Visibility** (ZTV), the height above ground of the half blade is used which shows the greatest theoretical visibility (see Figure 12-1) and extends to 20km. It shows theoretical visibility concentrated in close proximity to the proposed turbines with mainly full or partial theoretical visibility and two large patches of reduced visibility to the south of the eastern turbines within five kilometres of the proposed development. Towards the edges of the 5km radius visibility is reduced by numerous river valleys, namely to the north on the southern side of the River Bride Valley, to the east by a valley created by an unnamed stream and the western side of the Blackwater Valley and various smaller valleys created by rivers and streams to the west.

15.12.14. The potential visual receptors were identified from the ZTV's and site visits and include settlements, designated scenic routes and scenic views, viewing points, recreational routes and recreational and tourist destinations and transport routes (see Figure 12-11).

Do Nothing

15.12.15. In a do nothing scenario the existing land use of commercial coniferous forestry would continue to be carried out on the site, including felling and replanting, in

addition to use of parts of the site for agriculture and other rural based activities including equestrian.

Likely Significant Effects

Construction Stage

15.12.16. The construction phase works will result in short-term, imperceptible, negative landscape effects. Most of the 18 to 24 months of the construction phase will be close to ground level and, therefore, not generally visible outside the proposed site boundary. The erection of turbines occurs towards the end of this period, at which point the visual effects will be similar to those during the operational phase. The works required along the haul route will only last for the duration of the construction phase and will be temporary in nature. Hence, during the construction phase, the proposed turbines and ancillary project elements will give rise to a short-term, not significant, negative visual effect.

15.12.17. As would be expected the substantive considerations arise with the operational stage of the development with the turbines in place.

Operational Stage

Landscape Effects

15.12.18. The introduction of vertical structures on the proposed development site will result in a change to its landscape character from its present condition. However the landscape of the site has been previously modified in character due to the coniferous commercial forestry occupying a significant portion of the lands within the site boundary

15.12.19. In County Cork turbines are proposed just within the eastern edge of LCT 10b Fissured Fertile Middleground. LCT 10b covers a large area and stretches up to approximately 61 kilometres west of the nearest turbine. Therefore, the magnitude of change on the LCT as a whole will be 'slight'.

15.12.20. The greatest magnitude of change will be experienced in the Co. Waterford (provisional) LCA1 South-Western Upland Plateau, in which parts of the proposed development are to be located. Mitigating factors are that the full theoretical visibility is mainly restricted to areas classed as a preferred area in the Waterford Wind

Energy Strategy Map and that there is widespread screening by forestry and roadside vegetation. While the forestry plantation is subject to cyclical felling, each section of forestry is at a different level of maturity. Hence, if one area is felled adjacent mature or semi-mature areas of trees will provide continuing screening meaning that when views towards the turbines are opened up, they will be localised over narrow areas.

15.12.21. When the landscape sensitivities to wind farm development of both counties are taken into consideration for both these landscape character units, LCT 10b (Low) and prov. LCA1 (Moderate), this resulted in landscape character effects of 'moderate' and 'not significant', respectively.

15.12.22. Windfarms are a feature of the wider landscape with the proposal identified as resulting in cumulative landscape effects ranging from low to medium.

Visual Effects

15.12.23. The ZTV maps indicate the extent of theoretical visibility of the turbines and the photomontages indicate the nature of the visibility. Within five kilometres, higher ground partially screens the turbines from many areas. Extensive areas of forestry and road-side screening provide additional screening. Key visual receptors, such as scenic routes and views, settlements, recreational destinations and routes as well as major transport routes were identified within the study area, after which those where visibility could be excluded due to ZTV mapping or site surveys were screened out. For the remaining, viewpoints were selected to assess the visual effects on the visual receptors. 15 no. viewpoints were chosen and assessed in the EIAR. This was supplemented by a further 13 submitted by way of further information. Appendix 12.3 of the EIAR and an appendix to the further information provide a description of each view. I will consider these in more detail in the assessment below.

15.12.24. A blade length of 56.5 metres and a hub height of 93.5 metres used in the EIAR is considered to be the most representative for assessment on the basis that the greatest extent of the entire turbine structure (blades and tower) would potentially be visible from the viewpoints assessed. It is termed the highest hub and shortest blade. It is stated that irrespective of which combination of hub height and blade length within the range is installed the significance of residual landscape and visual

effects will not be altered. To demonstrate this an alternative turbine configuration of the longest blade and lowest hub is presented for 3 no. selected viewpoints and are considered representative of short and medium range views.

15.12.25. The visual assessment concluded that residual visual effects of 'moderate' was deemed to arise at 7 no. of the 28 viewpoint locations. All other viewpoints were assessed as resulting in 'slight' (9) or 'not Significant' or 'imperceptible' (12) residual visual effects. Particular attention was given to the Co. Cork Scenic Route S45 on the R634 regional road passing between the two proposed turbine clusters with further information provided on same. Views from this route were found to be limited by topography and screening, except for the stretch of this route furthest away from the turbines where the long-distance views were in the opposite direction to that of the turbines. Furthermore, the nature of the views, across agricultural fields, are widely available around this area and not unique. Viewpoints were attempted at various locations along the scenic route, but due to limited visibility only one was selected. At this viewpoint (7(a) & (b)), which is located between the two turbine groups on a scenic route and only 0.67 kilometres from the nearest turbine, the visual effects are considered 'slight', due to extensive screening of much of the turbines. Two of the locations where 'moderate' visual effects are expected are within approx. 2 kilometres of the proposed turbines and the third is approx. 3.7 km away. Due to extensive screening only a 'slight' residual effect will occur at two other locations within 2 kilometres. Hence, overall, the visual effects are deemed to be 'slight' for the visual study area as a whole.

15.12.26. With regard to cumulative effects, in viewpoint 11 along a local road c. 2km to the southwest of the nearest turbine the existing Woodhouse Turbines and the permitted Knocknamona windfarm would be in view. Viewpoint 15 along scenic route 3 in County Waterford c. 16km to the north, turbines of the Barranafaddock windfarm are visible in the foreground. It is considered that due to distance, the existing/ permitted turbines will not be sufficiently visible to give rise to any but imperceptible cumulative effects. The cumulative visual effects are concluded to be long-term, neutral and imperceptible.

Mitigation

15.12.27. Mitigation during the operational stage is stated to be achieved through careful siting and design in accordance with the Wind Energy Guidelines, which minimises landscape and visual effects.

Cumulative Impacts

15.12.28. Cumulative visual effects arose in two of the 15 viewpoints, Viewpoints 11 and 15. In both cases the cumulative effects were considered 'negligible' primarily due to the distance between the wind energy developments. Hence, overall, the cumulative visual effects will be 'imperceptible'.

EIAR Conclusion

15.12.29. It is concluded that the cumulative landscape effects will be imperceptible and the visual effects would be slight for the visual study area as a whole.

Assessment

15.12.30. I have inspected the site and the surrounding area and have visited the viewpoint locations and examined the photomontages submitted. I consider they are sufficiently representative of views in the area and adequate for the purposes of the assessment. I also note the concerns raised by observers to the application and those raised by Cork County Council and Waterford City and County Council.

15.12.31. At the outset I note that the quality and accuracy of the submitted **photomontages** has been raised by a number of observers including the report prepared by Diana Joyce titled Conformance and Technical Assessment of the Applicant's Photomontages Visualisation for the Lyrenacarriga Wind Farm submitted with the observations from Paddy Massey and Michael and Gianni Alen Buckley. This is disputed by the applicant and in its further information response refutes the claims made providing further details as to the equipment used and technical process followed. It also provides an evaluation of the photomontages prepared on behalf of the observers. It is concluded by the applicant that the critique made would have no material impact on the determinations of the significant of visual effects conducted.

15.12.32. Whilst there is clearly a difference in opinion as to the quality of the photomontages I consider that sufficient information has provided to conclude that those accompanying the application were prepared and presented in a reasonable and

competent manner. I would submit that the photomontages indicate that the impact and the extent of visual dominance of the wind turbines depends on the location from where the wind farm is viewed and the extent of local screening or vegetation. I submit that the preparation of photomontages necessarily involves a degree of selectivity and artificiality and are not regarded as definitive and are only a tool, albeit a useful tool, to assist in the determination of the visual effects of the proposal. It is in this context that such photomontages are used.

15.12.33. In total 28 no. photomontages have been prepared and I consider that the locations chosen provide for a reasonable representation with both near and medium distance views available on which to allow for a proper assessment. I also note the photomontages submitted by the previously named observers which were amended in response to the applicant's further information submission.

15.12.34. The visual effects of the proposed turbines were assessed from each viewpoint in terms of the sensitivity of the visual receptors along with the magnitude of change as The EIAR considers potential impacts from designated scenic views/routes, settlements, recreational and tourist destinations, recreational routes and transport routes. These are considered below.

15.12.35. With respect to Cork County Council's observations on the ZTV the further information includes a 35km ZTV (Figure 13-2). I would concur with the view that while the ZTV could extend beyond the 20km radius, it would not be the case where significant landscape or visual effects would arise given the distance and the relatively small vertical and horizontal extent of the proposed development within views at such a distance. On this basis I consider the 20km ZTV is sufficient to allow for a proper assessment and accords with the 2006 Wind Energy Guidelines and the 2019 draft guidelines.

15.12.36. The **ZTV** shown in Figure 12-1 of the EIAR illustrates the overall potential for all or parts of the development likely to be visible from the surrounding countryside within a radius of 20km. This would represent what could be considered to be a worst case scenario as the ZTV does not take into account the effects of screening by natural vegetation and existence of structures. I consider that it demonstrates the extent of the most relevant geographical area likely to be impacted and includes the most critical areas of influence that are of relevance to the assessment of the proposal. As

noted above whilst it is possible that the development may be visible from further afield distance will play a significant role in abating the impact.

15.12.37. In terms of the **turbine range** being considered (details of which were provided by way of further information), I note that photomontages as submitted with the EIAR delineate the turbine with the highest hub and shortest blade namely a maximum tip height of 150 metres, maximum hub height of 93.5 metres and minimum blade length of 56.5 metres. The comparative images which accompany the further information provide a representative sample where the opposite is used, namely lowest hub and longest blade (max. tip height 150m, min. hub height of 83.5m and max. blade length of 66.5m) for near and medium distance views (photomontages 16, 20 and 26). I would suggest that these varying rotor diameter/hub height dimensions within the given turbine envelope is a reasonable approach to determine whether any particular scenario results in higher or lower visual impacts that others. I submit that the variation between the dimensions is very subtle only on detailed scrutiny, and does not result in any discernible difference in the overall visual impact. On this basis I do not consider that photomontages with the varying ranges between the said two extremes would provide any benefit to this assessment in terms of landscape. I also note that the proposed **relocation of turbine T5** 165 metres further east would also have little discernible difference in the visual effects as generated. This is evident from Photomontage No.29 whereby the original and alternative locations are accounted for.

15.12.38. I have reviewed each of the photomontages in the field. I have also observed the appearance of Woodhouse and Barranafaddock windfarms located 15km and 18.5 km respectively from the subject site and I have noted the legibility of turbines in different weather conditions which can have a material impact on visibility. Whilst I would accept that in some of the photomontages landscape features (including vegetation) do obscure views of some of the turbines, these features are components of the existing environment and would, in practice, act in the same way.

15.12.39. In terms of views in the vicinity of the site (within 5km) representing the **local community** including a number of residential clusters in the vicinity a total of 10 no. photomontages (both in support of the EIAR and supplemented by way of further information) can be seen to be applicable. **Photomontages 2, 3, 7, 10, 11, 16, 17, 19, 28 and 29** refer. Whilst a number of observers express concern as to the

locations chosen I consider that the applicant has sought to provide an adequate representation of views available in the immediate vicinity through the viewpoints chosen. It is not possible nor necessary to provide a representation at each receptor within what would be described as the central study area given the context of the landscape.

15.12.40. Whilst there are certain screening benefits afforded by hedgerows and commercial forestry there is little doubt that the impact of the proposed development in the immediate vicinity will be significant and material. Notwithstanding the conclusions in the EIAR of moderate residual effects I consider that the impact of the turbines on the receiving landscape in the immediate vicinity would be significant in the case of vantage points 16, 17, 19 and 29. The turbines rise significantly above the level of the existing tree line and would have represent a material intervention on the skyline.

15.12.41. In terms of the visual impacts from the closest **residential receptors** there is no question that their visual amenities will, in many instances, be materially altered. Certainly the turbines are significant in height and scale however I note that the nearest sensitive receptor that is not directly involved in the project (property no.11) is 707 metres away from the nearest turbine (T12). This materially exceeds the 500 metre requirement of the current 2006 wind energy guidelines. I accept that the said guidelines were prepared at a time when turbines were generally of a smaller scale and height. Having regard to the 2019 draft wind energy guidelines a setback distance for visual amenity purposes of 4 times the tip height of the relevant wind turbine is recommended which, in this case, equates to 600 metres. The 700 metre setback proposed by the applicant exceeds this.

15.12.42. The level of impact decreases with distance and is evident from the photomontages submitted. Within the **5km to 10km range** and as is evident from the ZTV for large areas the windfarm will not be readily visible or would be totally or partially screened by intervening topography, hedgerows, building etc. Intermittent and truncated views of the turbines will only be available in most instances. The response to the further information provided a number of additional photomontages from within this 5km to 10km range with specific regard to the impact on the wider landscape along the Blackwater River as required by the Board's request. I consider that the photomontage locations chosen either where open views are available or from locations at or near protected structures namely nos. **8, 12, 14, 20, 22, 23, 24, 25, 26**

and 27 provide for a reasonable representation. I submit that the visibility, where available, is tempered by the intervening distance, does not dominate the view in question and supports the supposition that due to the geographical characteristics of the landscape and the valley formation views of the proposed development are constrained and, where the turbines are in the view, the impact is slight with same in the background and at a distance.

15.12.43. Whilst more open views are available with **greater distance (photomontages 1, 4, 5, 6, 9, 13)** , the proposed development, whilst visible, would not be obtrusive due the limited horizontal and vertical extent of the turbines.

15.12.44. I consider that the EIAR as supplemented by the further information adequately assesses the impact of the proposed development on the scenic routes in the vicinity. **Photomontage 3** is from **scenic route no. 4** c.3.73 km to the east of the nearest turbine on an unnamed local road in the townland of Knockanore within County Waterford. The development will be intermittently visible along the route views and I would concur with the EIAR conclusion that the proposal would have moderate significant effect with the turbines resulting in a change in character of the view at this location.

15.12.45. Within County Waterford the other relevant **photomontages are no.4** along **scenic route on local road L2024** in the townland of Reanaboola c. 11.88km to the east of the nearest turbine, **photomontage 5** from **scenic route no.5** on the N25 adjacent to Kiely's Crossroads c.16.08km to the east of the nearest turbine and **no 15** from **scenic route No.3** on an unnamed road approx. 16.11km to the north of the nearest turbine (with Barranafaddock turbines in the foreground) and **photomontage 1** taken from **Scenic Route No.2** on the R668 19.85 km to the north. In all instances, whilst visible in the views, due to the intervening distance and the expansive extent of the views, I accept the conclusion that the residual effect is not significant.

15.12.46. The R634 route which runs between the two clusters of turbines is designated as a **scenic route within County Cork (S45)**. The view being protected as set out in the plan is *distant mountain views & rural landscape.* I note that the road which traverses the county boundaries is not designated as a scenic route within County Waterford. **Photomontages 7a and 7b** are taken from a point in the townland of Knockaun South, approximately 0.66 km west of the nearest turbine. By way of

further information and in direct response to concerns expressed in Cork County Council's submission the assessment was supplemented by a further **photomontage (no.29)**. I would concur with the applicant's assessment that views from the road are intermittent, limited by topography and screening including commercial forestry. I would also submit that the visual amenity along the sections of the road in the vicinity of the site are not of a particularly high quality arising from the predominance of commercial forestry. I accept the conclusion that the addition of the proposed development into views from this stretch of road will not significantly impact any key fundamental scenic sensitivities related to this stretch of road.

15.12.47. **Photomontage 12** is taken along **scenic S44** on local road L7814 c.8.8km to the west of the nearest turbine. As per the Cork County Development the view being protected is of *hills & rural landscape*. The development would be partially visible and whilst the character of the view will be altered the turbines are at a sufficient distance as to not significantly impact on the scenic sensitivities related to this scenic view.

15.12.48. **Photomontage no. 8** is taken from **scenic route S46** on the N25 c.8.53 km to the south-east of the nearest turbine whilst **photomontage no.9** is taken along **scenic route S47** on local road L-3819-65 c.15km to the south. **Photomontage 13** is taken from **scenic route S6** c. 13.12km to the north-west of the nearest turbine. In all instances the proposed development would be partially visible and, due to the intervening distance, they occupy limited horizontal extents within the expansive view and appear as background elements. It is not considered to have a significant effect.

15.12.49. Many observers to the application consider the proposed development would adversely impact on the **landscape of the Blackwater Valley**. I would concur that the said landscape is of scenic value and is accorded the appropriate designation in the current Waterford City and County Development Plan. I note that the said sensitive landscape designation is relatively constrained and does not extend to the subject site and, indeed, as noted above, the plan recognises the subject site as being within a preferred area for windfarm development. It is entirely reasonable that in assessing such areas as being suitable for such type development that due regard was had to the constraints presented by adjoining designated scenic landscapes.

15.12.50. I consider that the impact of the proposal on this landscape was of specific concern and for which further assessment was required by the Board. I submit that the response to the further information request, which is accompanied by additional photomontages, is sufficient to allow for a full and proper assessment. As noted above due to the topographical characteristics with the river valley being lower than surrounding land the level the zone of theoretical visibility is limited. In this regard it is notable that from many locations on the opposite valley sides (i.e. western and southern) there is no theoretical visibility of the development and consequently the development will have no impact on the landscape from these locations, in particular those locations lower in the valley and closer to the river, where the scenic amenity and quality of the landscape will remain undisturbed. In terms of views of the **Blackwater Valley from the east (photomontages 20, 21, 22 and 27)** the proposed turbines are viewed at the outer extent of the views in the direction of the valley walls, and there are limited locations where they will appear within views of the river itself. In all cases the turbines will be seen behind the ridgeline created by the valley walls and they are, thus, small background elements, often substantially screened. In all cases the turbines would be seen above tracts of commercial plantation forestry which are a large scale human intervention in the landscape. I therefore consider that the proposed development would not adversely impact on the scenic amenities of the valley.

15.12.51. In terms of views from the **north (photomontages 24, 25 and 26)** in general, they are substantially screened from this orientation by the intervening topography and vegetation and, where they do appear, they are seen in a coherent layout as small background elements. While they do appear in the direction of the views of the River Bride Valley, where there are views of the Blackwater Valley, the turbines are often visually separated from the focus of the views in these cases.

15.12.52. I would therefore concur with the applicant that the proposed development would not affect the fundamental sensitivities of the landscape nor detract from its scenic amenity.

15.12.53. Due to the topography of the area and the mature screening the proposal development will be screened from the nearest town of **Tallow** to the north. Photomontage 28 from a point along R627 to the south of Tallow is of relevance in this regard. Photomontage 27 provides views from **Villierstown** c.8.5km to the

north-east. Whilst partly in view the turbines would be seen as small background elements.

15.12.54. The proposed electricity substation and compound would be located on a flat area of ground to the southern portion of the site. It would be well set back from the road network and screened from the nearest residential properties to the west. The additional masts proposed to connect into the existing OHL will be comparable to the other masts along the line.

Landscape – Conclusion

15.12.55. I have considered all of the written submissions made in relation to landscape and visual Impact, in addition to those specifically identified in this section of the report.

15.12.56. I submit that whilst the area has an innate rural quality it is dominated by commercial coniferous forestry interspersed with agriculture and small commercial enterprises and is lightly populated. On this basis I consider that the absence of specific landscape/visual protection designation in the respective development plans to be reasonable. The designation of the area within Waterford as being a preferred location of wind energy developments and open to consideration within Cork reflects this assessment. I submit that in view of the long established commercial coniferous forestry prevalent in the area, interspersed by agricultural and related type activities it presents itself as a highly moderated, working landscape which is relatively robust.

15.12.57. Wind farms by their very nature due to their overall height and scale will undoubtedly have a material impact on the immediate receiving environment in which they are located. Certainly the proposal will have a significant visual impact in the immediate vicinity and on residential properties therein. To refuse planning permission purely in this context would effectively preclude large tracts of the country being considered for wind farm development which would undoubtedly jeopardise national targets in respect of renewable energy. I submit that the 700 metre setback as proposed by the applicant is a sufficient and adequate separation distance to ensure that the proposal will not have a disproportionate or profound adverse impact in terms of being overbearing of the nearest residential receptors.

15.12.58. As noted in the 2006 Wind Energy Guidelines and in the Waterford City and County and Cork County development plans there is a need to balance the preservation and

enhancement of the amenities of places and features of natural beauty and interest against the need to develop key strategic infrastructure. I have considered the matter of how a strategic development may be justifiable, notwithstanding adverse visual impacts at some locations, having regard to the benefit to the public at large. I consider that given the nature of the receiving landscape and national and strategic imperatives in terms of increasing renewable energy to address the pressing climate change crisis, that the visual impacts would not have such an adverse impact on the character and amenities of the area such as would warrant a recommendation of refusal on visual impact grounds.

15.13. Interactions

15.13.1. Chapter 16 of the EIAR addresses interaction of impacts with a matrix provided in Table 16.1. I would concur that the most dynamic interactions pertain to human beings with other interactions between biodiversity, soils, hydrology, air quality and noise and between land and soil, water and air and climate.

15.13.2. I have considered the interrelationships between factors and whether these might, as a whole, effect the environment, even though the effects may be acceptable when considered on an individual basis. In my assessment of each environmental topic, I have considered the likelihood of significant effects arising as a consequence of interrelationship between factors. Most interactions e.g. the impact of noise and air quality on the population and human health are addressed under individual topic headings. Given the generally modest impacts which are predicted to occur having regard to the nature of the proposed development, mitigation measures, or as a consequence of proposed conditions, I do not foresee any likelihood of any of these interrelationships giving rise to significant effects on the environment.

15.13.3. In conclusion, I am satisfied that there are no such effects and, therefore, nothing to prevent the approval for the development on the grounds of interaction between factors.

15.14. Reasoned Conclusion on Significant Effects

15.14.1. Having regard to the examination of the environmental information above, to the EIAR and further information provided by the applicant and the submissions received, the contents of which I have noted, I consider that the main significant direct and indirect effects of the proposed development on the environment are as follows:

Population and Human Health:

Shadow flicker during the operational phase such as would impact negatively on sensitive receptors and populations in the vicinity of the site. These impacts are to be mitigated by a curtailment strategy for all turbines that have the potential to cause an exceedance in the existing daily and annual shadow flicker limits.

Noise impact will arise from construction activities such a site preparation and construction of the turbine foundations, roads and substation. A suite of mitigation measures to manage noise during the construction phase are set out in the Environmental Impact Assessment Report. Predicted operational noise levels will be within the relevant best practice noise criteria for wind farms. Post commissioning monitoring will be necessary to ensure the operational noise levels comply with the relevant day and night time criteria.

Landscape and Visual: Localised visual impacts of the development from sections of the local roads in the vicinity and on local properties. These impacts will not be avoided, mitigated, or otherwise addressed by means of condition. The impact is balanced by the nature of the landscape which is considered to be a moderated, working landscape and which is robust.

Biodiversity: Habitat loss associated with construction will impact on habitats of generally low ecological value with no rare or protected species recorded. Potential impacts to habitats and faunal species (including badger, bats, marsh fritillary), aquatic fauna and invertebrates and avian species would be mitigated by the implementation of the measures during the construction and/or operational phases set out in the Environmental Impact Assessment Report and overseen by a project ecologist.

Water: Potential indirect effects could be caused by the increase in run-off, soil erosion and sediment release into the receiving watercourses and potential for impact on sources of public water supplies. Impacts to surface water and ground water would be mitigated by the implementation of the measures set out in the Environmental Impact Assessment Report and the Construction Environmental Management Plan. The proposed surface water management system would be integrated with the existing forestry drainage system, with additional treatment and attenuation provided.

Material Assets: Impacts on roads and traffic will be mitigated during construction by the measures set out in the Environmental Impact Assessment Report and by a Traffic Management Plan. The main impacts will occur during the construction stage which will be short-term and temporary. Impacts during the operational stage would be negligible.

Air and Climate: Positive environmental impacts will arise during the operational phase from the generation of renewable energy with the displacement of CO_2 from the atmosphere arising from fossil fuel energy production.

Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the localised visual impacts, it is considered that the environmental effects would not justify a refusal of planning permission having regard to overall benefits of the proposed development, and in particular having regard to the context which is that of a moderated working landscape.

16.0 **Appropriate Assessment**

16.1. Introduction

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

16.1.2. The areas addressed are as follows:

- Compliance with Article 6(3) of the Habitats Directive
- The Natura Impact Statement
- Screening for appropriate assessment
- Appropriate assessment of implications of the proposed development on the integrity each European site

16.2. Compliance with Article 6(3) of the Habitats Directive

16.2.1. Article 6(3) of the Habitats 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.

16.3. Natura Impact Statement

16.3.1. A Natura Impact Statement (NIS) dated January 2021 and prepared by MKO Planning and Environmental Consultants was submitted with the application. It contains a main report supported by appendices.

16.3.2. The NIS outlines the methodology used for the assessing potential impacts on the habitats and species within the European Sites that have the potential to be affected by the proposed development. It predicts the potential impacts for these sites and their conservation objectives, it suggests mitigation measures, assessed in-

combination effects with other plans and projects and it identifies any residual effects on the European sites and their conservation objectives.

16.3.3. The NIS was informed by the following studies, surveys and consultations

- Desk top study
- Multidisciplinary walkover surveys on 31/08/18, 05/10/18, 26/09/19, 29/05/20 and 19/11/20.
- Ecological surveys
- Standard habitat classifications within/adjoining works area (Fossit, 2000)
- Otter surveys.
- Bird surveys including vantage point surveys, breeding bird surveys, winter transect/waterfowl surveys and migratory bird surveys. (September 2016 to September 2018 and October 2019 to March 2020)
- Review of EPA's water quality data and WFD status for adjacent rivers
- Consultation and review of NPWS site synopsis and conservation objectives for relevant European sites

16.3.4. The report concluded that, taking into account the project design and the implementation of mitigation measures identified in the NIS, the proposed development will not result in adverse effects on the integrity of any Natura 2000 site.

16.3.5. Further information was requested in respect of the nature and extent of the development. In response the applicant outlines a turbine range which is detailed at section 3 of this report. I note that there will be no change to the footprint of the development irrespective of which turbine is selected, constructed and operated within the turbine range.

16.3.6. Having reviewed the NIS and the supporting documentation, I am satisfied that it provides adequate information in respect of the baseline conditions, clearly identifies the potential impacts, and uses best scientific information and knowledge to assess any potential impacts. It also provides details of mitigation measures to ensure that no adverse impacts arise in respect of Natura 2000 Sites in the vicinity. I am satisfied

that the information is sufficient to allow for an appropriate assessment of the proposed development.

16.4. Screening for Appropriate Assessment

16.4.1. The proposed development is not directly connected with or necessary to the management of a European Site and, therefore, it needs to be determined if the development is likely to have significant effects on any European sites.

16.4.2. The proposed development is examined in relation to any possible interaction with European sites, i.e. designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA) to assess whether it may give rise to significant effects on any European Site.

16.4.3. Taking account of the characteristics of the proposed development in terms of its location and the scale of works, the following sources of potential effects and the potential effects to receptors are considered for examination in terms of implications for likely significant effects on European sites during the construction, operational and decommissioning phases.

Construction Phase

16.4.4. Construction phase works including movement of soils and machinery, excavation works, use of hydrocarbons, tree felling, construction and upgrading of water crossings, soil stockpiling and reinstatement works leading to potential:

- Effects on river water quality (silting and/or contamination);
- Habitat disturbance or removal
- Spread of invasive species
- Direct mortality of mobile QIs or SCIs;
- Disturbance of mobile QIs or SCIs
- Indirect effects to downstream protected habitats.

Operational Phase

Operational phase structures including rotating turbine blades, physical structures and hardstandings leading to potential:

- Effects on river water quality (silting and/or contamination);
- Noise disturbance;
- Collision with turbines and blades, leading to death or injury;
- Displacement from habitats;
- Habitat loss or change.

Decommissioning Phase

16.4.5. Decommissioning works will be similar to but of a lesser magnitude than those arising in the construction phase and include movement of soils and machinery, excavation works, use of hydrocarbons, and reinstatement works leading to potential:

- Effects on river water quality (silting and/or contamination);
- Habitat disturbance or removal
- Direct mortality of mobile QIs or SCIs;
- Disturbance of mobile QIs or SCIs
- Indirect effects to downstream protected habitats.

16.4.6. The applicant, in its screening report, which is included as an appendix of the NIS document, sets out the methodology for the identification of relevant European sites within a 15km radius, in addition to the potential for connectivity with European Sites at greater distances were identified. The results of the bird surveys were consulted to provide information on whether the birds on the site could potentially be associated with any European Site. The screening report concluded that the possibility of significant effects could not be ruled out for 3 of the 5 sites and, therefore, the proposed development works must proceed to Appropriate Assessment. I have provided a summary of the information in relation to the potential impacts identified in the screening stage below.

16.4.7. I would also refer the Board to the test at screening stage which seeks to identify if a project is likely to have **significant effects** (my emphasis) either individually or in-combination with other plans or projects on European sites in view of the sites conservation objective.

Site Name	Qualifying Interests (QI's)	Potential receptor-pathway-source links to Development Site
Blackwater River (Cork/Waterford) SAC Site Code - 002170 located adjacent to the north eastern boundary of the proposed development site boundary.	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410] • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	**Yes** – Hydrological connection between the proposed development and the SAC via watercourses within the site boundary Can potential likely significant effects be excluded? – **No – site to proceed to AA.**

	• *Taxus baccata woods of the British Isles [91J0] • Margaritifera (Freshwater Pearl Mussel) [1029] • Austropotamobius pallipes (White-clawed Crayfish) [1092] • Petromyzon marinus (Sea Lamprey) [1095] • Lampetra planeri (Brook Lamprey) [1096] • Lampetra fluviatilis (River Lamprey) [1099] • Alosa fallax (Twaite Shad) [1103] • Salmo salar (Salmon) [1106] • Lutra (Otter) [1355] • Trichomanes speciosum (Killarney Fern) [1421]	

Site Name	**Special Conservation Interests (SCI's)**	**Potential receptor-pathway-source links to Development**

		Site.
Blackwater Callows SPA Site Code - 004094 9.9km to north of site	• Whooper Swan [A038] • Wigeon [A050] • Teal [A052] • Black-tailed Godwit [A156] • Wetland and Waterbirds [A999]	**No** – The SPA is in a separate hydrological catchment and does not have connectivity with the site. Wigeon, teal and black-tailed godwit were not recorded during the bird surveys. There is no suitable habitat within the site for wintering populations. Whooper Swan was recorded once. The site is not within the core foraging range (5km) of the species Can potential likely significant effects be excluded? – **Yes**

Site Name	**Special Conservations Interests (SCIs)**	**Potential receptor-pathway-source links to Development Site**
Ballymacoda Bay SPA Site Code - 004023 c. 10.7 km to the south east of the site	• Wigeon [A050] • Teal [A052] • Ringed Plover ([A137] • Golden Plover [A140] • Grey Plover [A141] • Lapwing [A142] • Sanderling [A144] • Dunlin [A149] • Black-tailed Godwit [A156] • Bar-tailed Godwit [A157]	**Yes** – the site is located within the potential core foraging range of Lesser Black-Backed Gull, Black Headed Gull and Golden Plover all which were recorded during the bird surveys. Potential for collision and disturbance/displacement. Can potential likely significant effect be excluded? – **No – site to proceed to AA.**

	• Curlew [A160] • Redshank [A162] • Turnstone [A169] • Black-headed Gull [A179] • Common Gull [A182] • Lesser Black-backed Gull [A183] • Wetland and Waterbirds [A999]	

Site Name	Qualifying Interests (QI's)	Potential receptor-pathway-source links to Development Site
Ballymacoda (Clonpriest and Pilllmore) SAC Site code - 000077 c. 10.7km south east of site	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows [1330] • Mediterranean salt meadows [1410]	**No** – watercourses that discharge to the Atlantic Ocean and subsequently this coastal/marine SAC are located within a separate sub-catchment. Can potential likely significant effects be excluded? - **Yes**

Site Name	Special Conservation Interests (SCIs)	Potential receptor-pathway-source links to Development Site

Blackwater Estuary SPA Site code -004028 c. 3.5km to south-east	• Wigeon [A050] • Golden Plover ([A140] • Lapwing [A142] • Dunlin [A149] • Black-tailed Godwit [A156] • Bar-tailed Godwit [A157] • Curlew [A160] • Redshank [A162] • Wetland and Waterbirds [A999]	**Yes** – hydrological connection via watercourses within the site boundary. Potential for indirect effect on Golden Plover in the form of disturbance, displacement and collision risk. Indirect effects on the species in the form of disturbance and displacement Can potential likely significant effects be excluded? – **No – site to proceed to AA.**

Mitigation Measures

16.4.8. No measures designed or intended to avoid or reduce any harmful effects of the project on a European Site have been relied upon in this screening exercise.

Screening Determination

16.4.9. Having regard to the information presented in the Screening Report and NIS, the nature, size and location of the proposed development and its likely direct, indirect and in-combination effects, the source pathway receptor principle and sensitivities of the ecological receptors, I concur with the applicant's screening that significant effects cannot be ruled out for the following sites:

- Blackwater River (Cork/Waterford) SAC [002170]
- Blackwater Estuary SPA [004028]
- Ballymacoda Bay SPA [004023]

in view of the conservation objectives of these sites.

The following European Sites -

- Ballymacoda (Clonpriest and Pillmore) SAC [000077]

- Blackwater Callows SPA [004094]

could not be significantly affected by the proposed development works. I am satisfied that the applicant has demonstrated this objectively with reference to the geographical separation from those sites and the absence of/or weak ecological pathways between those sites. It is therefore reasonable to conclude on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on these 2 European Sites in view of the sites' conservation objectives and a Stage 2 Appropriate Assessment is not therefore required for these sites.

16.5. Appropriate Assessment of Relevant European sites

16.5.1. The following is an objective assessment of the implications of the proposal on the relevant conservation objectives 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 examined and assessed for effectiveness. I have relied on the following guidance:

- DoEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service. Dublin
- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EC
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC

European Sites

16.5.2. Three sites as outlined above could not be excluded from the screening exercise undertaken on the basis that significant effects could not be ruled out for reasons

related to hydrological pathways and collision risk and disturbance/displacement of special conservation interests.

16.5.3. **Blackwater River (Cork/Waterford) SAC** bounds the site to the north-east. The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which include the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The portions of the Blackwater and its tributaries that fall within this SAC flow through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. 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, dredging of the upper reaches of the Awbeg, over-grazing within the woodland areas, and invasion by non-native species, for example Rhododendron and Cherry Laurel. Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore it is of high conservation value for the populations of bird species that use it. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species. Hydrological connectivity has been identified between the proposed development and this SAC via watercourses within the site boundary.

16.5.4. **Blackwater Estuary SPA** c. 3.5km to south-east of the site is a moderately-sized, sheltered south-facing estuary, which extends from Youghal New Bridge to the Ferry Point peninsula, close to where the river enters the sea. It comprises a section of the main channel of the River Blackwater to Ballynaclash Quay. The Blackwater Estuary is of high ornithological importance for wintering waterfowl, providing good quality feeding areas for an excellent diversity of waterfowl species. The Blackwater Estuary SPA is an internationally important wetland site on account of the population of Black-tailed Godwit it supports. It is also of high importance in a national context, with seven species having populations which exceed the thresholds for national

importance. The occurrence of Little Egret, Golden Plover and Bar-tailed Godwit is of particular note as these species are listed on Annex I of the E.U. Birds Directive. The Blackwater Estuary is also a Ramsar Convention site. Hydrological connectivity has been identified between the proposed development and this SPA via watercourses within the site boundary. SCIs have been identified at or near the site during the bird surveys.

16.5.5. **Ballymacoda Bay SPA** c. 10.7 km to the south east of the site stretches north-east from Ballymacoda to within several kilometres of Youghal, Co. Cork. It comprises the estuary of the Womanagh River, a substantial river which drains a large agricultural catchment. Golden Plover and Black-tailed Godwit occur here in internationally important numbers. A further eleven species of waders and ducks occur here in nationally important numbers. The site is also notable for supporting nationally important populations of some gull species in autumn and winter. Ballymacoda Bay SPA is one of the most important sites in the country for wintering waterfowl. It qualifies for international importance on the basis of regularly exceeding 20,000 wintering birds but also for its Golden Plover and Black-tailed Godwit populations. In addition, it supports nationally important populations of a further fourteen species. Two of the species which occur, Golden Plover and Bartailed Godwit, are listed on Annex I of the E.U. Birds Directive. Ballymacoda Bay is also a Ramsar Convention site. There is no potential for indirect effects on supporting SCI habitats with regard to surface water pollution. The watercourses that discharge to the Atlantic Ocean and subsequently this coastal/marine SPA are located within a separate sub-catchment to the proposed development. No hydrological connectivity exists. SCIs have been identified at or near the site during the bird surveys.

16.5.6. I have examined the Natura 2000 data forms as relevant and the Conservation supporting documents for these site available through the NPWS website.

Characteristics of Proposed Development

16.5.7. A full description of the development is set out in section 3 of this report and in section 3 of the NIS. In summary the proposal entails 17 no. turbines to a maximum height of 150 metres, meteorological mast, substation and battery storage with underground cable connection between the two clusters and upgrading and provision of access tracks, provision of site drainage and ancillary facilities. The

construction phase will also entail forestry felling, 3 no. borrow pits and construction compounds. Improvements works along the haul route are required at two locations.

Hydrological Environment within which the site is Located

16.5.8. Water quality is a key environmental factor underpinning the conservation condition of a number of the qualifying interests. The main risk to water quality will be during the construction phase, the early operation of the project and during the decommissioning phase. In the event of release of suspended sediment or a release of other pollutants into watercourses during construction works, there could be significant indirect effect downstream. At Section 4.3.4 of the NIS, a description of the hydrological context of the site and wider area is outlined. The site is located within the Blackwater (Munster) hydrological catchment, the Bride (Waterford) sub-catchment and the Tourig sub-catchment. The following watercourses flow within and adjacent to the site.

- Gortnafira Stream (tributary of Glenaboy River)
- Tourig River
- Ballynatray Commons Stream
- Glendine River

Potential Effects (Direct and Indirect)

16.5.9. No direct impacts are predicted on any European site as the application site is not directly located within a Natura 2000 site.

Aspects of the Proposed Development

16.5.10. Due to connectivity, the QIs and SCIs of the Blackwater River (Cork/Waterford) SAC, Blackwater Estuary SPA and Ballymacoda Bay SPA have the potential to be vulnerable to the following:

- Possibility of silt-laden or otherwise contaminated runoff from the construction and drainage of the site being released into the various watercourses which flow through or are adjacent to the site.
- An accidental pollution incident either directly e.g. through direct contact with oil or other polluting chemicals, or indirectly by affecting the habitats and food supply on which they rely for feeding/wintering.

- Risk from run-off of sediment during construction of the proposed development, if it was of a sufficient quantity, magnitude and duration to significantly affect water quality.
- Increase in run-off of sediment indirectly by affecting the habitats and food supply on which the QI's and SCI's rely for feeding and/or roosting.
- Spread of invasive alien species through the movement of soils and/or use of machinery.
- Disturbance and displacement
- Risk of collision associated with the operation of the turbines for SCIs.

16.5.11. It is reasonable to conclude on the basis of the information before the Board that all of the above, in the absence of mitigation, may comprise a risk of adverse effects on the integrity of the sites.

Mitigation Measures Proposed

16.5.12. Section 5 of the NIS details mitigation measures to be employed during the construction, operational and decommissioning phases of the development, the majority of which are considered to represent best construction practice measures.

16.5.13. Specific measures include, but are not limited to:

- Preparation of a Construction and Environmental Management Plan. A copy of CEMP is provided in an appendix to the NIS.
- Appointment of project Environmental Clerk of Works
- Appointment of Ecological Clerk of Works
- All infrastructure except for access roads to be kept a minimum of 75 metres from watercourses
- Where works are required within 50 metres of watercourses (upgrade of existing access track, tree felling) additional drainage protection measures to be put in place.
- Detailed drainage management including use of stilling ponds to reduce concentration of suspended solids, use of swales, interceptor drains, check dams.

- Use of double row silt fence immediately down gradient of the construction area for the duration of the construction phase,
- Daily visual inspections of excavations.
- Water quality monitoring programme.
- Installation of turbidity meters.
- No instream works in watercourse crossings. Three options for crossings. Option 1 – standard trefoil formation, option 2 – flatbed formation over bridges/culverts and option 3 – directional drilling.
- Near stream construction to be carried out during period permitted by Inland Fisheries Ireland for instream works.
- New river/stream crossings to be designed in accordance with Section 50 (Arterial Drainage Act) consent.
- Ready mixed supply of wet concrete products. Minimal chute cleaning on site. No discharge of cement contaminated water to be construction phase drainage system or to any artificial drain or watercourse.
- Pre- construction otter survey.
- Fuel storage areas if required will be bunded with designated refuelling areas.
- Best practice guidelines in the treatment and control of invasive species during construction works having regard to relevant guidance documents. The bio security requirements in relation to all plant and equipment as set out in the Inland Fisheries Ireland (IFI) Bio-Security Protocol will be implemented as required (CEMP in Appendix 3).
- Pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided.
- Removal of woody vegetation outside the bird breeding season. Where sections of woody vegetation are removed for the purposes of junction and road upgrades these will be replaced with suitable hedge/tree species.
- Post construction Bird Monitoring Programme
- Mitigation measures for decommissioning stage as per the above.

16.5.14. Tables 1 to 3 below summarise the appropriate assessment and integrity test. The conservation objectives, targets and attributes as relevant to the identified potential adverse effects have been examined and assessed in relation to all aspects of the project (alone and in combination with other plans and projects). Mitigation measures proposed to avoid and reduce impacts to a non-significant level have been assessed.

16.5.15. I am satisfied that the implementation of the suite of mitigation measures outlined above will ensure that no adverse effects on the conservation objectives of the Blackwater River (Cork/Waterford) SAC, Ballymacoda Bay SPA and Blackwater Estuary SPA will arise during the construction and operational stages of the proposed development including the potential for run-off of sediment/silt or contaminated waters into any of the watercourses present on site.

In-combination effects with plans, projects and activities

16.5.16. In terms of possible in-combination effects, plans, programmes and existing and proposed developments were considered including Waterford City and County and Cork County Development Plans, The Regional Planning Guidelines for the South East 2010-2022 (as applicable at the time of NIS preparation) and other windfarms both existing, permitted and refused permission. This complete assessment allows for clear, precise and definitive conclusions to be reached in terms of adverse effects on the integrity of European sites.

16.5.17. I do not consider that there are any specific in-combination effects that arise from other plans or projects. The NIS considered the combined impacts of the overall development proposal on the site. I consider that any potential for in-combination effects on water quality in the River Blackwater (Cork/Waterford) SAC, Blackwater Estuary SPA and potential for collision risk/disturbance and displacement of SCIs of Blackwater Estuary SPA and Ballymacoda Bay SPA is negligible. Furthermore, other projects within the area which can influence water quality via rivers and other surface water features are also subject to AA.

16.5.18. In terms of forestry development which arises within the area or proposed replanting resulting from the proposal, I would note, as stated above, that forestry management is subject to a separate licencing regime which, itself, addresses matters including water quality. In terms of the replant lands in Ballymote, Co. Sligo, the separation

distance of in excess of 280km would provide that no in-combination effects could be reasonably expected to occur.

Table 1

Summary Table - Blackwater River (Cork/Waterford) SAC [002170]

Key Issues:

- Water quality impacts due to pollutants or soil/silt run off during construction, operation and decommissioning phases
- Displacement/barrier to protected species

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002170.pdf

Summary of Appropriate Assessment

Conservation Objective To maintain (M) or Restore (R) the favourable conservation condition of the following:	**Targets and attributes (summary-as relevant)**	**Potential adverse effects**	**Mitigation measures (including monitoring)**	**In-combination effects**	**Can adverse effects on integrity be excluded?**
Freshwater Pearl Mussel (**R**) (map 8)	Restore to 35,000 adult mussels Restore at least 20% population no more than 65mm and at least 5% not more than 30mm Restore suitable habitat in more than 35km and any additional stretches necessary for	Direct Effects None Indirect effects The development is located within a separate sub-catchment. Impacts are restricted to potential for impact on host fish which are sensitive to changes in water quality and	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

	salmonid spawning. Restore water quality Restore substratum quality Restore hydrological regimes Maintain sufficient salmonids	habitat degradation			
White-clawed Crayfish [1092] (**M**) (Map 9)	Population located in the Awbeg River which is a separate catchment to the proposed development and no pathways exist. This was informed by reference to the best available scientific information from NPWS	N/A	N/A	N/A	**Yes** There is no doubt as to absence of effects on this qualifying interest in view of the conservation objectives. The species occurs outside of any possible range of influence of the proposed development.
Sea Lamprey [1095] (**R**) (map 10)	75% of mainstream length of rivers accessible from estuary, minimum 3 no. age/size groups	<u>Direct effects</u> None <u>Indirect Effects</u> Species sensitive to changes in water	Surface water protection measures identified for construction, operational and decommissioning phases as detailed in	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of

	present, juvenile density, no decline in extent and distribution of spawning beds, availability of juvenile habitat	quality and habitat degradation	section 16.5.13 above.		the conservation objectives.
Brook Lamprey [1096](**M**) River Lamprey [1099](**M**) (map 10)	Access to all watercourses down to 1st order streams, at least 3 age/size groups present, mean catchment juvenile density at least 2/m2, no decline in extent and distribution of spawning beds, minimum 3 no. age/size groups present, availability of juvenile habitat (50% of sample sites positive).	<u>Direct Effects</u> None <u>Indirect effects</u> Species sensitive to changes in water quality and habitat degradation	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.
Twaite Shad [1103] (**R**)	Greater than 75% of main stem length of rivers accessible from	<u>Direct Effects</u> None <u>Indirect Effects</u>	Suite of surface water protection measures identified for	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation

	estuary, more than 1 age present, no decline in extent and distribution of spawning habitats, water quality levels, spawning habitat quality.	Species sensitive to changes in water quality	construction, operational and decommissioning phases as detailed in section 16.5.13 above.		measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.
Salmon [1106] (**M**)	100% channel down to 2nd order accessible from estuary, CL for adult spawning fish to be exceeded, maintain or exceed fry mean catchment wide abundance threshold, no significant decline in out-migrating smolt abundance, water quality to be at least Q4 and no decline in number and distribution of spawning redds.	Direct effects None Indirect effects Species sensitive to changes in water quality and habitat degradation	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

Estuaries [1130] (**M**) (Map 3)	Stability of permanent habitat area, maintenance and conservation of extent and quality of Mytilus edulis dominated community, and community distribution	<u>Direct Effects</u> None - The development site is in the upper reaches of the catchment, a significant distance hydrologically from the coastal environment <u>Indirect effects</u> Habitats sensitive to changes in water quality. According to the saltmarsh monitoring project (McCorry and Ryle, 2006) anthropogenic factors which may influence vegetation structure and composition include reclamation, drainage, pollution, vehicle tracks, peat-cutting, turf cutting,	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the habitats in view of the conservation objectives.
Mudflats and sandflats not covered by seawater at low tide [1140] (**M**) (map 3)	Stability of permanent habitat area, maintenance and conservation of extent and quality of Zostera and Mytilus edulis dominated community, and community distribution				
Salicornia and other annuals colonising mud and sand [1310] (**M**)	Area stability, no decline or change in habitat distribution, maintain natural circulation of sediments and organic matter, maintain				

	natural tidal regime, maintain range of coastal habitat, structural variation within sward, presence of species poor communities and no significant expansion of common cordgrass	poaching and overuse, none of which will occur as a result of the proposed development.			
Mediterranean salt meadows (**R**) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] (**R**) (Map 6)	Stability of area, no decline or change in habitat distribution, maintain natural circulation of sediments and organic matter, maintain pan creek and pan structure. Maintain natural tidal regime, Main range of coastal habitats, maintain structure variation within sward, maintain				

	more than 90% of the saltmarsh area, maintain range of sub-communities with typical species, no significant expansion of common cordgrass.				
Otter [1355] **(R**)	No significant decline in distribution or extent of terrestrial or freshwater habitat. No significant decline in couching or holt sites. No significant decline in fish biomass available, no significant increase in barriers to connectivity.	Direct effects None. One otter spraint, only, recorded downstream of connector cable route. No other signs of otter recorded. Indirect effects Species sensitive to changes in water quality and habitat degradation. Disturbance during construction and decommissioning phases	Surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above. Preconstruction survey to be undertaken by qualified ecologist. Should any holt be encountered it will be subject to exclusion procedures as outlined in TII guidelines	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

Killarney Fern [1421](**M**) Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0](**R**) *Taxus baccata woods of the British Isles [91J0] (**Under Review**) Perennial vegetation of stony banks [1220](**M**) Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] (**R**) Map 7	These qualifying interest habitats are not aquatic habitat. Significant separation in distance from the proposed works area and absence of any complete source-pathway-receptor chain for impact: No affect can be considered likely.	N/A	N/A	N/A	**Yes** There is no doubt as to absence of effects on these species in view of the conservation objectives.

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] (**M**)	No decline in habitat distribution, habitat area stable or increasing, maintain appropriate hydrological regimes, maintain natural tidal regime, substratum composition, water quality nutrients, typical species in vegetation composition and maintenance of active floodplain at and upstream, of the habitat.	Direct Effect None Indirect Effect Habitat sensitive to changes in water quality and habitat disturbance.	Surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the 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 Blackwater River (Cork/Waterford) SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects. Note: monitoring is included as best practice and does not imply any uncertainty regarding adverse effects or the effectiveness of any mitigation measures					

Table 2

Summary Table - Ballymacoda Bay SPA

Key Issues:

- Displacement/disturbance, Collision Risk to SCIs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004023.pdf

Summary of Appropriate Assessment

Conservation Objective To **maintain** the favourable conservation condition of the following:	Targets and attributes (summary-as relevant)	Potential adverse effects	Mitigation measures (including monitoring)	In-combination effects	Can adverse effects on integrity be excluded?
Wigeon [A050] Teal [A052] Ringed Plover [A137] Grey Plover [A141] Lapwing [A142] Sanderling [A144] Dunlin [A149]	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas	No SCIs not identified in dedicated bird surveys conducted over a 2 year period.	N/A	N/A	**Yes** There is no doubt as to absence of effects on these species in view of the conservation objectives.

Black-tailed Godwit [A156] Bar-tailed Godwit [A157] Curlew [A160] Redshank [A162] Turnstone [A169]					
Black-headed Gull [A179] Lesser Black-backed Gull [A183]	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas	Yes The site is located within the potential core foraging range of Lesser Black-Backed Gull and Black Headed Gull **Lesser black-backed gull** <u>Collision Risk</u> The collision rate has been calculated at a rate of 6.83 collisions per year. Annual mortality of adults of lesser black backed gull has been calculated at approx. 10% per annum. The predicted collision risk is deemed Low (1-5%) in the context of the local population. Adverse effects with regard to collision risk is not	Removal of woody vegetation outside of the bird breeding season. Plant machinery to be turned off when not in use. Ecological clerk of works to undertake preconstruction transect/walkover survey, advise and inform site personnel.		**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

		anticipated. <u>Disturbance/Displacement/Direct Habitat Loss</u> *Construction Phase* – the vast majority of observations involved commuting flights across the site. The commercial forestry where most of the proposed infrastructure will be located is not of ecological value to the species. There is some foraging habitat in the site (agricultural grassland). On a precautionary basis it is assumed that some temporary displacement may occur around the margins of the site. Given the extent of suitable habitat in the wider area significant displacement effects are not predicted. *Operational Phase* There is an abundance of suitable habitat in the surrounding areas. Significant displacement effects are not predicted. **Black headed gull**	Post construction bird monitoring programme in line with SNH Guidance		

		Collision Risk The species was recorded twice, only, during core Vantage Point (VP) surveys between September 2016 and September 2018. This level of flight activity is considered to result in negligible collision risk. Given the low occurrence of the species in the study area there is not potential for effect on the populations at any geographic scale. Adverse effects with regard to collision risk is not anticipated. Disturbance/Displacement/Direct Habitat Loss *Construction Phase* – There is no evidence to suggest that the site is of significance to the species. *Operational Phase* - There is no evidence to suggest that the site is of significance to the species.			
Golden Plover [A140]	Long term population trend stable or increasing	Golden Plover recorded on the site during bird surveys. Collision Risk	Removal of woody vegetation outside of the bird breeding		**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures

	No significant decrease in the range, timing and intensity of use of areas	A collision risk analysis has been carried out with full details provided in Chapter 8 of the EIAR. The collision risk has been calculated at a risk of 3.76 collisions per annum. Annual mortality of adult Golden Plover has been calculated at 27% per annum. The predicted collision rate is considered insignificant (>1%) in the context of county populations and is therefore considered insignificant in the context of local, county, national and international populations. Adverse effects with regard to collision risk is not anticipated. <u>Disturbance/Displacement/Direct Habitat Loss</u> *Construction Phase* – unlikely to significantly impact the species given the majority of the impacted land is of limited ecological value to the species. There is no evidence of roosting activity and there is no evident to suggest that the site lies on a migratory/regular commuting route for	season. Plant machinery to be turned off when not in use. Ecological clerk of works to undertake preconstruction transect/walkover survey, advise and inform on site personnel. Post construction bird monitoring programme in line with SNH Guidance		proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

		the species therefore a barrier effect is not anticipated. Operational Phase – Significant displacement impacts are not predicted given the majority of the proposed turbines are sited in commercial forestry. There are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer, should any potential displacement effect occur.			
Overall Conclusion - Integrity Test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of Ballymacoda Bay SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects. Note: monitoring is included as best practice and does not imply any uncertainty regarding adverse effects or the effectiveness of any mitigation measures.					

Table 3

Summary - Blackwater Estuary SPA

Key Issues:

- Water quality impacts due to pollutants or soil/silt run off during construction, operation and decommissioning phases
- Collision Risk, Displacement, Disturbance to SCIs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004028.pdf

Summary of Appropriate Assessment

Conservation Objective: To **maintain** the favourable conservation condition of the following:	Targets and attributes (summary-as relevant)	Potential adverse effects	Mitigation measures (including monitoring)	In-combination effects	Can adverse effects on integrity be excluded?
Wigeon Lapwing Dunlin [A149] Black-tailed Godwit [A156] Bar-tailed Godwit [A157] Curlew [A160]	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas	SCIs not identified in dedicated bird surveys conducted over a 2 year period. Deterioration in water quality and effects on supporting habitats for the species.	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 above	N/A	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

Redshank [A162]					
Golden Plover ([A140]	Long term population trend stable or increasing No significant decrease in the range, timing and intensity of use of areas	Deterioration in water quality and effects on supporting habitats for the species. Golden Plover recorded on the site during bird surveys <u>Collision Risk</u> A collision risk analysis has been carried out with full details provided in Chapter 8 of the EIAR. The collision risk has been calculated at a risk of 3.76 collisions per annum. Annual mortality of adult Golden Plover has been calculated at 27% per annum. The predicted collision rate is considered insignificant (>1%) in the context of county populations and is therefore considered insignificant in the context of local, county, national and	Surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.9 above. Removal of woody vegetation outside of the bird breeding season. Plant machinery to be turned off when not in use. Ecological clerk of works to undertake preconstruction transect/walkover survey, advise and inform on site		**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the species in view of the conservation objectives.

		international populations. Adverse effects with regard to collision risk is not anticipated. <u>Disturbance/Displacement/</u> <u>Direct Habitat Loss</u> *Construction Phase* – unlikely to significantly impact the species given the majority of the impacted land is of limited ecological value to the species. There is no evidence of roosting activity and there is no evident to suggest that the site lies on a migratory/regular commuting route for the species therefore a barrier effect is not anticipated. <u>Operational Phase</u> – Significant displacement impacts are not predicted given the majority of the proposed turbines are sited	personnel. Post construction bird monitoring programme in line with SNH Guidance		

		in commercial forestry. There are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer, should any potential displacement effect occur.			
Wetland and Waterbirds [A999]	Permanent area occupied by the wetland habitat should be stable and not significantly less 87 ha.	Deterioration in water quality and effects on supporting habitats for waterbirds	Suite of surface water protection measures identified for construction, operational and decommissioning phases as detailed in section 16.5.13 section above.	None	**Yes** There is no doubt as to the effectiveness or implementation of the mitigation measures proposed to prevent direct or indirect effects on the 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 Blackwater Estuary SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects. Note: monitoring is included as best practice and does not imply any uncertainty regarding adverse effects or the effectiveness of any mitigation measures					

16.6. Appropriate Assessment Conclusion

16.6.1. The proposed development has been considered in light of the assessment requirements of Section 177AE of the Planning and Development Act, 2000, as amended.

16.6.2. Having carried out screening for appropriate assessment of the project, it was concluded that it may have a significant effect on Blackwater River (Cork/Waterford) SAC [002170], Blackwater Estuary SPA [004028] and Ballymacoda Bay SPA [004023]. Consequently, an appropriate assessment was required of the implications of the project on the qualifying features of those sites in light of their conservation objectives.

16.6.3. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the European site Nos 002170, 004028 and 004023, or any other European site, in view of the sites' Conservation Objectives.

16.6.4. This conclusion is based on a complete assessment of all aspects of the proposed project and there is no reasonable doubt as to the absence of adverse effects.

16.6.5. This conclusion is based on the following:

- A full and detailed assessment of all aspects of the proposed works including proposed mitigation and ecological monitoring in relation to the conservation objectives of Blackwater River (Cork/Waterford) SAC [002170] and Blackwater Estuary SPA [004028] and Ballymacoda Bay SPA [004023].
- The proposed windfarm development proposal and associated grid connection and turbine delivery route will not undermine the conservation objectives
- With the application of all mitigation measures the proposed development and associated grid connection and turbine delivery route proposal will not undermine the conservation objective of maintaining and restoring the favourable conservation condition of the relevant qualifying interests and special conservation interests in the Blackwater River (Cork/Waterford) SAC [002170], Blackwater Estuary SPA [004028] and Ballymacoda Bay SPA [004023] are designated.

- The detailed assessment of in combination effects with other plans and projects including historical projects, current proposals and future plans.
- No reasonable scientific doubt as to the absence of adverse effects on the integrity of Blackwater River (Cork/Waterford) SAC [002170], Blackwater Estuary SPA [004028] and Ballymacoda Bay SPA [004023].

17.0 **Recommendation**

Having regard to the foregoing I recommend that permission for the above described development be granted for the following reasons and considerations subject to conditions.

18.0 **Reasons and Considerations**

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

(a) national policy including the Climate Action Plan 2023, with regard to the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouse gases,

(b) the Southern Regional Spatial and Economic Strategy

(c) 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,

(d) Cork County Development Plan 2022- 2028

(e) Waterford City and County Development Plan 2022 -2028

(f) the character of the landscape in the area

(g) the characteristics of the site and of the general vicinity.

(h) the pattern of existing and permitted development in the area, including other windfarms,

(i) the distance to dwellings or other sensitive receptors from the proposed development,

(j) the environmental impact assessment report

(k) the natura impact statement

(l) the submissions made to An Bord Pleanála in connection with the planning application and the submissions made to the further information response.

(m) the report of the inspector.

Appropriate Assessment:

The Board noted that the proposed development is not directly connected with or necessary for the management of a European Site.

In completing the screening for Appropriate Assessment, the Board accepted and adopted the screening assessment and conclusion reached in the Inspector's report that the Blackwater River (Cork/Waterford) SAC, Blackwater Estuary SPA and Ballymacoda Bay SPA are the European sites for which there is a possibility of significant effects and which, must therefore be subject to appropriate assessment.

The Board considered the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment of the implications of the proposal for the Blackwater River (Cork/Waterford) SAC, Blackwater Estuary SPA and Ballymacoda Bay SPA, in view of the sites' conservation objectives. The Board concluded that the information before it was adequate to allow for a complete assessment of all aspects of the proposed development and to allow them reach complete, precise and definitive conclusions for 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 proposal,

iii. the conservation objectives for the European Sites' and

iv. the views contained in the submissions.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the integrity of the aforementioned European Sites, having regard to the site's conservation objectives.

In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' conservation objectives and there is no reasonable doubt remaining 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,

(b) the Environmental Impact Assessment Report and associated documentation submitted in support of the planning application, including the further information,

(c) the submissions received during the course of the application, 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 planning application.

Reasoned Conclusions 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:

Population and Human Health:

Shadow flicker during the operational phase such as would impact negatively on sensitive receptors and populations in the vicinity of the site. These impacts are to be mitigated by a curtailment strategy for all turbines that have the potential to cause an exceedance in the existing daily and annual shadow flicker limits.

Noise impact will arise from construction activities such a site preparation and construction of the turbine foundations, roads and substation. A suite of mitigation measures to manage noise during the construction phase are set out in the Environmental Impact Assessment Report. Predicted operational noise levels will be within the relevant best practice noise criteria for wind farms. Post commissioning monitoring will be necessary to ensure the operational noise levels comply with the relevant day and night time criteria.

Landscape and Visual: Localised visual impacts of the development from sections of the local roads in the vicinity and on local properties. These impacts will not be avoided, mitigated, or otherwise addressed by means of condition. The impact is balanced by the nature of the landscape which is considered to be a moderated, working landscape and which is robust.

Biodiversity: Habitat loss associated with construction will impact on habitats of generally low ecological value with no rare or protected species recorded. Potential impacts to habitats and faunal species (including badger, bats, marsh fritillary), aquatic fauna and invertebrates and avian species would be mitigated by the implementation of the measures during the construction and/or operational phases set out in the Environmental Impact Assessment Report and overseen by a project ecologist.

Water: Potential indirect effects could be caused by the increase in run-off, soil erosion and sediment release into the receiving watercourses and potential for impact on sources of public water supplies. Impacts to surface water and ground water would be mitigated by the implementation of the measures set out in the Environmental Impact Assessment Report and the Construction Environmental Management Plan. The proposed surface water management system would be integrated with the existing forestry drainage system, with additional treatment and attenuation provided.

Material Assets: Impacts on roads and traffic will be mitigated during construction by the measures set out in the Environmental Impact Assessment Report and by a Traffic Management Plan. The main impacts will occur during the construction stage which will be short-term and temporary. Impacts during the operational stage would be negligible.

Air and Climate: Positive environmental impacts will arise during the operational phase from the generation of renewable energy with the displacement of CO_2 from the atmosphere arising from fossil fuel energy production.

Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the localised visual impacts, it is considered that the environmental effects would not justify a refusal of planning permission having regard to overall benefits of the proposed development, and in particular having regard to the context which is that of a moderated working landscape.

The Board is satisfied that the reasoned conclusion is up to date at the time of making the decision.

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 as set out in the EIAR, and subject to compliance with the conditions set out below, the effects of the proposed 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.

Having considered the totality of the Environmental Impact Assessment Report, associated documentation submitted with the application and the report of the Inspector, the Board concluded that any likely significant effects on the environment would be mitigated by the mitigation measures proposed by the applicant.

Proper planning and sustainable development:

It is considered that subject to compliance with the conditions set out below the proposed development would accord with European, national, regional and local planning policy, would be acceptable in terms of impact on the visual amenities and landscape character of the area, would not seriously injure the amenities of property in the vicinity, would not be prejudicial to public health, would not pose a risk to water quality and would be acceptable in terms of traffic safety and convenience. The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

19.0 **Conditions**

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application and the further plans and particulars received by the Board on the 11th day of October, 2022, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authorities, the developer shall agree such details in writing with the planning authorities 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. The mitigation measures and monitoring commitments identified in the Environmental Impact Assessment Report, the Natura Impact Statement and the further plans and particulars received by the Board on the 11th day of October, 2022, shall be implemented in full.

   Reason: In the interests of clarity and the protection of the environment during the construction and operational phases of the proposed development.

3. A continuous water quality monitoring programme to include turbidity and hydrocarbon monitoring on the Tourig and Glendine Rivers shall be prepared for the construction, operational and decommissioning phases of the proposed development. The monitoring programme, which shall include details on reporting requirements and procedures, shall be submitted to and agreed in writing with Uisce Eireann prior to commencement of development.

   Reason: In the interest of protecting public water supplies.

4. The location of Turbine No.5 shall be in accordance with the details and

plans received by An Bord Pleanala on the 11th day of October 2022.

Reason: In the interests of clarity.

5. The hedgerow within the 50 metre buffer of the blade width of Turbine 16 shall be removed and details of replacement hedgerow planting shall be submitted and agreed in writing with the relevant planning authority prior to commencement of development.

Reason: In the interest of clarity and to protect the ecology of the area.

6. 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.

7. 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 authorities to review the operation of the wind farm in the light of the circumstances then prevailing.

8. 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 0700 and 2300:

i. the greater of 5 dB(A) $L_{90,10min}$ above background noise levels, or 45 dB(A) $L_{90,10min}$, at standardised 10m height above ground level wind speeds of 7m/s or greater

ii. 40 dB(A) $L_{90,10min}$ at all other standardised 10m height above ground level wind speeds

(b) 43 dB(A) $L_{90,10min}$ at all other times.

Prior to commencement of development, the developer shall submit to and agree in writing with the planning authorities 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 authorities within six months of commissioning of the wind farm.

Reason: In the interest of residential amenity.

9. The developer shall comply with the following shadow flicker requirements:

(a) Cumulative shadow flicker arising from the proposed development shall not exceed 30 minutes in any day or 30 hours in any year at any dwelling.

(b) The proposed turbines shall be fitted with appropriate equipment and software to control shadow flicker at dwellings.

(c) Prior to commencement of development, a wind farm shadow flicker monitoring programme shall be prepared by a consultant with experience of similar monitoring work, in accordance with details to be submitted to the planning authorities for written agreement. Details of the monitoring programme shall include the proposed monitoring equipment methodology to be used, and the reporting schedule.

Reason: In the interests of residential amenity.

10. The developer shall comply with the following design requirements:

(a) The wind turbines, including masts and blades, and the wind monitoring masts shall be finished externally in a light-grey colour.
(b) Cables within the proposed development site shall be placed underground.
(c) The wind turbines shall be geared to ensure that the blades rotate in the same direction.
(d) No advertising material shall be placed on or otherwise affixed to any structure on the site without a prior grant of permission.

Reason: In the interests of visual amenity.

11. Details of the materials, colours and textures of all the external finishes of the proposed substation building and enclosing fence shall be submitted to and agreed in writing with the relevant planning authority, prior to commencement of the development.

Reason: In the interests of the visual amenities of the area.

12. Details of aeronautical requirements shall be submitted to, and agreed in writing with the planning authorities prior to commencement of the development. Prior to the commissioning of the turbines, the developer shall inform the planning authorities and the Irish Aviation Authority of the as-constructed tip heights and co-ordinates of the turbines and the wind monitoring mast and shall notify the Irish Aviation Authority of intention to commence crane operations at least 30 days prior to the erection.

Reason: In the interests of air traffic safety.

13. In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise interference with telecommunications signals in the area. Details of these measures, which shall be at the developer's expense, shall be

submitted to, and agreed in writing, with the planning authorities prior to commissioning of the turbines and following consultation with the relevant authorities.

Reason: In the interests of the protection of telecommunications signals and of residential amenity.

14. The construction of the development shall be managed in accordance with a Construction Environment Management Plan, which shall be submitted to, and agreed in writing with the planning authorities prior to commencement of development. This plan shall provide details of intended construction practice for the development, including hours of working, noise management measures and off-site disposal of construction/demolition waste.

Reason: In the interests of public safety and residential amenity.

15. (a) Prior to commencement of the development, the following details shall be provided to the relevant planning authorities:

i. A condition survey of the roads and bridges along the haul routes which shall be carried out at the developer's expense by a suitably qualified person both before and after the construction of the proposed development.

ii. The extent and scope of the survey and the schedule of works shall be agreed within the relevant planning authorities and Transport Infrastructure Ireland prior to commencement of development.

iii. Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the planning authorities.

iv. Detailed arrangements for the protection of bridges to be crossed.

v. Detailed arrangements for temporary traffic arrangements/control on roads and protocols to keep residents informed of upcoming traffic related matters, temporary lane/road closures and delivery of turbines.

vi. A phasing programme indicating the timescale within which it is intended to use each public route to facilitate construction of the proposed development. In the event that the proposed development is being developed concurrently with any other windfarm in the area, the developer shall consult with and arrange suitable traffic phasing arrangements with the planning authority,

vii. Within three months of the cessation of the use of each public road and haul route to transport material to and from the site, a road survey and scheme of works detailing works to repair any damage to these routes shall be submitted to, and agreed in writing with the relevant planning authority.

(b) All works arising from the aforementioned arrangements shall be completed at the developer's expense within 12 months of the cessation of each road's use as a haul route for the proposed development.

Reason: To protect the public road network, the amenity of local residents and to clarify the extent of the permission in the interest of traffic safety and orderly development.

16. The developer shall facilitate the preservation, recording and protection of archaeological materials and features that may exist on or within the site. In this regard, the developer shall:

(a) notify the planning authority in writing at least four weeks prior to the

commencement of any site operations (including hydrological or geotechnical investigation) relating to the proposed development,

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

The assessment shall address the following issues:

(i) the nature and location of archaeological material on the site, and

(ii) the impact of the proposed development on such archaeological material.

A report, containing the results of the assessment, shall be submitted to the planning authorities and, arising from this assessment, the developer shall agree in writing with the planning authority details regarding any future archaeological requirements (including, if necessary, archaeological excavation) prior to commencement of construction works.

In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanala.

Reason: In order to conserve the archaeological heritage of the area and to secure the preservation (in-sit or by record) and protection of any archaeological remains that may exist on the site.

17. On full or partial decommissioning of the windfarm, or if the windfarm ceases operation for a period of more than one year, the turbines and all decommissioned structures shall be removed, and foundations covered with soil to facilitate re-vegetation. These reinstatement works shall be completed to the written satisfaction of the planning authorities within three months of decommissioning or cessation of operation.

Reason: To ensure satisfactory reinstatement of the site upon cessation of

the project.

18. Prior to commencement of the development, the developer shall lodge with the planning authorities a cash deposit, a bond of an insurance company, or other such 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 roads. 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 Pleanala.

Reason: The ensure the satisfactory reinstatement of the delivery routes.

19. Prior to commencement of the development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other such security as may be acceptable to the planning authorities, 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 of the site. 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 Pleanala

Reason: To ensure the satisfactory reinstatement of the site.

20. The developer shall pay to the planning authorities 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 An Bord Pleanala to determine the proper application of the terms of the Scheme.

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

I confirm that the 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.

Pauline Fitzpatrick
Senior Planning Inspector

August, 2023

20.0 **Appendix One**

Observations received on or before 5 March 2021, the names of which have set out in the following table by surname/organisation. I have read each of the observations received. Given the commonality of the issues raised I have summarised the issues under headings in Section 10 of the main report.

Name	**Name**
Ahearne, Kieran & Elaine	**Barron,** Esther
Ahern, Catherine-Mary	**Barron,** Emmet
Ahern, Joanna & Paul	**Barron,** John & family
Alen-Buckley, Luke	**Barry Murphy,** Mary
Alen Buckley, Michael & Gianni	**Barry,** Ann
Allan, Nicholas	**Barry,** Stuart
Allen, Eugene & Jenny	**Barry,** Teresa
Allen, Jennifer & John	**Barry,** Rose
Allen, Liam & Kay	**Barton,** Niall
Ardglass Wind Turbine Action Awareness Group	**Baud,** Laura
Atherton, A.G & David	**Beecher,** Gerard & Mary
Attard-Manche, Jeremy	**Beecher,** Ian
Baldwin, Carmel	**Beecher,** John D & Phyllis
Baldwin, Catherine	**Beecher,** Gerard M
Baldwin, John	**Beecher,** Mary
Baldwin McCarthy, Elaine	**Beecher,** Patricia
Ballan, Ann	
Barker, Keith	

Beecher, Paul	**Burrell,** Sir Charles
Beecher, Robert	**Butler,** Ita
Beecher, Tim & Marian	**Butler,** Sinead
Begley McCarthy, Kara	**Butler,** Stephen
Bennett, Peter (John)	**Butler,** Thomas M
Bentheim, David M	**Butler,** Vivienne
Berry, Jamie	**Bonner,** William R.
Bertrand-Webb, Lily	**Boyer,** Jonathan
Blackwater Valley Opera Festival (Kaegi,D)	**Buckley,** Dan
Blackwater Valley Opera Festival (Carroll,E)	**Burke,** Dominic & Valda
Boylan, Ann	**Byrne,** Ann-Marie & Sean
Brierley, Louise	**Byrne,** Joey
Brosnan Desmond, Angela & **Desmond** Philip	**Carey,** Anne Marie
Browne, David	**Carroll,** Sean
Browne, James	**Carter,** Rob & Nicky
Browne, Ivor	**Casey,** Angela
Browne, Margaret	**Casey,** Laurence
Browne, Michael	**Casey,** Maura & Family
Browne, William	**Cashman,** Mark
Browne, Philip	**Chidlow,** Phil
Browne, Michael	**Clancy,** James
Browne, Tracy	**Cliffe,** Deirdre
Bryan, Irene & **Rohan,** Seamus	
Budds, Ken & Laura	

Coady, Chris	**Considine,** Edel & Others
Coady, Evelyn	**Conway,** Stephen
Coady, Tamzyn	**Costello,** Anne Marie
Coakly, Brid	**Corbould,** Edward Fr
Cois Bhride GAA (Declan Butler – Chairperson)	**Corkery**, Fiona
Coldwell, Justin	**Corkery,** Laura & Patrick
Coleman, Gearoid	**Cotter,** Derry
Coleman, Matthew	**Cotter,** Helen
Coleman, Brian	**Coughlan,** Aidan
Coleman, Stephanie	**Coughlan,** Eamon
Collins, Juliet	**Coughlan,** Mildred
Collins, Joe	**Coughlan,** Geraldine
Collins, Sarah	**Coughlan,** Patrick
Collins, Tadhg & Joan	**Coughlan,** Richard
Condon, Eoin	**Courtney,** Hugh
Condon, Juliette	**Courtney,** Tara
Condon, Fr. Patrick	**Crawford,** Ann
Connell, Claire & Pat	**Crawford,** Kevin
Connell, Sarah & Kirsty	**Cremin,** Philip
Connolly, Desmond	**Cronin,** Conor & Deirdre
Connolly, Nick	**Cronin,** Michael & Phil
Connors, Walter MVB	**Cullinan,** John
Conran, Maria	
Conran Fuller, Aileen	

Cunningham, Colin	**Duffy,** Deirdre & Karl
Cunningham, Haydn	**Duggan,** Brian & **Hegarty,** Colette
Cunningham, Joanna	**Duggan,** Pat
Cunningham, Pat	**Dunford,** Edward A
Curran, Anne	**Dunn,** Kacey
Daly, Paul	**Dunn,** Tony
Daniels, Michael & Claire	**Dunn,** Una
Danilovich, Irene	**Dunne,** John
Danilovich, John Ambassador	**Dunne,** Larry
Danilovich, John Charles	**Eagle,** Catharine
Darby, Maureen	**Ellingworth,** Amanda
Darrer, Joseph	**Ephson,** Martin
Davis, Hannah	**Families of Barranafaddock**
Davis, Robbie	**Farrell,** Edward
De Haas, Nigel	**Farrington,** Ava M
De Paor, Midi	**Feerick,** Tom
Deady, Peadar & Janette	**Feerick,** Tom
Deasy, Declan & Shirley	**Fenlon,** Frank
Deasy, Eric	**Fenlon,** Yvonne
Deegan, John & Vera	**Fianna Fail Councillor Grouping, Waterford**
Dobbs, Miriam	**Fitzgerald,** Jack
Doocey, Cllr Declan	**Fitzgerald,** Laura
Dorgan, Owen	**Fitzgerald,** Thomas
Dower, Avila	
Duff, John Feargal	

Fitzherbert, Alexandra	**Gore-Cogan,** Pauline
Fitzsimons, Des & Denise	**Goulding,** Tom & Ina
Fransen, Lucilla	**Goulding,** Tom & Katy
Flanagan, Ann	**Goulty,** Helen
Flynn, Bernard & Noreen	**Gordon,** CN Hunter
Flynn, Maura	**Greene,** Finbarr
Flynn, Paul and Maire	**Greene,** Kevin
Fogarty, Joyce & Thomas	**Greene,** Shelia
Foley, Redmond	**Greene,** Roger
Forbes, Donal	**Greene Fennessy,** Cecilia
Fraser, Stephen & Margaret	**Greene Fennessy,** Mary
Fritslap, Mr	**Grey,** Michael Anthony
Fuller, John	**Griffin,** Mary
Gallagher, Susan	**Griffin,** Michael
Galvin, Eileen & Paul	**Grubb,** Nicholas
Galvin, Kevin	**Grubb Villiers Stuart,** Alexander & Teresa
Garvey, William	**Grunder,** Anna
Geaney, Eileen	**Guiry,** Michael
Geaney, Louise	**Guiry,** Teresa
Geary, Bernadette	**Gwyn Jones,** Henry
Geary, Patrick	**Hall,** Melanie & Martin
Geary, Patrick J	**Hannon,** James W
Geary, Paul	**Hannon,** Ian
Geary, Robbie	**Hannon,** Linda
Goffs Bloodstock Sales Ltd.	**Hannon,** James

Hannon, Marian	**Hogan,** Amanda
Harpur, Kylie	**Hogan,** Cormac
Harpur, Matthew	**Hogan,** Conor & Carmela
Harrison, Robert	**Hogan,** John & Margaret
Hartigan, Linda	**Hogan,** Melissa & **Matthews**, Damien
Hatfield, Alice, Dr	**Hogan,** Mary
Heffernan, Kathleen	**Hogan,** Mary
Hegarty, Keith & Linda	**Hogan,** Michael
Helm, Petra	**Hogan,** Michael
Henley, David	**Hogan,** Paula
Henley, Lisa	**Hogan,** William
Hennessy, Barbara	**Holland,** Beatrice
Hennessy, Maurice	**Holmes**, TJ
Hennessy, Frederic	**Hornung,** Bernard
Hennessy Geary, Catherine	**Hourigan,** Carmel
Heskin, Eddie	**Hourigan,** Declan
Hickey, Anne	**Hourigan,** Martin
Hickey, Bertie	**Houlihan,** Ann
Hickey, Joseph	**Houlihan,** John P & Anne
Hickey, Mary	**Houlihan,** Shane
Hickey, Thomas	**Howard,** Angelina
Hickey, Thomas	**Howett,** Patrick & Louise
Hickey, Vincent	**Hubbard**, Richard
Hitchman, Francis	**Hudson,** Mark & Ana
Hodson, Tobias	**Hughes,** Daniel

Hurley, Sean	**Kelly,** James D
Innes, Paul	**Kelly,** John & Rosemarie
Irish Doctors Environmental Association	**Kelly,** John Anthony
Irish European Breeders' Fund	**Kelly,** John
Irish Georgian Society	**Kelly,** Mary
Irish Hawking Club	**Kelly,** Deirdre
Irish Raptor Conservancy	**Kelly,** William
Jameson, Andrea	**Kelly,** Yvonne, Dermot & Ellie
Jameson, Kristin	**Kenilworth,** Randle
Jarosik, Marcin	**Keniry,** Natalie & Tim
Jesse, D	**Keniry,** Ted
Johnson, Joseph	**Kenneally,** Tony
Johnston, Douglas A	**Keskinen**, Barbara
Johnston, Shane	**Kiely,** Jacinta
Kani, Wasfi CBE	**Kievits,** Jan Hendrik
Kavanagh, Matthew	**King,** Stacey
Kavanagh, Michael	**Kingham,** Brian
Keane, Julia	**Kingston,** Alma
Kenneally, Irene	**Knight,** Jonathan
Kearney (Walsh), Angela	
Kearney, Orla	
Keaveny, Patricia	
Kempf, Karen	

Kelly, David & Catherine	**Mackie,** P T W
Kelly, Eamonn	**Mackintosh,** Jl & CM
Knockanore National School, Board of Management	**Maddox,** T
Knockanore, Glendine, Kilwatermoy Community Council	**Mahon,** Tony & Elma
Knockanore, Glendine, Kilwatermoy Community Sports Hall, CLG	**Mangan,** Mary
Krefting, Carl	**Manning,** Peter
Kuhne, Niamh & Mark	**Manning,** Rebecca
Lagrange, Pierre	**Manning,** Veronica
Lanigan-O'Keefe, Tara	**Martin,** Denis & Veronica
Lavan, Ken & Karen	**Martin,** Val & Owen
Lawson, David	**Massey,** Paddy
Lawton, Brian & **Kelly**, Jill	**Mason,** Conor
Leahy, Angela	**Mayne,** Darragh
Leahy, Eamonn	**Meade,** Brendan
Leahy, Teresa	**Merry,** Hugo
Lennon, Patrick	**Mills,** Alan
Lindley, Michael	**Mills,** George
Lindley, Portia	**Mills,** Johnny & Mary
Linehan-Foley, Cllr Mary	**Mills,** Libby
Lismore Castle/Lismore Estates	**Mills,** Sammie
Livingston, Ces & Chris	**Mills,** Stephanie
Los, Andrzej	
Lynch, Eva & Amy	

Lynch, Michael & Antoine	**Mills,** Therese
Moloney, Betty	**Murphy,** Kieran & Maire
Moloney, Diarmuid	**Murphy,** Michael, & Vera
Moloney, John	**Murphy,** Maura & **O'Connor,** Terence
Moloney, Kevin	**Murphy,** Monica
Moloney, Trish	**Murphy,** Rose
Moloney, Thomas & Jill	**Murphy,** Sean
Montgomery, William	**Murph y,** Tom
Moon, Jacky	**Murphy,** Tomjoe & Mary
Moran, Amanda	**Murray,** Gerard
Moran, John	**Murray,** May
Morley, Clodagh	**Murray,** Peter
Morley, Sarah	**Murrihy,** Mike & Danielle
Morley, Thomas	**MacCraith,** Tomas
Morris, Francis	**Macdonald,** Diana
Morris, Megan	**McCarthy,** Charles
Morrissey, Tony	**McCarthy,** Brian
Motherway, Tracey	**McCarthy,** Catherine
Mulcahy, Brian & Ciara	**McCarthy,** Ciaran
Mulcahy, Mary	**McCarthy,** Conor
Mullin, Brendan & Sharon	**McCarthy,** Lena
Munkenbeck, Alfred	**McCarthy,** Raymond
Murphy, Danielle	**McCarthy,** Kathleen & Timmy
Murphy, Helen & Brian	**McCarthy,** William

Murphy, John & Gerty	**McCarthy,** Eamon
Murphy, Kenneth & Jean	**McCarthy,** John & Lisa
McCarthy, Mike & Tracy	**McSweeney,** William
McCarthy, Richard & Susan	**Nagle,** Anthony
McCarthy, Sheena	**Neville,** Michael J
McCarthy, Shane	**Ni Cathasaigh,** Catriona
McCarthy, Shane	**Ni Dunne,** Anita
McGivern, Ciara	**Nouwen,** William
McGloyn, Paul	**Orlik,** Jack
McGrath, Breda & John	**Orlik,** Nuala
McGrath, Bartholomew	**Orlik,** Oliver
McGrath, Laurence & Mary	**Ormonde,** Aine
McGrath, Gerard	**O'Brien,** Aidan
McGrath, Marie	**O'Brien,** Ben
McGrath, Mary	**O'Brien,** Daniel
McGrath, Michelle & David	**O'Brien,** Donal
McGrath, Rachel	**O'Brien,** Francis & Catherine
McGrath, Seamus O	**O'Brien,** John & Anne
McHenry, M.J	**O'Brien** Kieran, & **O'Donoghue,** Mary
McInerney, Rosanna	**O'Brien,** Maire & Jim
McKenna, Natasha	**O'Brien,** Margaret
McKenna, Dr. Sharon	**O'Brien,** Margaret
McKeown, Jackie	**O'Brien,** Maurice
McKeown, Tara	**O'Brien,** Maurice
McKeown-O'Neill, Oisin	**O'Brien,** Padraig

McKeown-O'Neill, Tiarnan	**O'Brien,** Paul & Carmel
McKinnon, Michael	**O'Brien,** Regina
O'Brien, Chris	**O'Donoghue,** Stephen
O'Brien, Deirdre	**O'Donovan,** Diarmuid & Sinead
O'Brien, Jack	**O'Donovan,** Dolores & Ed
O'Brien, Stephen	**O'Donovan,** Maurice & Others
O'Brien, Therese & Martin	**O'Donovan,** Kathleen & Maurice
O'Brien, Tony	**O'Donovan,** Aine
O'Brien-Ahern, Maria	**O'Donovan,** Mary
O'Byrne, Robert	**O'Donovan,** Deirdre
O'Connell, Andrew	**O'Donovan,** John
O'Connell, Angela	**O'Donovan,** Tom
O'Connell, Trevor	**O'Donovan,** Tom
O'Connell, Sean	**O'Donovan,** Jeremiah
O'Connell, Sean & Orla	**O'Farrell,** Ann
O'Connor, Carl	**O'Flynn,** Colette
O'Connor, Emer	**O'Flynn,** Lisa
O'Connor, Laurence	**O'Flynn,** Jacki
O'Connor, John & Others	**O'Flynn,** Mia
O'Connor, James TD & **Ahern**, Ann-Marie Cllr	**O'Gorman,** Flor & Anne
O'Connor, Richard & Mary	**O'Keefe,** Carmel & **Power,** Ollie
O'Dea, Mary	**O'Keefe,** Angela
O'Donohue, Nora	**O'Keefe,** Helen
O'Donoghue, Jack & Others	**O'Keefe,** James & Margaret
O'Donoghue, Kieran	**O'Keefe,** Joanna

O'Donoghue, Bart	**O'Keefe,** Marie
O'Donoghue, Katriona	**O'Keefe,** Martin & Anne
O'Keefe, Mary	**Platt,** Kevin
O'Keefe, Michael	**Platt,** Niall
O'Keefe, Michelle	**Platt,** Shay
O'Keefe, Molly	**Polizzi,** Alex
O'Keefe, Tony	**Ponsonby,** H B
O'Keefe, Valerie	**Power,** Carmel
O'Leary, Tim	**Power,** Jim
O'Mahony, Caroline	**Power,** Eunice
O'Mahony, John & Shelia	**Power,** Johanna Dr
O'Mahony, Marybeth	**Power,** Gemma
O'Mahony, Olivia	**Power,** Mark
O'Neill, Dervla	**Power,** Michael
O'Neill, Gretta	**Power,** Michelle
O'Neill, Patrick	**Power,** Peter
O'Neill, James & Mary	**Power,** Siobhan
O'Neill, Philip	**Pratt,** John Cllr
O'Regan, Geraldine	**Prendergast,** Esther & Joe
O'Sullivan, Denise	**Raab,** Oliver J-M
O'Sullivan, Renata	**Raines,** Mary
Penruddock, Emma	**Redmond,** Lisa
Penruddock, Georgina	**Reilly,** Terry
Peyton, Oliver	**Reynolds,** John
Pick, Caroline	**Reynolds,** Niamh

Pinkowska, Anna	**Richards,** Shauna
Platt, Dana	**Riches,** Derek
Rigney, Deirdre	**Sheinman,** Andrew & Helen
Ring, Gavin Dr.	**Shenton**, Michael
Robinson, Maria	**Sheridan,** Liam
Roche, June	**Sheridan,** Niamh
Roche, Niamh	**Shovel,** Andy
Rohan, Martin	**Sinclair-Parry,** McLean
Ronayne, Cillian	**Sinn Fein Group, Waterford City Council**
Royal Irish Academy of **Music** (Director, Deborah Kelleher)	**Slevin,** Niall
Russell, David	**Sliney,** John & Breeda
Ryan, Tony & Liz	**Snipe Conservation Alliance**
Russell, Philip	**Smith,** Stephen
Santos, Gonzalo	**Stanton,** David TD
Scanlan, Emily	**Stewart,** Sara
Scholz, Marlis & **Coxhill-Scholz,** Ulrike	**Sunderland,** Sean
Scoil Mhuire Primary School Board of Management	**Sutcliffe,** Andrew
Scott, Andrew	**Sutcliffe,** Emma
Scully, Grainne	**Swan,** Robbyn
Sealy, Aine	**Sweeney,** Ivor
Sealy, Peter	**Swindley,** Jason
Sexton, Aidan	**Thompson,** Gerard
Shamrocks LGFA	**Tobin,** Carl
Shamrocks GAA	**Tobin,** John & **Gygax,** Miriam

Shanahan, Matt TD Independent	**Tobin,** James Cllr
Shawcross, Conrad	**Topps,** Claire
Treacy, Angela	**Wackrill,** Tim
Treacy, Eleanor	**Waley-Cohen,** F.
Treacy, Matthew	**Wall,** Lisa
Tree, Isabella	**Walsh,** Aine
Tobin Power, Mia	**Walsh,** Alan
Twomey, Clare	**Walsh,** Amanda
Twomey, Con	**Walsh,** Ann
Twomey, June	**Walsh,** David
Twomey, Andrew	**Walsh,** James
Twomey, Laura	**Walsh,** Jim
Twomey, Fiona & Patrick	**Walsh,** John
Twomey, Veronica	**Walsh,** Mary
Uniacke, Anne Marie	**Walsh,** Kevin & Mary
Unknown (Resident Kilbeg)	**Walsh,** Lena
Van De Vater, Seig	**Walsh,** Linda
Van der Knapp, Tim	**Walsh,** Mairead
Van Dokkum, Neil	**Walsh,** Margaret (Mage)
Van Keulan, Nico	**Walsh,** Michael
Van Keulan, Nienke	**Walsh,** Orla
Van Keulan, Seryna	**Walsh,** Patrick
Van Wijk, Henny Raven	**Walsh,** Patrick Jnr
Van Wijk, Rosa	**Walsh,** Petr
Vernon, Stephen	**Walton,** Philip

Viloria, Berta	**Watson,** John W
Viloria, Rosario	**Ward,** Mark
Wheeldon, Kitty	
White, Harry	
White, Vickey	
Whitford, Dr Carmel	
Wild, Teresa	
Williams, Patrick	
Wilson, A.B	
Wilson, S A L	
Wilks, Henry	
Wilks, Venita	
Wilks, William	
Wingfield, Philip	
Wingfield, Susan	
Woodhouse Wind Farm Residents	
Woods, James & Jeanette	
Wray, Elizabeth	
Wycherley, Elizabeth	
Wyler, Daniel & Lillian	
Yarborough, Earl & Countess	

Appendix 20.1 Submissions following Further Information

Name	Name
Beecher Gerard	**Carroll** Eamon
Beecher Mary	**Carroll** Sean
Bennett Peter (John)	**Chidlow** Phil
Brierley Louise	**Collins** Joe
Brown Philip	**Collins** Sarah
Browne Ivor	**Collins** Tadhg and Joan
Browne Margaret	**Condon** Juilette
Browne Michael - Co Cork	**Connolly** Nick
Browne Michael - Co Waterford	**Connors** Walter
Browne Rachel	**Conway** Stephen
Browne William	**Corkery** Denis
Buckley Dan	**Coughlan** Aidan
Buckley Luke Alen	**Coughlan** Geraldine
Buckley Michael and Gianni Alen	**Coughlan** Patrick
Buckley P.Alen	**Coughlan** Richard
Budds Laura and Ken	**Cronin** Conor and Deirdre
Butler Declan	**Cronin** Michael and Phil
Butler Ita	**Curley** Dina
Butler Thomas	**Davis** Hannah
Butler Vivienne	**Davis** Robbie
Byrne Joey	**Deasy** Declan and Shirley
Carey Anne Marie	**Deasy** Eric
	Dorgan Owen

Duggan Brian and Colette	**Hannon** Marian
Duggan Pat	**Hatfield** Alice
Dunford Edward A	**Heffernan** Kathleen
Dunn Una	**Helm** Petra
Dunne Kacey	**Hendrik** Kievits Jan
Dunne Tony	**Hennessy** Geary Catherine
Farrell Edward	**Hennessy** Maurice
Farrington Ava	**Hickey** Mary
Fogarty Joyce and Thomas	**Hickey** Tom
Fraser Stephen and Margaret	**Houlihan** Ann
Galvin Kevin	**Houlihan** John P
Galvin Teresa	**Innes** Paul and Wall Lisa
Gore-Cogan Pauline	**Jesse** Mr and Mrs D
Goulding Tom and Ina	**Kaegi** Dieter
Goulty Helen	**Kearney** Angela
Greene Finbarr	**Kelly** Christine
Greene Hannah	**Kelly** Eamonn
Greene Kevin	**Kelly** John and Rosemarie
Greene Roger	**Kelly** John
Greene Sheila	**Kelly** Mary
Griffin Mary	**Kempf** Karin
Gustafson Elizabeth	**Keskinen** Barbara
Hannon Ian – 8th December	**King** Stacey
Hannon Ian – 9th December	**Kingsto**n Alma
Hannon James	**Lawton** Brian and Kelly Jill

Lindley Michael	**Morley** Clodagh
Mahon Tony and Elma	**Morley** Sarah
Malter Thailee	**Morley** Thomas
Manning Rebecca	**Morrissey** Tony
Manning Veronica	**Murphy** Helen
Martin Denis and Veronica	**Murray** Gerard
Massey Paddy	**Murray** May
Mayne Darragh	**Nouwen** William
McCarthy Brian	**O Brien** Ahern Maria
Mc Carthy Catherine	**O Brien** Chris
McCarthy Eamon	**O Brien** Maurice - Co Limerick
McCarthy John and Lisa	**O Brien** Maurice - Co Waterford
McCarthy Lena	**O Brien** Padraig
McDonald Diana	**O Connell** Andrew
McGivern Ciara	**O Connell** Angela
McGrath Bartholomew	**O Connor** Richard and Mary
McGrath Laurance	**O Dea** Mary
McGrath Mary	**O Donohoe** Darren
McKeown O'Neill Oisin	**O Donoughue** Steven
McKeown Tara	**O Donovan** Aine
McKeown-O'Neill Tiarnan	**O Donovan** Diarmuid and Sinead
McSweeney William	**O Donovan** Mary
Mills Therese	**O Donovan** Tom
Moloney John	**O Flynn** Jackie
Moloney Thomas and Jill	**O Keeffe** Michelle
Moran Amanda	**O Neill** Gretta

O Neill Patrick	**Twomey** Con
O Neill Philip	**Twomey** Laura
Ormonde Brendan	**Twomey** Veronica
Pennuddock Emma	**Van der Knaap** Tim
Power Gemma.	**Van Wijk** Rosa
Power Mark	**Wackrill** Tim
Power Michelle	**Wallenburg** Wendela
Power Peter	**Walsh** Aine
Power Siobhan	**Walsh** Alan
Raines Mary	**Walsh** Amanda
Redmond Lisa	**Walsh** Ann
Reynolds John and Niamh	**Walsh** David
Richards Shauna	**Walsh** James
Robinson Maria	**Walsh** Jim
Rodrigues Edwardo	**Walsh** Lena
Ryan Considine Edel	**Walsh** Margaret (Marge)
Ryan Tony and Liz	**Walsh** Orla
Scanlan Eamon	**Walsh** Patrick Jnr
Sexton Aidan	**Walsh** Patrick
Shenton Michael	**Walsh** Petr
Swan Robbyn	**Wild Ireland Defence CLG** - Gregory Casey
Treacy Angela	**Wild Ireland Defence CLG** - Peter Sweetman
Treacy Eleanor	**Woodhouse Wind Farm Residents**
Twomey Andrew	
Twomey Clare	