An Coimisiún Pleanála

Inspector's Report
ABP-323635-25

Development	10-year planning permission for wind energy development consisting of 9 no. wind turbines and related works with a 35-year operational lifespan
Location	Located in the townlands of Garrane, Ballynagoul, Creggane and Charleville, Co. Limerick.
Planning Authority	Limerick City and County Council
Applicant(s)	Garrane Green Energy Limited
Type of Application	REDIII Application Application for Approval under Section S37E, Planning & Development Act 2000 (as amended)
Prescribed Bodies	1. Limerick City and County Council 2. Dept. of Defence 3. Department of Housing, Local Government and Heritage, Developments Applications Unit 4. HSE National Environmental Health Service

5. Irish Aviation Authority
6. Office of Public Works
7. Geological Survey of Ireland
8. Failte Ireland
9. An Taisce
10. The Heritage Council
11. Transport Infrastructure Ireland
12. Uisce Éireann

Public Observers	See List of Observers in Appendix 3
Date of Site Inspection	9th April 2026 and 13th July 2026
Inspector	Laura Finn, Lead Inspector Peadar McQuaid, Second Inspector

Table of Contents

1.0 Introduction 5

2.0 Proposed Development 6

3.0 Planning History 8

4.0 Submissions and Observations 11

5.0 Policy Context 42

6.0 Natural Heritage Designations 57

7.0 Planning Assessment 59

8.0 Environmental Impact Assessment 82

9.0 Population and Human Health (Including Shadow Flicker) 98

10.0 Biodiversity (Including Aquatic Ecology) 107

11.0 Biodiversity (Ornithology) 128

12.0 Soils and Geology 148

13.0 Hydrology and Hydrogeology 164

14.0 Noise and Vibration 184

15.0 Landscape and Visual Assessment 200

16.0 Air Quality and Climate 215

17.0 Archaeology and Cultural Heritage 225

18.0 Material Assets (Land Use, Telecommunications, Electricity Networks, Air Navigation, Quarries and Utilities) 245

19.0 Traffic and Transport 252

20.0 Major Accidents and Natural Disasters (MA&ND) 263

21.0 Interactions 270

22.0 Reasoned Conclusion 271

23.0 The Likely Significant Effects on a European Site 273

24.0 Recommendation 279

25.0 Draft Order..... 279

26.0 Appendix 1 – AA Screening Determination (Stage 1)..... 302

27.0 Appendix 2 – Appropriate Assessment (Stage 2)..... 312

28.0 Appendix 3 – Public Observations..... 336

29.0 Appendix 4 – Specialist Report to Inspector (Bats) 337

30.0 Appendix 5 – Specialist Report to Inspector: Adequateness of Information for the purpose of Appropriate Assessment and Environmental Impact Assessment: Ornithology..... 349

1.0 Introduction

1.1. Context

This application is subject to the provisions of the RED III Directive (EU/2023/2413) transposed into Irish legislation by way of European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025), as amended. It was lodged on 10th September 2025 and was subject to the provisions of Section 37JA of the Planning and Development Act 2000, as amended. It was deemed complete on the 8th October 2025.

The application is made on foot of pre-application discussions with the Coimisiún under ABP-319139-24 for 9 no. wind turbines, grid connection, an energy storage facility and all associated site works. It is detailed in the Inspectors Report ABP-319139-24, that during consultations the Applicant indicated the Battery Energy Storage System (BESS) would no longer form part of the application. The Coimisiún decided on the 5th February 2025 that the development would fall within the scope of section 37A of the Act and would be strategic infrastructure.

1.2. Site Location and Description

The proposed windfarm measuring a total site area of c. 158.75ha is located in the rural townlands of Garrane, Ballynagoul & Creggane, Co. Limerick, c. 2.3km northeast of Charleville town, Co. Cork (closest turbine). The administrative boundary between Counties Cork and Limerick is c. 265m from the nearest turbine T1 to the west. Broadly speaking, the site is bounded by the N20 National Road to the west and by Local Road No. L1537 to the east with agricultural fields to the north and south. The Turbine Delivery Route (TDR) is as follows;

- From the port of entry at the port of Foynes to the site entrance at Garrane via N69, N18, M20, N21 and N20 and;
- From the port of entry at Galway Port to the site entrance at Garrane via Lough Atalia Road, College Road, R339, L5034, R336, N6, M6, M18, N18, M20, N21 and N20.

The surrounding area is characterised by a gently undulating rural landscape dominated by agricultural lowlands bounded by mature hedgerows and interspersed with farm complexes and one-off rural housing. The River Maigue flows in a northerly direction alongside the site from Garroose Bridge on Local Road No. L1537 towards the village of Bruree further downstream. The site is located within the fluvial floodplain

of the River Maigue and its tributaries including the Garigues and the Loobagh streams. The Charleville Stream runs through the centre of the site and discharges into the River Maigue at the northeast corner of the site. The Charleville Lagoons, which is part of the Kerry Ingredients (Ireland) Limited wastewater treatment plant at Rathgoggan North is located to the south and west of the site.

The site does not lie within any areas designated for ecological or nature conservation interest. The Blackwater River(Cork/Waterford) Special Area of Conservation (SAC)(Site Code: 002170) lies c. 7.1km to the south. The Ballyhoura Mountains SAC (Site Code: 002036) is located c. 9km to the southeast and the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area (SPA) (Site Code: 004161) is located c. 23km to the west. The Lough Gur archaeological site is located c. 16 km northeast of the site.

2.0 Proposed Development

2.1. Documentation

The following documents accompany the planning application;

- A Planning Application Form & Cover Letter,
- Planning Drawings prepared by Suir Engineering and Jennings O'Donovan Partners Ltd (JOD),
- Landscape and Visual Impact Assessment Photomontage Booklets 1 & 2 prepared by Macroworks,
- Landowner Agreements and Letters of Consent,
- Letters to Prescribed Bodies,
- Public Notices,
    - Planning Statement prepared by JOD,
    - Pre-Consultation Meeting Minutes/SID Determination,
    - An Environmental Impact Assessment with 5 Volumes prepared by JOD,
        - Volume 1- Non Technical Summary
        - Volume 2- EIAR
        - Volume 3- EIAR Figures
        - Volume 4- EIAR Appendices
        - Volume 5- Natura Impact Statement

The Applicant has detailed two standalone website addresses for the development-

- www.garranegreenenergyplanning.ie and
- www.garranegreenenergy.ie

2.2. **Development Description**

The applicant is seeking a 10-year permission and a 35-year operational period for the construction of a 9 no. turbine windfarm, grid connection and all associated site works. The development will comprise of-

- 9 no. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m.
- Upgrade of existing access tracks and construction of new permanent access tracks, permanent turbine hardstand areas and turbine foundations.
- Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream.
- Upgrade of existing site drainage network and installation of new site drainage.
- Wind Farm Internal Cabling connecting the wind turbines to the electrical substation.
- Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities (EirGrid Building – 450 sqm, IPP Building - 242 sqm), all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works.
- Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line.
- Erection of a permanent 60m Meteorological Mast for monitoring wind speeds.
- Construction of a Temporary Construction Compound for construction stage.
- Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery).
- 6 no. temporary spoil storage areas and 1 no. permanent spoil storage area.
- Biodiversity enhancement and improvements associated with the Project.
- Landscaping, fencing and all associated ancillary works.

Permanent permission is being sought for the proposed onsite substation/grid connection, which will be handed over to ESB networks to own and operate. The application indicates a 16-18 month construction period.

The proposal entails the construction of 9 no. wind turbines, with each turbine having a with a blade tip height of 170m, a hub height of 95m and a rotor diameter of 150m. The final choice of turbine model is unknown, however for the purpose of the EIAR, the dimensions and attributes of the turbine, for which planning permission is being

sought is comparable to a Vestas V150 turbine model. Each turbine will have capacity to produce 6 MW giving a proposed installed capacity of 54MW of renewable energy. The application does not propose 'Design Flexibility'.

Access to the site, for construction and operation traffic will be from an entrance of the L1537. A second temporary entrance on the N20 road will only be used for the delivery of abnormal loads such as turbine blades.

Table 2.1 Site Specific Description of Windfarm Infrastructure

Turbine	Townland	Habitat Type	Top of Foundation Level (m OD)	Peat Depth (m)	Nearest Residential Receptor (m)	Nearest NMS (m)
T1	Ballynagoul	Neutral grassland (GS1) /Wet grassland (GS4)	61.60	No Peat	757	1,945
T2	Ballynagoul	Neutral grassland (GS1)/Wet grassland (GS4)	58.80	No Peat	703	222
T3	Creggane	Improved grassland (GA1)	58.10	No Peat	529	319
T4	Ballynagoul	Neutral grassland (GS1)/Wet grassland (GS4)	57.81	No Peat	708	140
T5	Creggane	Improved grassland (GA1)	57.81	No Peat	797	1,325
T6	Ballynagoul	Neutral grassland (GS1)/Wet grassland (GS4)	57.81	No Peat	727	360
T7	Ballynagoul	Neutral grassland (GS1)/Wet grassland (GS4)	57.81	No Peat	761	217
T8	Garrane	Improved grassland (GA1)/Wet grassland (GS4)	57.81	No Peat	702	142
T9	Garrane	Improved grassland (GA1)/Wet grassland (GS4)	57.95	No Peat	709	1385
Substation	Ballynagoul	Wet grassland (GS4)	62.45	No Peat	230	525

3.0 Planning History

The following planning site history of relevance to the proposed development and/or overlapping the subject site. These include the following;

- **PA. Ref. 911145** – Permission Granted, for the retention of existing lagoons and permission to erect weir, flume, etc., and to raise existing levels of lagoon embankments – Applicant: Golden Vale Plc.
- **PA. Ref. 92137** - Permission Granted for the relaying of effluent pipeline – **Applicant:** Golden Vale Foods Products Ltd.
- **PA. Ref. 02384** – Permission Granted, for the Construction of a 2 storey dwellinghouse and septic tank. Applicant: Gerald Quain
- **PA. Ref. 17270** - Permission Granted, for the installation of an underground pumped outfall pipeline for the conveyance of treated wastewater from our wastewater treatment plant at Rathgoggan North, County Cork to a discharge point on the river Maigue located c. 2km north of the wastewater treatment plant site. The outfall pipeline installation, which is proposed as part of an upgrade of the existing wastewater treatment plant at Rathgoggan North shall be routed across agricultural lands in the townlands of Creggane and Garrane in County Limerick to a discharge point on the River Maigue. The upgrade of the existing wastewater treatment plant at Rathgoggan North including a section of the new outfall pipeline within the wastewater treatment plant site shall be subject to approval of a separate application for planning permission to Cork County Council. The development works relate to an activity for which a revised Industrial Emissions Directive Licence is required.
  Applicant: Kerry Ingredients (Ireland) Limited.
- **PA. Ref. 2460874 & ABP Ref 321556/24** – Retention Permission Granted for retention of existing foundations as built (planning ref. 02/384) and planning permission for the construction of a two-storey dwelling on existing foundations, a sewage treatment system, conversion of existing roadside dwelling to store building and associated site works. Applicant: Column Quain & Ruth Quirke
- **PA. Ref. 2560239 & ABP Ref 322745/25** - Planning Permission was refused by Limerick City and County Council for the construction of an anaerobic digestion facility to produce renewable biomethane, CO2 (which will be captured), and a bio-based fertiliser from organic material. Decision was appealed to ACP. Applicant: Cycle0 (IE) Limited (AWAITING DECISION BY ACP)

3.1. **Wind Farms in the Area (within 20km)**

There are 10 no. windfarms within 20km of the site of which 7 no. are operational, 1 no. is consented and 2 no. are proposed wind farms within 20km of the site.

Table 3.1 Other renewable energy developments in the area

Wind Farm	Status	No. of Turbines	Distance to Site Boundary	Directions from the Windfarm
Rathnacally Wind Farm	Operational	2	c. 5.9km	South
Boolard Wind Farm	Operational	2	C 9.0km	Southwest
Kilmeedy Wind Farm	Operational	2	c. 16km	Northwest
Slieveragh Wind Farm	Operational	2	c. 19.3km	East

Knocknatallig Wind Farm	Operational	6	c. 11.3km	South
Castlepook Wind Farm	Operational	14	c. 14km	Southeast
Kilberehert Wind Farm	Operational	3	c. 18.8km	Southwest
Annagh Wind Farm	Proposed	6	c. 8.6km	South
Tullacondra Wind Farm	Consented (on appeal to ACP)	9	c. 20.7km	Southwest
Ballinalee Wind Farm	Proposed	17	c. 7.7km	Northeast

The list of projects for the purposes of cumulative assessment is detailed in EIAR, Appendix 1.2, Table 1 and Table 2.

3.2. **Preplanning Consultations**

An Bord Pleanála (now An Coimisiún Pleanála) (ACP) received a written request on the 19th February 2024 from the prospective applicant to enter preapplication consultations under Section 37B of the Planning and Development Act 2000, as amended, in relation to a proposed windfarm development in County Limerick. Planning reference number ACP 319139-24 relates.

3 no. online pre-app meetings were held between the prospective Applicant and ACP representatives on the 30th of April, 6th of September and 4th of October 2024. A formal request to close the pre-application consultation was received by ACP on 22nd of October 2024. The details of the meetings are set out in the written records contained on the ACP file.

At a meeting held on the 5th February 2025, ACP decided that;

> "having regard to the size, scale and location of the proposed wind farm and related development, and to the policy context, it is considered that the proposed development constitutes development that falls within the definition of energy infrastructure in the Seventh Schedule of the Planning and Development Act 2000, as amended, thereby satisfying the requirements set out in section 37A(1) of the Act. The proposed development is also considered to be of strategic importance by reference to the requirements of sections 37A(2)(a), (b) and (c) of the Planning and Development Act 2000, as amended. An application for permission for the proposed development must therefore be made directly to An Bord Pleanála under section 37E of the Planning and Development Act 2000, as amended."

ACP received the subject application on the 10th of September 2025.

4.0 Submissions and Observations

4.1. Planning Authority Submission

4.1.1. Limerick City and County Council (LCCC) (Chief Executives Report)

The planning authority submitted a Planning Report on the proposed development to An Coimisiún Pleanála (ACP) on the 19th of November 2025. LCCC's Chief Executive (CE's) report sets out the legislation context for the making of the submission and the policy context in the relation to the type of development proposed, referencing relevant European, National, Regional policy and policies and objectives of the Limerick County Development Plan 2022-2028 (LCDP 2022). It sets out the planning history of the site and details of pre-application discussions. The report highlights the key issues and provides a summary of the internal reports following a review of the EIAR and NIS. Suggested conditions to be attached in the event of a grant of permission are included in Appendix 1 and summarised in Section 7.14 of this report. The Inland Fisheries Ireland submission included within the CE report is addressed below in prescribed body Section 4.2 of this report.

The main points from the technical reports are summarised as follows:

- **Road Section:** No objection subject to 4 no. conditions, addressing sightlines, surface water management and construction management & delivery plan details.
- **Council Ecologist:** The NIS conclusions are considered acceptable. The mitigation measures described are considered generally sufficient. The report requires clarification on items in relation to spoil management, potential direct disturbance of habitats/species of the River Shannon SAC/SPA and impact upon otters. The EIAR review highlighted the potential of badger sett being missed during surveys and concerns regarding habitat/Hedgerow loss along the turbine delivery route. Data/survey inconsistencies in relation bats. The bird chapter of EIAR is considered to be a fair assessment. Mitigation proposed for owl, meadow pipit and skylark is welcomed. The aquatic chapter is deemed comprehensive and is recommended that all mitigation measures are implemented fully. Conditions are recommended.
- **Council Flood Section:** No objection on the grounds of flood risk.
- **Council Archaeologist:** The locations of T9, T8, T6, T4 and the substation will impact upon potential archaeology that has not yet been registered by the Archaeological Survey of Ireland. This will necessitate a redesign to negate the impact. 9 no. conditions are recommended in the event of a grant of permission.

- **Council Conservation Officer:** Conditions are recommended in the event of planning permission. Concerns are raised in relation to lack of assessment of the potential visual impacts on Kilmallock ACA and local NIAH/Historic Gardens/Designed landscapes. Details of the predicted effects of RPS Reg No 135 and mitigation measures for heritage constraints along the turbine delivery route are required.
- **Council Environment Section: Noise** - Background noise survey is not adequate. There is potential to allow a significant difference between wind turbine noise levels and actual background noise levels at noise sensitive locations. Refusal is recommended if further information is not sought. Shadow Flicker – conditions recommended in the event of a grant of permission.
- **Council Fire Service:** No objection.
- **Mid-West National Road Design Office:** No observations.

The other main points of the CE's Report are summarised as follows:

- Referencing Development Plan policy objective CAF O30, the site is located in a 'Preferred Area' for wind energy locations in the Development Plan. The proposal would provide 14% of the renewable energy required to reach renewable energy targets set out in the Development Plan. (386.45MW by 2030).
- No concerns raised regarding Policy TRO39 which seeks to prevent, except for exceptional circumstances, development on lands adjacent to the existing national road network which would adversely affect the safety, current and future capacity and function of national roads.
- Landscape and visual impact concerns particularly on viewpoints (VP5 & VP7), Kilmallock ACA and other sensitive locations. The height and scale of the turbines are a concern and are considered to have a negative impact on the landscape both locally and over greater distances from house, roads, villages and amenity locations in the surrounding area.
- The height of the proposed turbines is not representative of the range of turbines identified in the Wind Energy Guidelines 2006.
- It is not clear whether mitigation measures for shadow flicker meet the 2006 or draft 2019 guidelines. Clarification is required. No cumulative effects identified.
- In relation to noise, special audible characteristics can be addressed via planning condition.
- The application site is not within an EU designation. The site is connected to the Lower River Shannon SAC and River Shannon and Fergus SPA via the Maigue River. The submitted NIS conclusions are considered acceptable and the mitigation measures described would be considered generally sufficient.
- The habitat available on site is not currently used by high numbers of species of higher concern than local value. This assessment is considered fair.
- No temporary storage of materials should be stockpiled within Flood Zones A and B. Flood resilient materials should be used on development with within

Flood Zones A and B. Proposed access tracks should be constructed at existing ground levels to ensure no adverse flow routes or impact on flood storage. Any water crossing subject to Section 50 process.

- The Planning Authority notes the proposal is broadly supported by the LCDP 2022 however they are concerns relating to visual impact, shadow flicker and noise.

4.1.2. **Elected Members (Meeting Administrator's Report)**

The Elected Members made the following comments in relation to the proposed development:

4.1.2.1. **Land Use:**

- Members expressed the view that as the area is an agricultural area, hence there should be input from Department of Agriculture.
- Potential to locate windfarms on lands not suitable for farming/housing e.g. bogland.
- Concerns in relation to the impact of the 'Preferred' areas for Windfarm Development Map contained in the LCDP 2022 which covers a large area of central County Limerick.

4.1.2.2. **Community Impact, Residential and Visual Amenity:**

- Concerns were raised in relation to the impact of noise and shadow flicker.
- It was noted that there were studies on the impact of noise and shadow flicker on wildlife but not on how persons with medical and sensory issues were affected. It was suggested that the HSE should be consulted.
- Concerns in relation to impact of infrasound from proposed development. Members referenced study by Professor Ken Masterson, which identified safe distances for people.
- Concerns for quality of life of households residing within 1km of proposed site.
- It was noted that there are 36 no. turbines in the general area at present and further turbines would have a negative impact on the landscape.
- Members considered that the visual impact was understated for the turbines' height.
- Members queried the effects the turbines would have on planning applications in the area by rural households.
- Members highlighted mapping errors on submitted documentation e.g. towns and villages are not shown on the submitted maps giving the impression that no towns/villages exist in the area surrounding the proposed site.

4.1.2.3. **Water and Flooding:**

- Concerns were raised that the submitted Flood Risk Assessment should be updated. The proposed site access from N20 is currently flooded and has a history of flooding. Recent video footage and photographs of this flooding should be attached to inform the An Coimisiún Pleanála decision. 5 no. turbines are to be located in Flood Zone A.
- The volume of concrete required for the base of turbines will impact water seepage to underground flow of water and make flooding worse in the area.

4.1.2.4. **Road Safety, Construction and Decommissioning:**

- The N20 is limited to two lanes. It was noted that the site access road was already busy, with historical black spots. Concern was expressed that additional construction traffic for an extended period will exacerbate traffic issues.
- Queries on the disposal of soil and subsoil from excavations including licensing.
- Queries on the long-term plan on decommissioning following the 35-year operational period and whether a bond will be put in place.

4.1.2.5. **Archaeology and Ecology:**

- It was noted that the Council Archaeologist has identified additional archaeology that needs to be considered.
- Concerns in relation to potential biodiversity issues.
- Water Framework Directive objectives should be considered.

4.1.2.6. **Accident and Emergencies:**

- Fire and Emergency Services training required in the event of an incident(s) on the site pre and post construction.

4.1.2.7. **Community Engagement:**

- Members expressed concerns about the level of public consultation.
- Discussion took place on the possible economic and financial benefit of windfarm development.

4.1.3. **Views of the Elected Members**

A summary of the Elected Members (Cllr Greg Conway, Cllr John O'Donoghue, Cllr Brigid Teefy, Cllr Tommy O'Sullivan) opinion is as follows-

- Proposal is located in a flood plain, resulting in loss of floodplain storage and could increase flooding elsewhere. Flood Zone A and B - Turbines 4,5,6, 7 and 8 are proposed in Flood Zone A. Under national planning rules, development is not permitted in Flood Zone A.

- Flood Risk Assessment has greatly underestimated the frequency of flooding in the local area and impacts upstream. Soil compaction not taken into account. No breakdown calculations of the 9000m^3 loss of soil.
- The submitted flood risk assessment did not assess the risk of increased flooding on the N20 'material asset' as a result of this development and is a breach of EU Directive 2014/52/EU.
- Proposal does not pass justification test and is contrary to the Strategic Flood Risk Assessment for LCDP 2022.
- Negative visual impact and driver distraction.
- No training or protocol for fire service personal for responding to wind turbines emergencies.
- Inappropriate location for the siting of the wind turbines.
- Impact on public safety.
- Accident data on all accidents on the N20 between the M20 motorway and Charleville, including the town of Charleville, be furnished to the Bord before any decision to grant.
- It is recommended, that the Dept. of Agriculture should have an input into any decision because they are involved in the control of disease and pollution in livestock in the area as well as environmental schemes in the area.
- It is recommended that the developer prove scientifically that this area is the most favourable area geographically for the production of wind energy and to demonstrate why they are proposing some of the largest turbines in the Country in a very populated environment.
- Poor engagement with the local community.
- Concerns over proposed soil removal and treatment. Has the developer obtained the appropriate licences?
- Concerns raised regarding Infrasound effects.

4.1.4. **Applicants Response to Limerick City & County Council and Elected Members**

4.1.4.1. **Roads Department Report**

- The applicant broadly in agreement with the proposed recommended conditions with some clarifications provided.

4.1.4.2. **Ecologist Report**

- **Spoil Management** - The management of spoil on site is detailed in the Spoil Management Plan (EIAR Appendix 2.1) The Spoil Management Plan – Section 1.6 - Control Measures details the control that will be implemented on site to prevent sediment run off. Some of the measures include regular inspection of spoil areas, silt fencing and once disposal is complete the deposition areas will be re-vegetated with the existing upper vegetated layer removed at the commencement of disposal operations.

- **Impact on SAC QI species (migratory fish)** - It is accepted that some qualifying Annex II species of the SAC, notably Atlantic salmon and otter (Section 3.3 of NIS), occur in the watercourses between the SAC and the windfarm site. However, with the strict mitigation measures proposed to contain water pollution, no significant risk to these species as a result of water pollution associated with any phase of the proposed project and as such there will be no adverse effect on the integrity of the SAC. It is also noted that the 2 no. required bridge crossings will utilise clear span bridges and will not involve instream works.
- **Impact on SAC QI species (otter)** - In extreme cases otter territories may extend to up to 20 km of river habitat (probably mainly in low productivity river systems), though in most cases the territories would be far less (as discussed in Section 3.3 of NIS). It is an accepted concept that in any catchment the otter population is of the same gene pool. No significant risk from water quality deterioration to the prey species of the local otter population is predicted due to the stringent suite of mitigation measures. During the construction phase some disturbance will likely be caused to the daytime activities. It is considered that this will be at the '*Slight'* level of importance and will be temporary in duration. Nocturnal otter activity will be largely unaffected.
- **Badgers** - The presence of the badger sett at the reported location is noted in a 3rd party submission. The baseline survey remains within an acceptable timeframe for EIAR purposes and was completed in line with current guidance. The sett is located c. 107.59m from the nearest windfarm infrastructure. An additional hedgerow lies between the sett and the works area, providing visual and acoustic screening. At this distance, with no earthworks proposed in close proximity, the risk of disturbance or tunnel collapse is negligible. Pre-construction badger surveys covering all areas will be carried out and standard mitigation will be applied as necessary.
- **Black Poplar Tree** – Studies remain uncertain regarding whether the black poplar tree is native to Ireland. The treeline to be breached is to facilitate the new track leading north from the substation (EIAR Plate 6.11). At most one tree may need to be removed. The main part of the treeline will be left in situ and will adjoin a stand of newly planted woodland as part of the native woodland planting programme.
- **Irish Stoat** - Small mammal species like the Irish stoat associated with hedgerow banks will be largely unaffected by the proposed project and will continue to have a presence on site during the operational phase.
- **Bat Survey Data** – Eire Ecology's response has stated that their assessment is based on a robust, transparent, and defensible analytical framework. The methodology used does not use out-of-date software. It uses a purpose-built analytical process grounded in Irish datasets and refined to ensure a precautionary interpretation of bat activity, particularly for higher-risk species. The new version of ECOBAT has become available and when tested has

inconsistent and potentially misleading outputs. It tends to undervalue activity for common, high collision risk species, while inflating activity levels for species that are typically under recorded. The applicant is confident that methodology is more robust and more precautionary than the currently available automated online tools.

- **Hedgerow Loss** - The importance of the hedgerows, including their long-established status, was taken into account at project design stage (i.e. minimal hedge and tree removal) and the losses will be offset by new plantings and other measures (as detailed in the BEMP). It is confirmed that removal of hedgerows and trees will be undertaken outside of the peak breeding season (March to August inclusive).
- **Habitat loss through pruning along TDR** - It is not feasible at this stage of the project to identify trees where pruning will be required. A pre-felling survey of trees is proposed. Apart from a section of hedgerow and 1 no. tree to be removed at the N20 site entrance (see EIAR Section 6.4.4.4), no trees are required to be removed along the TDR.
- **Bruree Church Roost** - Detailed results of the survey conducted on these buildings, recorded as Location 11 are contained in Table 4-3 in the Bat Report (EIAR Appendix 6.1).

  Soprano and Common Pipistrelle bats were recorded emerging from two buildings. These structures are not recorded in the Bat Conservation Ireland database as roosts. 2 no. ad hoc records, one of Brown Long Eared and another of Daubenton's were submitted to the NBDC Database in 2021.

  The Core Sustenance Zone (CSZ) for Brown Long-Eared Bat is 3km and 2km for Daubenton's. T7 and T9 are the only turbine locations that fall within the CSZ for Brown Long-eared bat. No hedgerows are proposed to be removed from the surrounds of either of these turbines. Both bats are considered low risk for collision with wind turbines, with no impacts to the viability of the roosts expected.

4.1.4.3. **Archaeologist Report**

- **Newly discovered archaeological sites** – The recommended planning conditions will be complied with by the applicant.

4.1.4.4. **Conservation Officer Report**

- **Visual Effects on Kilmallock ACA and designated landscapes** - The residents of Kilmallock are represented by a viewpoint (VP11) that was used in the visual impact assessment. The designated landscapes and specifically those historic gardens that are on the NIAH Historic Garden Survey are all currently contained in private agricultural use. They present as typical farmland and do not appear to attract public visitation, which is necessary to be

considered a relevant visual impact receptor. Effects on the referenced historic gardens are not considered significant.

4.1.4.5. **Noise report**

- **Mapping Error** - The co-ordinates of the wind turbines and the receptors have been reviewed, and they are consistent with the application. Therefore, the predicted noise levels are accurate. The noise monitoring locations are as per the co-ordinates presented in EIAR Table 11.10.
- **Representativity of the Noise Monitoring Locations** - Noise measurements were taken in areas that are representative of typical noise levels in the vicinity of noise sensitive receptors. The site is not a low noise environment during the daytime, the lowest fixed limit for wind turbine noise is 43dB LA90 in line with the WEDG 2006. None of the 4 no. monitoring locations showed measured noise levels below 30dB during the day for any wind speeds when the turbines are operational.
- **Setting of Noise Limits** - The method relied upon in setting noise limits are outlined in the EIAR and consistent with the WEDGs 2006 and ACP Planning conditions. The LCCC referenced the UK planning guidance PPG24. There is no reference to PPG24 in the WEDG 2006 guidelines and therefore there is no demonstrable link between the two documents. Furthermore, the PPG24 has been replaced in the UK by the ProPG: Planning and Noise document.
- **Special Audible Characteristics** - Each Special Audible Characteristic (including AM, Low Frequency Noise, Tones, etc.) can be assessed in the form of a penalty to an overall noise level. This can be mitigated in terms of operational mode of the turbines, should the Special Audible Characteristics become evident after the site becomes operational. These would be mitigated in accordance with EIAR Section 11.2.7.
- **Construction Noise** - The programme for the entire construction is estimated at 18-month duration. The proposal doesn't involve long-term and substantial earth moving or works typical of mineral extraction (i.e. rock blasting etc.)

4.2. **Prescribed Bodies**

Of the prescribed bodies notified, submissions have been received from the following;

1. Minister for Housing, Local Government and Heritage (Development Applications Unit (DAU)
2. An Taisce
3. National Environmental Health Service (NEHS)
4. Office of Public Works (OPW)
5. The Heritage Council
6. Transport Infrastructure Ireland (TII)
7. Uisce Éireann,
8. Inland Fisheries Ireland,

9. Department of Defence
10. Failte Ireland
11. IAA/Shannon Airport

A summary of the Prescribed Bodies submission and the applicant's response is outlined below.

4.2.1. **Informal EIA Scoping Opinion**

In addition, the applicant carried out informal scoping, which is detailed in the EIAR, Appendix 1.3 – Scoping Opinion. Responses were received from the following;

1. Limerick County Council Planning Section
2. Department of Agriculture, food and the Marine
3. Kerry Group
4. Broadcasting Authority of Ireland
5. RTE
6. Virgin Media
7. Tetra
8. Commission for Communications Regulation
9. Cork Airport
10. Shannon Airport Authority
11. AirNav Ireland
12. IAA
13. Bat Conservation Ireland
14. Uisce Eireann
15. The International Association of Hydrogeologists (IAH) Irish Group
16. OPW
17. Geological Survey Ireland
18. HSE
19. Department of Transport
20. Transport Infrastructure Ireland
21. N/M20 Project Office
22. Failte
23. Dept of Environment, Climate and Communications
24. Gas Networks Ireland
25. Department of Defence
26. 2M

4.2.2. **Minister for Housing, Local Government and Heritage (DAU)**

4.2.2.1. **Archaeology**

- The proposed development is located in proximity to a number of Recorded Monuments located both within and without the redline boundary for the development. In addition, there are a large number of recently identified non-Statutory Sites and Monuments Record (SMR) sites located within the site. Exclusion zones may be necessary to protect vulnerable heritage assets located in proximity to the proposed development and to ensure that they are safely preserved in-situ during all phases of development.
- There are a number of more substantive errors or omissions in the assessment of this project related to unassessed impacts to terrestrial archaeological heritage and baseline archaeological/cultural heritage environment not adequately characterised.
- The Department notes that the assessment has treated the identified archaeological sites within and immediately adjacent to the site as individual isolated receptors, without no substantive regard for their landscape context and potential inter-relationships. The proposed development is situated within a dense distribution of known and identifiable archaeological sites. Elements of the proposed infrastructure such as turbines T05, T06, T08, T09 and the proposed spoil stockpile west of T09 are located in close proximity to clusters of known sites with potential direct impacts to those sites. The Sites and Monuments Records (SMR) show 6 no. ring barrow or ring-ditch sites within the site. The applicant's consultant has identified 7 no. further potential ring-ditch sites. These strongly suggest that the site encompasses a prehistoric (most likely Bronze Age) ritual landscape incorporating one or more barrow cemeteries. If such is the case, then it is likely that there could be many more ring-barrows present. The proposed development could have quite extensive direct impacts to such a ritual landscape, but there is insufficient information available in the archaeological baseline to assess this.
- The medieval manorial settlement consisting of parish church of Kilcoyn/Kilcommon/Hakmys (RPS no. L1047-030001-; L1047-030002-) within the application site and the Creggane or Hakmys Castle (RPS no. L1047-0290)/ medieval manorial village (RPS no. L1047 103). A proposed access track and the proposed met mast are located in the application site directly between the church and castle/village sites and could have direct impacts to any such extended village settlement. Direct prospection using archaeological geophysical survey and targeted archaeological test excavation would be needed to fully understand this potential medieval settlement landscape.
- Department advises the inclusion of conditions in the event of a grant of permission if further Information is not being requested by ACP.

4.2.2.2. **Nature Conservation**

- The potential for bird movements through the site between the Charleville Lagoons and the River Shannon and River Fergus Estuaries SPA needs to be explored more fully.

4.2.2.3. **Ornithology**

- The Collision Risk Assessment (CRA) needs to consider the ornithological importance of the Charleville Lagoons and the observed levels and direction of flight activity over the site. The level of nocturnal flight activity over the site also needs to be established to enable robust CRA.
- The contribution of the turbine layout and density to collision risk, particularly for flocks and species observed to have strong north-south movement patterns through the site, and species observed to be spending considerable periods of time over the site. It is likely to be significant and has not been discussed in the CRA with particular concern for kestrel, cormorant, heron, golden plover, lapwing, snipe, black-backed and black-headed gulls.
- A more comprehensive survey of Barn Owl usage of these buildings throughout the year (including as winter roosts) is recommended, in order to better inform a CRA.
- The proposed frequency of carcass monitoring post construction (monthly) is not considered to be adequate due to the potential for carcasses to be scavenged and, in the case of smaller birds, removed completely by scavengers. Full details of the carcass monitoring protocol, including systematic coverage of the search plot, are needed.

4.2.2.4. **Lesser Horseshoe Bats**

- Concern raised regarding the lack of a targeted survey of Lesser Horseshoe usage of the site given the detection of the Lesser Horseshoe record in October 2022 and availability of several derelict buildings on site. The activity surveys carried out in the summer months would not detect an autumn transitional roost. There is the risk that isolation of a roost (particularly in relation to structure 2), or severing of a significant commuting route, may occur due to the significant degree of hedgerow and treeline removal proposed. Replacement planting will also take several years to develop into an effective and sheltered commuting route.

4.2.2.5. **Bats Species**

- The issue of potential tree roosts has not been adequately addressed in the survey report. 33 no. trees with roosting potential (13 no. of which may need to be removed) have been identified.

The proposed carcass search protocol has not been described in detail. It is recommended that a site-specific carcass search schedule, and protocol in line with the current NIAE guidelines is provided. Potential further mitigation to increase the buffer area of clearance if high levels of mortality are found. This could have a negative impact on site connectivity for bats and needs to be assessed in detail.

4.2.2.6. **Biodiversity Enhancement Management Plan**

- The removal of scrub and bramble from the base of hedgerows as part of the hedgerow management plans may negatively affect a Badger sett along the eastern boundary of the site and foraging bats.

4.2.3. **Applicants Response to Minister for Housing, Local Government and Heritage (DAU)**

4.2.3.1. **Archaeology**

- **Presence of archaeological sites not listed in the SMR** - The presence of archaeological sites not listed in the SMR within the development site is noted in the EIAR, specifically Section 15.4.2. Mitigation measures are proposed in this regard. The recommended DAU archaeological conditions will be complied with for all phases of development. In the event that preservation in-situ of these potential sites is not feasible, they will be subject to Full Archaeological Excavation.

4.2.3.2. **Biodiversity**

- **Hedgerow re-vitalisation** - The hedgerow re-vitalisation measure as part of the Biodiversity Enhancement Management Plan (BEMP) will be supervised by an ecologist. The proposed hedgerow re-vitalisation is to enhance the structure and species diversity (both flora and fauna) of existing long-established hedgerows, which are overgrown due to the complete absence of recent management. The presence of a badger sett along the eastern boundary of the site is noted. While the proposed enhancement programme would not involve any ground disturbance works, the hedging at this badger sett and any others discovered will be either completely avoided or trimmed minimally. Prior to any works commencing, a pre-construction badger survey of the entire site will take place. This measure will have negligible impact for the Lesser Horseshoe bats at a local, county or national level. Indeed, the proposed works will increase invertebrate species diversity.
- **Lesser Horseshoe Bats (Annex II species)** - The recording of a single passing of Lesser Horseshoe bat (Oct 2022) is not indicative of a nearby roost. Between 2022 and 2023 the total combined survey time static detectors were deployed on site was over 8,000 hours. The wide scope of the surveys over

these two years would have undoubtedly produced more than a single call if this species was routinely using the site for foraging.

- No sightings of Lesser Horseshoe bats were recorded during multiple emergence surveys which have been conducted at Structure 2.
  No structures suitable for roosting Lesser Horseshoe bats are being impacted by the proposed project. Any loss of hedgerow, as a connective feature is compensated by the extensive proposed hedgerow rejuvenation, new hedgerow planting and the creation of a woodland.
- **Bat Species** - The figure of 13 no. trees with roosting potential being impacted by the proposed project is a misinterpretation of the bat report. 13 no. trees were categorised as FAR (Further Assessment Required) meaning the surveyor could not determine if the tree had a PRF (potential roost feature) or not. After an examination of the proposed road network, turbine locations and bat buffers; only 1 no. tree with a potential roost feature is set for removal; tree no. 50 located close to T2 will be removed. Bat survey effort has continued including an assessment of trees with results of the surveys consistent with the findings in the EIAR. These can be made available to ACP at request.
- **Post Construction Monitoring** - If the NPWS consider that NIEA NED guidance is more appropriate in terms of post construction fatality monitoring, this could be stipulated by way of planning condition and or a revised site-specific carcass search schedule and protocol can be provided. The applicant is proposing to carry out 10 years of proposed searches with a search radius of 85m both of which exceed NIEA NED guidance. Should high levels of bat mortality be found, buffer zones surrounding turbines will be increased from 50m to 65m and/or curtailment parameters will be tweaked to increase cut-off times. Increasing buffer zones should be viewed as a last resort in the unlikely event that high levels of mortality are found, as curtailment is the most effective proven mitigation measure for preventing bat fatalities.

4.2.4. **An Taisce**

- **Lacustrine Sediment:** The Wetlands Survey Ireland map show that part of the subject site is located on lacustrine sediment, whose suitability for turbine installation and access route construction should be clarified as a preliminary matter. The Limerick Wetlands Field Survey 2025 indicates an unknown rating of ecological value, necessitating the need for a further survey to inform a baseline ecological characterisation of the site. An Ecological Impact Assessment (EcIA) could be requested as further information if the biodiversity chapter of the EIAR, or the NIS, has neglected consideration of this wetland.
- **Water Framework Directive:** Charleville Stream_020' by the EPA under the Water Framework Directive (WFD) (2000/60/EC), is designated as moderate water quality status and is considered to be at risk of not achieving good status by 2027. The proposal should be assessed against Article 4 of the WFD.

- **Bird Migration and Wetland Proximity:** Constraints selected by the applicant (pg.7 of EIAR Chapter 2) to inform site selection and layout design should contain potential bird migratory pathways. Recent collision mortality of Golden Eagles in Donegal across various windfarms, displays a worrying trend regarding collision risk modelling deficiencies. The 'Charleville Created Wetlands require close consideration by An Coimisiún. Important ornithological receptors identified in the I-WeBS report are not included in the applicant's collision risk modelling, as per Section 8.11.2 of EIAR Chapter 8: Ornithology. Table 8.27 of EIAR Chapter 8: Ornithology (p. 89) concludes that operational effects will be "negligible", "not significant". Given the close proximity of the wetland complex, the potential for high bird diversity and the potential exclusion of important resident bird species in the collision risk modelling methodology employed by the applicant, it is submitted that this impact determination requires clarification.
- **Architectural Heritage Impact:** Concern over the impact of heavy construction vehicle impact upon Garroose Bridge, a recorded monument (Ref: 21904703). The sufficiency of the bridge for accommodating increased heavy vehicle movements should be assessed as a preliminary matter in advance of development consent determination. Other bridges of heritage significance which may be located along the proposed haul route also require close consideration by An Coimisiún, such as that contained in Bruree village.
- **Recorded Monument Impact:** The subject site is likely to be of high archaeological, historical and cultural significance. It is submitted that the integrity of 10 no. historic monuments located within or close to the subject site red line boundary requires preservation via a 20m minimum buffer zone, between the development sites and these monuments. It may be necessary for a further archaeological investigation and test to be carried out in advance of development consent determination.

4.2.5. Applicants Response to An Taisce

- **Lacustrine Sediment** - Significant site investigation works were undertaken as part of the EIAR. Soil and subsoils have been fully considered. This includes the presence of lake (lacustrine) deposits. The Wetland Surveys mapping tool gives an "F Rating: Unknown value – survey required". The site has been identified through a desk-based review comprising an aerial photographic analysis combined with sub soils data. The habitats listed in the Wetland Surveys Ireland mapping tool concur with the baseline habitat surveys undertaken for the windfarm project. The wetland habitat at Ballynagoul was fully identified as part of the baseline surveys for the project and its presence was fully assessed within the EIAR.
- **Water Framework Directive (WFD)** – A WFD Compliance Assessment was included in Appendix 10.3 of the EIAR. With the implementation of mitigation measures relating to the protection of surface water quality and quantity,

combined with the flood resilience proposals, the project will have no potential to alter the baseline WFD status or jeopardise the achievement of objectives of any local or downstream SWB, or underlying GWBs.

- **Archaeology Buffer Zones** - The EIAR mitigation proposed 20m protective cordons around recorded archaeological sites. A 25m can be adopted where required by planning conditions.
- **Impact on Potential Archaeological Sites** - The developer will commission an advance preliminary targeted geophysical survey of areas suitable for survey at these potential archaeological sites, in order to appraise their archaeological potential and their potential for preservation in-situ. This appraisal will be carried out in consultation with the National Monuments Service and the LCCC Archaeologist. A report on this targeted geophysical survey and any proposed preservation in-situ by design will be submitted to the Planning Authority.

4.2.6. **National Environmental Health Service (NEHS)**

- **Shadow Flicker** - In the interest of the protection of public health the proposed condition in the WEDG 2019 should be implemented if consent is given for the development. Technology has advanced since the publication of WEDG 2006 and it is a reasonable health protection measure to be included in any conditioning of a windfarm development. The mitigation measures that will eliminate exposure to shadow flicker are identified in the EIAR. This mitigation should be implemented irrespective of whether the current guidance is updated.
- There is no requirement for additional noise mitigation measures during the construction phase providing those measures identified in the in the EIAR are implemented in full.
- It is the opinion of the NEHS that conditioning hours of construction activity is an important element of the protection of Public Health, particularly to prevent sleep disturbance. The recommended hours of construction are, Monday to Friday 08.00 to 19.00 Saturday 09.00 to 14.00. No work on Sunday or Bank Holidays.
- Proposed mitigation and control measures are identified in EIAR, Chapter 10, in the schedule of mitigation in Appendix 18.1 and the CEMP in Appendix 2.1, for the protection of drinking water sources and surface and ground water. If implemented in full there is adequate protection of surface and ground water.
- The NEHS has no additional observations on the proposed mitigation measures and considers there will be adequate protection of Public and Environmental Health during the construction phase if all mitigation measures identified are implemented in full.

4.2.7. **Applicants Response to National Environmental Health Service (NEHS)**

- **Webster/Rollo V Meenaclogher (Wind) Limited (2024 IEHC 136)** - It should be noted that the planning condition noise limits as set with respect to Meenaclogher Wind Farm (limited to 40 dB LAeq at 5m/s and 45 dB LAeq at 10m/s) differ to those as applied by planning authorities and ACP with respect to current day wind energy applications. The potential for Amplitude Modulation (AM) has been considered and assessed in the EIAR submitted with this application. A noise compliance monitoring programme and curtailment strategy will be developed for the proposed project site.
- **Appropriateness of Daytime Lower Fixed Limit** - The selected noise limits are based on the recent decisions of ACP. A 40dB LA90,10min lower fixed limit for daytime in quiet environments would be deemed reasonable and in line with recent ACP decisions. It has also been demonstrated in the EIAR that reliance on same will not be likely to give rise to a significant effect.
- **British Standard BS4142:2014+A1:2019** - Given that there are standalone noise standards for wind energy developments, BS4142 was not intended to be applied to the rating and assessment of sound from wind energy developments and as such should not be referenced with regard to wind energy developments.
- **Amplitude Modulation (AM)** - A Noise Compliance Monitoring Programme is proposed to control levels of AM and overall noise levels. A curtailment strategy including adjusting the angle of attack of the blades and operating turbines in different noise control modes can be deployed if required.
- **Compliance with WHO Guidelines 2018** - Wind turbine noise modelling at planning stage is carried out using worst case (maximum) noise output from the turbines. Due to weather conditions wind turbines do not operate at full power all the time, the anticipated noise emission will therefore always be less than the worst-case scenario. A correction in the range of 7.1dB to 9.1dB has been applied. Given that these corrections are higher than the 6.4dB correction recommended by the WHO guidelines, this demonstrates than compliance with the WEDG 2006 noise limits will also demonstrate compliance with the WHO LDEN guidelines.
- **Background Noise Measurements**- There are no daytime noise levels in EIAR Table 11.11 that are below 30dB LA90, so the site does not meet the criteria for a low noise environment.

4.2.8. **Office of Public Works (OPW)**

- The Windfarm site encapsulates a number of channels the Maigue Scheme. In order to gain access for the purpose of maintaining these channels and embankments, a condition of any Grant of Planning Permission is recommended requiring a 10m/5m wide access strip along the channels.
- Due consideration should be given to flood risk at this site, particularly in the context of climate change.

- Any alterations or modifications of drainage channels would require Section 9 consent of the Arterial Drainage Amendment Act, 1995.
- Any new culverts or bridges (or modifications to any existing culverts or bridges) that are required to cross watercourses as part of the development or that form part of any proposed or existing access roads to serve or access the development, require Section 50 consent.
- The OPW notes that a number of National Monuments in State care located within a 20km radius of the windfarm have not been assessed. The OPW requests that ACP seek verifiable visual impact as additional information to demonstrate the visual impact on the following national monuments Kilmallock NMs No. 212, 408, 173, 680, Lough Gur NM 247, De Valera's Cottage NM 576, Liscarroll Castle NM 333.
- The OPW is concerned about the visual impact of the proposed turbines on views from the internationally significant Lough Gur and notes that the turbines will be located in the centre of the protected view from this highly significant archaeological site and location of natural beauty.

4.2.9. **Applicants Response to OPW**

- **Buffer Strip** – Buffer strips on 10m and 5m running parallel to main/smaller channels have been incorporated into the design of the project and there will be no works within the 10/5m buffer zones as required by the OPW.
- **Visual Effects at Kilmallock National monuments** - The selection of the Kilmallock viewpoint (VP11) for the Visual Impact Assessment was intended to best represent the nature of views afforded to the residents of Kilmallock (as visual receptors) rather than particular national monuments. The bare-ground wireframe image submitted with the VP11 photomontage image illustrates the scale and nature of the development that could be seen and this is not a view that would give rise to significant effects.
- **Visual Effects at Lough Gur** - A viewing distance of c. 17.4km from the proposed turbines are a distant background feature of the vast agricultural plains and the overall significance is deemed to be 'Slight'.
- **Visual Effects at De Valera's Cottage** - The cottage is surrounded by dense vegetation at close quarters and the Route Screening Analysis (RSA) undertaken as part of the LVIA illustrates that there is no visibility of the proposed turbines anywhere in the vicinity of the cottage.
- **Visual Effects at Liscarroll Castle** - Liscarroll Castle, is located c. 16.5km from the nearest of the proposed turbines. It is contained in a general area that is shown by the bare-ground ZTV map to have little potential for visibility of the proposed project. The castle falls just outside of the ZTV pattern.

4.2.10. **The Heritage Council**

4.2.10.1. **Biodiversity**

- Upon review of applicants EIAR, Chapters 6, 7, and 8, the Heritage Council believe that the main ecological designations (including those identified in the NIS) have been fully considered, and in broad terms have no objection to the conclusions. The mitigation identified in both the biodiversity, and the hydrology chapters needs to be secured by condition and should include compliance with Inland Fisheries Ireland guidance.
- The applicant has not clearly illustrated or demonstrated where the most important area of wet grassland exists (considered to be a Key Ecological Receptor), or how the turbines have been arranged to avoid the most species rich area of habitat, and the area most conducive to common frog/ snipe habitat. It is also necessary to confirm if any of this habitat type corresponds with Annex 1 Molinia meadows on calcareous, peaty or clayey silt-laden soils (*Molinion caeruleae).*
- Embedded mitigation has not been demonstrated fully in relation to the most important areas of wet grassland/marsh habitat.
- Significant loss of hedgerow habitat is proposed for bat mitigation. The mitigation as proposed should be secured by condition, with strict implementation of the biodiversity enhancement plan. The curtailment and monitoring regimes regarding bat mitigation should also be secured by condition.

4.2.10.2. **Archaeology**

- A geophysical survey should be undertaken on the footprint of the development and the adjacent area given there seems to be a complex of prehistoric monuments within the area of this proposed development.

4.2.10.3. **Architectural Heritage**

- Any impact from construction traffic, accessing the site, on such features should be assessed, which should include the structural integrity of bridges (all arches) to be traversed by heavy loads.

4.2.10.4. **Conclusion**

The Heritage Council support renewable energy rollout to meet our climate targets, however, recommend that further information be requested for the following:

- The specific identification of the wetland grassland/marsh habitat which is considered of local importance higher value and how this has informed the arrangement and layout of the turbines.

- A geophysical survey to be undertaken to identify and assess unidentified sites and features of archaeological interest.
- An overview of construction traffic impacts on the structural integrity of features of architectural heritage.

4.2.11. **Applicants Response to The Heritage Council**

- **Biodiversity/ Wet/ Neutral Grassland** - As described in Section 6.3.3 of EIAR, 3 no. grassland habitat types (after Fossitt 2000) occur within the site: 1. Improved grassland (GA1), 2. Neutral grassland (GS1) and 3. Wet grassland (GS4). Wet grassland dominated by rushes are rated as, at most, Local Importance (lower value). The very wet grassland areas, which in places merge to marsh, were classified as Local Importance (lower-higher value). It was not feasible to map the marsh areas separately from wet grassland. The area of neutral and wet grassland to be lost is c. 6.04 ha. The amount which will be lost within the fields where elements of marsh occur is estimated at c.1.26 ha. As an estimated total of c. 17.86 ha of habitat with elements of marsh occurs within the site, a rating as a Slight Adverse effect is considered appropriate. It can be confirmed that none of the affected habitat types corresponds with the Annex I habitat '*Molinia meadows'*.
- The proposal is not contrary to Objective EH O12 of LCDP 2022 as the majority of the existing habitats on site will still exist and the movement of species through the site will in no way be impeded. Only c. 6.04 ha of the estimated total resource of c. 65.14 ha of the neutral/wet grassland habitat complex, within the site will be required for the proposed project. Also, the existing network of hedgerows will remain largely in-situ and will be enhanced through the BEMP. The watercourses within the site will remain as riparian corridors and species such as otter will be able to move unhindered.
- **Archaeology - Undiscovered Prehistoric Archaeological Interest** - The potential for the presence of archaeological sites not listed in the SMR within the development site is noted in the EIAR, with mitigation measures proposed. Archaeological site investigations will be conducted well in advance of the commencement of the construction phase in order to allow sufficient time for the completion of investigations.

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

- Referencing Section 2.5 and 2.6 of the DoECLG Guidelines, exceptional circumstances are not provided for under the LCDP 2022 to allow the proposed temporary access arrangement using an entrance off the N20.
- Matters for consideration in the assessment of the proposal include,
    - Entrance no. 1 at the N20 is for a temporary period only to facilitate turbine component delivery.

- Entrance no. 1 at the N20 should be closed off with a temporary safety barrier. Pending completion of construction, the temporary works shall thereafter be permanently closed and the lands reinstated.
- Any damage caused to the pavement at the site entrance off N20 due to turning movements of abnormal loads shall be rectified in accordance with TII Pavement Standards.
- All recommendations of the Road Safety Audit shall be incorporated in final design.
- All works to the national road shall comply with TII publications. Technical design standards for national roads.

- The applicant/developer should consult with all PPP companies, MMaRC contractors and road authorities over which the haul routes to ascertain any operational requirements and to ensure that the strategic function of the national road network is maintained.
- Full details of the transportation of all abnormal weight and all exceptional abnormal loads associated with the proposal shall be agreed with all planning and road authorities.
- The applicant/developer should consult with the relevant authorities if any greenway or active travel proposals in the vicinity of the proposed works.

4.2.13. **Applicants Response to TII**

- **Site Entrance off N20** - Temporary Site Entrance 1 will be constructed as a temporary entrance for abnormal loads to access the project site from the N20 national primary road. The field access will be upgraded as part of the project. Upgrades will include 215m visibility splays, 4m access track, bound surfacing at N20 intersection and field gate set back from the carriageway edge. During the operations phase of the project, Site entrance 1 will be closed and reinstated, operations traffic will access the development via Site Access 2 on the L1537.
- **Road Maintenance** – Prior to the commencement of works, the developer/ contractor will liaise with Transport Infrastructure Ireland (TII) and agree a protocol for general and emergency maintenance and repair of the national road network.
- **Road Safety Audit** - Temporary Site Entrance 1 from the N20 has been subject to an independent Stage 1 road safety audit carried out in accordance with TII Guidelines GE-STY-01024 by an audit team. The recommendations arising from the Stage 1 Road Safety Audit have been accepted by the design team and incorporated into the planning design.
- **Design Standards** - All works on the national road network shall be carried out in accordance with TII standards and specifications.
- **Enabling Works** - The enabling works for transportation of turbines and reinstatement of road infrastructure on the public road network will be carried

out in consultation with the relevant road stakeholders using an approved road opening licence and agreed traffic management plan.

- **Transportation of Abnormal Load Turbine Components** - The transportation of turbine components consisting of abnormal loads will be subject to abnormal load permits. The transportation of substation and turbine components for the proposal will not result in gross vehicle weights exceeding 180 tonnes, and structures on the haul route with spans not exceeding 50m are not subject to a Category 3 structural assessment as defined in Section 1.3 of DN-STR-03001 published by TII for exceptional abnormal loads.

4.2.14. **Uisce Éireann**

- The proposed development is located upstream of the Bruree Public Water Supply and the Adare Public Water Supply abstractions. The applicant/operator shall comply with the WFD and River Basin Management Plan objectives to ensure that the development will not negatively impact on the water quality of source/receiving waters including the River Maigue during all phases of development. In accordance with EIA Directive 2014/52/EU and Directive 2000/60/EC.
- Standard conditions recommended, connection agreement and confirmation of feasibility requirements.

4.2.15. **Applicants Response to Uisce Éireann**

- **Bruree PWS** - The Bruree PWS is sourced from a borehole. The supply is likely to take a significant proportion of its water from the River Maigue. The assessment concludes (Section 10.5.2.13 of EIAR) that there would be no potential for effects on this PWS, due to a number of factors, such as distance (3.3km), the proposal represents 0.65% of the catchment area and proposed mitigation measures.
- **Adare PWS** - A direct hydrological connection exists between the Windfarm site and the Adare PWS which is located downstream. There would be no potential for effects on this PWS, for reasons such as distance (16.7km), the proposal represents 0.21% of the catchment area and proposed mitigation measures.

4.2.16. **Inland Fisheries Ireland**

- All watercourses running through the site should be fenced and cattle access removed.
- Riparian planting should be established or enhanced particularly over pools and glides.
- The clear-span bridges proposed are generally acceptable to the IFI provided that:
    - Abutments set back at least 5m from the top of the bank.

    - Edging is provided on the bridge deck to prevent direct loss of material to the river below.
    - Bridge drainage is away from the river and passes through a treatment system before returning to the river.
    - A method statement is agreed in advance of works with IFI.
- Attention should be paid to drainage during both the construction and operational phase. Sufficient retention time should be available in any settlement ponds. Silt traps should be designed/constructed to account for rainfall levels and intensity.
- Any instream work be restricted to the annual open season for such works. July to September inclusive. The ECoW shall have the power to stop works if a pollution event or potential for a pollution event are identified.

4.2.17. **Applicants Response to Inland Fisheries Ireland**

- The applicant has not provided a specific response.

4.2.18. **Dept. of Defence (DOD)**

- All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week.
- Obstacle lighting should be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment.
- Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength.
- Light intensity to be of similar value to that emitted in the visible spectrum of light.
- In the event of negative impacts on future military radar systems, the owner will engage with the DOD and will provide suitable mitigations as soon as practical.

4.2.19. **Applicants Response to DOD**

- The applicant has not provided a response. I note the DOD responded to the Applicants Scoping Opinion and the applicant responded stating Air Navigation was addressed in EIAR, Chapter 16 under Material Assets.

4.2.20. **Fáilte Ireland**

- The Irish landscape is one of the primary assets for tourism in the country and has been the cornerstone of the international tourism marketing campaigns for decades. International visitors to Ireland consistently rate scenery as an important reason for the trip. The quality, character and distinctiveness of this valuable resource is protected.

- Failte Ireland recognises the importance of developing the states renewable energy sector.
- The proposed windfarm site is within the promoted Ballyhoura region.
- Consideration should be given to the potential adverse direct impact of the proposed development both on its own and cumulatively with other similar developments, on the landscape of the Ballyhoura region.

4.2.21. **Applicants Response to Fáilte Ireland**

- The applicant has not provided a specific response.

4.2.22. **Irish Aviation Authority (IAA)/Shannon Airport/AirNav**

The applicant should be conditioned to contact the IAA and comply with the following requirements of Shannon Airport:

- Agree an aeronautical obstacle warning light scheme for the windfarm development;
- Provide as-constructed coordinates in WGS-84 format together with ground and tip height elevations at each wind turbine location and;
- Notify Shannon Airport Authority, AirNav Ireland and the Authority of intention to commence crane operations with at least 30 days prior notification of their erection in accordance with S.I 215 of 2005 Irish Aviation Authority (Obstacles to Aircraft in Flight) Order;
- Turbines within 45km of Shannon Airport's ARP (Aerodrome Reference Point) and are greater than 100m in height are required to be included in the IAA Electronic Air Navigation Obstacle Dataset;
- EASA aerodrome rules must be applied to the turbines as they would be regarded as an extensive object (Chapter Q (Visual Aids for Denoting Obstacles) of the Certification Specifications for Aerodrome Design – Current Issue);
- Any crane activity on the site must be pre-approved by the completion of the Shannon Airport Crane Operations application form (at least 30 days in advance) of any crane erection taking place in order for assessments to be carried out by the Airport, IAA and Air Nav Ireland against possible interferences by cranes against communication, navigation and surveillance system.

4.2.23. **Applicants Response to IAA/Shannon Airport**

- The applicant has not provided a specific response. I note that IAA, AirNav and Shannon Airport responded to the applicants Scoping Opinion and the applicant notes that Air Navigation is addressed in EIAR, Chapter 16 under Material Assets.

4.3. **Public Submissions /Observations**

There are 60 no. public submissions on file and available to the Coimisiún to view. The names of each observer are listed in Appendix 3 of this report. I have read each observation in full including all attachments and appendices etc. The submissions are in many cases extensive and broad ranging. I have considered the points raised and have endeavoured to summarise what I consider are the substantive planning matters for the purpose of this application as outlined in Table 4.1 below. The response received from the applicant addresses the submissions and are summarised as follows based on issues raised:

Table 4.1: Summary of Issues Raised: Public Observations

Principle of Development / Policy

- The Wind Energy Development Guidelines (2006) and draft Wind Energy Development Guidelines 2019 do not comply with the SEA directive. (European Court of Justice: Case C24/19). The wind energy Guidelines 2006 are outdated.
- The proposal is contrary to Limerick Development Plan Polices, EH P8, LCA O5 Lough Gur, EH P4, EH P7, EH O32, EH O48, EH O1, EH O2, IN O1, CAF O29.
- Objective ECON O36 Agricultural Developments • Objective ECON O37 Farm Diversification I • Policy EH P1 Protection of Natural Heritage and Biodiversity • Policy EH P2 Sustainable Management and Conservation • Policy EH P3 Climate Action and the Natural Environment • Policy EH P6 Water and Air Quality • Objective EH O5 New Infrastructure Projects I • Objective EH O10 Trees and Hedgerows • Objective EH O15 Ground Water, Surface Water Protection and River Basin Management Plans • Objective EH O17 Water Quality • Objective EH O18 Riparian Buffers • Objective EH O22 Commercial and Industrial Noise • Objective EH O31 Views and Prospects.
- No national territory mapping available for renewable electricity in Ireland, as required by the Renewable Electricity Directive 2023/2413 (REDIII).
- The application has not considered less sensitive or more remote upland sites.
- Materially contravenes Objectives 59 and 60 of NPF in relation to Biodiversity.
- Need for new wind energy guidelines to allow policy coherence between rural population and renewable energy expansion.
- Premature application given the current Wind Energy Zoning for LCCC has been “blocked” based on Circular CL 20-13.
- Unscientific approach to the zoning of ‘Preferred Areas’ of Wind Map 9.1 in the LCDP 2022.

Applicants Response to Principle of Development/Policy

- Applicant has responded to above in specific relevant chapters.

Visual Impact/Landscape

- Proposed turbines will be a prominent, unsightly skyline feature impacting upon the visual amenity of the area. The scale is incongruous with the existing settlement pattern.
- Cumulative visual impacts with other existing or approved wind energy developments. (ACP 323780 - Ballinlee Green Energy Ltd)
- The proposed turbine height of c. 170 metres is completely out of scale with the surrounding landscape.
- The local landscape (Golden Vale) is characteristically low-lying, open, with no capacity to absorb turbines of the height and magnitude proposed.
- Negative Impact on views from Lough Gur and Knockfierna.
- Deter tourism, reduce the scenic value of the area.
- Impact on scenic viewpoints.
- Visual distraction posing risk of accidents for road users.
- Inappropriate rural location for large industrial structures. Turn landscape into industrial zone.
- Overbearing and overshadowing on residences in close proximity to turbines.
- The application does not comply with the requirements of the European Landscape Convention of the Council of Europe (Florence Convention) or National Landscape Strategy 2015-2025.

Applicants Response to Visual Impact/Landscape

- Refer to Appendix 5 of Applicants Response Submission. Themes addressed including the following:
    - Turbines too tall.
    - Industrialisation of the rural landscape.
    - The turbines will intrude on views of the Ballyhoura Mountains.
    - Cumulative impact between developer's Garrane and Ballinlee Wind Farms not properly assessed.
- **Turbine Size** - The design and layout of the Project follows the recommendations and industry guidelines set out in the 'Wind Energy Development Guidelines' (Department of the Environment, Heritage and Local Government, 2006), 'Best Practice Guidelines for the Irish Wind Energy Industry' (Irish Wind Energy Association, 2012) and has due regard to the Draft Revised Wind Energy Development Guidelines, December 2019 (Draft Wind Energy Guidelines 2019). The selected turbine tip height of 170m is measured from the top of concrete (see EIAR Chapter 2: Project Description – Table 2.3). The 170m turbines have been assessed in all chapters and there are no significant effects associated with the selected turbine height.

Biodiversity and Ornithology

- Siting in close proximity to Charleville Lagoons would have negative impact on bird species and protected species including Shoveler, Golden plover, Teal, Wigeon, Whooper Swan, Cormorant, Pochard, Snipe, Mute Swan, Tufted Duck, Shelduck, Mallard, Peregrine Falcon, Hen Harrier and Coot.
- Inadequate and insufficient survey effort for Annex 1, red-listed and amber-listed waterbirds at Charleville Lagoons. Inadequacies also in barn owl survey.
- Inadequacies and deficiencies in the application including EIAR and AA/NIS. European sites improperly ruled out.
- Adverse impacts to SAC, SPA's, NHA's and pNHA's.
- Increased collision mortality on bird and bat species.
- The lack of vantage point survey effort at the southern part of the proposed site in proximity to Charleville Lagoons which would adequately cover the potential flyway for several species of waterbirds using Charleville Lagoons including Whooper Swan.
- Turbines lie in flight path of wetland birds commuting to Charleville Lagoons.
- Exclude turbines sites within 1km of Charleville Lagoons, namely turbines T01, T02, T03 and T04.
- The difference in levels between the turbines on plinths has not been taken into account in the EIAR's consideration of ornithology.
- Public health risk - disruption to wildlife, particularly badgers. Risk of bovine TB transmission to local cattle herds. The applicant has not provided sufficient mitigation for disease risk management.
- The proposed drainage and culvert work near the Charleville Stream could alter water quality and hydrology, impacting fish and aquatic habitats such as Lamprey, Salmon, European Eel, Otter, White clawed crayfish.
- Adverse impact upon biodiversity and wildlife including birds and mammals such as otter, deer, badgers, foxes and hares.
- Impacts of the loss of 1,679 metres of existing long established hedgerows contrary to Objective EH 012 of the CDP.
- The construction and operation of turbines would result in habitat loss/ disturbance, tree loss, and displacement of local birds, bats and other fauna.
- Likely spread of invasive species such as Giant hogweed etc
- Active badger sett missed in EIAR.
- Impact on wet grassland habitat.

Applicants Response to Biodiversity and Ornithology

Biodiversity

- Refer to Appendix 1 of Applicants Response Submission.
- **Invasive Species** - There were no sightings within the study site of Giant Hogweed or any other Third Schedule invasive species during the baseline surveys (see EIAR Section 6.3.3.7). The commencement of works will be preceded by a confirmatory survey for invasive species, especially Japanese knotweed, giant hogweed and Gunnera species. During construction, the best practice measures for the control of

invasive species will be implemented (following National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads, NRA 2010).

- **River Maigue/Lower River Shannon SAC and Aquatic Species** - On a point of clarity, two of the species mentioned in the Friends of the Irish Environment submission, white-clawed crayfish and European eel, are not qualifying interests of the Lower River Shannon SAC. Ecological and hydrological connectivity between the proposed site and the Lower River Shannon SAC is fully acknowledged in the AA Screening Report, as is the risk of effects on the qualifying species in the absence of appropriate mitigation. For this reason, an NIS has been prepared.
- **Bat survey/Charleville lagoons** - Surveys were not carried out at the Charleville lagoons as the proposed project will have no impact on this feature. Static surveys conducted within the site, provide ample information to carry out an impact assessment. An assessment was conducted of the trees in the southern area for roosting potential. Treelines and hedgerows here are being retained and while a pathway is being created through the northern hedgerow, the ash trees located here, with potential for bat roosts, will be retained.
- **Nathusius Pipistrelle bats** - This species is classified as low-risk species within the site based on actual activity levels. The assessment followed the precautionary approach and added all 40kHz Pipistrelle calls as Nathusius although it is likely the majority of these are Common Pipistrelle. The risk assessment used the worst-case scenario impact possible. Curtailment will be implemented throughout the site. This measure will also provide effective protection to Nathusius Pipistrelle even if activity from this species was to increase over time. Curtailment is the most effective mitigation for at risk bat species from turbine collision.
- **Bats/Substation Hedgerow and Lighting** - The areas where woodland is proposed, borders existing hedgerows and treelines providing good connective features and the substation will have bat friendly, downward-facing external lighting. The construction of the substation building will require the removal of a low hedgerow and will be offset by mitigation and enhancement measures. The enhancement work consisting of planting of treelines, hedgerows and woodland will take place as soon as planning is granted.

Ornithology

- **NIS/ Charleville Lagoons and Wildfowl** - It is noted that the Charleville Lagoons, whilst of importance to birds, are not designated as a European site. Detailed baseline ornithological survey data did not identify regular movements over the site of any of the Special Conservation Interests of the Kilcolman Bog SPA and the River Shannon and River Fergus Estuaries SPA.
- Refer to Appendix 2 of response submission. Other themes addressed including the following:
    - Importance of Charleville Lagoons and survey coverage.
    - Assigning importance and impact assessment of ornithological features
    - Collision risk modelling.
    - Species selection, nocturnal activity and specifications.
    - Barn owl survey effort.

- Designated sites and functional linkage.
- Turbine placement and specifications.

Archaeology/Cultural Heritage

- Built and cultural heritage concerns including impacts to archaeology and protected structures. (Cnoc Samhna, Ballynoe Standing Stone, fairy forts and moats, Bruree Castle and Graveyard and Eamon De Velera's cottage).
- New archaeological sites not assessed in the EIAR contrary to Directive 2014/52/EU.
- LiDAR survey results for the entire site were not presented.
- Impact of construction traffic on heritage assets of Garroose Bridge and Bruree Bridge.

Applicants Response to Cultural Heritage

- Refer to Appendix 6 of Applicants Response Submission. Themes addressed include the presence of newly discovered archaeological sites identified in project site.

Population & Human Health (Shadow Flicker /Noise/Light/Air Quality)

- Adverse impacts upon existing residential amenity including noise, shadow flicker, vibrations, overshadowing, loss of light, overbearing, disturbance during construction, proximity of turbines to houses etc.
- The noise pollution levels and shadow flicker from turbines will affect residential amenity, disturb sleep, mental health and general well-being. (One receptor (H9) exceeds the 43 dB night-time limit from WEDG06)
- Shadow flicker impacts contrary to wind energy guidelines (2006 & draft 2019). High number of receptors affected.
- Inadequate noise migration measures. Software-based mitigation systems not acceptable.
- Breach of required 2019 Draft guidelines setback distance (H9, H30)
- Lighting pollution and movement, which will disrupt the natural landscape and rural peace, especially at night.
- Impacts from low-frequency sound/infrasound and amplitude modulation.
- Dust deposition and short-term local air quality degradation are likely to adversely affect residents, livestock and nearby farmland.
- Proximity of proposed substation to residences.
- Noise levels should be in line with WHO guidance.
- References to recent High Court judgment in Wexford (Byrne & Moorhead v. ABO Energy Ltd and Ballyduff Wind Farm).

Applicants Response to Population and Human Health

- The EIAR assessed the electromagnetic fields as being very localised and are considered to have an imperceptible, adverse and short-term effect during the construction and decommissioning phases and imperceptible, adverse and long-term during the operational phase.
- There is a minimum separation distance from turbines (T1, T2, T3 & T9) to inhabited houses of at least 500m for involved landowner and 680m for non-involved houses. Written consent has been obtained in the case where receptors are within 680m of a proposed turbine. The set-back distance from turbines (T4, T5, T6, T7 & T8) located within the floodplain considers the requirement for raised plinths in its calculation. This complies with the draft 2019 WEDGs which recommend a minimum setback distance of four times the tip height from a proposed turbine.
- Based on the evidence from a number of these published studies as set out in set out in the EIAR in Chapter 5: Population and Human Health - Table 5.5, the operation of a windfarm at the Site is considered to not significantly affect property values in the area. The Project will have a medium-long-term, imperceptible impact on property values.
- **Shadow Flicker -** The assessment has identified the potential for shadow flicker to affect 73 no. out of 113 no. receptors within the Shadow Flicker Study Area, as shown in Table 14.4 of the EIAR Volume II. A shadow control system will be installed for the Proposed Project which means that the turbines' shadow flicker module will be programmed to shut down whenever the conditions for shadow flicker at a property are met, irrespective of which turbine model is installed. Further refinement of the blade shadow control system will be conducted to eliminate any further shadow flicker occurrence if complaints are received. This could result in the shutting off, of a turbine or turbines, at specific times of day. There will be no significant direct or indirect shadow on any receptors from shadow flicker. The Proposed Project has been assessed as having the potential to result in negative, imperceptible, long-term effects overall with regards to shadow flicker.
- **Noise** - Refer to Appendix 4 of response submission.

Hydrology & Hydrogeology

- Several turbine sites appear to be within or adjoining Zone A floodplains.
- Historic flooding in the local area. Underestimation of frequency of flood events in EIAR.
- Garrane, Ballinagoul and Cregane is a natural flood plain and floods annually.
- Construction of turbine bases and access roads will increase impermeable surfaces, leading to altered drainage patterns, soil compaction and higher flood risk downstream. Loss of the existing floodplain storage.
- Increased erosion and contamination of nearby agricultural land concerns.
- Increase the risk of more severe flooding in the future and cause disruption to traffic on the N20.
- Potential Cumulative Effects with Kerry Group WWTP
- Impact on Ballynagoul Geothermal Spring.
- Decline in water quality due to increased runoff and subsequent sedimentation.
- Impact on public water supplies.

- None of rivers in the proposed development site are meeting their WFD Objectives.

Applicants Response to Hydrology & Hydrogeology

- Refer to Appendix 3 of response submission. Themes addressed include the following:
  - Potential increase in flood risk.
  - Potential effects on WFD status and objectives.
  - Potential effects on the Ballynagoul Geothermal Springs.
  - Potential effects on surface water quality.
  - Potential effects on designated sites.
  - Potential Cumulative Effects with Kerry Group WWTP.
  - Potential Effects from Soil Compaction during the Construction Phase.
  - Potential Cumulative Effects.
  - Potential effects on local groundwater well supplies.

Traffic & Transportation

- The L1537 is in poor condition, lacks width and is not suitable for the proposed volume of construction HGV traffic (7,965)/large abnormal loads. The predicated large HGV traffic volume poses safety risks to other road users. Impact of one-way system.
- Independent structural and geotechnical review of local roads, bridges, and culverts would be required to ensure compliance with TII standards. Garroose Bridge and Bruree Bridge only had a partial visual inspection. Bridges not proven to be structurally adequate.
- Congestion and public safety concerns for the town of Charleville and the impact of HGVs through the town from a business, industrial and community perspective.
- Negative impact on N20 Limerick/Cork Road causing congestion and public safety concerns at the proposed site entrance. Increased risk of traffic accidents.
- No road safety audit completed on the proposed one-way haul road L1537.
- The traffic management plan is inadequate for local road conditions.
- No review was undertaken on critical junctions such as O' Rourke's Cross and Charleville main street.
- Wear and tear on local road infrastructure.
- The L1537 is used as a diversion route if accidents occur on the N20.
- Height and scale of turbines could cause driver distraction effects along the N20 road. Additional analysis required to establish if the proposal meets TII Guidelines (2017) and road safety standards.
- A full independent Road Safety Audit, including flicker and visual-distraction analysis required to protect road safety.

Applicants Response to Traffic & Transportation

- Refer to Appendix 7 of applicants Response submission and appendices 17.1-17.7 of EIAR Chapter 17.

Material Assets/ Population & Human Health

- The proposed development will impact upon broadband/telecommunication connectivity in the area.
- Risk to the Cork-Dublin gas pipeline from HGV construction traffic.
- Concerns regarding devaluation of property in the area. A 2023 study from Galway University suggests a devaluation of 14%.
- Materially reduce marketability and value of residential properties.
- The Danish studies cited for property devaluation.
- Adverse impacts upon existing residential existing amenity, including, proximity of turbines to houses.
- Impact on Cuan Mhuire healthcare facility and community facilities in Bruree.
- Proximity of proposals to adjoining lands. Concerns over 'wind take' and effective sterilisation of lands. (Distance of two rotor blades from adjoining property boundaries)
- Difficulties obtaining planning permission for homes in the future due to turbine setbacks. Sterilise future residential development, undermine the long-term viability and social fabric of the local community.
- Economic loss to tourism related activities in the area.
- The proposed development would disrupt farming activity, disturb livestock, and undermine the agricultural integrity and peaceful character of the area.

Applicants Response to Material Assets/ Population & Human Health

- Applicant has responded to the various topic in their response submission and under relevant EIAR chapters.

Other Issues

- **Public Consultation -** Lack of public consultation carried out by applicant. Poor response by applicant to local resident concerns and no meaningful public consultation was carried as mandated by the Habitats Directive (6.3).
- **Management and Maintenance** - Concerns over the management and maintenance of the windfarm during the operational/decommissioning stage. Requirement for post-construction compliance monitoring be independent body.
- The PA are unable to a lack of resources to enforce environmental mitigation and planning compliance.
- Independent Audit of compliance and issues register required.
- Insufficient detail decommissioning details.
- **Planning Application Documentation Incomplete** - The Application documents lodged are incomplete, and therefore the application should not have passed a completeness check. The applicant 'Garrane Green Energy Limited' has not

provided landowner consents or otherwise agreements as required under the Planning and Development Act.

- Project Splitting - **Project splitting** with the Ballinlee Wind Farm development (323780)
- Transparent community-benefit arrangements and clear communication are required from the applicant/developer.
- The cumulative effect of multiple windfarms on landscape character, wildlife, and residents' wellbeing in the North Cork/South Limerick area. Over-concentration of windfarms.
- Windfarms are not carbon neutral, impacts to climate change.
- Risks of turbine damage, explosion, breakages, ice, lightning strikes, mechanical failure etc
- Alternative renewable energy options available such offshore wind and deep bore geothermal.
- Insufficient evidence area is beneficial for wind energy. Layout not aligned for the purpose of generating electricity. SEAI Wind Atlas show very poor wind capability.
- A number of the proposed turbines do not comply with wind take guidance under the 2006 and draft 2019 Wind Energy Guidelines and have not been located a distance of two rotor blades from adjoining property boundaries.

Applicants Response to Other Issues

- **Public Consultation** - EIAR clearly sets out the numerous rounds and types of public consultation which were undertaken in advance of the submission of the planning application. The Community Engagement Milestones are detailed in the EIAR in Appendix 1.5.

5.0 Policy Context

5.1. EU Legislation/Policy

5.1.1. Renewable Energy Directive (REDIII) (EU/2023/2413))

- This lays down a minimum binding target of 42.5% share of renewables by 2030 with an aspiration to reach 45%. It sets the course for a rapid acceleration of renewable energy deployment, while taking into account other policy considerations such as multiple use of land. It requires a massive scale-up of renewables projects, driving demand for inter alia wind energy.
- This was transposed into Irish Legislation by way of SI No. 274 of 2025 dated the 06th August 2025.

5.1.2. European Wind Power Action Plan[1]

- This details-
  - the EU target of at least 42.5% of renewables by 2030 will require the installed capacity to grow from 204 GW in 2022 to more than 500 GW in 2030.
  - Globally, annual wind capacity additions should reach at least 329 GW per year until 2030 to achieve net-zero emissions by 2050, more than quadrupling today's deployment levels (75 GW).
- It identifies six main pillars of concerted action by the European Commission, Member States and the industry:
  I. Acceleration of deployment through increased predictability and faster permitting;
  II. Improved auction design;
  III. Access to finance;
  IV. Creating a fair and competitive international environment;
  V. Skills; and
  VI. Industry engagement and Member State commitments.

5.1.3. REPowerEU Plan 2022 and Directive EU 2018/2001, as amended 18.05.2022

- The plan was prepared in response to the Russian invasion of Ukraine. It focuses on the need to end the EU's dependence on Russian fossil fuels and to tackle the climate crisis. It includes the accelerated rollout of renewable energy. It amends the Directive on the Promotion of the Use of Energy from Renewable Sources (Directive EU 2018/2001) to require that 45% of energy is from renewable sources.

5.1.4. European Green Deal 2020

- The aim of this policy is to make Europe climate neutral by 2050. In 2021, the European Climate Law made greenhouse gas emission targets a legal obligation. These targets were increased from 40% to 55% by 2030.

5.1.5. Directive 2019/944 and Regulations EU 2019/941

- There is an obligation on each Member State to monitor the security of electricity supply within their territory over the medium to long-term and each member state is entitled to set and monitor the level of security of supply deemed appropriate for its own needs.

[1] https://energy.ec.europa.eu/publications/european-wind-power-action-plan_en

5.2. National Policy and Legislation

National policy documents are relevant in respect of the proposed development and include the following:

5.2.1. Climate Action and Low Carbon Development Act 2015, as amended

The Act commits Ireland to the objective of becoming a carbon-neutral economy by 2050, reducing emissions by 51% by the end of the decade. Section 17 of the Climate Action and Low Carbon Development (Amendment) Act, 2021 amends the principal act such that Section 15(1) requires:

"(1) A relevant body shall, in so far as practicable, perform its functions in a manner consistent with—

a) the most recent approved climate action plan,

b) the most recent approved national long term climate action strategy,

c) the most recent approved national adaptation framework and approved sectoral adaptation plans,

d) the furtherance of the national climate objective, and

e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State".

"Relevant body" means a prescribed body or a public body.

5.2.2. Climate Action Plan 2024 (CAP24) and 2025 (CAP25)

Under the Climate Action and Low Carbon Development Act, 2015, as amended, Irelands national climate objective requires the State to transition to a resilient, biodiversity rich, environmentally sustainable and climate neutral economy by no later than the end of 2050. This national climate objective meets Irelands obligations under EU and international treaties, including the Paris Agreement (2015), the European Green Deal and the EU's objective to reduce GHG emissions by at least 51% by 2030 (compared to 2018) and achieve climate neutrality by 2050.

To meet its targets and obligations CAP 24 sets a course for Ireland to halve emissions by 2030 and reach net-zero no later than 2050. In terms of the electricity sector a 75% reduction in emissions based on 2018 levels is required by 2030 and CAP 24 provides that central to achieving this is the strategic increase in the share of renewable

electricity to 80% by 2030 including ambitious targets of deploying 9GW of onshore wind, 8GW of solar power and at least 5GW from offshore wind projects.

CAP 2025 was published on 15th April 2025. It re-affirms the previous commitment to increase the share of renewable electricity generation to 50% by 2025 and 80% by 2030 including solar targets of up to 5GWs by 2025 and 8 GWs by 2030. I understand that Ireland's Climate Action Plan 2026 has been delayed by the Department of Climate, Energy and the Environment as officials await finalised carbon budgets and post-2030 targets. To support and inform the preparation of the next update to the Climate Action Plan, the department has launched a public consultation. I note the closing date of public submissions is the 17th August 2026. The Coimisiún may wish to satisfy themselves in respect of the status of the CAP 2026 prior to making a decision.

5.2.3. **Ireland's Long-term Strategy on Greenhouse Gas Emissions Reductions 2024**

The National long-term Climate Action Strategy, entitled Ireland's Long-term Strategy on Greenhouse Gas Emissions Reductions 2024, sets out indicative pathways, beyond 2030, towards achieving carbon neutrality for Ireland by 2050. The Strategy provides a pathway to a whole-of-society transformation and serves as a vital link between shorter-term Climate Action Plans and Carbon Budgets and the longer-term objective of the European Climate Law and Ireland's National Climate Objective.

5.2.4. **National Climate and Energy Plan 2021-2030**

Ireland's target to reduce greenhouse gas emissions increased from 40% to 55% by 2030. It refers to reaching 70% of energy from renewables by 2030, underpinned by the Renewable Energy Support Scheme. Energy security is a key priority.

5.2.5. **The National Adaptation Framework; Planning for a Climate Resilient Ireland (June 2024)**

The most recent approved national adaptation framework, the National Adaptation Framework; Planning for a Climate Resilient Ireland June 2024 (NAF) is Ireland's second statutory National Adaptation Framework (NAF) and was published on 5th of June 2024. The NAF and its successors do not identify specific locations or propose

adaptation measures or projects in individual sectors, but sets out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making. The NAF identifies 13 (previously 12) priority sectors under 7 lead Departments that are required to prepare sectoral adaptation plans under the Climate Act in accordance with the Sectoral Planning Guidelines for Climate Change Adaptation which were published in 2018 and updated in 2024. The original 12 sectoral Plans prepared in 2019 and a new sectoral Plan for tourism are to be updated/prepared by end of Q3 2025. The following Electricity and Gas Sectoral Plan is relevant to the subject proposal.

5.2.6. **Electricity and Gas Sectoral Plan 2025**

The aim of the Plan published in November 2025 is to help Ireland's electricity and gas networks build long term resilience to climate impacts and extreme weather events. The plan considers national scale impacts and risks for the three EGN subsectors (electricity generation, electricity networks and gas networks) rather than assessing impacts on individual EGN assets. A total of 45 climate risks for the EGN sector have been identified, as part of the climate impact screening. To address the risks posed by climate change to the EGN sector, the EGN SAP 2025 sets out a EGN SAP Vision underpinned by three goals: (i) Establish structures to strengthen and enable action across the EGN sector to increase resilience; (ii) Strengthen the capacity of the EGN sector to ensure long-term resilience and (iii) Deliver a sustainable and resilient EGN sector. These goals are supported by 7 objectives and 38 actions, ranging from enhancing existing SAP governance processes, to prioritising research, and strengthening policy integration. The Plan is viewed as a ‘live’ document and will be evaluated and adapt, in line with developments in climate adaptation and mitigation efforts across the EGN sector.

5.2.7. **National Biodiversity Plan 2023-2030**

Ireland's 4th NBAP sets the biodiversity agenda for the period 2023 – 2030. The NBAP has a list of Objectives which promotes biodiversity as follows; **Objective 1** Adopt a whole of government, whole of society approach to biodiversity; **Objective 2** Meet urgent conservation and restoration needs; **Objective 3** Secure nature's contribution to people; **Objective 4** Enhance the evidence base for action on biodiversity; **Objective 5** Strengthen Irelands contribution to international biodiversity initiatives. The Wildlife (Amendment) Act 2023 provides that every public body, as listed in the Act, is obliged to have regard to the objectives and targets in the National Biodiversity Action Plan.

5.2.8. **National Renewable Energy Action Plan (NREAP)**

- Under the first EU Directive 2009/28/EC[2] (RED) in 2009, member countries of the European Union were obliged to draft and submit to the European Commission National Renewable Action Plans (NREAPs) outlining pathway which will allow them to meet their 2020 renewable energy, energy efficiency and GHG cuts targets.
- Ireland 2020 electricity target- 42.5% of electricity demand met by electricity generated from renewable energy sources.

5.2.9. **National Landscape Strategy for Ireland 2015-2025**

Ireland signed and ratified the Council of Europe's European Landscape Convention (ELC) in 2002 which came into effect on 1 March 2004. It obliges Ireland to implement policy changes and objectives concerning the management, protection and planning of the landscape. The National Landscape Strategy is intended to ensure compliance with the ELC and to establish principles for protecting and enhancing it while positively managing its change. It is a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions. The objectives of this Strategy are to:

> *'establish and implement through a series of actions, policies aimed at understanding, protecting, managing and planning our landscape. It sets out*

[2] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:EN:PDF

specific measures to integrate and embed landscape considerations in all sectors which influence the landscape and improve and enhance the quality of decision-making by those who have an impact on it'.

5.2.10. **National Energy Security Framework (April 2022)**

The Framework addresses Ireland's energy security needs in the context of the war in Ukraine. It coordinates energy security work across the electricity, gas and oil sectors. The Framework takes account of the need to decarbonise society and the economy, and of targets set out in the Climate Action Plan to reduce emissions. Theme 3 - Reducing our Dependency on Imported Fossil Fuels, focusses on three areas of work:

- Reducing demand for fossil fuels.
- Replacing fossil fuels with renewables, including solar energy.
- Diversifying fossil fuel supplies.

Under 7.2, the statement notes that prioritising renewables is in line with the requirements of the recast Renewable Energy Directive and the EC REPowerEU action statement. The Commission has called on Member States to ensure that renewable energy generation projects are considered to be in the overriding public interest, and the interest of public safety, and the Government supports this request.

5.2.11. **Project Ireland 2040: National Planning Framework ("NPF"), First Revision of the NPF and the National Development Plan ("NDP 2018-2027)**

Project Ireland 2040 is the Government's long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future. The NPF and the NDP combine to for Project Ireland 2040. The NPF sets out to deliver a spatial strategy through a set of National Strategic Outcomes ("NSO's"), including: 'Transition to a Low Carbon and Climate Resilient Society' which establishes a national objective of achieving transition to a competitive, low carbon, climate resilient and environmentally sustainable economy by 2050. The first revision of the NPF has been approved by both Houses of the Oireachtas, following the decision of the Government to approve the final revised NPF on 8th April, 2025. The 'First Revision' introduces regional renewable electricity capacity allocations for each of the three

Regional Assemblies to be achieved by 2030 which for the Eastern and Midland Regional Area is an additional 3,294MW, for solar PV or 45% of the National share in 2030. This is the minimum required for solar generation to meet the 2030 emission reductions in the electricity sector. The NDP 2018-2027 sets out the investment priorities that will underpin the implementation of the National Planning Framework, through a total investment of approx. €116 billion. It recognises that Ireland's energy system requires radical transformation in order to achieve its 2030 and 2050 targets and objectives. It recognises that investment in renewable energy sources affords Ireland an opportunity to decarbonise our energy generation, but that this must be complemented by wider measures to moderate growth in energy demand, increase energy security, diversify supply sources and facilitate more variable electricity generation on the grid.

5.2.12. **Relevant National Policy Objectives (NPO) include:**

- **NPO 69** - Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions as expressed in the most recently adopted carbon budgets.
- **NPO 70** - Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a climate neutral economy by 2050.
- **NPO 71-** Support the development and upgrading of the national electricity grid infrastructure, including supporting the delivery of renewable electricity generating development.
- **NPO 72 -** Support an all-island approach to the delivery of renewable electricity through interconnection of the transmission grid.
- **NPO 73 -** Support the co-location of renewable technologies with other supporting technologies and complementary land uses, including agriculture, amenity, forestry and opportunities to enhance biodiversity and promote heritage assets, at appropriate locations which are determined based upon the best available scientific evidence in line with EU and national legislative frameworks.
- **NPO 74 -** Each Regional Assembly must plan, through their Regional Spatial and Economic Strategy, for the delivery of the regional renewable electricity capacity allocations indicated for onshore wind and solar reflected in Table 9.1, and identify allocations for each of the local authorities, based on the best

available scientific evidence and in accordance with legislative requirements, in order to meet the overall national target.

- **Table 9.1 -** Additional Renewable Power Capacity Allocations for the Southern Region is 978MW for onshore wind by 2030. The total national share for the region in 2030 is 40% of onshore wind.
- **NPO 75** - Local Authorities shall plan for the delivery of Target Power Capacity (MW) allocations consistent with the relevant Regional Spatial and Economic Strategy, through their City and County Development Plans.

5.3. Regional Policy

5.3.1. Regional Spatial Economic Strategy for the Southern Region 2020-32 (RSES)

This document seeks to support the delivery of the programme for change set out in Project Ireland 2040, the National Planning Framework (NPF) and the National Development Plan 2018-27 (NDP), and to ensure coordination between the City & County Development Plans and Local Enterprise & Community Plans. It seeks to facilitate the sustainable development of additional electricity generation capacity throughout the region and to support the sustainable expansion of the transmission network. The Regional Authority seeks to ensure that future strategies and plans for the development of renewable energy, and associated infrastructure, will promote the development of renewable energy resources in a sustainable manner. Chapter 5 of the RSES deals with the Environment including responding to Climate Change.

RSES sets out a number of Regional Policy Objectives (RPO). The following are Energy objectives considered relevant-

- **RPO 87 Low Carbon Energy Future:** The RSES is committed to the implementation of the Government's policy under Ireland's Transition to a Low Carbon Energy Future 2015-30 and Climate Action Plan 2019. It is an objective to promote change across business, public and residential sectors to achieve reduced GHG emissions in accordance with current and future national targets, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture.
- **RPO 95 Sustainable Renewable Energy Generation:** It is an objective to support implementation of the National Renewable Energy Action Plan (NREAP), and the Offshore Renewable Energy Plan and the implementation of mitigation measures outlined in their respective SEA and AA and leverage the Region as a leader and innovator in sustainable renewable energy generation.
- **RPO 99 Renewable Wind Energy:** It is an objective to support the sustainable development of renewable wind energy (on shore and offshore) at appropriate

locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines.

- **RPO 100 Indigenous Renewable Energy Production and Grid Injection:** It is an objective to support the integration of indigenous renewable energy production and grid injection.
- **RPO 219 New Energy Infrastructure:** It is an objective to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs.
- **RPO 221 Renewable Energy Generation and Transmission Network:**
  a). Local Authority City and County Development Plans shall support the sustainable development of renewable energy generation and demand centres such as data centres which can be serviced with a renewable energy source (subject to appropriate environmental assessment and the planning process) to spatially suitable locations to ensure efficient use of the existing transmission network;
  b). The RSES supports strengthened and sustainable local/community renewable energy networks, micro renewable generation, climate smart countryside projects and connections from such initiatives to the grid. The potential for sustainable local/community energy projects and micro generation to both mitigate climate change and to reduce fuel poverty is also supported;
  c). The RSES supports the Southern Region as a Carbon Neutral Energy Region.

5.4. Ministerial Guidelines and Other Relevant Guidance

5.4.1. The Wind Energy Development Guidelines, Guidelines for Planning Authorities (June 2006) (WEDG)

The Guidelines advise that a reasonable balance must be achieved between meeting Government Policy on renewable energy and the proper planning and sustainable development of an area, and it provides advice in relation to the information that should be submitted with planning applications. The impacts on residential amenity, the environment, nature conservation, birds and the landscape should be addressed. It states that particular landscapes of very high sensitivity may not be appropriate for wind energy development.

5.4.2. **Draft Wind Energy Development Guidelines 2019 (DWEDG)**

In December 2013, the Minister for Housing and Planning announced a public consultation process with respect to a focused review of the 2006 Guidelines and a 'preferred draft approach' to the review was announced in June 2017.

Consultation on the draft Guidelines ended in February 2020. The draft guidelines identify Specific Planning Policy Requirements (SPPR), and subject to formal adoption of the Guidelines, it is intended that these SPPRs would be applied by planning authorities and An Bord Pleanála in the performance of their functions, as well as having regard to additional matters for consideration in assessing wind energy developments. Notable changes in the draft guidelines when compared with the 2006 wind energy guidelines are summarised as follows:

5.4.2.1. **Noise**

Section 5.7.4 - 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.

5.4.2.2. **Shadow Flicker**

Section 5.8.1 - The relevant planning authority or An Bord Pleanála should require that the Applicant shall provide evidence as part of the planning application that shadow flicker control mechanisms will be in place for the operational duration of the wind energy development project.

5.4.2.3. **Community Investment**

Section 5.10 - The 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) sets out to

ensure that wind energy development in Ireland is undertaken in observance with the best industry practices, and with the full engagement of communities around the country. Community dividend – measures to ensure enduring economic benefit to the community.

5.4.2.4. **Visual Impact**

Section 6.4 - Siting of wind energy projects.

5.4.2.5. **Set back**

Section 6.18.1 Appropriate setback distance to apply - The potential for visual disturbance can be considered as dependent on the scale of the proposed turbine and the associated distance. Thus, a setback which is the function of size of the turbine should be key to setting the appropriate setback. Taking account of the various factors outlined above, 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. Policy SPPR 2 – Set back.

Section 6.18.2 Exceptions to the mandatory minimum setbacks - 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.

5.4.2.6. **Grid connections**

Underground to be the standard approach.

5.4.3. **Other Relevant Guidance**

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) (EPA 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, Department of Housing, Planning, Community and Local Government (2018)

- Guidelines for Landscape and Visual Impact Assessment (GLVIA) (3rd Edition) Landscape Institute and Institute of Environmental Management & Assessment 2013 (IEMA)
- Guidelines for Ecological Impact Assessment 2018 Chartered Institute of Ecology and Environmental Management (ICEEM)
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009)
- Scottish Natural Heritage (SNH) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation 2019
- Spatial Planning and National Roads Guidelines for Planning Authorities' (DoECLG, 2012).

5.5. **Limerick Development Plan 2022-2028 (as varied) (LCDP 2022)**

The Development Plan 2022-2028 came into effect on 29th July 2022 and has been subject to 2 no. variations. The statutory process has begun in relation to proposed Variation No. 3 to the Plan. Variation No. 3 relates to updating the Plan to take account of the recent changes in national planning policy regarding housing targets and standards. There is no specific land use zoning for the site. The application site is located within the 'Agricultural Lowlands' Landscape Character Area (LCA 01).

The chapters of the Development Plan relevant to this assessment and specific objectives relating to onshore wind developments are as follows:

Volume 1
Chapter 5: A Strong Economy.

- **Objective ECON O59: Offshore Renewable Energy** - It is an objective of the Council to: a) Support in conjunction with other relevant agencies, wind energy initiatives, both onshore and offshore and wave energy, when these are undertaken in an environmentally acceptable manner. b) Promote Limerick to become the primary hub for the development of Ireland's west coast renewable energy, with potential in research, innovation, logistics, development, maintenance and administration.

Chapter 6: Environment, Heritage, Landscape and Green Infrastructure.

- **Policy EH P1** - Protection of Natural Heritage and Biodiversity
- **Policy EH P3** - Climate Action and the Natural Environment
- **Policy EH P5** - Protection of the Built Environment
- **Policy EH P6** - Water and Air Quality
- **Policy EH P7** - Environmental Noise
- **Objective EH O1** - Designated Sites and Habitats Directive
- **Objective EH O2** - Lesser Horseshoe Bat
- **Objective EH O3** - Ecological Impact Assessment

- **Objective EH O8** - Roosting Habitats
- **Objective EH O9** - Geological Sites
- **Objective EH O10** - Trees and Hedgerows
- **Objective EH O12** - Blue and Green Infrastructure
- **Objective EH O15** - Ground Water, Surface Water Protection and River Basin Management Plans
- **Objective EH O17** - Water Quality
- **Objective EH O18** - Riparian Buffers
- **Objective EH O22** - Commercial and Industrial Noise
- **Objective EH O29** - Air Quality during Construction
- **Policy EH P8** - Landscape Character Areas
- **Objective EH O31** - Views and Prospects
- **Policy EH P9** - Historic Gardens, Designed Landscapes and Parklands
- **Objective EH O36** - Preservation of the Archaeological Heritage
- **Objective EH O37** - Preservation of unrecorded/newly discovered Archaeological Heritage
- **Objective EH O53** - Architectural Conservation Areas

Chapter 7: Sustainable Mobility and Transport

- **Objective TR O37** - Land Uses and Access Standards
- **Policy TR P12** - Safeguard the Capacity of National Roads

Chapter 8: Infrastructure

- **Objective IN O12** - Surface Water and SuDS

Chapter 9: Climate Action, Flood Risk and Transition to Low Carbon Economy.

- **Policy CAF P5** - Managing Flood Risk
- **Objective CAF O20** - Flood Risk Assessments
- **Policy CAF P2 Transition to a Low Carbon Economy** - It is a policy of the Council to support the transition to a low carbon climate resilient economy, by way of reducing greenhouse gases, increasing renewable energy and improving energy efficiency and will future proof policies and objectives to deliver on this approach, in so far as possible.
- **Policy CAF P6: Renewable Energy -** It is a policy of the Council to support renewable energy commitments outlined in national and regional policy, by facilitating the development and exploitation of a range of renewable energy sources at suitable locations throughout Limerick, where such development does not have a negative impact on the surrounding environment landscape, biodiversity, water quality or local amenities, to ensure the long-term sustainable growth of Limerick.

- **Objective CAF O27: Renewable Energy Production** - It is an objective of the Council to encourage and facilitate the production of energy from renewable sources, such as from bioenergy, solar, hydro, tidal, geothermal and wind energy, subject to appropriate levels of environmental assessment and planning considerations.
- **Objective CAF O28: Assessment of Renewable Energy Projects** - It is an objective of the Council to encourage the development of wind energy, in accordance with Government policy and having regard to the principles and planning guidance set out in the Department of Housing, Planning and Local Government publications relating to Wind Energy Development and the DCCAE Code of Practice for Wind Energy Development in Ireland and any other relevant guidance, which may be issued in relation to sustainable energy provisions during the course of the Plan.
- **Objective CAF O29**: **Wind Energy Development and Environmental Considerations** - It is an objective of the Council to facilitate the development of wind energy in an environmentally sustainable manner, ensuring proposals are consistent with the landscape character objectives of the Plan, the protection of the natural and built environment and the visual and residential amenities of the area.
- **Objective CAF O30: Location of Wind Energy Developments** - It is an objective of the Council to promote the location of wind farms and wind energy infrastructure in the 'Preferred Areas' as outlined on Map 9.1, to prohibit such infrastructure in areas identified as 'not open for consideration' and to consider, subject to appropriate assessment, the location of wind generating infrastructure in areas 'open for consideration'.
- Appendix 1 - Development Management Guidelines
- Section 11.7.2.1 **Wind Energy** (Page 357 – 361)
- Specifically in relation to noise, the Development Plan under Section 11.7.2.1 states that *'In assessing an application for a wind farm the following general guidelines shall be taken into consideration:*
    - The Planning Authority shall be informed of the plan to carry out background noise surveys and to agree proposed monitoring locations. Background noise surveys shall be carried out in accordance with A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013), unless current guidelines require otherwise.

      – Planning applications shall include noise-monitoring proposals over the lifetime of the development;

      – In the event that the developer proposes to modify the type of wind turbine in a way that may lead to increased noise levels at noise sensitive receptors, a noise assessment shall be undertaken, to be agreed with the Planning Authority, to demonstrate that relevant noise limits shall not be exceeded;

– Noise levels, including the addition of any penalties for special audible characteristics, shall comply with current guidelines;
– Any proposed lower fixed noise limit for night-time at noise sensitive properties shall not exceed 38 dB(A) L90 or 5dB(A) above background noise levels, whichever is the greater;
– Cumulative low frequency noise levels for one-third octave bands between 10 Hz and 160 Hz (LpA,LF) from wind turbines shall not exceed 20 dB(A) at evening and night (19:00 to 07:00 hours) and 25 dB(A) during the day (07:00 to 19:00 hours), at any wind speed inside habitable rooms of noise sensitive properties when measured at locations meeting the requirements of the Environmental Noise Regulation of Denmark (Orientering nr. 45);
– Where noise levels interfere with the amenities of the area, the operator shall comply with any requirements of the Planning Authority to undertake an investigation (including shutting down wind turbines for background noise monitoring if required) and implement mitigation measures, up to and including taking turbine(s) out of operation. The Planning Authority may approve a testing programme to demonstrate compliance before turbine(s) are returned to operational service;
– Any noise assessments undertaken in the consideration of a windfarm noise shall be prepared by a suitably qualified professional that can demonstrate sufficient expertise.

(Inspectors Emphasis)

6.0 Natural Heritage Designations

The site of the proposed development (including TDR) does not overlap with any natural heritage designations. The following Special Protection Areas (SPAs), Special Conservation Areas (SAC) and Natural Heritage Areas (NHA/pNHA) are most proximate to the site.

6.1. Special Area of Conservation (SAC)

- **Blackwater River (Cork/Waterford) SAC (002170) –** The SAC is located c. 6.4km to the south of the proposed windfarm site. The SAC is designated for ten Annex I habitats and nine Annex II species. It is Annex I habitat protected for its estuaries, mudflats, sandflats and vegetation and its Annex II species including Freshwater Pear Mussel, white-clawed crayfish, Sea, Brook and River Lamprey, Twaite Shad, Salmon, Otter and Killarney Fern.

- **Ballyhoura Mountains SAC [002036] –** The project site located c. 9km to the northwest of SAC. The SAC is protected for its Wet Heath, Dry Heath and Blanket Bogs (Active).
- **Tory Hill SAC [000439]** – The project site located c. 11km to the north of SAC. This site is of considerable conservation significance for the diversity of terrestrial and wetland habitats found within it, and particularly for the presence of good examples of Orchid-rich Calcareous Grassland, *Cladium* Fens and Alkaline Fens.
- **Glen Bog SAC [001430] –** The project site located c. 14.7km southwest of SAC. Glen Bog is a site of considerable conservation importance because it includes a fine example of mature and relatively undisturbed wet woodland, a habitat that is listed with priority status on Annex I of the E.U. Habitats Directive.
- **The Lower River Shannon SAC [002165] -** The project site located c. 20km to the south / southeast of the SAC. This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitats lagoon and alluvial woodland, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

6.2. **Special Protection Areas (SPA)**

- **Kilcolman Bog SPA [004095]** – The project site located c. 14.1km to the north/ northwest of the SPA. This site is an SPA for the following species: Whooper Swan, Teal and Shoveler.
- **River Shannon and River Fergus Estuaries SPA [004077] -** The project site located c. 25km to the south / southeast of the SPA. It is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds. It holds internationally important populations of four species, i.e. Light-bellied Brent Goose, Dunlin, Black-tailed Godwit and Redshank. In addition, there are 17 species that have wintering populations of national importance. The site also supports a nationally important breeding population of Cormorant.
- **The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)** is located c. 22 km to the west of the site.

6.3. **Natural Heritage Areas**

- None located in close proximity to the site.

6.4. **Proposed Natural Heritage Areas**

- Mountrussell Wood (002088) is located c. 7km to the southeast of the site.
- Ballyhoura Mountains (002036) is located c. 9.8km to the south and southeast of the site.
- Castleoliver Woods (002090) is located c. 11.9km to the south east of the site.
- Ballyroe Hill & Mortlestown Hill (002089) is located c. 11.3km to the southeast of the site.
- Carrigeenamronety Hill (002037) is located c. 16.7km to the southeast of the site.
- Heathfield Wood (001434) is located c. 13.5 km to the northwest of the site.
- Glen Bog (001430) is located c. 15 km to the northwest of the site.
- Lough Gur (000437) is located c. 15.6 km to the northeast of the site.
- Ballinvoner Pond pNHA (site code: 000012) 12.5km to the southeast of the site.
- Eagle Lough pNHA (site code 001049) 14.5km to the south of the site.
- Tory Hill pNHA (site code: 000439) 14.3km to the north of the site.
- Ballintlea Wood pNHA (site code: 002086) 13 km southeast of the Site.

7.0 Planning Assessment

7.1. **Introduction**

I have examined the application details and all other documentation on file, including the observations from prescribed bodies and the public and the applicant's response to the observations. I have inspected the site and viewed it from surrounding public roads and the general wider area. I have had regard to relevant local/regional/national policies and ministerial and other appropriate guidance were considered relevant.

I am satisfied the substantive issues for assessment relate to typical Planning Assessment considerations, Environmental Impact Assessment considerations and Appropriate Assessment considerations and other related matters for each arising from the submissions received.

I propose addressing these matters as follows-

- **Section 7.0 - Planning Assessment;**
  - Section 15 of Climate Action & Low Carbon Development Act 2015, as amended
  - Principle of the Development and Compliance with Policy
  - Material Contravention of Development Plan
  - Duration of Permission and Period of Operation
  - Wind Energy Development Guidelines, Guidelines for Planning Authorities (DoEHLG, 2006) (WEDG)

- RED III Directive & Renewable Energy Regulations 2025
- Impact on Property Prices
- Enforcement
- Public Consultation
- Completeness Check
- Community Benefit
- Comments on Conditions

- **Section 8.0 - Environmental Impact Assessment**
- **Section 23.0 – The Likely Significant Effects on a European Site**

7.2. **Section 15 of Climate Action & Low Carbon Development Act 2015, as amended**

Section 15(1) of the Act, as amended states:

> *'A relevant body shall, in so far as practicable, perform its functions in a manner consistent with—*
>
> *(a) the most recent approved climate action plan,*
>
> *(b) the most recent approved national long term climate action strategy,*
>
> *(c) the most recent approved national adaptation framework and approved sectoral adaptation plans,*
>
> *(d) the furtherance of the national climate objective, and*
>
> *(e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.*

As a relevant body, An Coimisiún Pleanála is required to exercise its function in a manner consistent with the applicable climate objectives, in so far as is practicable, and I have set out the following consideration to enable the Coimisiún make their decision within that framework.

As outlined in respect of policy at Section 5.2.2 above, CAP 2025 was published on 15th April 2025 and re-affirms the previous commitment in CAP 2024 to increase the share of renewable electricity generation to 50% by 2025 and 80% by 2030 including onshore wind targets of up to 6 GWs by 2025 and 9 GWs by 2030. There is clear support for the development of solar energy within this context. Ireland's long-term Climate Action Strategy, entitled Ireland's Long-term Strategy on Greenhouse Gas Emissions Reductions 2024, sets out indicative pathways, beyond 2030, towards achieving carbon neutrality for Ireland by 2050. The Strategy provides a pathway to a whole-of-society transformation and serves as a vital link between shorter-term

Climate Action Plans and Carbon Budgets and the longer-term objective of the European Climate Law and Ireland's National Climate Objective.

The National Adaptation Framework; Planning for a Climate Resilient Ireland (June 2024), the most recent approved national adaptation framework, the National Adaptation Framework; Planning for a Climate Resilient Ireland June 2024 (NAF) is Ireland's second statutory National Adaptation Framework (NAF) and was published on 5th of June 2024. The NAF sets out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making. The NAF identifies 13 (previously 12) priority sectors under 7 lead Departments that are required to prepare sectoral adaptation plans under the Climate Act in accordance with the Sectoral Planning Guidelines for Climate Change Adaptation which were published in 2018 and updated in 2024 with 13 sectoral Plans prepared in 2025 including an Electricity and Gas Sectoral Plan (EGN SAP 2025).

It is noted that the furtherance of the national climate objective is a central tenet of the above referenced Plans and strategies as is the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State. I will address the local policy context in the following section, but I would refer to the conclusion therein that the proposal would comply with the provisions of the Limerick Development Plan 2022-2028.

7.3. Principle of the Development and Compliance with Policy

7.3.1. Compliance with Renewable Energy Policy

The proposed development consists of a windfarm development consisting of 9 no. wind turbines with an overall ground to blade tip height of 170m with associated infrastructure, underground cabling and ancillary grid infrastructure. The total rated output is 54MW for an operational life of 35 years from the date of commissioning.

As set out above in Section 5.0 above, renewable energy development is supported in principle at national, regional and local policy levels, with collective support across government sectors for a move to a low carbon future and an acknowledgement of the need to encourage the use of renewable resources to reduce greenhouse gas emissions and to meet renewable energy targets set at a European Level. The Climate

Action Plan 2024 and 2025 (CAP 24 & 25) lays out a roadmap of actions which are intended to deliver upon Irelands national climate objective of pursuing and achieving, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy by no later than the end of the year 2050.

Central to this is the targeted aim to strategically increase the country's share of renewable electricity to 80% by 2030 through measures including the delivery of 6 GW of onshore wind by 2025 and 9 GW of onshore wind by 2030. The proposed 9 no. turbine windfarm will have a maximum export capacity of 6MW each (54MW) and will accordingly provide an important contribution role in delivering upon Ireland's CAP 24 & 25 obligations. The proposal is therefore considered consistent with the CAP 24 & 25.

The National Planning Framework (NPF) (First Revision) under National Strategic Outcome 8 states Ireland will have a more renewables-focused energy generation system harnessing energy sources such as wind. The accelerated delivery of additional renewable electricity generation is essential for Ireland to meet its climate targets, reduce its greenhouse gas emissions, and improve its energy security by reducing reliance on imported fossil fuels and diversifying its electricity supply.

The NPF also seeks to reduce the country's carbon footprint under National Policy Objective (NPO) 69 and promotes renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a climate neutral economy by 2050 (Objective NPO 70). This policy is now aligned with the ambitious targets set out within CAP24 and CAP25 of achieving net zero emissions by 2050.

I note the NPF acknowledges that rural areas will continue to contribute to the energy needs of the country playing a strong role in securing a sustainable renewable energy supply. Development of renewable energy generation can include co-location with agricultural activities that supports both a reduction in carbon emissions and land use diversification options for farmers in line with the carbon budget programme and the Climate Action Plan 2024 and 2025.

Similar support is provided at regional level where the Regional Spatial and Economic Strategy (RSES) for the Southern Region includes Regional Policy Objectives (RPO's) 87, 95, 96 and 100 which seek to increase the use of renewable energy sources across

the key sectors of electricity supply, to leverage the region as a leader and innovator in sustainable renewable energy generation and to integrate renewable energy sources into the grid.

7.3.2. **Compliance with Local Planning Policy (LDP2022)**

The Limerick Development Plan 2022-2028 (LDP2022) is generally supportive of renewable energy subject to environmental and visual considerations. The Plan states that wind energy can make a clean sustainable solution to energy requirements and the role it can play in helping achieve national targets, in relation to fossil fuel reductions and consequently greenhouse gas emissions. The plan will continue to support and encourage the principle of wind energy development having regard to the Wind Energy Development Guidelines 2006 for Planning Authorities subject to the location and siting of such infrastructure. I note Policy CAF P6 which seeks to support renewable energy commitments outlined in national and regional policy, by facilitating the development and exploitation of a range of renewable energy sources at suitable locations throughout Limerick. Table 9.2 of the Development Plan sets a renewable energy allocation for differing technologies. The target capacity (2030) for wind is 386.45MW. The current installed capacity of County Limerick stands at 243.35MW based on June 2020 figures. The proposal will help to achieve this target by contributing 54MW of renewable energy. I consider the allocations provided for differing technologies in Table 9.2 of the Development Plan are targets only and therefore do not prohibit the exceedance of the target figures referenced where applicable. The proposal has the potential to prevent c. 46,689 tonnes of CO^2 emissions per annum, or 1,634,117 tonnes of CO^2 emissions will be displaced over the proposed 35-year lifetime of the windfarm.

Under Objective CAF O30 the Council to promote the location of windfarms and wind energy infrastructure in the '*Preferred Areas*' as outlined on Map 9.1 and to prohibit such infrastructure in areas identified as '*not open for consideration*'. The proposed development is situated in an area designated in the Development Plan as being '*Preferred Areas*' for wind-energy developments within the '*Agricultural Lowlands'* Local Character Area (LCA 01).

I note section 11.7.2.1 of the LAP 2022 which states windfarms should be located, wherever possible, within the following types of landscapes, 1) agricultural lands; 2)

degraded peats or 3) in a man-modified landscape. Having inspected the site, I am satisfied the proposed location of the wind farm is within a man-modified landscape on agricultural lands. Furthermore, I note the Planning Authority acknowledged in the CE report that the proposed development is broadly supported by the Development Plan policy provision.

The potential effects as a result of the proposed development on residential amenity, European Sites, architectural and archaeological heritage, the visual impact on the landscape have been assessed either below in my planning assessment or within the EIA and the AA sections of this report. In this instance, I have concluded that the proposed development would not have an adverse impact on any of these areas and would, therefore, be in compliance with Objective CAF O29 of the LCDP 2022 which seeks to ensure that proposals are consistent with the landscape character objectives of the Plan, the protection of the natural and built environment and the visual and residential amenities of the area.

7.3.3. **Conclusion (Principle of the Development)**

Overall, I consider the proposed development, is generally consistent with planning policy in relation to EU/national, regional and local commitments and binding obligations in relation to the reduction of greenhouse gas emissions and the provision of new renewable energy. Therefore, I am satisfied that the principle of a windfarm development at this location is acceptable subject to consideration of key planning and environmental issues as assessed below.

7.4. **Material Contravention of the Development Plan (LDP2022)**

I consider there is a material contravention of the LCDP 2022 in relation to nighttime noise limits. Refer to Section 14.0 of this report in relation to baseline noise and context, which will not be repeated here.

7.4.1. **Limerick Development Plan 2022 (LCDP 2022)**

The applicant has discussed the LCDP 2022 in Section 11.2.3.3 of the EIAR, noting the location of the project is in a '*Preferred Area'* for wind energy.

The applicant points out the following LCDP 2022 policy;

> *'Noise levels, including the addition of any penalties for special audible characteristics, shall comply with current guidelines.*

Any proposed lower fixed noise limit for night-time noise sensitive properties shall not exceed 38dB(A) L90 or 5dB(A) above background noise levels, whichever is the greater'. (Inspectors Emphasis)

The applicants notes that these two criteria suggest that where special characteristics or rated levels are to be considered, the rated noise levels should comply with the existing WEDG 2006 and ACP criteria, but where it is a fixed LA90 limit the 38dB or 5dB above the background applied. This is consistent with the conservative consideration of the maximum 5dB penalty difference between the rated level and measured LA90.

However, the LCDP 2022 provides a different night-time limit level when comparing the LCDP 2022 to the WEDG 2006 and the ACP criteria. *(Inspectors Emphasis)*

In addition, the applicant also highlights the following LCDP 2022 policy:

- "Noise and mitigation measures for sensitive receptor locations such as residences"
- "Background noise surveys shall be carried out in accordance with A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013)"'

7.4.2. **Policy Background and Submissions Received**

LCCC in their submission points out that;

'It is considered that the proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and background noise in outdoor private amenity areas at noise sensitive locations, at least away from the N20. The proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the LDP should be had for the setting of night-time noise limits."

The LCCC submission relates to Chapter 11: Development Management Standards, Section 11.7.2.1 of the LCDP 2022, which contains the following policy in relation to night-time noise;

'In assessing an application for a wind farm the following general guidelines shall be taken into consideration:

– Any proposed lower fixed noise limit for night-time at noise sensitive properties shall not exceed ***38 dB(A) L90 or 5dB(A) above background noise levels, whichever is the greater****;' (Inspectors Emphasis)*

The methodology used by the applicant in their noise assessment is in accordance with Section 5.6 of the WEDG 2006 as follows in relation to night-time noise;

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

Based on the WEDG 2006, the standard ACP condition for windfarms is as follows in relation to night-time noise;

'Noise levels generated by the windfarm……when measured externally at noise sensitive locations, shall not exceed:

- *For the nighttime period 11pm to 7am, for all noise environments,* ***43dB(A)$_{L90\ T10.}$' (Inspectors Emphasis)***

In this regard, the applicant notes in their response to LCCC that the WEDG 2006 do not provide detailed methodology from ETSU-R-97, it is simply highlighted as a reference to the guidance.

The applicant further notes that the 40dB highlighted in the LCCC response relates to a daytime wind speed of 4m/s. As the daytime is between 07:00 and 23:00hrs and the wind speed is less than 5m/s, the 40dB limit was applied. The methodology used to set these parameters is consistent with WEDGs 2006, the current applicable guidelines and, as such, aligns with the methodology that is consistently applied by ACP in applying noise planning conditions to windfarms, which is considered an acceptable approach.

The applicant further notes that LCCC referenced the UK planning guidance PPG24. The applicant points out that there is no reference to PPG24 in the WEDGs 2006 guidelines and therefore there is no demonstrable link between the two documents. Furthermore, the applicant highlights that PPG24 has been replaced in the UK by the *ProPG:Planning and Noise* document, which operates on a similar basis to the

previous PPG24 document. ProPG contains a sliding scale of noise levels that will have an impact on residential dwellings, but they are based on a 16-hour daytime period or an 8-hour nighttime period. These LAeq levels are not applicable to wind turbine development where there are specific guidelines to be followed. The ProPG, like the previous PPG24 primarily relates to transportation noise.

As discussed in Section 14.2.1 of this report, the LCDP 2022 policy in relation to night-time noise limits differs from the WEDG 2006 and the corresponding standard condition of ACP, which both contain a night-time noise limit **not exceeding 43dB(A).**

The LCDP 2022 has a lower fixed noise limit for night-time noise **not exceeding 38dB(A)** L90 or 5dB(A) above background noise levels, whichever is greater.

For this reason, I consider the proposed development is a material contravention of the LCDP 2022 policy in relation to night-time noise.

In this regard, notwithstanding the material contravention of the LCDP 2022 policy for night-time noise for windfarms, I consider the appropriate guidance in relation to noise limits to be the current WEDG 2006, which have not been withdrawn by the Minister and which are therefore still the relevant Section 28 Guidelines that the Coimisiún must have regard to. I consider the application of the WEDG 2006 noise limits and the corresponding ACP condition to be appropriate.

7.4.3. Material Contravention of the Development Plan

The proposed windfarm is a material contravention of the LCDP 2022 in relation to night-time noise as discussed above. The Coimisiún will be aware that under Section 37(G)(6) of the Planning and Development Act 2000, as amended, it may, in determining an application under that section, decide to grant a permission even if the proposed development contravenes materially the Development Plan.

The specific circumstances where permission may be granted notwithstanding a material contravention are set out in Section 37(G)(6) which provides that;

> *'(6) The Board may decide to grant a permission for development, or any part of a development, under this section even if the proposed development, or part thereof, contravenes materially the development plan relating to any area in which it is proposed to situate the development.'*

I have completed an EIAR and an NIS of the proposed development and am satisfied that there are no likely significant effects on the environment, and I am also satisfied that there would be no significant adverse effects upon any local European Designated Site. I am satisfied that the development is located in a 'Preferred Area' for wind energy and is compliant with the wider policies and objectives of LCDP 2022 for wind energy development and environmental protection and is acceptable.

To conclude, notwithstanding the proposed windfarm being a material contravention of the Development Plan in terms of not complying with the night-time noise limits identified therein, I consider the proposed development is of national importance in reaching Irelands Renewable Energy Targets and comply with WEDG 2006.

7.5. **Hedgerow Loss**

In relation to Development Plan Objectives EH O10 (Trees and Hedgerows) and EH O12 (Blue and Green Infrastructure) is summarised below;

- **Objective EH O10 (a) and (b)** seeks to retain and protect amenity and biodiversity value of trees and woodland, require mitigation planting and a management scheme if hedgerows/trees are for removal and that the loss of, or damage to, existing trees is minimised.
- **Objective EH O12** seeks to promote green infrastructure, connecting green corridors and requires new infrastructural projects and linear developments in particular, will have to demonstrate at design stage, sufficient measures to assist in the conservation of and dispersal of species.

While I acknowledge the concerns raised by the submissions in relation to the proposed hedgerow loss, I do not agree that the proposed development, which is proposing compensatory planting and has embedded design measures to minimise impact on sensitive features such as trees/hedgerows is contrary to the stated objectives.

Overall, I am satisfied that the potential for significant adverse impacts on biodiversity can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, implementation of the Biodiversity Enhancement Management Plan (BEMP) and through suitable planning conditions.

Furthermore, I am satisfied that the loss of hedgerow habitat within the site will be offset by additional hedgerow planting, woodland planting and enhancement/revitalisation of existing hedgerows providing long term biodiversity benefits. Overall, I am satisfied the proposal is in accordance with Objectives EH O10 (a) – (b) and O12 of the LCDP 2022.

7.6. **Duration of Permission and Period of Operation**

The public notices and more particularly in section 2.2 of the EIAR the Applicant seeks a 10-year planning permission lifespan and an operational period of no less than 35 years from the date of commissioning of the windfarm. Permission is sought in perpetuity for the substation and grid connection which will form part of the national electricity network. The permanence is stated in the public notices.

Section 2.2.1.1 of the EIAR also details the requirement for a 10-year planning permission and is considered appropriate for a development of this size to ensure all consents required are secured to enable the construction and operation of the development.

Table 2.9 of the applicants EIAR outlines the indicative construction programme. It is envisaged that the construction phase will last c. 16-18 months with some phases running concurrently. A decommissioning schedule is detailed in the CEMP under a Decommissioning Plan. The Coimisiún will note Section 7.20 of the WEDG 2006 details that permission may be granted for a duration longer than 5 years if it is considered appropriate.

Having considered the above, most notably the expected 18-month construction period and inclusion for grid connection within the application site, I do not have any objections to the requirement for a 10-year permission and I consider it would allow the applicant/developer adequate time to secure all required consents.

The proposed development includes for connection to the national grid from the proposed onsite 110kV electricity Substation. The grid connection will be a ‘loop in’ connection to the existing 110kV OHL between Charleville Substation and Killonan Substation. Section 2.10 of the EIAR discusses decommissioning. It details at the end of the estimated 35-year lifespan the turbines will either be repowered or decommissioned with further development subject to a new planning permission

application at that time. The grid connection and substation will remain a permanent part of the national grid.

I am satisfied that a 35-year operational life is considered acceptable and is generally in line with operational periods granted permission by the Coimisiún for similar types of renewable energy development.

7.7. **Wind Energy Development Guidelines, Guidelines for Planning Authorities (WEDG 2006) and (WEDG 2019)**

The Coimisiún will note significant concerns are raised in the submissions received including from elected members on the suitability of the WEDG 2006 guidelines which are considered outdated and not fit for purpose given the nature, location and scale of the proposed development. Concerns have also been raised regarding the absence of a Strategic Environmental Assessment being carried out for the 2006 guidelines, with the European Court of Justice (ECJ) ruling case C-24/19 cited.

I do acknowledge that the Guidelines date from 2006 and turbine technology/scale has significantly increased since they were first introduced. Whilst the WEDG 2019 were published in 2019 by Department of Housing, Planning and Local Government (the Department) consenting authorities await their finalisation by the Department. According to CAP 2025 - Action Number EL/24/5 the revised guidelines were due to be published in Q1 of 2025, however this has not occurred. Therefore, until such time the existing guidelines remain in force. Furthermore, the Coimisiún is required under Section 28 (2) of the Planning and Development Act to have 'regard' to guidelines issued under section 28 (1), thus being the 2006 Guidelines.

I note regard to the draft 2019 Guidelines where appropriate, in the context of the judgement of the Supreme Court in Balz v ABP [2019] IESC 90, particularly in areas where technical knowledge has advanced considerably e.g. noise and shadow flicker since the 2006 guidelines and how such can mitigate against adverse impacts.

I note the applicant has had regard to the draft 2019 guidelines in respect of shadow flicker and residential amenity compliance with the higher standards of the 2019 draft guidelines (zero shadow flicker and a 4 x times tip height set back distance) being proposed. I consider that this is appropriate and seeks to apply best practice to the consideration of the proposed development.

I consider that the delay in the publication of revised wind energy guidelines does not of itself preclude decisions on wind energy developments including the granting of

permission. I am satisfied that WEDG 2006 guidelines, WEDG 2019 guidelines, continue to provide a robust and reasonable basis for the assessment of applications for wind energy developments and on which informed decisions can continue to be made.

Furthermore, I note that submissions have also raised concerns that the WEDG 2006 Guidelines which constitutes a plan/programme should be subject to Strategic Environmental Assessment (SEA).

The matter of SEA in the context of the existing 2006 Guidelines is not within the remit or scope of the Coimisiún in the context of this current application. The preparation of wind energy guidance is within the remit solely of Government. As noted above the WEDG 2006 Guidelines remain in force and there are no updates from the Department on an anticipated publication date for new guidelines to replace the WEDG 2006 Guidelines.

Furthermore, I note submissions have cited a decision of the Court of Justice of the European Union (CJEU) under case reference C-24/19 in Belgium as relevant to the subject development. In summary this judgement annulled a development consent on the basis that the decision was pursuant to a 2006 Belgian Circular that had not been subject to SEA and accordingly Directive 2001/42/EC. I am satisfied that this is a matter for Government to address and is beyond the scope of the Coimisiún in the context of the current application.

I consider the context of the existing legal environmental framework encompassing environmental assessment to be of relevance here, noting that the NPF First Review, RSES and Limerick Development Plan have all been subject to SEA. The Draft 2019 Guidelines are also noted to be subject to SEA, however the status of these remains in draft. At a project level, I am satisfied that the proposed development has been subject to environmental assessment under the EIA Directive (refer to Section 8.0 of this report). Furthermore, I am satisfied that the proposed development has been subject to assessments under the Habitats and Birds Directives and assessment under the Water Framework Directive, as per Section 23.0 and Section 13.0 of this report respectively.

7.8. **RED III Directive & Renewable Energy Regulations 2025**

Submissions to the application consider the proposal is premature in the absence of the application of the acceleration areas envisaged in the RED III Directive, referenced as Article 15b mapping, and that if this part of the Directive was transposed it would place restrictions on lands such as RED III application sites close to dwellings.

Related to these grounds are references to the NPF and RSES capacity allocations for renewable energy noting that the RSES has not been updated. Renewable Acceleration Areas have not yet been identified however this does not make renewable energy proposals premature pending same and nor does it mean that renewable energy developments can only be considered within such areas.

The rationale for the acceleration areas seeks to differentiate in terms of the procedures required within and outside such areas and is not a mechanism designed to prevent the development of renewable energy in other areas. Therefore, the proposed development the subject of this application can be appropriately considered at this time.

7.9. **Impacts to Property Values**

A number of submissions contend that the proposed development would result in a depreciation in property values in the area. The submissions have primarily referenced a working paper prepared by two authors from the University of Galway for the Centre for Economic Research on Inclusivity and Sustainability (CERIS) and other European studies such as from Denmark.

The University of Galway working paper titled '*Wind Turbines and House Prices Along the West of Ireland: A Hedonic Pricing Approach'* found a reduction in property values of 14.7% within 1km of a turbine. The report states there is inconclusive evidence of reductions in property values beyond 1km of a turbine. The effect increases with turbine height, count, and level of urban influence. The authors found there is evidence that the price effect reduces over time, becoming insignificant after 10 years.

In response the applicant has stated that the study has several limitations such as the analysis focuses solely on wind development zones in Galway due to data constraints but expanding it to include all counties would yield more accurate and generalisable results. Additionally, within the 1 km study area, only 255 no. homes were analysed, limiting the strength of the findings.

The applicant has referenced international studies from Britain and America outlined in Section 5.3.8 and Table 5.5 of the EIAR. The American study undertaken in 2009 and 2013 found no consistent negative impact on property prices. British findings from 2 no. studies undertaken in 2014 indicate a negative impact of windfarms on property values within 2km of very large windfarms, with the other study finding that the wider property market drives local house prices. A 2016 study in Scotland found no significant effect on property values within a 2km to 3km radius. There are no current Irish studies undertaken to assess the impact of windfarms on property prices.

Figure 1.3 of the EIAR, identified 166 no. dwellings within 2km of the proposed turbines. I note the 2006 WEDG do not refer to the impact on property values as being a consideration with respect to wind-energy developments, but they do set standards in terms of appropriate setback distances between properties and turbines. The proposed turbine locations with respect to shadow flicker, noise and vibration are in accordance with the standards required under the 2006 Guidelines.

I consider it reasonable to conclude that the proposed development is not likely to result in a significant impact on the residential amenities of surrounding properties. It would only be the actual presence of the wind turbines in the landscape that could potentially influence property prices within 1km of the turbines, and the presence and views of the turbines would vary considerably within this radius. I also consider that a number of other factors influence the residential property valuation such as type/size/condition of property, market trends, energy efficiency and economic climate.

Having reviewed the contents of the third party submissions, I am satisfied that no substantive evidence has been presented by the submissions to the application that would conclusively indicate a depreciation in property values directly attributable to the windfarm's presence at this particular location.

Having regard to non-definitive reported studies and the absence of any national evidence as to the effect of windfarms on property value, I consider it reasonable to conclude that the proposed development is not likely to result in a significant impact on property values in the area.

7.10. **Enforcement**

Submissions have expressed concerns regarding the enforcement of environmental mitigation and planning condition compliance, and the requirement of an independent body to oversee post-construction compliance.

I note the Planning Authority has not referred in the CE report to any difficulties with respect to the operation of the existing windfarms in the County, nor have they referred to enforcement actions in relation to their operation during the assessment of the planning application.

The assessments undertaken by the applicant in the EIAR with respect to noise and shadow flicker account for the background baseline environment, including the existing windfarms, and follow best practice guidelines appropriate to the assessment, therefore, I am satisfied that a reasonable approach to account for the cumulative impacts of the proposals on residential amenity have been undertaken as part of the EIAR submitted with the application. If permission is granted, the applicant will be subject to these noise and shadow flicker limits. Any exceedances would be in breach of the permission granted and would be matter for the Planning Authority.

A wide range of enforcement powers are available to Planning Authorities under the Planning and Development Act, 2000 as amended and the efficacy or otherwise of these powers or the performance of a Planning Authority is not a material consideration for the Coimisiún. The Coimisiún does not have enforcement powers, or an enforcement role and this matter is not within the jurisdiction of the Coimisiún.

7.11. **Public Consultation**

The Coimisiún will note that a number of submissions including from elected members have raised concerns regarding the lack of adequate or meaningful community consultation by the applicant with local residents.

The applicant has stated that community engagement was first started with the launch of the project website on the 22nd April 2025. I note the project websites[3] is live and has been updated to reflect the current status of the project. A community engagement report is included in Appendix 1.5 of the EIAR. Community engagement conducted by the applicant is detailed within this report. A Community Liaison Officer

[3] Website – Garranegreenenergy.ie – garranegreenenegryplanning.ie

was appointed to represent the project in the local community. Project letters and leaflets were posted to each household within a 2km of the proposed development. I note visits to all households within 1km of the proposed project are stated to have been carried out on the 14th and 15th May 2025. Community engagement milestones in 2025 are detailed in report.

Whilst concern is expressed as to the level of public engagement, it is clear that local residents were aware of the application and engaged in the planning process by making their views known through written submissions to the Coimisiún. There are no legal obligations under planning legislation for the applicant to engage in formal consultation with the general public for a development of this type, although it is recommended as best practice in the WEDG 2006 and WEDG 2019.

The application has been submitted in accordance with the requirements of the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) in respect of public notices, in addition to the requirements of the Completeness Check under Section 37JA of the Planning and Development Act 2000 as amended.

Overall, I consider the pre-application consultation by the applicant was adequate in respect of informing the local community about the proposed development and in accordance with the relevant legislation.

7.12. **Completeness Check**

I note a third party submission stating the application should not have passed a completeness check under Section 37JA of the Planning and Development Act 2000 (as amended) as the landowner agreements submitted are with a company called Greensource Limited and not the listed applicant, Garrane Green Energy Limited. Therefore, establishment of “sufficient interest” in the land by the ‘Applicant’ to make an application is not clear.

Having reviewed the landowner agreements, I am satisfied that the agreements made with Greensource Limited are valid and acceptable. I note that the applicant Garrane Green Energy Limited is a subsidiary of Greensource Sustainable Developments Limited (Greensource Ltd) and therefore has sufficient interest in the lands subject to this application. I am satisfied the application has been submitted in accordance with section 37JA of the Planning and Development Act 2000 as amended.

I would refer the observers and the Coimisiún to Section 37H (6) of the Planning and Development Act 2000, as amended where it is clearly stated that *"a person shall not be entitled solely by reason of a permission under this section 37G to carry out any development".*

7.13. **Community Benefit**

The applicant is proposing to set up a community benefit fund which will allocate funds from the windfarm development if permitted to community groups in the area under the Renewable Electricity Support Scheme (RESS) support programme.

Under the proposed Community Benefit Fund, the applicant commits to a rate of €2 per MWh of electricity produced by the proposed development in accordance with the RESS terms. Based on a capacity of c. 54MW, the community benefit fund would amount to an average of €250,000 per annum. The applicant further outlines that up to 50% of the fund will be distributed to near neighbours of the windfarm, including clubs/societies (within 2km). 40% of the fund will be allocated to local initiatives/projects that support sustainable development goals. The fund will also be directed towards local clubs, societies and other initiatives. Management of the fund will be through a committee comprised of local residents and the developer.

I am satisfied that if the Coimisiún is minded to grant permission, a condition specifying the Renewable Energy Support Scheme (RESS) Community Benefit Fund would be appropriate.

7.14. **Comments on Conditions**

Limerick City and County Council has submitted conditions to be considered in the event of a grant of planning permission. In addition, I have also reviewed the conditions requested by prescribed bodies.

In Table 7.1 below, recommended conditions are tabulated, and I have indicated whether these are included, or excluded from the recommended schedule of conditions.

Table 7.1 Recommended Conditions		
No	**Condition**	**Relevant Chapter/ Section**
1	Drawings and Supporting Information to be submitted and agreed in writing with the planning authority. (Roads Section)	Included in ACP Condition No. 8
2	Pre-condition road and bridge surveys of haulage routes and post condition surveys.(Road Section)	Included in ACP Condition No. 8
3	Details of Surface Water/SuDs Specifications to be agreed and submitted to planning authority. (Road Section)	Included in ACP Condition No. 17
4	Construction working hours and general guidance for construction works. (Road Section)	Included in ACP Condition No. 16
5	Vehicle Washing Facility to be provided.	Included in EIAR
6	Submit and Agree a CEMP and Delivery Plan prior to commencement.	Captured in ACP Condition No. 15
7	Flood Zone measures and details	Not Included – Refer to EIAR and NIS for specific measures to be complied with
8	Licenced Archaeologist to be appointed	Included in Condition no. 20
9	Developer to map all archaeological sites	Not specifically included. Refer to EIAR and Condition no. 20.
10	Buffer of 25m to be provided to protect archaeological sites to be submitted and agreed with the planning authority.	Included in Condition no. 20
11	Prior to commencement a geophysical survey to be undertaken of the entire site.	Included in Condition No. 20
12	Carry out archaeological trench testing	Included in Condition No. 20
13	Advanced archaeological excavations to be carried out	Included in Condition No. 20
14	Licensed Archaeological Monitoring for duration of groundworks	Included in Condition No. 20
15	Archaeological Report post works	Included in Condition No. 20
16	Revised EIAR (Chapter 15) Cultural Heritage – visual impact and predicted impact on cultural and architectural heritage assets and protected structures	Not included – Refer to assessment in Chapter 15 of the EIAR.
17	Details of mitigation measures for architectural heritage along the TDR to be submitted to the planning authority for agreement.	Included in Condition No. 20
18	Submit a detailed CEMP and Monitoring Plan for agreement with the planning authority	Included in Condition No. 7 & 15
19	Mitigation and Enhancement Measures in EIAR and NIS and CEMP to be implemented and adhered to. Other measures included	Included in Condition No. 7, 10 and 15

20	CEMP to include mitigation from EIAR and NIS to be submitted and agreed with planning authority	Included in Condition No. 15
21	Submit final technical details of turbines to the local authority prior to commencement for written agreement. Comply with noise assessment in EIAR	Included in Condition No. 3 Noise – Included in Condition No. 12
22	Submit revised Appendix 11.1 (Noise Monitoring Locations of the proposed Project) to address mapping errors and revised background noise survey	Not included – Refer to assessment in Chapter 11 (Noise)
23	Watercourses to be fenced, details for clear-span bridges, settlement pond details, instream works restrictions, specific requirements of IFI.	Included in specific Condition No. 8 & 15.

Minister for Housing, Local Government and Heritage (Development Applications Unit/DAU)

	Archaeological Requirements	**Included/ Excluded in Schedule of Conditions**
1	All mitigation measures in relation to archaeology and cultural heritage as set out in Chapter 15 of the EIAR (John Cronin and Associates; date August 2025) shall be implemented in full, except as may otherwise be required in order to comply with the conditions of this Order.	Cultural Heritage – Included in Condition No. 20
2	The developer shall engage a suitably qualified archaeologist (licensed under the National Monuments Acts) to carry out a pre-development Archaeological Geophysical Survey and a pre-development Archaeological Test Excavation of the development site for all greenfield sections of the development and to submit an archaeological impact assessment report for the written agreement of the planning authority, following consultation with the Department, in advance of any site preparation works or groundworks, including site investigation works/topsoil stripping/site clearance and/or construction works.	Cultural Heritage – Included in Condition No. 20 except surveys to be carried out on areas of proposed ground disturbance instead of <u>all</u> greenfield sections
2a	The Archaeological Geophysical Survey must be carried out under licence or consent from the National Monuments Service of this Department (as applies) and in accordance with an approved method statement. Having completed the work, the archaeologist shall submit a written report to this Department and the Planning Authority describing the results of the Archaeological Geophysical Survey.	Cultural Heritage – Included in Condition No. 20
2b	The archaeologist shall liaise with this Department to establish–based on the results the Archaeological Geophysical Survey–the appropriate scope of the Archaeological Test Excavation to adequately characterise the character and extent of any potential sub-surface archaeological material within the development site.	Cultural Heritage – Included in Condition No. 20

2c	The report on the Archaeological Test Excavation shall include an archaeological impact statement and mitigation strategy. Where archaeological material is shown to be present, avoidance, preservation in-situ, preservation by record (archaeological excavation) and/or monitoring may be required.	Cultural Heritage – Included in Condition No. 20
2d	Any further archaeological mitigation requirements specified by the planning authority, following consultation with this Department, shall be complied with by the developer.	Cultural Heritage – Included in Condition No. 20
2e	No site preparation and/or construction works shall be carried out on site until the archaeologist's report has been submitted to and approval to proceed is agreed in writing with the planning authority.	Cultural Heritage – Included in Condition No. 20
3	In advance of the commencement of any construction works, the developer shall engage a suitably qualified archaeologist to carry out Full Archaeological Excavation (licensed under the National Monuments Acts) of newly identified archaeological sites at the sub-station, T06 and spoil storage at T09.	Cultural Heritage – Included in Condition No. 20
3a	The Full Archaeological Excavation shall be carried out to according to Best Archaeological Practice and in accordance with an approved Method Statement that shall incorporate a strategy for environmental sampling, finds retrieval and conservation and subsequent publication or other suitable dissemination of results.	Cultural Heritage – Included in Condition No. 20
3b	If significant archaeological features are discovered during the course of the Full Archaeological Excavation, work on site shall stop pending a decision of the planning authority, in consultation with this Department, regarding appropriate additional mitigation measures, which may include preservation in-situ or full archaeological excavation. Any additional archaeological mitigation requirements specified by the planning authority, following consultation with this Department, shall be complied with by the developer.	Cultural Heritage – Included in Condition No. 20
3c	No construction works shall be carried out on site until a Preliminary Excavation Report on the Full Archaeological Excavation has been submitted to this Department and the Planning Authority and approval to proceed is agreed in writing.	Cultural Heritage – Included in Condition No. 20
3d	The developer shall ensure that any necessary Post-Excavation Analysis–as set out in the Preliminary Excavation Report–including (but not limited to) specialist analysis of finds and samples, scientific dating and conservation of artefacts is completed.	Cultural Heritage – Included in Condition No. 20
3e	The developer shall ensure that the results of the Full Archaeological Excavation are adequately disseminated to the public by way of publication or other appropriate means.	Cultural Heritage – Not included. It will be available on the public file, if required.
4	A suitably qualified archaeologist shall be retained to advise on and establish appropriate Exclusion Zones around the external-most elements of vulnerable 8 Heritage Assets located within the development site (as	Cultural Heritage – Included in Condition No. 20

	identified in Chapter 1 5 of the EIAR or by any subsequent investigations associated with the project).	
4a	Exclusion Zones shall be fenced off or appropriately demarcated for the duration of construction works in the vicinity of the monuments. The location and extent of each Exclusion Zone and the appropriate methodology for fencing off or demarcating at each location shall be agreed in advance with this Department and the planning authority.	Cultural Heritage – Included in Condition No. 20
4b	No groundworks of any kind (including but not limited to advance geotechnical site investigations) and no machinery, storage of materials or any other activity related to construction will be permitted within Exclusion Zones.	Cultural Heritage – Included in Condition No. 20
5	The Construction Environment Management Plan (CEMP) shall include the location of any and all archaeological or cultural heritage constraints relevant to the proposed development as set out in Chapter 15 of the EIAR and by any subsequent archaeological investigations associated with the project. The CEMP shall clearly describe all identified likely archaeological impacts, both direct and indirect, and all mitigation measures to be employed to protect the archaeological or cultural heritage environment during all phases of site preparation and construction activity.	Cultural Heritage – Included in Condition No. 20
6	The applicant shall retain the services of a suitably qualified archaeologist to advise on an archaeological mitigation plan for decommissioning of the development, to include mitigation measures for the removal of the turbines and the protection of any archaeological sites and monuments that are in situ at the site. The Decommissioning Plan shall be updated to include the location of any archaeological or cultural heritage constraints as set out in Chapter 15 of the EIAR and by any subsequent archaeological investigations associated with the project. It shall clearly describe all identified likely impacts from decommissioning–both direct and indirect– and all mitigation measures to be employed to protect the archaeological or cultural heritage environment during decommissioning works.	Cultural Heritage – Included in Condition No. 20
7	The planning authority and this Department shall be furnished with a final archaeological report describing the results of all archaeological monitoring and any archaeological investigative work/excavation required, following the completion of all archaeological work on site and any necessary post - excavation specialist analysis. All resulting and associated archaeological costs shall be borne by the developer. Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.	Cultural Heritage – Included in Condition No. 20
8.	Proposed carcass search protocol has not been described in detail. It is recommended that a site-specific carcass	Included in Condition No. 8

	search schedule, and protocol in line with the current NIAE guidelines, is provided.	
Irish Aviation Authority		
1	Agree an aeronautical obstacle warning light scheme for the windfarm development,	Aviation – Included in Condition No.19
2	Provide as-constructed coordinates in WGS-84 format together with ground and tip height elevations at each wind turbine location and:	Aviation – Included in Condition No. 19
3	Notify Shannon Airport Authority, AirNav Ireland and the Authority of intention to commence crane operations with at least 30 days prior notification of their erection in accordance with S.I 215 of 2005 Irish Aviation Authority (Obstacles to Aircraft in Flight) Order.	Aviation – Included in Condition No. 19
Office of Public Works		
1	Conditions for maintenance as follows; A 10 Metre wide strip of land running parallel to the main channels Cl, Maigue, Cl/34 and a 5 Metre wide strip of land running parallel to the channels Cl/35, Cl/35/1, Cl/36, Cl/36/1, Cl/37 and Cl/37/1, should be provided to facilitate access and maintenance activities by this office in the immediate area. This Area should be accessible to mechanical plant and should not be landscaped, paved or otherwise developed in a manner that would prevent access	Not specifically included but included in Condition No. 1 – Compliance with Plans and Particulars
Uisce Éireann		
1	The applicant shall enter into a Connection Agreement(s) with Uisce Éireann to provide for a service connection(s) to the public water supply and/or wastewater collection network and adhere to the standards and conditions set out in that agreement.	Not included. Not connecting to the public water supply and/or wastewater collection network.
2	All development shall be carried out in compliance with Uisce Éireann's Standard Details and Codes of Practice.	Included in ACP Condition No. 18
3	Uisce Éireann does not permit Build Over of its assets. Where the applicant proposes works or build over existing water or wastewater services, the applicant shall have received a written Confirmation of Feasibility (COF) of Diversion(s) from Uisce Éireann prior to any works commencing.	Included in ACP Condition No. 18

8.0 Environmental Impact Assessment

8.1. Statutory Provisions

This section of the report deals with the potential environmental impacts of the proposed development during the construction, operation and decommissioning phases.

The development consists of a windfarm comprising 9 wind turbines, a 110kV substation and associated infrastructure. An EIA is required for Installations for the harnessing of wind power for energy production (windfarms) with more than 5 turbines or having a total output greater than 5 megawatts. Therefore, the development is subject to mandatory EIA.

8.2. EIA Structure

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

> a. Consisting of the preparation of an EIAR by the applicant, the carrying out of consultations, the examination of the EIAR and relevant supplementary information by the Board[4], the reasoned conclusions of the Board and the integration of the reasoned conclusion into the decision of the Board, and
>
> b. Includes an examination, analysis and evaluation, by the Board, that identifies, describes and assesses the likely direct and indirect significant effects of the proposed development on defined environmental parameters and the interaction of these factors, and which includes significant effects arising from the vulnerability of the project to risks of major accidents and/or disasters.
>
> *the proposed development to risks of major accidents or disasters, or both major accidents and disasters, that are relevant to that development."*

[4] Now referred to as An Coimisiún Pleanála

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

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

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

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

8.3. Issues Raised in Respect of EIA

Issues raised in respect of EIA by Prescribed Bodies and Third-Party Observers are discussed in detail in Section 4.2 and Section 4.3 of this report and include the following:

- Landscape and Visual Amenity,
- Traffic and Roads Impacts,
- Impact on Biodiversity / Birds and Local Natura 2000 Sites,
- Hydrology and Hydrogeology,
- Population and Human Health,
- Archaeology.

8.3.1. Project Splitting / Cumulative Impact

Other broader EIAR related issues include matters raised by the Elected Members and the public such as ‘Project Splitting’ and ‘Cumulative Impact’ concerns given the proximity of the application site to other wind energy developments as detailed in

Section 3.0 of this report relating to the recent planning history and in particular for the following applications;

- **Ballinlee Wind Farm** (located c. 9km northeast) - A proposed 17 no. turbine wind farm, a permanent 110kV substation and ancillary development known as Ballinlee Wind Farm currently before the Coimisiún under reference number PAX91.323780.
- **Ballynisky Wind Farm** (Located c. 27km northwest) - A proposed 6 no. turbine windfarm, 38kV on-site substation and ancillary development, known as Ballynisky Wind Farm was lodged to Limerick City & County Council under reference number 25/61003. The application was subsequently deemed invalid on the 14th November 2025. New application was submitted and under reference number 25/61367 was refused permission. The appeal is currently before the Coimisiún under reference number PL-501216-LK26.

The submissions consider that the fragmented approach to wind energy development in this area of County Limerick is 'Project Splitting'. The applicants in their response, argue strongly to the contrary. Having considered the submissions and other information on file, I am satisfied the proposed development is entirely independent of other wind energy developments in the area including the proposed Ballinlee Wind Farm. I note all applications decided upon and also those currently before the Coimisiún have been or will be subject to the EIA Directive (in terms of consideration at preliminary examination, for EIA screening and/ or subsequent EIAR) and therefore I am satisfied no project splitting for the purposes of avoiding the rigours of EIA has arisen in this context.

I acknowledge and appreciate the concerns raised in relation to consideration of cumulative impacts of the proposed developments with other such proposals in the general area. In particular, I note the proximity of the site to the proposed Ballinlee Wind Farm c. 9km from the site. These applications have not yet been determined by the Coimisiún. The applicants in their submissions response clearly contend that cumulative impacts with other windfarm developments were assessed with no significant, adverse cumulative effects envisaged.

The European directives on EIA (Directive 2011/92/EU as amended by 2014/52/EU) sets out the criteria for consideration of EIA. It clearly details the characteristics of projects and the likely significant effects that must be considered, with particular regard to cumulation of impacts with other '*existing and/or approved projects*'.

The Coimisiún is advised that consideration of cumulative considerations with the Ballinlee Wind Farm have been considered in my assessment.

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

The applicants EIAR comprises the following;

- Volume I – a stand-alone Non-Technical Summary
- Volume II – EIAR (Main Text) including Chapters 1 – 18
- Volume III – Figures – Figures 1 - 15
- Volume IV - Appendices- Appendices 1.1 to 18.1
- Volume V – Natura Impact Statement (NIS)

I assess below compliance with the requirements of Article 94 and Schedule 6 of the Planning and Development Regulations 2001(as amended);

Table 8.1. Article 94 (a) Information to be contained in an EIAR (Schedule 6, paragraph 1)

A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under Section 94(b))
A description of the proposed development site is contained in Section 1.4. Section 2.3 includes details on the proposed development including site location and environs, windfarms in the surrounding area (cumulative impact). Chapter 2 provides a detailed description of the development components including land ownership, wind resource, site infrastructure and construction, proposed layout design, flood zone, wind turbine parameters, turbine foundation and hardstands, site access and tracks, the met mast, electrical substation, control building and associated compound, transformers and cabling, grid connection, rock breaking for turbine foundations, onsite drainage, site signage, spoil management, landscaping and reinstatement, biodiversity enhancement, construction phase details, aeronautical lighting, operation and maintenance and decommissioning. The description is adequate to enable decision making.
A description of the likely significant effects on the environment of the proposed development (including the additional information referred to under Section 94(b).
Chapter 5 to Chapter 17 of the EIAR describes the significant effects on the environment as follows;

Table 8.2 – Summary Table of Adequacy of Information on Likely Significant Impacts

Technical Chapter	**Description of Likely Significant Impacts**	**Adequacy of Info (Y/N)**
Chapter 5 Population and Human Health	Assessment of Predicted Impacts – Section 5.4 Mitigation Measures – Section 5.5	Y

	Residual Impacts and Significance of Impact - Section 5.5 Cumulative Impacts – 5.5.8	
Chapter 6 **Biodiversity**	Predicted Impacts – Section 6.4 Mitigation Measures – Section 6.5 Cumulative Impacts – Section 6.6 Residual Impacts – Section 6.7	Y
Chapter 7 **Aquatic Ecology**	Predicted Impacts – Section 7.4 Mitigation Measures – Section 7.5 Residual Impacts – Section 7.6 Cumulative Impacts – Section 7.8	Y
Chapter 8 **Ornithology**	Predicted Impacts – Section 8.15 Mitigation Measures – Section 8.16 Residual Impacts – Section 8.17 Cumulative Impacts – Section 8.15.4	Y
Chapter 9 **Soils and Geology**	Predicted Impacts – Section 9.4 Mitigation Measures – Section 9.5 Residual and Cumulative Impacts – Section 9.5 Cumulative Impacts – Section 9.4.5	Y
Chapter 10 **Hydrology and Hydrogeology**	Predicted Impacts – Section 10.5 Mitigation Measures – Section 10.6 Residual and Cumulative Impacts – Section 10.7	Y
Chapter 11 **Noise and Vibration**	Predicted Impacts – Section 11.7 Mitigation Measures – Section 11.8 Residual Impacts – Section 11.8.1.1 and 11.8.2.1 Cumulative Impacts – Section 11.8.3	Y
Chapter 12 **Landscape and Visual Amenity**	Predicted Impacts – Section 12.4 Residual Impacts – Section 12.4.3 Cumulative Impacts – Section 12.4.5 Mitigation Measures – Section 12.5	Y
Chapter 13 **Air and Climate**	Predicted Impacts – Section 13.2.7 Mitigation Measures – Section 13.2.8 Cumulative Impacts – Section 13.2.9 Residual Impacts – Section 13.2.10	Y
Chapter 14 **Shadow Flicker**	Predicted Impacts – Section 14.2.7 Cumulative Impacts – Section 14.2.8 Mitigation Measures & Residual Impacts – Section 14.2.9	Y
Chapter 15 **Cultural Heritage**	Predicted Impacts – Section 15.4 Mitigation Measures and Residual Effects – Section 15.5 Cumulative Impacts – Section 15.6	Y
Chapter 16 **Material Assets**	Predicted Impacts – Section 16.4.2, 16.5.4, 16.6.4, 16.7.4, 16.8.2, 16.9.3, Mitigation Measures – Section 16.4.4, 16.5.9, 16.6.6, 16.7.6, 16.8.4, 16.9.6, Residual Impacts – Section 16.4.5, 16.5.10, 16.6.7, 16.7.8, 16.8.5, 16.9.8, Cumulative Impacts – Section 16.4.6, 16.5.11, 16.6.8, 16.7.7, 16.8.6, 16.9.9,	Y
Chapter 17	Predicted Impacts – Section 17.4	Y

Traffic and Transportation	Mitigation Measures – Section 17.4 Residual Impacts – Section 17.6 Cumulative Impacts – Section 17.5	

Interactions are considered in EIAR Chapter 18, and a Schedule of Mitigation and Monitoring Proposals is presented in EIAR Appendix 18.1. An assessment of the likely significant effects of the development is carried out for each of the technical chapters of the EIAR. I am satisfied that the assessment of significant effects is comprehensive and robust and enables decision making.

A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development (including the additional information referred to under Section 94(b)).

The EIAR includes designed in mitigation measures and monitoring to address potential adverse effects identified in technical studies. (See Chapter 18 – Interactions of the Foregoing and A Summary of Mitigation Measures).
Table 18.2 in Chapter 18 provides a table of Interactions and Inter-relationships between Environmental Aspects of the Development including proposed mitigation.
Appendix 18.1 of the EIAR provides a full summary of Mitigation Measures proposed.
Table 18.1 presents all mitigation proposed and Table 18.2 presents the monitoring for the proposed development.
Mitigation measures comprise standard good practices and site-specific measures and are largely capable of offsetting significant adverse effects identified in the EIAR, for the reasons stated in the assessment below.

A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment (including the additional information referred to under Section 94(b).

The consideration of Reasonable Alternatives was analysed in Chapter 3 of the EIAR. The EIAR describes those reasonable alternatives that have been studied. The Alternatives considered related to The Do-Nothing Alternative, Alternative Site Locations, Alternative Turbine Numbers and Specifications, Alternative Layout and Design of 9 no. Turbines, Alternative Turbine Layout, Alternative Site Access and Access Track Layout, Alternative Location of Ancillary Structures, Alternative Spoil Storage Sites and Alternative Turbine Delivery Route and Site Access.

It concluded that the Do-Nothing Alternative was considered but discounted on the basis that the opportunity to capture the available renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. Table 3.1 provides a comparison between the do nothing and the chosen project option.

Strategic Site Selection was broken down into 3 no. phases which included the following;
1. **Phase 1.** The Initial Screening – based on Development Plan Zoning – Open to Consideration and Preferred Areas – 5 no. potential sites were further screened under the following constraints - available wind resource, environment designations, tourism, ornithology, planning precedence, terrain / landuse, archaeological designations, landscape and visual designations.
2. **Phase 2.** Grid Constraints and Facilitators – considered distance to potential connection points
3. **Phase 3.** Other Constraints and Facilitators – considered amenity, tourist or scenic areas, size of site or development area, sensitive habitats/species, land ownership issues and sites with impractical/irregular shape/layout/topography.

From the review carried out, the proposed windfarm was identified as a suitable location for the development.

Alternative Turbine Numbers and Model were examined in Section 3.6. The comparison of environmental effects between a larger number of smaller turbines and the chosen 9 no. turbine layout was examined in Table 3.3. The alternative option of a smaller number of turbines was indicated as having a greater environmental impact. The applicant notes that the 9 no. turbine layout was chosen to maximise the potential output with a turbine type more suited to the developable area and less overall effects on the environment, in particular on hydrology (flood storage), noise, cultural heritage and landscape and visual effects. This has resulted in the current nine turbine layout with a rotor diameter of 150m.

Alternative layout and design of the 9 no. turbines was assessed under a constraints led approach. (Section 3.6.2) Table 3.5 indicates the environmental effects of the final layout compared to the initial constraints layout. Alternative options for the electrical substation and grid connection (GCR) (2 options) were considered. Table 3.7 considers the environmental effects from the GCR options. Alternative spoil storage is assessed in Table 3.8 and alternative turbine delivery route and site access is assessed in Section 3.6.6. Alternative mitigation measures are considered in Section 3.6.7.
I consider that the EIAR contains a description of reasonable alternatives, which is thorough, and which includes decisions being made on a strategic and specific site selection process. I consider that the legislative requirement to provide information relating to the reasonable alternatives which were considered, has been met.

Article 94(b) Additional information, relevant to the specific characteristics of the development and to the environmental features likely to be affected (Schedule 6, Paragraph 2).

A description of the baseline environment and likely evolution in the absence of the development.

A description of the location is contained within Chapter 2.
A description of the baseline environment and the 'do-nothing' impact is contained in each technical chapter of the EIAR as follows; Sections 5.3 (Population and Human Health), 6.3 (Biodiversity), 7.3 Aquatic Ecology, 8.10 (Ornithology), 9.3 (Soils and Geology), 10.3 (Hydrology and Hydrogeology), 11.6 (Noise and Vibration), 12.3 (Landscape and Visual Amenity), 13.2 and 13.3.3 (Air Quality and Climate), 14.2.4 (Shadow Flicker), 15.3 (Cultural Heritage), 16.3, 16.4.1, 16.5.3, 16.6.1, 16.7.1, 16.8.1, 16.9.3 (Material Assets), 17.2.6 (Traffic and Transportation).

I consider an adequate baseline description of the environment and the 'Do-Nothing' Impact has been provided in the EIAR.

A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved.

The methodology employed in carrying out the EIA, including the forecasting methods is set out in each of the individual chapters assessing the environmental effects. The applicant has indicated in the different chapters of where difficulties have been encountered (technical or otherwise) in compiling the information to carry out EIA. I comment on these, where necessary in the Summary Table below and for the reasons stated, I am satisfied that forecasting methods are adequate as outlined below.

Table 8.3 – Summary Table of Adequacy of Forecasting Methods Used

Chapter 5 (Population and Human Health)
Description of Forecasting Method Used
The assessment relies on the assessments and draws on the findings of the following chapters to assess the impacts on human health: • Chapter 9: Soils and Geology • Chapter 10: Hydrology and Hydrogeology • Chapter 11: Noise and Vibration • Chapter 12: Landscape and Visual Assessment • Chapter 13: Air Quality and Climate • Chapter 14: Shadow Flicker and EMI • Chapter 17: Traffic and Transport **Adequacy/Omissions/Difficulties** None noted. Refer to individual chapters as outlined above. **Adequacy of Forecasting** I have reviewed the adequacy of forecasting of individual chapters which feed into the Population and Human Health Chapter as outlined above. I am satisfied that the forecasting carried out is adequate.

Chapter 6 (Biodiversity)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
No forecasting carried out for this chapter	N/A

Chapter 7 (Aquatic Ecology)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
No forecasting carried out for this chapter	N/A

Chapter 8 (Ornithology)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
The Collision Risk Assessment (CRM) undertaken by RSK Biocensus was calculated using a mathematical model to predict the number of individual birds of a particular species that may be killed by collision with moving wind turbine rotor blades. This CRM study was undertaken in reference to current key industry standard guidance including that provided by Scottish Natural Heritage (SNH, now NatureScot). Based on vantage point surveys undertaken from October 2020 to September 2024. Surveys undertaken in accordance with SNH, 2017, recording bird flight activity throughout the Site (including the WFA) during the breeding season (i.e., April to September inclusive; 'B') and the non-breeding season (i.e., October to March inclusive; 'NB'), with emphasis on recording activity by target species.	The EIAR Appendix 8.2, Section 3.6 notes in relation to the CRM that collision risk modelling presented in this report presents a precautionary scenario of anticipated collision fatalities. **Assumptions and Limitations:** • See Section 3.6 of Appendix 8.2. To summarise; • Collision risk modelling assumes all turbines are turning constantly throughout the modelled period. • A 100 m buffer was adopted around turbine bases (in addition to the turbine blade span) when generating the WFA to account for potential errors when recording the precise locations of birds in flight during VP surveys.

See Appendix 8.2 of EIAR for full details of CRM methodology.	• The models presented in this report have been calculated on the basis of non-overlapping coverage of the WFA. • Collision risk modelling assumes bird activity observe during the baseline surveys is representative of bird activity at the Site, in the absence of the Project. It does not account for any displacement of birds which may result from the physical presence of the turbines and other associated infrastructure, which could reduce bird activity levels within the WFA whilst the Project is in operation. **Adequacy of Forecasting** I am not satisfied that the Collision Risk Assessment is adequate based on the methodology used by the applicant in relation to the impacts of turbine T1 on bird species using the Charleville Lagoons. The Collision Risk Assessment has failed to account for nocturnal flight movements and has not applied an appropriate buffer in accordance with NatureScot (2017) guidance. This is specifically addressed at Section 11.7.4 (Nocturnal Flights and Collision Risk) of this report.
Chapter 9 (Soils and Geology)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
The lands comprise pastureland for grazing sheep and cattle. The applicants notes that no areas of peat were recorded. Hence, no Peat Stability Report submitted with the application.	**Omissions/Difficulties** None noted.
Chapter 10 (Hydrology and Hydrogeology)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
A qualitative assessment has been carried out on the Water Environment and no specific forecasting has been used. A Stage III Site Specific Flood Risk Assessment (SSFRA) (Appendix 10.1) was prepared for the site using methodology from '*The Planning System and Flood Risk Management – Guidelines for Planning Authorities (DOEHLG 2009)'.* The applicants notes that it was also prepared in accordance with the drainage/surface water and flood risk management policies and objectives outlined in the Limerick Development Plan 2022-2028.	Section 10.2.8 notes the following in relation to limitations and difficulties encountered; • No significant limitations or difficulties were encountered during the preparation of the Hydrology and Hydrogeology Chapter of the EIAR. • Access to the OPW FSU portal has been unavailable during 2025. This has limited our ability to complete final checks on flood modelling data. While this is not ideal, our own modelling is relatively consistent with CFRAM mapping, and that mapping

	provides confidence in our assessment approach and design responses. **Adequacy of Forecasting** I am satisfied that the SSFRA in Appendix 10.1 is adequate based on the methodology used by the applicant. It assesses and describes the likely significant effects in relation to potential flood risk on the site. I am satisfied that the applicant's inability to access the OPW FSU portal has not hindered their ability to carry out a full assessment in relation to hydrology and hydrogeology.
Chapter 11 (Noise and Vibration)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
Operational Phase - Noise A series of computed based prediction models were prepared to calculate the noise level associated with the proposed development. Operational noise is assessed using the LA90 descriptor in line with guidance in the WEDG 2006 and Draft WEDG 2019 to assess operational noise from the proposed development. This methodology is supported by the guidance in ETSU-R-97. Noise Assessment Methodology is described in **Section 11.2.1** of the EIAR. One candidate turbine, the Vestas V150 - 6.0 megawatts (MW) operating in standard operating mode PO6000, has been selected with a hub height of 95m for the EIA technical assessment. The tip of the blades with Serrated Trailing Edge (STE) lowers noise emissions without reducing energy output, and the selected turbine will have STE as standard. The worst-case sound power level at each wind speed from 4m/s to 12m/s was input into the noise model. The proposed turbine has no variation in hub height. However, turbines located within the flood zone are up to 2m higher due to a raised foundation plinth. These turbines shall all have the same sound power level at all wind speeds. For the operational noise assessment, a background noise survey was undertaken at four noise monitoring locations. Predicted noise levels for the proposed 110kV substation were based on a similar model with maximum noise levels assessed.	**Omissions/Difficulties** None noted. **Limitations and Assumptions** The location of the project is in a "*Preferred Area*" for wind energy locations. Limerick County Council is guided by the WEDG 2006 and the WEDG 2019 with regard to wind energy developments, detailing: *"Noise levels, including the addition of any penalties for special audible characteristics, shall comply with current guidelines.* *Any proposed lower fixed noise limit for night-time noise sensitive properties shall not exceed 38dB(A) L90 or 5dB(A) above background noise levels, whichever is the greater."* The applicant notes that these two criteria suggest that where special characteristics or rated levels are to be considered the rated noise levels should comply with the existing WEDG 2006 and ACP criteria identified above, but where it is a fixed LA90 limit the 38dB or 5dB above the background applied. This is consistent with the conservative consideration of the maximum 5dB penalty difference between the rated level and measured LA90, but it does provide a different night-time limit level when comparing the County Development Plan to the ACP criteria or the WEDG 2006. In addition, the LC&CDP 2022 details assessment of:

Construction Phase – Noise The construction noise assessment has been undertaken using the BS 5228 guidance. The prediction of construction noise levels was undertaken using the calculation methodology presented in ISO 9613:1996, together with published noise data for appropriate construction plant. **Construction and Operational Phase - Vibration** Construction Vibration – Screened out Operational Vibration is discussion in Section 11.2.8 of EIAR. The Section notes that there is no robust evidence that ground-borne vibration from windfarms, has an adverse effect on windfarm neighbours and has been scoped out for further assessment.	*"Noise and mitigation measures for sensitive receptor locations such as residences"* *"Background noise surveys shall be carried out in accordance with A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013)".* Section 11.2.6 of the EIAR describes the methodology used to predict wind turbine noise levels, which follows the methodology given in the IOA Good Practice Guide. Noise level calculations complies with the ISO 9613-225 which provides a prediction of noise levels likely to occur under worst-case down-wind conditions. SoundPLAN software package was used to calculate the noise level at the noise sensitive receptors. No allowance has been made for the character of noise emitted by the turbines, however in general the emissions from wind turbines are broadband in nature. In the unlikely event of a turbine exhibiting clearly tonal components at any receptor, the turbine would be turned down or stopped until such tonality is ameliorated. A guarantee will be required in the procurements of the turbine to be used onsite, stating that there should be no clearly tonal or impulsive components audible at any noise sensitive receptor location. **Adequacy of Forecasting** Methodology and Assumptions are described in Section 11.2 of the EIAR and the accompanying appendices. I am satisfied that the forecasting methodology used are adequate in respect of the likely significant effects in relation to all phases of the development. I am satisfied that operational phase vibration can be scoped out of further assessment.
Chapter 12 (Landscape and Visual)	
Description of Forecasting Method Used	**Adequacy/Omissions/ Difficulties**
No forecasting carried out for this chapter.	N/A

Chapter 13 (Air Quality and Climate)	
Description of Forecasting Method Used	**Adequacy/Omissions/ Difficulties**
Air Quality - No forecasting carried out for Air Quality. The main impacts are expected from the construction phase from dust emissions as described in Section 13.2.7. During the operational phase, the proposed windfarm would have a positive effect on air quality. **Climate and Greenhouse Gases** – The climate impact of the Project was assessed using the Carbon Calculator Tool (version 1.8.1, released date 11 Dec 2023). This carbon calculator specifically designed for assessing the climate impact of windfarms was developed under the guidance of the Scottish Government, Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and Forestry Research (impact assessment). Commonly used guidance produced by SNH in 2003 (in a technical guidance note) has been used to determine carbon payback in the absence of any more detailed methods to determine the impacts on soil carbon stocks. The use of the Scottish carbon calculator in assessing the climate impact and determining carbon payback for this Development is acceptable, as the peat habitat of Scotland is similar to Ireland and at similar latitudes, the simulated land-atmosphere interactions are applicable. This accepted as best practice in Ireland. Calculating Carbon Losses and Savings are described in Section 14.3.4 of the EIAR and the outputs of the calculator are included in Appendix 13-1 of the EIAR, 'Carbon Calculations'.	**Adequacy/Omissions/Difficulties/ Limitations** **Air Quality** - None noted **Climate** - A limitation of the Scottish Carbon Calculator is the model assumes that the Development is constructed on peatlands (the only options in the model are acid bog and fen). Therefore, the carbon losses calculated are considered worst-case and conservative. The applicant has noted that there no areas of peat on the site. **Adequacy of Forecasting** I am satisfied that the forecasting carried out is adequate.
Chapter 14 (Shadow Flicker)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
Shadow flicker is an effect caused by the sun shining behind the rotating blades of a turbine relative to a nearby sensitive receptor which causes a momentary shadow on a window of that sensitive receptor. This shadow can appear as a flickering of sun light due to the rotating blades. Therefore, shadow flicker will only occur during the operational phase of the Project. As described in Section 14.2.3 of the EIAR, shadow flicker computer model (WindPRO 4.0 from EMD International Version 4.0) was used	**Omissions/Difficulties** No omissions or difficulties have been noted. **Limitations/Assumptions** The calculation is based on topography alone and excludes vegetation, buildings and other man-made structures. These factors cannot be accurately predicted due to the changeable nature of these variables. Therefore, the assessment represents a 'worst-case' scenario.

to calculate the occurrence of shadow flicker at relevant sensitive receptors to the Project. The sensitive receptors were identified using a combination of Ordnance Survey of Ireland (OSI) Maps, AutoCAD drawings and from internet mapping resources including *Eircode Finder, Google Street View*, *Google Earth*, *Bing Maps,* a planning permission search using the Limerick City and County Council and Cork County Council web resources, An Coimisiún Pleanála web resource and from a site visit in May 2022 to the Study Area. Appendix 14.1 of the EIAR details the results of the shadow flicker analysis. The applicant notes that the assessment is based on compliance with the current DoEHLG Guidelines limit (30 hours per year or 30 minutes per day), but that the Project will be brought in line with the shadow flicker requirements of the 2019 Draft Wind Energy Development Guidelines through implementation of the mitigation measures outlined in the Chapter. Table 14.4 provides the predicted 'worse case' and 'expected' shadow flicker levels at each dwelling and assesses whether the proposed development would result in an exceedance of the maximum permissible limit shadow flicker limits outlined in the WEDG 2006.	The calculated worst-case shadow flicker occurrences in the Table 14.4 assumes the sun is always shining, that there is no cloud cover, the turbines are rotating and the sensitive receptor is always occupied **Adequacy of Forecasting** This assessment has identified the potential for shadow flicker to affect 73 out of 113 sensitive receptors within the shadow flicker Study Area. Of these, 40 sensitive receptors exceed 30 minutes within 24 hours according to the Worst-Case Scenario under the 2006 Guidelines, with 5 sensitive receptors also surpassing 30 hours of shadow flicker per year in the 'real case' scenario. It is proposed that a shadow control system be installed to mitigate the potential for negative shadow flicker from the Project leading to no significant direct or indirect effects. I am satisfied that the Shadow Flicker Prediction Modelling, is adequate based on the legislation and guidance used by the applicant.
Chapter 15 (Cultural Heritage)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
No forecasting carried out for this chapter.	N/A
Chapter 16 (Material Assets)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
Material assets included the following; 1. Land Use – Agriculture, 2. Telecommunications, 3. Electricity, 4. Air Navigation, 5. Quarries, 6. Utilities (gas, water, waste) No forecasting carried out for this chapter.	N/A
Chapter 17 (Traffic and Transportation)	
Description of Forecasting Method Used	**Adequacy/Omissions/Difficulties**
The methodology used as outlined in Section 17.2 of the EIAR adopts the guidance set out by Transport Infrastructure Ireland, or TII, in the document number PE-PDV-02045 'Traffic and Transport Assessment Guidelines, May 2014'	**Omissions/Difficulties** Mapped statistics for accident data at the site entrances to the Project were not available from the RSA website in January 2024. Data published by TII in the national road risk rating 20 to 22 shows that the

	and Guidelines on the Information to be Contained in EIAR published by the EPA. Traffic Infrastructure Ireland (TII) forecasts for future traffic growth on the public road network are published in PE-PAG-02017 "Travel Demand Projections". The growth factors are applied to the 2023 baseline traffic flows to approximate the traffic flows on the public road network in the future assuming the Project is granted planning permission in 2026, 10-year planning grant and construction in 2036 and a 35-year operational period and Decommissioning in 2071. The growth factors for the relevant assessment years using the central-growth scenario for County Limerick are shown in Table 17.3 of the EIAR. The sensitivity of the transport infrastructure has been identified utilising the criteria outlined in the Traffic Management Guidelines published by the Department of Transport and TII publication DN-GEO-03031, Rural Road Link Design. The magnitude of potential impacts has been defined in accordance with the criteria provided in TII Publication PE-PDV-02045, Traffic and Transport Assessment Guidelines and traffic management guidelines published by the Department of Transport. The assessment of priority road junction and road network capacity is carried out using industry standard TRL traffic modelling software PICADY to model isolated priority junctions as recommended in PE-PDV-02045 Section 2.5.2.	southbound approach to site entrance 1 has a twice below benchmark risk rating and the northbound approach to site entrance 1 has an above average risk rating. **Adequacy of Forecasting** I am satisfied that Traffic Forecasting is adequate based on the TII methodology used by the applicant.

A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it.

This issue is dealt with in the in Section 1.6.2.3 of the EIAR. The EIAR notes that there is limited potential for significant natural disasters to occur at the Site. The potential natural disasters that may occur are limited to peat-slide, flooding and fire.

Peat-Slide - The site is relatively flat with no peat identified on the site, so the risk of peat slide is negligible. The risk of peat-slide is further addressed in **Chapter 9: Soils and Geology, Appendix 9.1 – Site Investigations & Stability Risk Assessment and Chapter 10: Hydrology and Hydrogeology.**

Flooding - The closest mapped flood events to the Site are 2 no. historic and 1 no. recurring flood events along the N20 road on the western side of the Site. Provisional analysis of the OPW Flood Maps indicates that a significant portion of the proposed site is susceptible to fluvial flooding. A site-specific Flood Risk Assessment has been carried out and the risk of flooding is addressed in **Chapter 10: Hydrology and Hydrogeology (Section 10.7.5) and Appendix 10.1 Stage III Site Specific Flood Risk Assessment.** In addition, Section 10.7.6 assesses the potential health effects from water contamination.

Fire – The applicant notes that data shows that wind turbine fires are relatively rare. It is therefore considered that the risk of significant fire occurring, affecting the windfarm and causing the windfarm to have significant environmental effects is limited. These risks are reasonable and peat slide and flooding are assessed in my report. Refer to Section 20.0 of this report for assessment in this regard.
Article 94 (c) A summary of the information in non-technical language.
This information has been submitted as a separate standalone document entitled Volume I, Non-Technical Summary (NTS). I have read this document, and I am satisfied that the document is concise and comprehensive and is written in a language that is easily understood by a lay member of the public.
Article 94 (d) Sources used for the description and the assessments used in the report
The sources used to inform the assessment of the potential environmental impacts are set at the end of each chapter, where relevant. I consider the sources relied upon are generally appropriate and sufficient.
Article 94 (e) A list of the experts who contributed to the preparation of the report
Details of the assessment team as well as their respective inputs to the EIAR is presented in Appendix 1.1 Author Qualifications and Experience. The appendix provides details of companies and staff responsible for EIAR compilation and details a short biography including CV of each of the project team members. I am satisfied that the EIAR has been prepared by competent experts within the various chapters of the EIAR.

8.5. **Consultations**

I note a number of submissions on the file raise concerns in relation to inadequate public consultations.

The application has been submitted in accordance with the requirements of the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) in respect of public notices, in addition to the requirements of the Completeness Check under Section 37JA of the Planning and Development Act 2000 as amended.

Consultations are described in Chapter 1.6 and Table 1.6 of the EIAR. The applicant consulted with Prescribed Bodies, Limerick and Cork County Council and the Community (Section 1.10.1). Appendix 1.5 of the EIAR presents a Community Engagement Report dated August 2025 outlining the community consultation process. Pre-planning meetings were held with the Coimisiún (ABP-319139-24), as part of the SID pre-application process to determine if the Project was a SID.

In addition, the applicant has developed a dedicated project websites. Observations have been received from statutory bodies and members of the public. These are considered in this report where appropriate, in advance of decision making.

I am satisfied, therefore, that appropriate consultations have been carried out as required, with prescribed bodies and the public all having opportunities to comment on the proposed development and on the submitted further information in advance of

decision making. Conclusion on compliance with the requirements of Article 94 and Schedule 6 of the Planning and Development Regulations 2001(as amended).

8.6. **Conclusion**

Overall, having regard to the foregoing, with the exception of nocturnal flight movements and an appropriate buffer being applied in relation to turbine T1 outlined in the Ornithology Chapter of this report, I am satisfied that the information contained in the EIAR, and supplementary information provided by the developer is sufficient to comply with Article 94 of the Planning and Development Regulations, 2001(as amended).

8.7. **Assessment of Likely Significant Effects**

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

- Population and Human Health;
- Biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directives (Directive 92/43/EEC and Directive 2009/147/EC respectively);
- Land, Soil, Water, Air and Climate;
- Material Assets, Cultural Heritage and the Landscape;
- The Interaction between these Factors

Given the nature of the proposed development, the EIAR has considered the following environmental impacts separately;

- Noise and Vibration (Chapter 11)
- Shadow Flicker (Chapter 14)
- Landscape and Visual (Chapter 12)
- Archaeology & Cultural Heritage (Chapter 15)

In accordance with section 171A of the Act, this assessment includes an examination, analysis and evaluation of the application documents, including the EIAR and submissions received and identifies, describes and assesses the likely direct and indirect significant effects (including cumulative effects) of the development on these environmental parameters and the interaction of these. My assessment generally follows the approach of Section 171A of the Act while also providing for the individual sections as set out in the EIAR. Each topic section is therefore structured around the following topics:

- Issues raised in the application and submissions
- Examination, analysis and evaluation of the EIAR
- Assessment and Conclusion

The Coimisiún should note a comprehensive 'Schedule of Mitigation Measures' is presented in Appendix 18.1 of the EIAR which sets out mitigation measures recommended in the EIAR.

9.0 Population and Human Health (Including Shadow Flicker)

9.1. Issues Raised

Issues raised in submissions to this application are generally in respect of matters impacting population and public health including residential amenities such as visual impact, noise, shadow flicker, traffic hazard, proximity to residences and healthcare/community facilities, devaluation of property, impacts on tourism related activities and the possibility of negative impacts from same including sterilisation of lands for future residential development and depopulation of the area. To avoid repetition specific topics such as noise, air quality, traffic and visual have been considered under those specific chapters and will not be repeated here.

9.2. Context

EIAR Chapter 5 describes the potential effects of the proposed development on population and human health. The EIAR describes methodology used, consultation carried out, baseline receiving environment, assessment of potential impacts, mitigation measures and residual effects.

The chapter provides an assessment of impacts on population including settlement patterns, economic activity/tourism, employment, topography/land use, health impacts of windfarms, property value / residential amenity and natural disaster/major accidents.

EIAR Chapter 14 describes the potential effects of shadow flicker and technical appendix 14.1 contains a Shadow Flicker Analyses.

9.3. Baseline

The EIAR identified four 'study area's'. The project area and environs are within 'Study Area Number 1' consisting of the Colmanswell, Tobernea, Rathluirc and Bruree district electoral divisions and is shown in Figure 5.1 in volume III of the EIAR. The total

population of the study area is 3,970 people. There are 163 no. dwellings and 3 no. commercial properties within a 2km radius of the Site. 5 No. properties are involved in the Project.

In terms of employment and economic activity the EIAR describes the leading employment sector in County Limerick is the manufacturing sector.

The land use within the study area is predominantly rural, consisting mainly of agricultural activities such as livestock grazing, mixed farming and forestry. The town of Charleville, the nearest urban settlement to the site, is located c. 2.5km (closest turbine) south-west of the site. The site is currently used mainly for agricultural livestock grazing and is situated on relatively low and level ground, at elevations ranging between 55m to 70m AOD. The highest point of the site is located toward the south-eastern portion of the site with an elevation of 70m AOD.

The EIAR in Section 5.3.5 identifies tourist attractions within the study area of which the most notable is Lough Gur located c.15km north-east and Adare Manor Golf Course and luxury resort c.18km to the north-west.

In 2023, a total of 433,000 domestic and 287,000 oversea tourists visited Limerick, generating a revenue of €78 and €224 million respectively. Visitors' attitudes to windfarms are also cited with reference to a number of surveys. The current research shows that public acceptance levels for new energy infrastructure is significant and positively disposed to wind turbines.

To identify sensitive receptors within a Study Area, a distance ten times the proposed rotor diameter of the proposed turbines (10 x 150m = 1,500m) was specified. The sensitive receptor list confirmed that there are 113 no. sensitive receptors within the shadow flicker Study Area radius. The coordinates of each sensitive receptor and its distance to the closest proposed turbine are listed in Table 14.2 of the EIAR.

9.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 9.1 below;

Table 9.1 – Summary of Potential Effects (Population and Human Health)
Do Nothing
• The 'do nothing' scenario would not result in any significant changes to the baseline. The existing use of the site would continue with or without the proposed development.
Construction Impacts
• **Population and Settlement Patterns** - The Project does not contain a housing or services element and is not considered to have any direct positive or negative impact on the local or regional population levels. During the construction phase there is the potential for limited impacts on the residential amenity of the local population. These would be short-term impacts. The overall impact of the construction phase is predicted to be slight positive and short term in nature should construction workers relocate to the area for the duration of these phases. • **Economic Activity/Employment** - The design, construction and operation will create between 40 and 60 direct and indirect jobs during all phases of the development. Employees involved in the construction of the Project will most likely use local shops, restaurants and hotels/accommodation. Therefore, overall, there will be a slight, positive impact. • **Tourism** - Effects of the Project with regards to tourism are considered to be, slight, adverse during the construction stage. • **Electromagnetic fields** - EMFs are considered to be very localised and are considered to have an imperceptible, adverse and short-term effect. • **Noise** - The main noise sources will be associated with the construction of the turbine foundations and turbine hardstands. The effects are predicted to be not significant. • **Air Quality** – The potential effects of the Project on air quality has been assessed as having the potential to result in slight, adverse and temporary/short-term. • **Water Contamination** - Due to the shallow nature of the proposed works (road upgrade and widening) along the Grid Connection, no effects on private groundwater well supplies will occur. • **Traffic** - The potential effects of the project are considered to be Moderate on the local road network and Slight / Moderate on the national and regional road network. • **Accidents/Disasters** - There is limited potential for significant natural disasters to occur at the Site. The potential sources of pollution onsite are limited. General Health and safety issues are related to construction work. • **Shadow flicker** – No impact.
Operational Impacts
• **Population and Settlement Patterns** - Impact is predicted to be slight positive at the local level in terms of settlement patterns where increased business is attracted to the area during the operational phase. • **Economic Activity/Employment** – The Local Authority will benefit from payments under Section 48 and annual rates. The community benefit fund will support local projects, with funds allocated to projects from all aspects of the community. Two full-time jobs will be created during the operational phase in addition to other in direct jobs. The impact is predicted to be slight, positive long-term.

- **Tourism** - It is considered that the Project will not give rise to any significant effects on tourism resource potential. Effects of the Project are considered to be, slight, adverse.
- **Electromagnetic fields** - The International Commission on Non-Ionising Radiation Protection (ICNIRP) Guidelines give a limit of 100 μT for sources of AC magnetic fields. Between 0.02 μT and 0.41 μT arises when turbines operate under "high wind" scenarios, indicating that electromagnetic activity from wind turbines are extremely low. Effects are imperceptible, adverse and long-term during the operational phase.
- **Noise** - Details of noise assessment are presented in Chapter 11 of the EIAR.
- **Air Quality** - There will be slight, long term, positive effects on air quality because of the windfarm during operation.
- **Water Contamination** - Details of noise assessment are presented in Chapter 10 of the EIAR.
- **Traffic** - The potential effects of the project on traffic during the operation of the Project are considered to be Not Significant on the public road network.
- **Accidents/Disasters** - No anticipated danger to the public or livestock. Rigorous statutory and engineering safety checks are undertaken to ensure the risks to humans is negligible.
- **Property Value** - The operation of a windfarm at the site is considered to not significantly affect property values in the area. The Project will have a medium-long-term, imperceptible impact on property values.
- **Shadow Flicker** - Only occurs during the operational phase. 40 no. of these receptors exceed 30 minutes within 24 hours according to the Worst-Case Scenario under the 2006 Guidelines, with 5 no. receptors surpass the 30 hours of shadow flicker per year.

Decommissioning Impacts

- Works required for decommissioning are described in Section 5.4 of the EIAR. Impacts at decommissioning stage are expected to be similar to those at construction phase. No significant impacts expected.

Cumulative Impacts

- See Section 5.5.8 of the EIAR for details.
- Predicted to be a short term, moderate positive effect in terms of employment.
- Project in terms of visuals and tourism are considered to be not significant due to effects of the setback distance from residences.
- Small, short-term adverse effect on overall tourism and amenity during construction.
- No proposed or operational windfarms within a 2km range of the turbines that may cause cumulative effects with regard to shadow flicker.

9.5. Mitigation Measures

Section 5.5 of the EIAR outlines mitigation measures incorporated into the project design with respect to population and human health. A summary of mitigation during the construction phase is set out below:

- The construction, operation and decommissioning of the Project shall be managed in accordance with the Safety, Health and Welfare at Work Act 2005 (as amended) and all other relevant work and industry specific Codes of Practice / Guidance documents.
- The Developer shall appoint a Project Supervisor for the Design Process (PSDP) and a Project Supervisor for the Construction Stage (PSCS). The PSCS shall develop a Construction Stage Health and Safety Plan (CSHSP).
- All personnel undertaking works in or around the turbines will be fully trained and will use appropriate Personal Protective Equipment (PPE) to prevent injury.
- A Supervisory Control and Data Acquisition ("SCADA") system will monitor the Development's performance. If a fault occurs, then a message is automatically sent to the operations personnel preventing emergency situations.
- The proposed Electrical Substation will be enclosed by palisade fencing and equipped with intruder and fire alarms in line with ESBN and EirGrid standards.
- All electrical elements of the Project are designed to ensure compliance with electromagnetic fields (EMF) standards for human safety.
- Detection systems and turbine control software will be installed on all turbines to (i.e. permit remote shutdown as necessary) prevent shadow flicker on nearby receptors.
- The windfarm system shall include a system over-ride switch that can be operated at any time, to facilitate manual shutdown in case of an emergency.
- Chapter 11 & 17 of the EIAR sets out proposed mitigation with respect to noise and transport.
- Shadow flicker control systems, consisting of light sensors and specialised software, will be installed on each of the wind turbines.
- A shadow flicker survey will be conducted if complaints are received. If required further refinement of the blade shadow control system will be conducted to mitigate negative shadow flicker occurrence.

9.6. **Residual Effects**

Once the mitigation is established for the construction, operation and decommissioning stages of the project, the residual risk on population and human health is assessed to be an imperceptible, long-term effect. No likely significant effects have been identified on population and human health.

Following implementation of mitigation measures described in Section 14.2.9.3, the residual impact as a result of shadow flicker is assessed as neutral, imperceptible, long-term effect. It is considered that there will be no residual impact as a result of shadow flicker.

9.7. **Assessment: Direct and Indirect Effects**

I have examined, analysed and evaluated Chapter 5 of the EIAR, and all of the associated documentation including the CEMP (EIAR Appendix 2.1) and submissions on file in relation to Population and Human Health. The effects of the development on noise, shadow flicker and vibration, property values, landscape and traffic are addressed in the applicants EIAR.

Construction phase impacts would include general construction health and safety issues (e.g. slip/trip, moving vehicles etc), noise, traffic and dust. There is potential for significant health and safety impacts during the construction and decommissioning phases. I am satisfied the mitigation measures outlined in the EIAR including CEMP will ensure that there are no impacts that will pose a serious risk to human health and implementation of this mitigation can be secured by condition. I note the submission from the NEHS who has no additional observations on the proposed mitigation measures and considers there will be adequate protection of human health.

The EIAR has assessed the vulnerability of the project to natural disaster in Section 5.3.9.1 and has been limited to potential flooding, fire and landslide events. I am satisfied with the EIAR assessment that the vulnerability of the proposed development to major accidents is not significant.

In general, given the relatively small permanent footprint of the development (c. 5.09ha), its nature and location in a rural area with a low to medium population density, I consider that the construction and operation of the development will not give rise to significant adverse effects on employment in the area, settlement or land use patterns, baseline population or demographic trends.

In terms of sterilisation of lands surrounding the proposal from future residential developments, I see no planning reason that would prohibit the submission of applications for dwellings in close proximity to the proposed development and being permitted by the Planning Authority where appropriate.

I accept that some people may not want to live near this type of development, however I am not satisfied that any substantive evidence has been provided by the submissions to show depopulation effects caused by a wind energy development. I do not consider the proposed development would be a significant driver of depopulation in the area.

In relation to the concerns raised by the submission (Ms Helen Daly) with respect to potential sterilisation of her lands for future renewable energy development. The WEDG 2006 require a distance of not less than two rotor blades from adjoining property boundaries. This distance has remained unchanged in the WEDG 2019. In this case two rotor blades are equivalent to (73.9m x 2) 147.8m and the nearest turbines (T5&T8) are a minimum of 200m away from the site boundary with Ms Daly. Hence, I do not consider the lands will be sterilised. Any future development on these lands be considered on their own planning merits.

I acknowledge there will be ongoing economic benefits associated with the 'Community Benefit' package, with funds for the local community and opportunities for both direct/indirect employment during construction and operational stage.

No significant negative cumulative or residual impacts have been identified in the EIAR and I am satisfied with this assertion.

9.7.1. **Shadow Flicker**

I note a large number of submissions have raised concerns in relation to shadow flicker and its potential negative effect on the quality/health of life of residents in the surrounding area of the application site. The Coimisiún will also note that further concerns have been raised regarding failure of the applicant to adequately demonstrate compliance of the proposed development with the WEDG 2006 requirements and high number of receptors affected.

The WEDG 2006 recommend that shadow flicker at houses within 500m of a proposed turbine location should not exceed a total of 30 hours per year or 30 minutes per day. At distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low which would equate to 1,500m distance from the subject turbines. Where the calculations indicate that occupied dwelling houses would be significantly affected, a condition requiring the curtailment of turbines at times when predicted shadow flicker might adversely impact on any inhabited dwelling within 500m of a turbine may be appropriate.

There is no dwelling within 500m of the proposed turbines as identified in Table 14.2 of the EIAR.

The WEDG 2019 do not refer to strict time limits for shadow flicker impacts, but they do appear to be moving towards the elimination of shadow flicker from wind-energy developments and if required implement an automated turbine shut down control measure. The Coimisiún will note that WEDG 2019 are still draft, however, it is now considered best practice to implement a zero-shadow flicker mitigation strategy for windfarms in Ireland.

In order to present a worst-case scenario, an assessment was undertaken and presented in the EIAR for all occupied properties located within a study area of 1.5km from the proposed turbines. The 'worst-case' assessment identified the potential for shadow flicker to affect 73 no. sensitive receptors out of 113.

40 no. of the sensitive receptors have the potential to exceed the WEDG 2006 Guidelines of a maximum 30 minutes of shadow flicker per day. The closest inhabited dwelling is H28 located c. 529m from the nearest turbine and is stated to be involved in the project.

5 no. of the sensitive receptors are expected to exceed the WEDG 2006 recommended threshold of 30 hours or more of shadow flicker per year in the 'real case' scenario, (H6, H7, H8, H9 and H28).

Sensitive Receptors within the shadow flicker study area are listed in Table 14.2 and are shown in Figure 1.3 of the EIAR.

The 'worst-case' calculations incorporated into the shadow flicker modelling assumes the sun is always shining, that there is no cloud cover, the turbines are rotating and the sensitive receptor is always occupied and there is no intervening structures or vegetation (other than topography).

I note that receptor H8 which is an agricultural shed recorded the highest exceedance of the 2006 Guidelines with an exceedance of 40 hours 57 minutes of shadow flicker per year and is within c.708m of the nearest turbine (T4).

It should be noted that during my site inspection of the application site and surrounding area, I was unable to obtain access to this property. From a visual inspection at a distance the sheds on site appear to be agricultural in use.

To address the potential for shadow flicker, the applicant is proposing a shadow flicker control system consisting of light sensors and specialised software that will be installed

on each turbine. When the control system detects that the sunlight is strong enough to cast a shadow, and the shadow falls on a sensitive receptor or sensitive receptors, then the turbine will automatically shut down and will restart when the potential for shadow flicker ceases at the effected sensitive receptors.

Overall, I am satisfied that the applicant has proposed and demonstrated that a control mechanism would be in place for the operational duration of the wind-energy development to eliminate shadow flicker. The potential impact arising from shadow flicker on properties in the vicinity would not be significant based on elimination of shadow flicker at affected sensitive receptors by a shadow flicker control system in line the DWEDG 2019. I consider that the issue can be adequately addressed by way of a condition whereby provision is made for the installation of turbine control system and compliance/monitoring programme, details of which can be agreed in writing with the Planning Authority.

Accordingly, I am satisfied that there would be no undue shadow flicker effects from the development that would substantially impact on the amenities of surrounding residences.

9.7.2. **Impact on Property Values**

A number of submissions contend that the proposed development would result in a depreciation in property values in the area. I have addressed these concerns in my Planning Assessment in Section 7.9.

9.8. **Conclusion Direct and Indirect Effects**

I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. I am satisfied that potential effects on population and human health as a result of the proposed development would be avoided, managed and mitigated by the measures which form part of the proposed development, 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 on the population and human health. Furthermore, I note the potential positive impacts on the socio-economic profile of the area due to community funding, investment and employment opportunities because of the proposed development.

10.0 Biodiversity (Including Aquatic Ecology)

10.1. Issues Raised

A large number of submissions to this application raise significant concerns regarding biodiversity and wildlife in the area including those protected habitats and species and threatened species either under national or European legislation or both.

Concerns in relation to loss of trees/hedgerows and impacts on bats, impact on wet grassland habitat, invasive species, active badger sett not identified, badger disturbance and bovine tuberculosis and aquatic ecology.

I refer the Coimisiún to the specialist Ecologist report at Appendix 4 of this report in relation to bats which, provides a more detailed assessment of certain key issues with respect to bats and has informed the findings of my assessment.

10.2. Context

Chapter 6 of the EIAR deals with biodiversity. It assesses the likely effects of the development on terrestrial ecology, including habitats, flora, invertebrates, mammals and bats. The assessment methodology is presented in Section 6.2. It includes a zone of Influence and the study area identification, desk study of specified data sources, consultation and responses (Chapter 1, Table 1.7) and field surveys including surveys for habitats/flora, terrestrial fauna, bats (roosting and activity) and marsh fritillary. The assessment was undertaken having regard to the requirements for the protection of habitats, species and biodiversity as set out in European legislation and National legislation and policy. Section 6.2.7.5 addresses survey and data limitations with the Bat Static Survey and Analysis including difficulties with identifying a bat call to specific species. Section 3.2.1 of the Bat Survey Report in the EIAR provides further details.

Technical appendix documents provided include the following, Appendix 6.1 Bat Survey Report and Appendix 6.2 Biodiversity Enhancement and Management Plan (BEMP).

Chapter 7 of the EIAR addresses aquatic ecology and includes an assessment methodology which is presented in Section 7.2, with details of a desktop study and field surveys/sampling. The following appendix documents include an aquatic survey report (Appendix 7.1) and a fisheries assessment report (Appendix 7.3).

10.3. **Baseline**

Baseline ecological conditions are described in Section 6.3 of the EIAR. The redline boundary of the windfarm site covers a total area of 158.75 ha. The site is located within the Maigue SC_010 sub-catchment and is also mapped in the Charleville Stream_020 WFD river sub-basin. The dominant habitat within the survey area is agricultural grassland, which varies from Improved agricultural grassland (GA1) to Neutral grassland (GS1) and Wet grassland (GS4) depending on management.

The nearest designated European site is the Blackwater River (Cork/Waterford) SAC located c. 6.4 km to the south.

4 no. other European sites are located within 15km but have no ecological or hydrological connectivity with the site.

The Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA located in excess of 15km have hydrological connectivity with the Site via the River Maigue. There are no Natural Heritage Areas with at least a 15km radius of the Site. A total of 11 no. proposed Natural Heritage Areas (pNHAs) occurs within a 15km radius of the site, but none have ecological or hydrological connectivity.

No species listed on the Third Schedule or legally protected plant species listed in the 2022 Flora (Protection) Order were recorded within the Site during the surveys. Devils-bit scabious (Succisa pratensis) was recorded within wet grassland areas, but no evidence of marsh fritillary butterfly recorded as being present.

In relation to bats, 20 no. potential roost feature (PRF) trees were recorded, alongside 13 no. trees requiring further assessment (FAR). During walked surveys, a total of 6 no. species of bats were recorded. The most recorded species was common and soprano pipistrelle. A single roost was found within a 275 m buffer of the turbines. A satellite roost for Natterer's bats was found 205m south-east of T2 and 215 m north of T1. A soprano pipistrelle satellite roost was also found c. 600m to the north-east of T6. During static surveys, a total of 8 no. species of bats were recorded including common pipistrelle, soprano pipistrelle, Leisler's bat, Nathusius's pipistrelle, brown long-eared bat, Natterer's bat, Daubenton's bat and lesser horseshoe bat.

The most recorded species was soprano pipistrelle followed by Leisler's and common pipistrelle. Highest overall activity was recorded to the south of the site closest to

proposed turbine T01. The overall suitability for the windfarm site is high for brown long-eared bat, Leisler's bat, common pipistrelle and soprano pipistrelle.

In relation to the aquatic environment, there are several watercourses within/ draining the proposed site which could potentially be effected by the Project including the River Maigue (EPA code: 24M01), Loobagh River (24L28), Charleville Stream (24C02), Graigues River (24G37), Creggane Stream (23C50), Broghill North Stream (24B96), Rathnacally Stream (18R32), Foxhall East River (24F13), Rathluirc Stream (24R11) and the Garrynderk Stream (24G33). A list of the watercourses and the survey station locations for the current ecological data sampled is listed in Table 7.9 of the EIAR. Walkover survey details and results are outlined in sections 7.3.2.1 – 7.3.2.3 of the EIAR.

The stations surveyed in 2022 during the macroinvertebrate diversity assessment had excessive instream vegetation growth and significant siltation and mud accumulation. Nitrogen and phosphate levels were elevated at most stations. Oxygen Levels were relatively low at all sites. All sites surveyed were awarded a Q value of Q3 (moderately polluted) in 2022, apart from HF7. In 2024 all sites were categorised as moderately Q3 to seriously polluted Q2.

10.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 10.1 below;

Table 10.1 – Summary of Potential Effects (Biodiversity)
Do Nothing
• It is expected that the present main land use within the area of the Wind Farm Site, namely agriculture, will continue. • The 'do nothing' scenario would not result in no significant change to aquatic ecology and habitats within or downstream of the Site, subject to the continuation of current activities and practices. It should be noted however, that current agricultural activities (incl. drainage works) are having some effects on water quality within the catchment as evidenced by the results of the surveys undertaken. The natural flooding regime that occurs at the Site will continue.
Construction Impacts
• **Permanent Habitat Loss**- The permanent loss of habitat at the Wind Farm Site, i.e. habitat which will be replaced by windfarm infrastructure is estimated at 6.69 ha. The effect by the loss of improved grassland (0.59 ha) is rated as Not Significant. The grassland habitats are widespread within the site and throughout the local area. The

significance by the loss of neutral and wet grassland (6.04 ha) is rated as a Slight adverse effect of permanent duration at the Local level of importance.

- The total loss of hedgerows is 1,649 m. A large specimen poplar will be removed at T02 location. The significance of the loss of hedgerows due to the proposed Project is rated as an Adverse Significant Effect of Permanent Duration at a Local level of importance.
- **Temporary Habitat Loss**- Excess topsoil and subsoil will be stored permanently at 6 no. selected spoil deposition areas within the proposed site. The temporary loss of such habitats is not considered a significant effect – rated Not Significant.
- **Disturbance to Habitats** - Areas of habitats adjoining the infrastructure at the Wind Farm Site will be disturbed by the construction works. The disturbance will be to grassland (improved to wet) habitats which are of low ecological value. For such habitats, this effect is rated as Not Significant.
- **Works along Turbine Delivery Route** - There are 7 no. locations along the Foynes Port Turbine Delivery Route where temporary works are required. At 6 no. of these, the trimming or pruning back of branches of overhanging trees will be required for blade oversail. Along the Galway Port Turbine Delivery Route (TDR) 2 no. locations require vegetation to be trimmed for load oversail. The effect of pruning back of branches along public roads is Not Significant, though seasonal mitigation will apply for breeding birds. At location no. 10 (M20/M18 Junction), vegetation comprising amenity grassland will be removed from inside of the slip lane. The effect of such removal is Not Significant.
- At the N20 site entrance a section of c. 80 m of hedging will be removed permanently (mainly of hawthorn dominated hedge but includes one medium sized poplar tree) which is rated as an Adverse Significant Effect of Permanent Duration at a Local level of importance.
- **Potential Impacts on Terrestrial Mammals and Amphibians** – It is considered to be Not Significant on the basis that the species and habitats involved are widespread in the surrounding countryside and will still occur within the study area. The effect on terrestrial mammal species by the loss of hedgerows is rated as a Slight Adverse effect of Long-term duration with the loss of hedgerows.
- **Disturbance to Mammal Species** - Construction activity would be expected to cause disturbance. This will be a localised and temporary effect, and considering many mammal species are largely nocturnal, the effect is considered to be Not Significant.
- **Otter** - Otter is present within the Site and is likely to feed along the various watercourses. No evidence of otter breeding sites on site. The two watercourse crossings required for the Project and will be clear span bridges thus will not affect the passage of otter along these watercourses.
- **Common frog** - The significance of the effect is rated as, at most, a Slight Adverse effect.
- **Impact on Bats** - Due to the high levels of nightly bat activity at each of the static locations, all turbines are deemed high risk for at least one species.
- **Water Quality** - The principal potential construction phase effects of the Project relate to the release of sediments into the drainage network arising from construction related activities. The pre mitigation potential effect on the downstream surface water quality is negative, indirect, short-term, and likely and is considered to be significant.

- Water quality degradation is considered to be short term during the construction phase and not permanent. Impacts on water quality and ensuing impacts on macroinvertebrates in the absence of mitigation are considered short-term, negative. Project could result in a significant effect on pollution sensitive taxa at a local level in the absence of mitigation.

Operational Impacts

- **Habitat Loss** - No additional habitat loss.
- **Otter** - Mitigation to maintain water quality during the operational phase of the Project will minimise the risk to the otter population.
- **Water Quality/Designated Sites** - There is a risk that contaminants generated by the proposed Project during the operation phase could enter local watercourses associated with the Maigue River and ultimately flow to the designated sites where there could be resultant adverse effects on water quality and aquatic life and relevant qualifying interests within the sites. Mitigation is therefore required to minimise this risk.
- **Bats** - Habitat loss and fragmentation, collision risk mortality.
- **Water Quality –** See Section 10.5.3 of the EIAR for details**.**

Decommissioning Impacts

- Works required for decommissioning are described in Sections 6.4.7 and 7.4.4 of the EIAR. Impacts at decommissioning stage are expected to be similar to those at construction phase. No significant impacts expected.
- A Decommissioning Plan will specify that the turbine hard stands will be allowed to naturally revegetate and is rated as a Positive effect of Slight significance.

Cumulative Impacts

- See Section 6.6 and 7.8 of the EIAR for details.
- The Project is not predicted to have the potential to result in significant effects or not contribute to any significant cumulative effects.
- Only 1 no. windfarm, the operational Slieveragh Wind Farm is within the same river catchment study area.
- In an unmitigated scenario, the Project could potentially interact with ongoing agricultural pressures in the wider catchment. Such interactions could contribute to localised degradation of water quality and pose a risk to aquatic habitats and species, particularly in watercourses that are already considered 'At Risk' under the Water Framework Directive.
- No significant cumulative effects are anticipated on water quality, aquatic habitats, or species.

10.5. **Mitigation Measures**

Section 6.5 of the EIAR outlines mitigation measures incorporated into the project design with respect to biodiversity. Section 7.5 of the EIAR outlines mitigation

measures in relation to Aquatic Ecology and outlines mitigation by avoidance/design. A summary of mitigation is outlined below:

- Implementation of Biodiversity Enhancement and Management Plan (BEMP) including the planting of 1,620m of new hedging and the enhancement/revitalisation of existing hedging of 5,433m within the Redline Boundary of the site. Planting (c.0.67 ha) of native woodland. See Appendix 6.2 of the EIAR for details.
- Employment of an Ecological Clerk of Works.
- Buffer zones of 50 m from watercourses and 10 m from drains.
- 5 m buffer zone parallel to the base of the hedgerows.
- Implementation of Spoil Management Plan.
- Pre - construction otter, badger and invasives species surveys.
- Should an active sett be located within a 50 m distance of the works area, mitigation will require the closure of the sett (in consultation with NPWS) or the enforcement of a restrictive zone to prevent disturbance to underground tunnels.
- Construction work area to be checked by the ECoW for the presence of frog spawn, tadpoles and adult frogs. If present, these will be removed under licence from NPWS and transferred to suitable ponds, drains or wetlands in the vicinity and away from the construction footprint.
- Bat buffers, turbines 1, 2, 5 and 9 should have a clearing of 103 m given these are surrounded by treelines, while all others require a 96 m buffer.
- Implementation of Construction and Environmental Management Plan (CEMP).
- Lighting restrictions, some works may occur during hours of darkness but the Environmental Manager/ECoW shall limit night-time works to sections of the site which avoid sensitive features.
- Feathering the blades during low wind speed and dynamic curtailment strategy with increased cut-in speeds (Years 1 and 2).
- Implementation of Surface Water Management Plan (SWMP) and Spoil Management Plan.
- Use of SuDS drainage, dewatering, concrete and containment protocols, no in-stream works, silt fences and biodegradable matting etc
- Adherence with IFI (2016) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

10.6. **Residual Effects**

See Section 6.7 and 7.6 of the EIAR. With mitigation implemented to protect water quality in local watercourses such as SUDs drainage, there will be no significant residual effects on water quality or aquatic habitats or species, including otter and salmonid fish species.

The loss of neutral and wet grassland as a result of the proposed project will result in a residual Slight adverse effect at a Local level. However, the BEMP includes for additional hedgerow enhancement (1,359m) and re-vitalisation of existing unmanaged hedgerows (4,074m), as well as the planting of 0.67 ha of native woodland would have a positive effect for biodiversity including bats.

10.7. Assessment: Direct and Indirect Effects

10.7.1. Aquatic Ecology

A number of concerns have been raised relating to impact on aquatic ecology, specifically white clawed crayfish, salmon and other protected species. To avoid undue repetition, concerns relating to European sites and associated Qualifying interest species are addressed in the Appropriate Assessment section of this report.

I note submissions (Friends of the Irish Environment) has raised concerns in relation to the potential impacts of proposed development on the River Maigue which is stated to support a number of Qualifying Interests of the Lower River Shannon SAC, highlighting species such as Atlantic salmon, river and brook lampreys, white-clawed crayfish, European eel, and otter. The applicant has responded to this concern and has referenced the submission of NIS for this European Site with the application based on ecological and hydrological connectivity. I acknowledge that the white-clawed crayfish and European eel listed in the submission are wrongly listed as Qualifying Interests of the Lower River Shannon SAC.

I note baseline sampling, walkover surveys, macroinvertebrate diversity sampling, physicochemical water quality sampling, white-clawed crayfish survey and a fisheries assessment were all carried out between August 2022 and August 2024. The various sampling locations are identified on Figure 7.1 and listed in Table 7.4 of the EIAR.

As part of the macroinvertebrate diversity assessment all sites in 2024 were categorised as moderately to seriously polluted with no change at most of the sampling stations on the Maigue, Loobagh and Charleville watercourses between April and July 2024 apart from F2 which declined from Q2-3 to Q2. Furthermore, I note no white-clawed crayfish were found during surveys carried out on the 22nd and 23rd of July 2024 at five sampling sites with traps used at locations inaccessible for hand searching. The presence of Crayfish plague in the Maigue sub-catchment is cited as

reason for the absence of white-clawed crayfish. Furthermore, no suitable habitats for freshwater pearl mussel were found.

19 no. sites were selected for survey at locations upstream and downstream of the site as part of the Fisheries Assessment detailed in Table 2.1 and 3.1, Appendix 7.2. of the EIAR. Watercourses in the vicinity of the proposed windfarm site were found to support fish species of high conservation value, namely Annex II Atlantic salmon and Red-listed European eel. The highest value salmonid habitats were present on the River Maigue and its tributary the Charleville Stream. Brown trout were also recorded in addition to minnow and stoned loach and three-spined stickleback. No lamprey ammocoetes were recorded during the survey.

Potential impact upon aquatic species relate mainly to construction and decommissioning related negative effects as a result of the release of suspended solids, concrete and hydrocarbons in run-off. Risk of chemical carryover in post treatment water from use of silt buster and the construction of the 2 no. new watercourse crossings. The release of suspended solids into watercourses can result in eutrophication and reduced oxygen levels which can adversely affect the local ecosystem. In the absence of mitigation, the proposed Project could result in a significant effect on pollution sensitive taxa at a local level. The operational stage risk is considered to be of a lower environmental risk but includes suspended solids runoff and minor hydrocarbon release. The potential of downstream flood risk is addressed in Section 13.0 (Hydrology and Hydrogeology) of this report.

Mitigation measures are described in Section 7.5 of the EIAR with embedded mitigation included in the turbine layout with all turbine locations and other key infrastructure at a minimum set-back of 50 m from watercourses and 10 m from drains, following best practice guidelines of the Irish Wind Energy Authority (IWEA, 2012). I am satisfied the proposed minimum set-back of 50 m from watercourses comply with requirements of the LCDP 2022, objective EH O18 which requires a 20m riparian buffer zone on greenfield sites.

I note 2 no. watercourse crossings are proposed (WC01 on the Maigue River and WC02 on the Charleville Stream) with clear-span bridges and culverts. To protect against morphological changes, no instream works are proposed. Construction plant will work exclusively within designated routes and established working corridors. It is

proposed to install a sealed underground holding tank for effluent (wastewater) from the proposed substation compound. The tank will be routinely emptied by a licensed contractor.

A site-specific Decommissioning Management Plan (DMP) (Appendix 2.1 CEMP – MP6) has been developed and will be amended prior to the commencement of any decommissioning activities. The implementation of all mitigation measures detailed for the construction phase will be adopted in full during the decommissioning phase to ensure all such significant effects are avoided.

Monitoring will be undertaken in watercourses within the catchment as outlined in the CEMP (Section 5 of MP3 - Surface Water Management Plan), and in compliance with any potential conditions of planning consent. Monitoring will be overseen by a qualified and experienced Environmental Manager or Ecological Clerk of Works.

I note the Council Ecologist has not raised any concerns in relation to the aquatic EIAR chapter/assessment and is deemed comprehensive in scope. The Coimisiún will note the recommendations contained in the submission from Inland Fisheries Ireland relating to the proposed clear-span bridges. I consider these are acceptable and if the Coimisiún is minded to grant permission, I recommend the inclusion of a condition requiring bridge deck edging, drainage details, agreed method statement within IFI, and the abutment set back of 5m from top of bank.

I note the applicant is proposing protective fencing along stream corridors to address the identified issue of livestock-induced pollution and physical damage to on-site streams. I consider this will have a positive effect on local water quality and habitat integrity.

Having regard to best practice pollution prevention and the full implementation of mitigation measures as detailed in Section 7.5 of the EIAR and CEMP, I am satisfied that the proposed development would not result in a significant effect on aquatic ecology.

10.7.2. **Fauna**

Multi-disciplinary walkover surveys were carried out on 14th March and 5th May 2023, and on 10th May 2024. The walkover surveys were designed to detect the presence, or likely presence, of all mammal species but with a focus on protected species such

as badger and otter. Habitats within the site were evaluated for their potential to support breeding amphibians, namely the common frog and the smooth newt, as well as the common lizard. The Irish hare, rabbit, red fox, pygmy shrew, greater white-toothed shrew, field mouse, common frog were all recorded on site. There was no evidence, such as setts, feeding marks or latrines, of badger meles activity within at least a 100m distance of any of the main windfarm infrastructure.

Signs of otter presence were recorded along the west bank of the Charleville stream however no signs of any dwellings (holts) or resting places were found. I note the Aquatic Ecology Report did not record any signs of otter during the kick sampling and water quality surveys undertaken on the watercourses within the site on multiple dates in 2022 and 2024. I note an application to the NPWS for a derogation licence to address an active holt being found on the site would not be necessary based on the information at present. I am satisfied that significant impacts on otter would not arise based on mitigation measures in Section 6.5.3 such as buffer zones to watercourses, timing of works, water quality measures and the carrying out of a pre-construction otter survey.

10.7.2.1. **Badger Setts**

I note submissions in relation to the omission of an active badger sett as part of the EIAR surveys. The applicant as part of their response to submission report acknowledged the location of this sett which is located c. 107.59m from the nearest windfarm infrastructure. At this distance, the applicant contends that as no earthworks are proposed in close proximity, the risk of disturbance or tunnel collapse is negligible. Intervening hedging is considered to provide visual and acoustic screening between the sett and the works area. The status of the sett (i.e. main, annex, subsidiary or outlier) will be confirmed as part of pre-construction badger surveys covering all areas where works will occur. Should the sett be confirmed as active, standard mitigation will be applied as necessary, including an appropriate stand-off buffers and constraints on heavy plant operations in the vicinity.

Notwithstanding the non-identification of the badger sett within the EIAR, I am satisfied the proposed mitigation measures as outlined in Section 6.5.4 and 6.9.4 of the EIAR will protect local badger populations. Concerns in relation to the increase bovine TB

transmission risk to local herds from disturbed badgers are addressed in Section 18.8 of this report.

10.7.2.2. **Construction Impacts**

I note mitigation is proposed in Section 6.5.5 of the EIAR for the common frog which is considered widespread on the site. Areas where construction works are due to commence during the period February to August will be checked by the ECoW for the presence of frog spawn, tadpoles and adult frogs. If present, these will be removed under licence from NPWS to a suitable location.

In relation to general construction activity, it is deemed to deter larger mammals from using the site, but this would be for a temporary duration and would not be likely to substantively impact nocturnal mammals.

Overall, I am satisfied that subject to the full implementation of mitigation measures outlined in Section 6.5 of the EIAR and BEMP, no significant adverse residual effects on terrestrial mammal species, amphibians or reptiles are expected to arise.

10.7.2.3. **Impact of Shadow Flicker on Livestock/Wildlife**

In relation to the submission highlighting concern with respect to the impact of shadow flicker/noise on livestock / wildlife, shadow flicker is addressed with respect to human health in Section 9.7.1 and noise in Section 14.7 of this report. A condition is recommended that will use proven technology to eliminate shadow flicker and limit noise levels. There is no requirement in WEDG 2006 with respect to impacts on livestock or wildlife.

10.7.3. **Invasive species**

Concerns have been raised in submissions in relation to the potential of invasive species such as Giant hogweed. No Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021 or the Invasive Alien Species of Union concern listed under the EU IAS Regulation were recorded as part of the walkover surveys as detailed above. Notwithstanding this, I note the applicant is proposing to carry out a pre-construction survey (confirmatory survey) for invasive species under the supervision

of the onsite EcOW with specific focus on species such as Japanese knotweed, giant hogweed and Gunnera species.

During the construction phase measures, such as good construction site hygiene methods and screening of any soil or topsoil are proposed. If invasive species are detected on site, an Invasive Species Management Plan will be implemented. The treatment and control of the species will follow the guidelines issued by the National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010).

Overall, I am satisfied that these proposed measures would be reasonable to address the risk of spreading invasive species as part of the project. The details of this are contained in the CEMP.

10.7.4. **Habitat Loss**

Submissions have raised concerns regarding loss of hedgerow as a result of the proposed development, in addition to the impact on flora and habitat loss including wetlands. Observers also contend that the proposal is contrary to LCDP 2022 objectives EH O10 and EH O12. Refer to my Planning Assessment in Section 7.5 where I have addressed these policies.

I am satisfied that the desk study has considered the Zone of Influence (ZoI) for the proposed development. I note botanical surveys were carried out on the 23rd June 2022, 9th August 2023, and 10th May 2024 which was confined to the area within the redline boundary of the proposed project, as well as the areas in which works along the grid connection and turbine delivery routes which I consider acceptable.

The EIAR notes that the entire site is actively farmed for cattle and sheep production. Grassland habitats occur throughout the site, with the type present reflecting the intensity of current and recent management practices. Improved agricultural grassland (GA1) is dominant in the western area (west of the Charleville stream), while Neutral grassland (GS1) and Wet grassland (GS4) are dominant in the eastern and northern areas.

Plant species recorded in the various habitats are outlined within Section 6.3.3.1 to 6.3.3.5 of the EIAR. Improved grassland is a habitat of low botanical interest - rated as Negligible Importance. Wet grassland and neutral grassland are rated as Local

Importance (lower value). Very wet grassland areas to the east of the Charleville stream are rated as Local Importance (lower-higher value) providing habitat for protected species including the common frog and breeding snipe. I note no rare or protected flora including devil's-bit scabious (Succissa pratensis) were recorded within the site due to the predominant habitat of grassland and current farming practises.

I note the permanent habitat loss as a result of the proposed development is stated as circa 6.69ha. The permanent habitat loss is entirely improved grassland, neutral grassland and wet grassland aside from hedgerows. Impact on drainage ditches and treelines are limited, and in this regard a large poplar tree is to be removed at the location of T02, and a section of mature treeline will be breached to the north of the substation. No trees are required to be removed along the TDR apart from one at Site Entrance 1 at the N20.

I am satisfied the proposed trimming or tree pruning where required along the turbine delivery routes identified will not have any significant effect.

10.7.4.1. **Disturbed Grassland**

Disturbed grassland habitat is noted as widespread within the area and the limited removal of such habitat is not considered extensive enough to generate significant effects and this type of habitat can be easily reinstated. The effect by the loss of improved grassland (0.59 ha) is rated as '*Not Significant'*.

I note the third-party submission in relation to the potential impact of the proposal on the Ballynagoul wetlands. I am satisfied that the EIAR has identified this area of wet grassland (Section 6.3.3.2) and considered the potential effects upon the wetlands and associated species. The significance of the loss of neutral and wet grassland (6.04 ha), is rated as a Slight adverse effect of permanent duration at the Local level of importance.

10.7.4.2. **Loss of Hedgerows**

In relation to the loss of hedgerows, I note that proposed development will result in the permanent loss of 1,008m of hedgerow to facilitate the construction of the windfarm infrastructure.

A further 641m of hedging outside of the works will be removed for the purpose of providing bat buffers around turbines. I note an 80m section of hedgerow will be

removed to facilitate visibility splays at Site Entrance no 1. To mitigate this impact, compensatory planting is proposed and detailed in the Biodiversity Enhancement and Management Plan (BEMP) (Appendix 6.2 of the EIAR).

The applicant is proposing planting and enhancing scheme to include 1,620m of new hedging, plus the enhancement of a further 1,359m of hedgerows and the re-vitalisation of existing unmanaged hedgerows (c. 4,074 m).

The planting programme will be co-ordinated and supervised by an ecologist and will be carried out by a registered contractor. All plantings will consist of native Irish species. Existing hedgerows will be protected from potential disturbance, including storage of materials, by the implementation of a 5m buffer zone parallel to the base of the hedge.

I am satisfied the measures outlined in the BEMP will have a positive effect overall and provide breeding, foraging, and commuting opportunities for insects, birds, bats, and non-volant mammals. I also note the inclusion of the planting of new native woodland (0.67ha) to the north of the proposed substation as bat mitigation which I consider will have a positive effect for biodiversity.

10.7.5. **Impact on Bats**

My assessment in relation to the impact of the proposed development on bats has been informed by the Specialist Ecologist Report on Bats contained in Appendix 4 of this report.

A number of submissions have raised concerns regarding the impact on bats including disruption from noise and hedgerow removal and impact on suitable habitat along the GCR, and concerns that that the bat surveys are incomplete.

In addition, the Coimisiún will note comments by the DAU in relation to the impact on Lesser Horseshoe Bats, the potential for tree roosts and the impact of removal of scrub and bramble from hedging as part of the hedgerow management plans. Data/survey inconsistencies were also raised by the Council's Ecologist regarding the bat roost site at Bruree Church.

10.7.5.1. **Bat Surveys**

Potential roost assessment surveys were carried out to determine the presence of bats or Potential Roosting Features (PRFs). These were carried out on the 5th April 2023 and 7th March 2024. Bat activity and emergence surveys were conducted from July and September 2022 and from August to September 2023. Static bat detector surveys were carried out in July, August, September and October 2022 and April, May, July August and September 2023. See survey locations in EIAR Appendix 6.1 and Figure 4.1.

During walked surveys, a total of 6 no. species of bats were recorded including 1. Common pipistrelle, 2. Soprano pipistrelle, 3. Leisler's bat, 4. Brown long-eared bat, 5. Daubenton's and 6. Natterer's bat.

The most recorded species was the common and soprano pipistrelle. A single roost was found within a 275m buffer of the turbines. A satellite roost for Natterer's bats found c. 205m south-east of T2 and c. 215m north of T1. A soprano pipistrelle satellite roost was also found c. 600m to the north-east of T6.

I note during static surveys carried in 2022 and 2023, a total of 8 no. species of bats were recorded with the highest overall activity recorded to the south of the site closest to proposed turbine T1 at detector 12 with 37.3 bat passes per hour (2022) and at detector 1 with a rate of 29 BP/Hr (2023). The highest activity was from the soprano pipistrelle and the Leisler's bat.

A site risk assessment based on high levels of nightly bat activity at each static location considered all turbines to be deemed high risk for at least one species. I note all bats recorded whilst included as Annex IV species, are all classified as of '*Least Concern'* on the Irish Red List (2019).

Of the species recorded, Common pipistrelle, Soprano pipistrelle, Nathusius's pipistrelle and Leisler's bat are considered high collision risk species. I note the concerns of the DAU in relation to the Lesser Horseshoe bat, however based on the static results presented in Table 4.4 of the applicants Bat survey report and the lack of sightings during emergence surveys, I am satisfied the proposed development will not have a significant effect on this species following implementation of mitigation measures as described below.

10.7.5.2. **Proposed Mitigation (Bats)**

To reduce risk of collision and barotrauma, vegetation removal around the turbine bases will create a buffer zone and I note the applicant, to minimise habitat loss has applied a specific buffer zone for treelines (103m) and hedgerows (96m) to mitigate impacts on bats. Details of the buffer zones and portions of hedging/treelines to be removed are presented in Table 7.2 of the Bat survey report.

I note the applicant is proposing to retain some treelines and hedgerows within the buffers where the loss is deemed too high of an ecological value. I note the loss of c. 1014m of existing hedgerows as part of the buffer zone clearance, however, I am satisfied this will be suitably offset by the implementation of the measures proposed in the BEMP. I am satisfied that the proposed additional hedge planting will not increase collision risk for bats as shown on Figure 7.2 of the Bat survey report.

Further mitigation measures proposed for the construction stage include restrictions on artificial light and construction operations to take place during the hour's of daylight. Some works may occur during hours of darkness but the ECoW will limit night-time works to sections of the site which avoid sensitive features.

In relation to operational phase mitigation, reduced rotation speeds (feathering) will be implemented at all turbines when the turbines are idling. A two-step smart curtailment strategy is also proposed with cut-in speed restrictions operated according to specific weather conditions and bat activity season.

I am satisfied that the proposed curtailment strategy has been clearly set out within the applicants EIAR and that the consideration of effectiveness and appropriateness of turbine curtailment will be based on ongoing monitoring of bat activity levels and bat fatality at turbine locations.

10.7.5.3. **Proposed Monitoring (Bats)**

I consider it appropriate that monitoring results should be submitted to the planning authority and NPWS and that any changes to the curtailment strategy be done in agreement with the same bodies taking account of reduced activity levels or bat mortality levels. I note Section 6.10 of the EIAR outlines the post construction monitoring measures. These measures relate to the installation of bat boxes and post construction monitoring reports as detailed in Table 6.14 of the EIAR.

The DAU has queried the lack of a detailed carcass search protocol and the potential for buffer zones to be increased (additional 15m) if bat fatalities are found within the first three years of surveys.

I am satisfied that a carcass search protocol in accordance with NIEA guidelines can be suitably addressed by way of a condition if the Coimisiún are minded grant permission.

10.7.5.4. **Buffer Zones for Bats**

In relation to the concerns regarding the potential to increase buffer zones, I note the applicant has confirmed that only as a last resort would buffer zones be increased, with the curtailment strategy to be amended first. The EIAR assessment has taken into account the potential increased buffer zones.

10.7.5.5. **Derogation Licence for Potential Tree Roosts (Bats)**

I note the Ground Level Tree Assessment (GLTA) found that 20 no. trees of Potential Roost Feature (PRF) were recorded alongside 13 no. trees where Further Assessment was Required (FAR) of the 157 no. trees surveyed. The locations of surveyed trees are shown on Plate 20 and detailed in Appendix 1.2 of the Bat Survey Report (Appendix 6.1 of the EIAR). Only 10 no. PRF trees were found within a 275m buffer of the proposed turbine locations. The majority of trees surveyed are located towards the southeast area of the proposed site away from the turbine locations.

The Coimisiún will note that DAU has raised concerns relating to the issue of potential tree roosts not being adequately addressed in the bat survey report. I note the applicant's response to submissions, specifically in relation to the concerns raised by the DAU.

Of the 13 no. trees categorised as FAR only 1 no. tree with a potential roost feature is set for removal; tree no. 50 located close to T2. No other trees are required to be felled. Structures surveyed both within the site (275m buffer of turbine) and outside of this zone found that bat roosts were located in a derelict dwelling and shed on site. Bruree Church and Garroose Bridge also contained roosts.

The applicant is proposing to conduct pre-construction bat surveys and a pre-felling survey on trees identified as PRF or FAR. If bats are found it is proposed that a derogation license will be sought from the NPWS prior to works.

All bat species found in Ireland are listed under Annex IV of the EU Habitats Directive, European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). Works which would capture or kill bats, damage or destroy their roosts or disturb them at important parts of their lifecycle cannot take place without first obtaining a Regulation 54 Derogation (previously known as a derogation licence) and strict criteria must be met before such a derogation can be approved.

I refer the Coimisiún to NPWS publication *'Applications for Regulation 54 Derogations for Annex IV species Guidance for Applicants'* (July 2025). Section 5 of this document notes that in July 2023, the Court of Justice of the European Union High Court issued a judgment relating to the relationship between the systems of development consent and the provision of derogations regarding the strict protection of species under the EU Habitats Directive.

I note the judgement of the Court of Justice of the European Union in relation to Case C-166/22 (July 2023) Hellfire Massy Residents' Association v An Bord Pleanála, in particular, paragraph 36 which states the following;

> *'in the specific case where, first, the execution of a project that is subject to the dual requirement for assessment and development consent laid down in Article 2(1) of Directive 2011/92 involves the developer applying for and obtaining a derogation from the plant and animal species protection measures prescribed in the provisions of national law transposing Articles 12 and 13 of Directive 92/43 and where, second, a Member State confers power to grant such a derogation on an authority other than the one on which it confers power to give development consent for the project, that potential derogation must necessarily be adopted before development consent is given. If it were otherwise, that development consent would be given on an incomplete basis and would not, therefore, meet the applicable requirements*'.

Having reviewed the data presented in the survey report and the information provided in the applicant's response to submission report dated January 2026, I have serious concerns in relation to the adequacy of the potential tree roosts assessment in demonstrating that the proposed development will not result in the loss of any bat roosts and the reliance of a post-consent derogation licence process.

It is clear from the applicant's stated response that a tree (no. 50) has potential roost features and that it is proposed for removal as follows:

> ***'RESPONSE***
>
> *The figure of 13 trees with roosting potential being impacted by the proposed Project is a misinterpretation of the bat report. 13 trees were categorised as FAR (Further Assessment Required) meaning the surveyor could not determine if the tree had a PRF (potential roost feature) or not. After an examination of the proposed road network, turbine locations and bat buffers; only 1 tree with a potential roost feature is set for removal; tree no 50 located close to T2 will be removed and has a cavity due to branch loss.'*

Tree no. 50 is listed in Table 1-2 of the Bat survey report as a poplar tree with one deep cavity due to branch loss. No proposal from the applicant has been included as to how this matter is to be addressed or whether a Regulation 54 Derogation would be required.

Having regard to the judgement of the Court of Justice of the European Union in relation to Case C-166/22 (July 2023), I consider it is the clear responsibility of the applicant to ensure that if a derogation licence is required, it must be obtained from the NPWS **prior to the lodgement** of the subject application. **(Inspectors Emphasis)**

If a derogation licence is not required, sufficient survey information should be presented in the application documentation to allow for the Coimisiún to make an informed assessment. I consider that this information has not been provided in this instance. I refer the Coimisiún to the specialist Ecologist report in Appendix 4 of this report which concludes in relation to the potential bat roost;

> *'Having regard to the BCT Bat Survey Guidelines, the NPWS Bat Mitigation Guidelines for Ireland and the NPWS Guidance on Applications for Regulation 54 Derogations, I consider that Tree 50 should be regarded as a tree of at least moderate suitability for roosting bats due to the presence of multiple Potential Roost Features. The information submitted does not demonstrate that these features have been subject to detailed internal inspection or equivalent follow-up survey in line with the guidance documents referenced above. Consequently, I consider that the possibility that the tree provides a bat resting place cannot currently be excluded. I note that the applicant proposes that all*

trees identified as containing Potential Roost Features (PRFs) or requiring Further Assessment (FAR) would be subject to detailed at-height inspection by a suitably qualified ecologist prior to felling, including the use of inspection cameras and endoscopes where appropriate, and that a Regulation 54 derogation would be sought from NPWS should a bat roost be identified. While this approach provides a mechanism for further assessment and licensing, the results of any such assessment are not before the Commission. Applying the precautionary principle, I consider that insufficient information is currently available to establish the roost status of Tree 50, to assess the implications of its removal fully, or to determine whether a Regulation 54 derogation may be required.

Should the Commission be minded to grant permission for the proposed development, including Turbine 2, consideration could be given to seeking clarification from the applicant regarding the status of Tree 50, including the results of any additional surveys undertaken subsequent to submission of the application. If the outcome of such surveys indicates that the tree supports, or may support, a bat breeding site or resting place, the requirement for a Regulation 54 derogation should be fully addressed prior to any works affecting the tree. While it may be possible to impose a condition requiring further assessment and the implementation of any necessary licensing requirements, such an approach carries a degree of risk as it would seek to address an identified information deficit after consent rather than avoid the potential impact altogether. In this regard, retaining Tree 50 by omitting Turbine 2 remains the more precautionary approach.'

I consider the reliance on measures proposed by the applicant in the form of conducting pre-construction bat surveys, pre-felling survey on trees identified as PRF or FAR and the seeking for a derogation license post-consent is contrary to current best practice and the judgement of the Court of Justice of the European Union in relation to Case C-166/22.

T2 is located c.15m from a potential bat roost in Tree no. 50, which is proposed for removal. In the absence of a derogation licence from the NPWS, it is my opinion that ACP, based on the case law outlined above, are precluded from granting permission

for turbine T2 until such time as suitable detailed survey information is presented to inform the Coimisiún on whether a Regulation 54 Derogation is warranted or not.

I consider the applicant has failed to submit adequate survey information in relation to potential roosting for bats in tree no. 50. For this reason, due to the location of T2 to the potential bat roost in tree no. 50, I consider T2 should be omitted.

On this basis, if the Coimisiún are mindful of granting permission for the proposed windfarm, I recommend the omission of T2 based on the absence of the necessary information required to determine that a Section 54 derogation is not required.

10.7.5.6. **Overall Conclusion (Bats)**

Overall, I am satisfied that it has been adequately demonstrated that the proposed development will not result in significant disturbance or displacement effects or net loss of potential habitat subject to the omission of T2. The risk of collision with turbine blades during operation of the turbines will be mitigated by the restricted vegetation areas surrounding the turbines and curtailment strategy. I consider the proposed habitat creation, and land management measures will ensure that the proposed windfarm will not have a significant negative impact on the commuting and foraging habitat for bats. Subject to compliance with the various mitigation measures set out in Chapter 6 of the EIAR, I am satisfied the proposed windfarm complies with Objectives EH O2 of the Development Plan which seeks to protect lesser horseshoe bats.

10.7.6. **Assessment and Conclusion**

I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the file. I am satisfied that significant negative impacts on biodiversity as a result of the proposed windfarm can be avoided, managed and mitigated by the measures which form part of the proposed development and through suitable conditions, subject to the omission of turbine T2. Overall, I am satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects on the biodiversity.

11.0 Biodiversity (Ornithology)

11.1. Issues Raised

Submissions from the DAU and the public have raised concerns in relation to the impact on protected bird species including habitat loss, disturbance, displacement and collision risk.

I have also carried out an Appropriate Assessment for the development in relation to QI species of European Sites which is described in Section 23.0 of this report, which should be read alongside this section of my report.

Submissions have also been considered as part of an independent expert ornithology report commissioned by ACP which is included in Appendix 5. The report was prepared by Colin Barton, B.Sc. (Hons.) in Biology (Ecology), partner and senior ecologist of Cork Ecology. This report herein referred to the Technical Ornithology Report (TOR) has also informed my assessment and should be read in conjunction with the findings set out here.

11.1.1. Bruree-Charleville-Effin Wind Farm Action Group submission

The Bruree-Charleville-Effin Wind Farm Action Group (BCEWFAG) submission contain reports in chapters 2 and 3 from Dr Eugene Costello (Lecturer and researcher in environmental history and landscape archaeology) and Susan Kerwin (board member of The Barn Owl Project and advisor to Limerick Co Council on raptor related projects).

The submission report raises concerns regarding the proximity of the important wetland site of the Charleville Lagoons with the collision risk buffer zone of Turbine 1 extending into the lagoons. Furthermore, the blade swing of the nearest turbine (Turbine 1) will only be c. 90m north of the lagoons. The report points out that the lack of survey hours (22.5 hours) at the Charleville Lagoons is contrary to best practice of NatureScot/SNH guidelines which raises concerns regarding the findings of the EIAR in relation to Golden Plover and Whooper Swan.

The Charleville Lagoons is rated as a nationally significant site for Shoveler and hosts nationally significant numbers of the species. The EIAR has deemed Shoveler population is '*of negligible importance*' in the context of the project and was not taken forward for further risk assessment and is left out of Collision Risk Modelling (CRM),

which is considered to be inappropriate and lacks justification. Teal duck has also been discounted and is not considered in the CRM.

The report also raises concerns about the lack of EIAR assessment for the Tufted duck despite counts in I-WeBS data and in the EIAR's waterbird survey. The classification of Wigeon as "*local (lower value) importance*" despite significant counts and records of wigeon flying through the proposed windfarm site on several occasions, suggests a spatially blinkered approach in the EIAR. The windfarm's significant indirect effects on waterbird populations at Charleville Lagoons are largely ignored in the EIAR.

In terms of vantage point locations, the report has concerns regarding the vantage points covering the south of the proposed windfarm site and Charleville Lagoons. There is a considered bias towards the west, northwest and north of the windfarm in the layout of the vantage points with limited coverage of the area east and southeast of the windfarm i.e. Charleville Lagoons. This is considered extraordinary given that Charleville Lagoons is by far the most well-known bird habitat in the Zone of Influence.

The report finally notes that the difference in levels between the turbines has not been taken into account in the EIAR's consideration of ornithology.

11.1.2. **Dr Allan Mee Submission**

The submission was prepared by Dr Allan Mee who has 40 year's experience as an ecologist. The submission has concerns regarding the application site proximity to Charleville Lagoons in particular proposed turbines T1 (100m from the nearest lagoon) and T2 (460m) to the lagoons and its impact on shoveler duck and teal who have recorded numbers higher than the 1% qualifying threshold for national importance. The submission notes that the Cormorant is a BoCCI Amber listed species not green listed as referenced by the applicant in the EIAR.

In relation to the whopper swan, the submission has significant issue with the classification of the whopper swan as of *"Negligible Importance*" and not listed as a "Key Ornithological feature" as detailed in Table 8.20 of the EIAR.

A single family party of 6 no. birds was recorded by the observer on a single visit in October 2025 and considers the use of the lagoons and potential linkage with Whooper foraging flocks in Churchtown.

Issues with the lack of vantage points to the south of the Charleville lagoons and data of Whooper Swan flight activity as presented in the EIAR cannot adequately rule out this species and the risk posed by the proposed windfarm.

Just 10 no. visits totalling 10 no. hours were made to the site over the course of two winters with 5 no. of these occurring during the monitoring 'window' (Oct-Mar) for wintering Whooper Swan which fails to meet SNH guidelines. No vantage point surveys to the south of the application site were conducted which would adequately cover the potential flyway for several species of waterbirds using Charleville Lagoons.

The submission raises the similar concerns as the BCEWFAG submission above in relation to the importance of the Charleville lagoons for Golden Plover and Shoveler. The shoveler should be considered the most important species from a conservation standpoint regularly occurring at Charleville Lagoons. The quantity and quality of the survey effort with respect to Golden Plover is not adequate to detect this species.

In concluding, the submission considers the development should be either refused planning permission or exclude turbine sites within 1km of Charleville Lagoons, namely turbines T01, T02, T03 and T04.

11.2. **Context**

Ornithology is addressed in Chapter 8 and technical appendices 8.1 and 8.2 of the EIAR. The appendices contain an Ornithology Baseline Report and Ornithology Collision Risk Modelling Report. The methodology employed for this section of the EIAR is set out in Section 8.8 and includes a desktop study and field surveys. Section 8.12 details that no significant survey limitations were encountered. Survey limitations detailed in this section predominantly consisted of non-significant limitations due to adverse weather conditions, survey timings etc.

11.3. **Baseline**

Ornithological surveys were devised and field surveys were undertaken in compliance with NatureScot guidance (SNH - 2025, 2016) and are described in Section 8.10.2 of the EIAR. Surveys were undertaken between 2020 and 2024 and consisted of the following surveys listed below in Table 11.1.

Table 11.1 Summary of Surveys Undertaken	
Survey Undertaken	**Summary of Detail (Full details in Section 8.10.2 of EIAR)**
Vantage Point (VP) Surveys	Surveys carried out during the breeding season from 2021 to 2024 and non-breeding season from 2020 to 2024. VP survey effort is summarised in Table 8.1 of the EIAR. Four VPs (VPs 1-4) were used from October 2020 to March 2023 inclusive. To provide increased coverage of the Site, an additional four VPs (VPs 5-8) were surveyed from October 2022 to September 2024. Additional site coverage provided by the new VPs removed the necessity for VP3 and VP4, which were not surveyed between October 2022 to September 2024.
Transect Surveys	Transect surveys carried out during the 2023 and 2024 breeding season, 2022/23 and 2023/24 non-breeding season. Surveys undertaken within and beyond 500m of the Site. Four transect routes were selected within and adjacent to the Site as shown on Figure 4 of the Ornithology Baseline Report (Appendix 8.1 of the EIAR).
Hinterland bird surveys	Surveys were conducted twice during the 2022/23 non-breeding season and three times during the 2023/24 non-breeding season to a maximum distance of 5km from the Site.
Raptor Surveys	Raptor surveys were undertaken in suitable habitat within 5km of the Site (see Appendix 8.1 – Figure 5b of the EIAR) during the 2023 and 2024 breeding seasons. Surveys were undertaken between April to July inclusive.
Barn Owl Survey	Dedicated breeding barn owl surveys were undertaken within the Site and the 1km survey buffer which were surveyed in April 2023 and identified seven buildings of interest. An additional visit was undertaken in September 2023 due to a barn owl sighting near Site 4 (see Appendix 8.1 – Figure 5b of the EIAR).
Breeding Wader Surveys	Wading bird surveys were conducted on three occasions between April and June 2023 in suitable habitat to a maximum distance of 500m from the Site. Suitable wet grassland habitat was walked in April and June 2023.Two transects within wet grassland within and adjacent to the site were also surveyed in May 2023.
Waterbird Surveys	Waterbird surveys were conducted on ten occasions at Charleville Lagoons, located 0.1km south of the Site, between the 2022/23 and 2023/24 non-breeding seasons.
Whooper Swan Surveys	Surveys were carried out annually during the non-breeding season between 2020/21 and 2023/24, detailed surveys for whooper swan were conducted during the 2023/24 non-breeding season. The study area for these surveys included the Site and a 5km buffer, within which whooper swan surveys were undertaken on six occasions between October 2023 and March 2024. Surveys comprised dawn and dusk watches. Two known whooper swan wintering sites were also surveyed Churchtown (located c.13.5km south-west of the Site) and Kilcolman Wildfowl Reserve (located c.15.0km south of the Site). These locations were surveyed on 11 occasions between October 2023 and March 2024 inclusive.

No species were present in numbers of international importance, national importance or county importance during the surveys. 8 no. targeted species were identified as of greater than Local (Higher value) importance (Kestrel, Peregrine, Golden plover, snipe lapwing black-headed gull, lesser black-backed gull and Cormorant). Breeding populations of non-target species including meadow pipit, starling and swallow are considered to be of Local (Higher value) importance. Non-breeding populations of non-target birds including meadow pipit, redwing, skylark and starling are also considered to be of Local (Higher value) importance.

Table 8.20 of the EIAR identifies key ornithological features (KOFs) and provides a rationale for including or excluding. The proposed site is located within 20km of Blackwater River (Cork/Waterford) SAC; Ballyhoura Mountains SAC and Kilcolman Bog SPA. All 3 no. European sites were not considered to be key ornithological features due to distance and designation criteria in the case of SACs. Due to low numbers recorded of QI species on site, a functional linkage between the application site and the Kilcolman SPA is not considered likely.

11.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 11.1 below;

Table 11.1: Summary of Potential Effects (Ornithology)
Do Nothing
• There are no committed or forecasted changes in land management proposals within the Site that will likely materially alter the baseline conditions in the absence of the Project. • It is therefore assumed that the future baseline in the presence of the 'do-nothing impact' will, in general, be relatively similar to the current baseline, and the populations of the ornithological features that are relevant to the Project would be largely consistent with that of the existing baseline conditions.
Construction Impacts
• **Designated sites of ornithological interest**- No notable populations of qualifying species were recorded. Site is not functionally linked to these designated sites of (Blackwater River (Cork/Waterford) SAC, Ballyhoura Mountains SAC and Kilcolman Bog SPA). No designated sites were identified as being KOF within this assessment. Potential impacts to designated sites from the Project will not be considered further. • **Effects on Bird Species** (Direct habitat loss and disturbance/displacement) Habitat not considered unique for the area. Effect considered negligible-low and not significant for all species.

- **Cormorant:** Limited waterbodies present. Direct loss of suitable cormorant habitat during construction would be minimal and restricted to the north-east of the Site at the proposed river crossing.
- **Lesser black backed gull & Black headed gull:** No breeding activity was recorded during the survey period. Flight activity for both species was frequent, with occasional roosting on fields in small numbers.
- **Raptors (Kestrel and Peregrine):** Breeding activity was limited with only one confirmed kestrel breeding observation within c. 250m of the Site. Juvenile peregrine and kestrel recorded within the Site during the breeding season. No suitable nesting sites were identified within the Site for peregrine. Flight activity was frequent for kestrel and occasional for peregrine.
- **Waders:** No evidence of breeding by any wader species was recorded during the breeding wader surveys and transects undertaken within the Site. Habitats on Site are suitable for these wader species but relatively limited in extent. Site primarily limited to occasional foraging. Limited potential for disturbance of golden plover and lapwing. Greater activity was observed for snipe. Abundance of suitable retained habitat in the surrounding area.
- **Non-target species:** In the absence of additional mitigation measures, it is likely that the construction of the Project would have a significant adverse effect on these farmland bird species due to the loss of hedgerow and treeline habitat at a Local level (slight effect) through direct habitat loss and fragmentation. Potential disturbance of birds when nesting and may cause birds to vacate territories close to work. Significant adverse effect on these farmland bird species at a Local level (slight effect) in the absence of mitigation.

Operational Impacts

- **Effects on Bird Species** (Direct habitat loss and disturbance/displacement) Habitat not considered unique for the area. Availability of suitable airspace. Effect considered negligible-low and not significant for all species.
- **Cormorant:** Observed primarily using the airspace rather than terrestrial habitats within the Site. Negligible potential for significant effects. The effects of any displacement during operation would be minimal.
- **Lesser black backed gull & Black headed gull:** Gulls observed using airspace over the site. Not recorded using the habitats within the Site (e.g., for foraging, roosting or loafing) in notable numbers.
- **Raptors (Kestrel and Peregrine):** No significant removal of suitable nesting habitat for raptors will occur. Suitable habitat availability in the wider landscape.
- **Waders:** No significant reduction in the suitability of the Site for wader species. Research may indicate that golden plovers may reduce their use of habitat within 175m to 200m of turbine bases. Lapwing are understood to be significantly disturbed by larger turbines in the non-breeding season. Golden plover and lapwing were infrequently observed foraging in low numbers. Snipe were frequently observed flying low or roosting within wet grassland.

- **Non-target species:** Vegetation removal is small-scale and only likely to have a negligible effect on birds, especially when considered in the context of retained habitat within the Site and the wider landscape. Farmland bird species are relatively tolerant to noise, light, vibration and human activity disturbance and are likely to quickly habituate to the new levels of 'background' disturbance within the Site. Due to their size and typical flight patterns, non-target farmland bird species are not considered to be susceptible to collisions with new wind turbines.
- **Collision risk** – See appendix 8.2 of the EIAR. Results based on 2020-2024 survey data. Calculations represent a precautionary scenario for collision fatalities for the proposed Project on 11 key ornithological features (species).
- **Black-headed gull:** (non-breeding season) A distinct north-south flight trend was recorded in black-headed gull flights across the Site between 2020 and 2024.Therefore two collision risk models were used. 0.22 birds equating to 7.61 collision fatalities over the anticipated lifespan of the windfarm using an Airspace model. Fatalities would be 0.28 birds per non-breeding season (average), equating to 9.82 collision fatalities over the operational lifespan of the windfarm using a Fly-through model.
- **Buzzard:** (breeding and non-breeding seasons) 0.14 birds per year equating to 5.03 collision fatalities over the anticipated lifespan of the windfarm.
- **Cormorant:** (breeding and non-breeding seasons) 0.25 birds per year equating to 8.73 collision fatalities over the anticipated lifespan of the windfarm.
- **Golden plover:** (non-breeding season) 0.40 birds per year equating to 13.98 collision fatalities over the anticipated lifespan of the windfarm.
- **Kestrel:** (breeding and non-breeding seasons) 0.26 birds per year equating to 9.25 collision fatalities over the anticipated lifespan of the windfarm.
- **Lapwing:** (breeding and non-breeding seasons) 0.08 birds per year equating to 2.93 collision fatalities over the anticipated lifespan of the windfarm.
- **Lesser black-backed gull:** (breeding and non-breeding seasons) 0.86 birds per year equating to 30.07 collision fatalities over the anticipated lifespan of the windfarm.
- **Mallard:** (breeding and non-breeding seasons) 0.15 birds per year equating to 5.26 collision fatalities over the anticipated lifespan of the windfarm.
- **Peregrine:** (breeding and non-breeding seasons) 0.06 birds per year equating to 0.22 collision fatalities over the anticipated lifespan of the windfarm.
- **Snipe:** (breeding and non-breeding seasons) 0.21 birds per year equating to 7.19 collision fatalities over the anticipated lifespan of the windfarm.
- **Wigeon:** (breeding and non-breeding seasons) 0.91 birds per year equating to 31.79 collision fatalities over the anticipated lifespan of the windfarm.

Decommissioning Impacts

- Habitats would be reinstated to their pre-construction baseline through natural revegetation and impacts would be short-term and temporary. Short-term

disturbance as a result of increased noise and human presence, which could lead to energetic stress and a reduction in breeding success of certain bird species. However, such impacts would be experienced on a temporary basis only. No significant impacts expected.
Cumulative Impacts
• See Section 8.15.4 of the EIAR for details. • No additive, antagonistic, or synergistic effects have been identified with regard to habitat loss, displacement, and collision mortality. No potentially significant cumulative effects are likely.

11.5. **Mitigation Measures**

Section 8.14 of the EIAR outlines the embedded mitigation incorporated into the project design with respect to ornithology. Section 8.16 of the EIAR outlines further mitigation measures. No potentially significant effects on KOF during the operational phase of the Project were identified and, as such, targeted mitigation during this period is not proposed. A summary of construction phase mitigation is set out below:

- Implementation of Construction and Environmental Management Plan (see Section 3.2.2 of CEMP),
- Areas of greater importance to avian features (e.g., waterbodies, mature trees and hedgerows) will be retained where possible within the design of the Project.
- Proposed turbines will be fitted with aviation warning lights in accordance with the requirements of the Irish Aviation Authority thereby reducing the risk of bird collision.
- Timing of works outside of peak bird breeding season.
- Best practice methods will be adopted to minimise the potential for disturbance and removal of suitable habitat.
- Prior to the commencement of the works, checks by an ornithologist will be carried out on any suitable nesting habitat that is proposed to be removed. Exclusion zones will be deployed if an active nest is found.
- Appointment of Ecological Clerk of Works (ECoW) who will undertake a pre-construction walkover survey, nesting bird checks, inform and educate site personnel of sensitive ornithological features, provide guidance to contractors to ensure legal compliance and liaise with officers from consenting authorities and other relevant bodies.
- An avian fatality monitoring programme will be implemented. Monitoring will involve monthly (January-December) searches of carcasses within the first three years of operation and subsequently in years 5,7,10,15,20, 25, and 30. Annual fatality search report will be submitted to relevant stakeholders and the planning authority for consultation.

- Implementation of Biodiversity Enhancement and Management Plan (BEMP) including the installation of 15 nest boxes suitable for a range of non-target farmland species, Two kestrel nest boxes and one barn owl nest box at least 500m from any turbines.

11.6. **Residual Effects**

See Section 8.17 of the EIAR. With embedded mitigation within the Project design, only effects on non-target farmland bird species were assessed as being potentially significant. Effects on all other KOFs were assessed as being not significant in regard to direct habitat loss, disturbance/displacement or collision mortality. No significant residual effects are anticipated. Enhancements laid out within the BEMP are considered to have an overall positive effect on sensitive ornithological features.

11.7. **Assessment: Direct and Indirect Effects**

My assessment has been informed by an independent expert ornithology report commissioned by ACP which is included in Appendix 5, which was prepared by Colin Barton, B.Sc. (Hons.) in Biology (Ecology), partner and senior ecologist of Cork Ecology.

11.7.1. **Collision Risk Modelling (Wind turbine height)**

Submissions have raised concerns regarding the collision risk modelling presented in Appendix 8.2 of the EIAR and the use of a 170m height for all proposed turbines notwithstanding the requirement for turbines located within the flood zone to be placed on plinths.

I note that as part of the pre-application consultation with the Coimisiún under reference number ABP 319139-24, it was advised by the Coimisiún's representative at the pre-application consultation meeting that the difference in levels of the proposed turbines to address flood levels on site should be reflected in the consideration of ornithology.

Having reviewed the hydrology & hydrogeology chapter 10 and Flood Risk Assessment (FRA) (appendix 10.1) of the EIAR, I note 5 no. of the 9 no. proposed turbines are in fluvial flood zones namely turbines T4, T5, T6, T7 and T8.

The applicant is proposing as part of flood resilience measures detailed in Section 5.12 of the FRA, to install turbine plinths within the flood zone to include a 150mm freeboard above the 1 in 1,000-year flood event plus climate change. I note the

collision risk model report under Section 3.2 in Appendix 8.2, has included flight height bands of 100-180m and greater than 180m, based on recorded bird activity of the vantage point surveys which is 10m higher than the upper tip height. The applicant in their response to submissions dated Jan 2026 has confirmed that turbines within the flood zone which will be on elevated plinths have been incorporated into the assessment and the collision risk modelling uses a precautionary approach allowing for a 180m band.

Overall, I am satisfied that the collision risk modelling has accounted for the variation of turbine heights above existing ground level and including plinths in their assessment. In this regard, I consider that a robust collision risk assessment has been carried out and has factored the plinth heights.

11.7.2. **Natura Impact Assessment**

I refer the Coimisiún to the TOR. The report concludes in relation to the impact on the Natura 2000 network and is summarised as follows;

> "*I agree with the conclusion from the NIS that there is no potential for direct effects on birds to arise from the proposed project, such as disturbance of habitats and/or species, on these European sites during any of the phases of the proposed project on the basis of geographical separation.*
>
> *I agree with the NIS conclusion that the proposed Garrane Project will not contribute to a significant effect on designated sites associated with the Shannon system when considered in-combination with other wind energy projects.*
>
> *Overall, the Commission needs to be satisfied that adverse effects on the integrity of SPA sites can be excluded. I consider that the applicant has provided this information for QI bird species assessed in the NIS and that there will be no adverse effects on QI bird species for these European sites as a result of the proposed project".*

Having regard to the location of the site from the European Sites and the information in the EIAR, which is considered reasonable, I am satisfied the proposal will not have a significant negative impact on the SCI bird species within the European Sites.

Furthermore, it should be noted that the impact on birds and European Designated Sites is assessed in Section 23.0 below. In my assessment it has been concluded that the proposed development is not likely to have any significant negative impact on any SCI bird species of any European Site.

11.7.3. **Vantage points Surveys**

I note submissions have raised concerns in relation to the lack of vantage points covering the southern section of the application site, survey effort and no vantage point surveys to the south of the proposed site which would cover the Charleville Lagoons.

The EIAR details under Section 8.10.3 that the VP surveys were undertaken in reference to current best practice guidance (SNH, 2017) and subsequent updated guidance from NatureScot (2025). I note VP surveys achieved the minimum recommended survey effort of 36 hours per breeding season and 36 hours per non-breeding season for each of the eight selected viewpoints, in accordance with the NatureScot guidance. The locations of the viewpoints are shown on Figure 3 of the Ornithology Baseline Report (Appendix 8.1 of the EIAR).

In relation to the lack of VP coverage to the south of the application site, I note the closest viewpoint to the Charleville Lagoons is viewpoint number 8 (VP8) c. 285m to the north. VP 8 had over 144 hours of observation across the breeding season of 2023 and 2024 and non-breeding seasons of 2022/23 and 2023/24, which I consider to be acceptable with regard to NatureScot guidance for vantage point watch hours.

I note NatureScot (2025) guidance in relation to vantage point watch selection points which states that;

> "*when selecting VPs, the aim should be to cover all the flight activity survey area such that no point is greater than 2km from a VP. It is very important that VPs are chosen to achieve maximum visibility with the minimum number of points. As detection of flight activity will decrease with distance, VPs should be located as close to the survey area as possible*".

Having reviewed Figure 3 of the Ornithology Baseline Report (Appendix 8.1 of the EIAR), I am satisfied that the location of VP 8 is adequate to cover both the southern portion of the site and significant portions of the Charleville lagoons. I also note the viewshed of Viewpoints 2 and 7 also provides coverage to the lagoons. Therefore, I

am satisfied the Charleville Lagoons have been adequately covered by the VP locations. I do not consider it warranted for an additional viewpoint to be located to the south of the Charleville Lagoons as the primary purpose of the VP surveys is to provide data for the collision risk model for the survey area, i.e. application site. I consider the chosen viewpoint locations are sufficient to cover all the flight activity of the survey area.

I note the concerns raised in the Technical Ornithology Report in relation to some surveys (21hrs) being conducted in periods of heavy or continuous rain, however having reviewed the survey details contained in Tables 35 – 42 of the Ornithology Baseline Report, I am satisfied that VP surveys were generally carried out in suitable weather conditions and any potential under-recording of bird species would not significantly alter the results of the surveys in the context of 1,440 hours observation carried out. I am satisfied the surveys have been undertaken in a range of weather conditions and the sample is representative. I note the Technical Ornithology Report conclusion states that;

"I am satisfied that the VP surveys undertaken for this project were sufficient".

Overall, I consider the vantage point surveys carried out by the applicant are sufficient with regards to watch selection, timings, watch hours, duration and in accordance with NatureScot guidance (2017, 2025).

11.7.4. **Nocturnal Flights and Collision Risk**

I note the DAU has raised concern regarding underestimation of collision risk due to the lack of nocturnal surveys given the proximity of the proposed site to the Charleville Lagoons. Other third-party submissions have raised concerns in relation to potential nocturnal collisions and the collision risk buffer zone.

The applicant in their response to submission report dated January 2026, acknowledges that limitations associated with the feasibility of undertaking nocturnal bird flight activity surveys is recognised as a constraint within the collision risk modelling process and is considered within Section 8.3.4 of the ornithology EIAR chapter. However, upon review of the EIAR, I am unable to locate Section 8.3.4 within Chapter 8. Furthermore, I note that the collision risk modelling report under Section 3.6 fails to reference the lack of nocturnal surveys within the limitations and assumptions section of this report. I do not contend with the applicant's assertion that;

"due to limited habitat of likely significant importance for use by waders, waterfowl or other nocturnal birds is present within the Site. Additional nocturnal surveys were therefore considered unnecessary to inform the baseline conditions".

The Technical Ornithology Report also raises concerns with this statement;

"I consider that this statement fails to take into account the potential collision risk for nocturnally active wildfowl species such as shoveler, teal and wigeon passing through the wind farm on flights in and out of the adjacent Charleville Lagoons".

The Technical Ornithology Report further states that;

"Collision impacts on nocturnal movements of nationally important species such as shoveler, as highlighted in the DAU submission and submissions from other parties, have not been considered in the EIAR".

The lack of nocturnal surveys and subsequent data in relation to levels of nocturnal flight activity over the site is a cause of concern given the close proximity of Charleville Lagoons, which is a habitat that attracts waterbird and other bird species which bounds the application site to the south. In the absence of such information, it is clear that nocturnal movements have not been considered in the collision risk modelling report (Appendix 8.2 of the EIAR). Wintering and wader bird species are known to feed nocturnally. Therefore, nocturnal activity may pose greater hazards for birds using or transiting through the site therefore, nocturnal species/flights should be considered when calculating collision risk. I note the applicant has stated the following;

"*this limitation has since been addressed within an updated collision risk modelling approach from Band (NatureScot, 2024), which provides a feature within the modelling to include a nocturnal activity factor. This is intended to accommodate any nocturnal bird flight activity that may be underrepresented within the VP survey data set. This modelling is currently ongoing and can be made available to An Coimisiún Pleanála at reques*t".

I consider it to be the responsibility of the applicant to ensure that all relevant survey information is presented in the application documentation or in the applicant's response to submission report to allow for the Coimisiún to make an informed

assessment within the strict statutory decision timelines associated with RED III cases. I am satisfied that the applicant has had suitable opportunity to submit this revised modelling in accordance with the NatureScot 2024 guidance as part of its response to submissions report January 2026 but didn't provide this information.

I note that NatureScot guidance (2017) also provides guidance in relation to assessing nocturnal movements. The guidance states that nocturnal activity can be estimated by applying a percentage increase on the diurnal flight activity recorded during vantage point surveys depending on the species. The submitted collision risk modelling report has not applied any percentage increase/ estimates to account for any potential nocturnal activity movements in the absence of nocturnal surveys being undertaken.

Based on the information provided by the applicant, I am not satisfied that the level of nocturnal flight activity over the site has been suitably demonstrated in order to enable robust collision risk assessment to be undertaken. Particularly in the case of nocturnally active wintering waterfowl species such as shoveler, teal and wigeon and other waterbird species given the close proximity of the application site to the Charleville Lagoons. In my opinion, collision effects on nocturnal movements have not been adequately addressed in the EIAR.

The Coimisiún will also note the significant concerns raised in the Technical Ornithology Report in relation to the collision risk modelling (CRM) and the buffer (174m) applied around turbine bases for the purpose of identifying the flight activity survey area. Section 3.6 'Limitations and Assumptions' of the Collision Risk Modelling Report states the following;

> "*to account for potential errors when recording the precise locations of birds in flight during VP surveys, a 100m buffer was adopted around turbine bases (in addition to the turbine blade span) when generating the WFA. This is based on the typical proximity of surveyors to the birds recorded (due to the number of VP locations surveyed from), and the Site topography, which included boundary features aiding precise mapping of flight lines. As such, this buffer is considered appropriate to ensure all relevant flight lines were included in collision risk modelling*".

In this regard NatureScot (2017) provides guidance in relation to vantage point surveys. Section 3.8.3 of the guidance document 'Area of Flight Activity Survey' specifically states that

> "*Information is collected during timed watches from strategic vantage points (VPs). This should cover the defined survey area encompassing the proposed turbine envelope if known, or the maximum extent of potential turbine layouts. This should extend to 500m beyond the outermost proposed turbines to deal with inaccuracies of position for flight line observations. This will also reduce the risk of failing to record birds that use the wind farm area only occasionally*".

The recommended 500m buffer has remained unchanged in the updated NatureScot guidance 2025. The Technical Ornithology Report raises the following concerns regarding the usage of a 174m buffer by the applicant in the CRM Report (Appendix 8.1 of the EIAR).

> *"It is not clear why only a 100m buffer was used in the Garrane CRM, particularly given the adjacent Charleville Lagoons within 200m of the nearest proposed turbine. If a 500m buffer from the southernmost turbine (Turbine 1) had been applied, then this would have resulted in the majority of Charleville Lagoons being included in the CRM assessment. This would mean the inclusion of flight height data for shoveler within the rotor-swept zone presented in Table 7.6 of the EIAR Baseline Technical Report (Appendix 8.1), which was highlighted in the submission from BCE Wind Farm Action Group.*
>
> *It is worth noting that the Ballinlee Wind Farm application which applied a 500m buffer was submitted in September 2025, compared to the submission date of the Garrane Wind Farm application in August 2025. Both wind farm applications were submitted by subsidiaries of Greensource Sustainable Development Limited.*
>
> *In the context of a 100m buffer being applied for the CRM assessment rather than a 500m buffer, which would have included flight paths recorded in the majority of the Charleville Lagoons, then it is reasonable to conclude that outputs from the CRM assessment may have been higher had a 500m buffer been applied*".

Having reviewed the NatureScot (2017) guidance document and the Collision Risk Modelling Report, I would also have concerns in relation to the buffer applied. The applicant has for the purposes of collision risk modelling, applied 174m radius around each turbine base for the turbine layout. This radius accounts for the span of the turbine blades 74m plus a 100 m buffer to allow for any inaccuracies when mapping bird flight lines during VP surveys.

Notwithstanding the applicant's rationale for the 174m buffer adopted around the turbine bases, outlined in Section 3.6 of the Collision Risk Modelling Report, I am not satisfied that the buffer applied is in accordance with guidance contained in the NatureScot (2017) and potentially results in the exclusion of important BoCCI red and amber listed bird species in the collision risk modelling methodology.

I note the buffer zone for T1 currently extends into the northern lagoons of the Charleville Lagoons as shown on Figure 1 of the Collision Risk Modelling Report. It is clear that if the 500m buffer was applied, the T1 buffer zone would extend significantly into the Charleville Lagoons. This would have allowed the CRM assessment to include flight path data for species recorded within the Charleville Lagoons. As a consequence of only a 174m buffer being applied, I consider the outputs from the collision risk modelling may be underestimated and that other key ornithological features for collision risk modelling may have been excluded. The Coimisiún will note the Technical Ornithology Report conclusion in relation to the lack of nocturnal surveys and collision risk buffer zone as follows;

> *"Taking into account concerns raised by the DAU and other parties about potential nocturnal collisions, and the potential for outputs from the CRM assessment to have been higher had a 500m buffer been applied, I recommend that consideration is given to the removal of Turbine 01 as numbered in Figure 1 of Appendix 8.1 from the proposal, in order to reduce the potential for significant nocturnal turbine collision effects on shoveler and other waterbird species that regularly use Charleville Lagoons".*

Having regard to the above, I have significant concerns regarding the lack of nocturnal surveys and the buffer zone applied in the collision risk modelling. Given the close proximity of T1 to the Charleville lagoons, I am not satisfied based on the information presented in the EIAR that the potential for nocturnal collision impacts on species such

the BoCCI red listed shoveler and other regularly occurring wildfowl such as teal and wigeon (Both BoCCI amber listed) at the lagoons have been fully considered in the EIAR. It is noted that the Charleville lagoons host nationally important numbers for the shoveler and with teal occasionally exceeding the 1% threshold of nationally importance. As such significant turbine collision effects on shoveler and other waterbird species that regularly use Charleville Lagoons cannot be ruled out in relation to turbine T1. Based on the information presented in the EIAR, I am not satisfied that the potential for significant adverse impacts on waterbird species can be avoided, managed and/or mitigated by measures that form part of the proposed development layout, the proposed mitigation measures or through suitable conditions without the omission of turbine T1. On this basis, if the Coimisiún are mindful of granting permission to the proposed development, I would recommend the omission of T1.

11.7.5. **Whooper Swan**

In relation to the potential impact on the local whooper swan population, I note the Technical Ornithology Report conclusion that,

> *"I agree with the conclusion presented in Table 8.20 that whooper swan does not constitute a Key Ornithological Receptor for this project, and that further assessment for this species in the EIAR was not required'.*

I note surveys carried out over the 2023/24 non-breeding season including dawn and dusk watches, recorded just two Whooper swan observations within 5km of the site. One record was also recorded during the 2022/23 transect surveys of two individuals flying towards Charleville Lagoons from the south-west of the Site in November 2022 and one individual foraging on grassland within the site in March 2023. No whooper swans were recorded during any of the other surveys (vantage point or hinterland). I note the whooper swan survey results for the Churchtown (13.5km southwest of site) and Kilcolman (located c.15km south of the site) wildlife reserves detailed in Table 8.18 of the EIAR show swan populations using these locations for both roosting and foraging throughout the winter. Based on the VP survey data, no regular flight activity was recorded between the application site and these wildfowl reserves. Therefore, functional linkage between the sites is not considered likely. Likewise, I am also satisfied that due to the low number of observations during hinterland surveys that no connectivity exists between the Kilcolman Bog SPA and the application site. Third-

party assertions of significant displacement, disruption, or threat to swan populations are not supported by the data presented in the EIAR.

Having regard to the above, I am satisfied that the findings of the EIAR does not indicate the site is functionally linked to Churchtown and Kilcolman wildlife reserves or Kilcolman Bog SPA. Furthermore, very low numbers of Whooper swans were recorded using the Charleville Lagoons therefore populations were not of county or local importance. Notwithstanding the third-party submission observing a single-family party of 6 no. birds on a single visit in October 2025. Based on the surveys carried out, I am satisfied that the Whooper Swan does not frequent the application site or Charleville Lagoons in significant numbers.

Overall, I am satisfied that the proposed development will not result in a significant adverse effect on whooper swans. The Coimisiún will note my AA conclusion in Section 23.7 that the proposed development will not affect the attainment of the Whooper Swan conservation objective of the Kilcolman Bog SPA.

11.7.6. **Barn Owls**

The DAU has raised concerns that a more comprehensive survey of Barn Owl is recommended based on observations on Barn owl flying (2 to 3 times) and the availability of suitable roost structures on site in order to better inform a collision risk assessment. I note the Technical Ornithology Report conclusion which states;

> *"Based on the information in the EIAR, I agree with the conclusion presented in Table 8.20 that barn owl does not constitute a key Ornithological Receptor for this project, and that further assessment for this species was not required. Although barn owls do breed in the vicinity of the proposed site, I do not consider that there is a significant risk of collision or displacement of barn owls from the proposed project, based on the evidence presented on the UK barn owl trust website*".

The EIAR details in Table 8.20 that the barn owl is not considered as a key ornithological feature. I note Barn owls were only recorded twice during the VP and transect surveys once each in the 2024 breeding and non-breeding season flying within the 0-20m and 20-50m bands. 2 no. barn owl surveys were carried out in April and September 2023 with an additional visit in April 2025 at site 4 (identified on Figure 5c of the EIAR).

I note that 7 no. sites were identified with potential, 3 no. were considered suitable for nesting barn owl as detailed in Table 8.9 of the EIAR. The surveyed sites are all located outside of the proposed windfarm site within 1km radius.

Whilst not included within the redline application boundary, Site 3 (derelict dwelling) is surrounded by the proposed windfarm site. No Barn owl activity or vocalisations were detected throughout the survey visits and dusk survey at any of these locations. Notwithstanding the concerns raised in the Technical Ornithology Report regarding the Bird Watch Ireland survey methods not being fully complied with by the applicant, based on the survey data, I am satisfied Barn owl activity is low and therefore can be considered as not a key ornithological feature. I do accept that suitable habitat is available on the proposed windfarm site and is likely to be used for foraging purposes. No survey evidence has been provided by the applicant or third parties to demonstrate breeding within or near the application site.

I am satisfied there will be no loss of suitable nesting or roosting habitat as a result of the proposed development. Enhancement measures are proposed as part of the BEMP and include the provision of new and enhanced and revitalised hedgerows, new native woodland and nest boxes which will improve foraging habitat for small mammals and provide additional nesting/roosting opportunities.

The Coimisiún will note the Council's Ecologist have raised no concerns regarding the impact on barn owl and would like an increase in the provision of proposed owl barn nest boxes. The DAU in their submission recommend the carrying out of a more comprehensive survey throughout the year to better inform a collision risk assessment. However, I do not consider the level of barn owl activity at the site warrants the requirement of further surveys. I consider the collision risk modelling to be acceptable.

Overall, I am satisfied the proposed development will not result in a significant adverse effect on this bird species and concur with the conclusion of the Technical Ornithology Report in this regard. I consider additional bird boxes can be conditioned in relation to the Councils recommendation.

11.7.7. **Other Raptors**

Submissions have raised concerns regarding the potential impacts of the proposed development on raptors, in particular hen harrier, kestrel and peregrine falcon.

Raptor surveys were carried out during the 2023 and 2024 breeding seasons. I note the discrepancies in the extent of surveys from the proposed site with Section 8.10.6 of EIAR stating "*within 5km of the site*", while Section 2.5 of Ornithology Baseline Report (Appendix 8.1) states 'within 2km of the site'. Notwithstanding this I am satisfied that adequate surveys as detailed in EIAR Appendix 8.1 have been carried out. A total of 3 no. species were observed during the raptor surveys. Buzzard, kestrel (BoCCI red listed) and sparrowhawk were recorded within 2km of the site.

7 no. raptor species were also recorded during the vantage point, hinterland and transect surveys including: barn owl, buzzard, kestrel, merlin, short-eared owl, sparrowhawk and white-tailed eagle. No nest sites were identified within the site or evidence of breeding activity was recorded. The site habitat dominated by pasture and wet grassland is not considered to be of particular value for these species. The availability of suitable foraging and commuting habitat within the wider landscape is noted.

Suitable nesting habitat for kestrel including trees will be lost as a result of the construction phase however, suitable habitat availability remains abundant in the surrounding area of the site and the loss is considered to be negligible in the local context.

It is noted that kestrel flight activity was frequent within the application site and therefore would be more susceptible to potential construction effects, with disturbance and displacement impacts. It is considered that the application site likely supports at least one kestrel territory and is used for foraging purposes during the breeding and non-breeding seasons. The application site is considered to be of Local (Higher value) importance. The precautionary collision fatalities estimated in the EIAR for kestrel based on flight activity was 9.2 birds over the lifespan of the proposed development and not significant in the context of the national and local populations of this species.

Peregrine was recorded on multiple occasions with increased activity during non-breeding season. I note the collision risk modelling estimates peregrine collision fatalities of 0.219 birds over the proposed 35-year project lifespan.

For both peregrine and kestrel collision fatalities over the lifespan of the proposed development amount to less than 1% of the county population, and the increase in

bird mortality was not considered significant when compared against the stated annual background mortality for this species.

Hen harriers were recorded in low numbers with 8 no. observations of individual male and female birds hunting during non-breeding vantage point surveys in 2022/23 and 2023/24. The site provides no suitable nesting habitat but does consist of pasture and wet grassland with scrub and hedgerow habitat providing suitable foraging habitat. The hen harrier was not selected as a key ornithological feature for inclusion in collision risk modelling due to the low activity recorded within the four-year survey period, flight patterns, habitat suitability, distance from known breeding populations and wider habitat availability.

Overall, I am satisfied that the site is not of a particularly high value to raptor species and that the proposed development will not result in a significant adverse effect on raptor species.

11.8. **Conclusion Direct and Indirect Effects**

I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. I am satisfied that the potential effects on ornithology as a result of the proposed development would be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions subject to the omission of turbine T1. I am therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects on the ornithology.

12.0 Soils and Geology

12.1. **Issues Raised**

12.1.1. **Scoping**

The following prescribed bodies responded to the applicants scoping consultation process which informed the EIAR (Table 9.6 - Scoping Responses and Consultation of Applicants EIAR);

- **Geological Survey of Ireland (GSI**) – Received 11th June 2024 – GSI noted that there is one County Geological Sites (CGS), Knocksouna LK022, within 1km of the site. No further concerns.

- **Environmental Health Service (EHS)** – Received 7th June 2024 – EHS submission refers to High Court judgement issued in the judicial review of the Derryadd Wind Farm. (2021 IEHC 390 [20202 No. 557 JR] P. Sweetman v An Bord Pleanála) in relation to the carrying out of an EIA, including decommissioning, siting, location and details of turbines, geotechnical and peat stability assessment and cumulative impacts.

12.1.2. **Prescribed Bodies**

12.1.2.1. **An Taisce**

Lacustrine Sediment: The Wetlands Survey Ireland map show that part of the subject site is located on lacustrine sediment, whose suitability for turbine installation and access route construction should be clarified as a preliminary matter. The Limerick Wetlands Field Survey 2025 indicates an unknown rating of ecological value, necessitating the need for a further survey to inform a baseline ecological characterisation of the site. An Ecological Impact Assessment (EcIA) could be requested as further information if the biodiversity chapter of the EIAR, or the NIS, has neglected consideration of this wetland.

12.1.2.2. **Third Party Submissions**

Submissions as follows;

- Increased erosion and contamination of nearby agricultural land concerns.

12.2. **Context**

EIAR Chapter 9 with Appendix 9-1 (Determination of Ground Conditions), 9-2 (Site Investigations Report) and 9-3 (Supplementary Site Investigation Report) has assessed the potential impacts on the land, soils and geology associated with the Proposed Development. The applicant notes that Peat Landslide Hazard has been screened out for the project. Peat soils were found to be absent on the site. (See EIAR, Table 9.7)

The EIAR provides a statement of authority, details the methodology used, the baseline conditions, identification and assessment of effects for all phases of development, the mitigation measures proposed and any residual impacts, identification and assessment of cumulative effects. The applicant notes that this Chapter is strongly linked with Chapter 10: Hydrology and Hydrogeology due to the potential of impact on water quality from contaminated run-off.

12.3. **Baseline**

I note that EIAR, Table 9.9 presents a summary of the findings of the Soils and Geology Baseline together with preliminary design recommendations.

12.3.1. **Site Studies & Investigations**

The study area is indicated as 2km from the site boundary in the main, but sensitive receptors up to 10km from the site have been included in the assessment to include for the potential of soil contamination from water run-off impacting downstream receptors.

The applicant notes that desk study information was interpreted to establish the preliminary baseline conditions within the study area ahead of the site investigations and was employed for both preliminary layout design as well as for design of the site investigation works. Field surveys were undertaken with site walkover undertaken in August 2022 and ground investigations commended in September 2022, with a second round of ground investigations undertaken following completion of the layout design. The screening assessment of soils, undertaken initially during the walkover survey, and later confirmed during the extensive site investigation campaign, did not identify the presence of either Peat soils or Peat bog habitat at the Site. (Refer to Section 9.2.6 of EIAR for detail)

A total of 10 no. hole excavations and 20 no. geophysical survey profiles were undertaken during the site investigation campaigns. The results of the investigations undertaken for the main windfarm infrastructures are summarised in Table 9.8 and detailed further in Appendix 9.3.

12.3.2. **Site Description**

The site consists of agricultural land used for grazing cattle with ground elevations varying from 58m to 73m at the highest point in the south of the site. Slope gradients within the majority of the site are between 0 and 2 degrees to the horizontal, with small areas of slope up to 4.5 degrees present to the south. The site is predominantly flat located on low-lying lands, some of which are within the floodplains of the Maigue and Loobagh Rivers. There are no known areas of existing soil contamination within the site and no evidence of measurable soil contamination was observed during walkover surveys or the site investigation.

The site is traversed by an underground industrial outflow pipeline which conveys treated wastewater from a wastewater treatment plant, which is operated by The Kerry Group. It passes just east of the met mast and close to the western edges of turbines T3 and T5. The Project will not involve the excavation or disturbance of the existing pipeline and historic agricultural contamination has not been observed, the potential impact from pre-existing soil contamination is considered to be low.

The TDR consists entirely of public roads. 3 no. small areas of land will be required for road widening at 2 no. site entrances, 1 no. off the N20 and 1 no. off the L1537 site entrance. The GCR extends underground for c. 380m connecting the on-site 110kV substation to the existing 110kV overhead line, which it will connect to the National Grid.

A portion of the Application Site overlaps with the buffer apportioned to a Private Water Supply (of unknown origin; assumed agricultural) recorded by GSI as IE_GSI_GW_Well_19496 (GSI Name: 1411NWW033), located at Grid Reference ITM: E=554850, N=626360. The potential for adverse effect on this Private Water Supply is considered to be Not Significant. There are no Group Water Supply or other Public Water Supply Schemes within the Study Area.

A system of Surface Water Reservoirs, owned and operated by the Kerry Group, are located within the Study Area, immediately south of the Site. (Refer to Figure 9.11 – Groundwater Wells and Source Protection Zones) These reservoirs are used by the Kerry Group, as part of their manufacturing process, but are not considered to be hydrologically linked to the site. The potential for adverse effect by the project is considered to be Not Significant.

12.3.3. **Ground Conditions**

According to GSI online database, the site is underlain by Waulsortian Limestones – Massive unbeded limestones, Visean Limestones – Undifferentiated limestones, Ballysteen Formation – Dark muddy limestone, shale. All the above-mentioned rock formations are soluble, although neither the Ballysteen Formation nor the Visean Limestones typically exhibit the characteristics of a “karst” landscape. However, the Waulsortian Limestones, which underlies a significant proportion of the Site, is known to exhibit typical karst landscape (dissolution) features. Karst landscapes can be problematic for construction, as the underlying rock formation tends to be both deeply

weathered and has the ability to dissolve, under the action of groundwater, causing features such as sinkholes, subterranean drainage systems and other potential sources of instability. The applicant notes that no dissolution or karst features such as sinkholes, subterranean watercourses or significant springs are either recorded by GSI within the site, nor have any such features been observed during site walkover surveys. None of the shallow exploratory holes (3.80m maximum depth), undertaken during the Site Investigations, recorded the presence of a solid rock formation. Analysis of historic ground investigation records published by GSI, indicates that very thick superficial soil thicknesses of up to 21.90m overly the bedrock in the northern portion of the Site. Superficial soils largely consists of lake (lacustrine) deposits and river deposits (alluvium). The northern and southern extents of the site are underlain by cohesive glacial till (silt and clay), with small pockets of gravels present elsewhere (See EIAR, Appendices 9-1, 9-2 and 9-3). Reference to the Teagasc Soils Data maps (www.gsi.ie) indicate that the site is predominantly covered by lake sediments and alluvium including poorly drained podzols, gleys and brown earths at the periphery of the Site. (Refer to EIAR Figure 9.3)

12.3.4. **Geological Faults**

2 no. geological faults traverse the Application Site. One of these crosses the northern portion of the site in an approximately east – west direction. The other bisects the site within the south-eastern corner in an approximately south-west to north-east direction. Faults and other discontinuities can be associated with groundwater pathways as well as seismic movement and will be considered for the purpose of detailed design. However, the Irish landmass is one of the least seismically active regions in the World, where no significant earthquakes (ML ≥ 5.4) have been recorded since records began. The applicant notes that the most significant seismic event recorded in Ireland by the British Geological Survey was a low energy, 3.70 magnitude seismic event, that occurred on 11th January 1951 within the Irish Sea, more than 100km from the site. Considering the above an assessment has been made with regard to the likely effects from such seismic activity. This has determined that any ground movement recorded can be expected to be negligible with respect to the Project proposed, where Peak Ground Accelerations can be expected to be in the order of 0.02g2. Such ground accelerations are considered to be Not Significant.

12.3.5. **Geological Resource**

In terms of Geological Resource, the applicant notes there are no quarries within 2km of the site. Section 9.3.8 of the EIAR lists the closest crushed aggregate quarries and pits to the site. No records of shafts or adits associated with mineral exploration were observed within 10km of the site or within the immediate vicinity. According to GSI, the Aggregate Potential for the rock formation underlying the site is generally categorised as Low to Moderate. Analysis of the ground investigation results confirms soils to be thick and predominantly clay with the bedrock correspondingly deep. The potential to win good quality rock, from an on-site Borrow Pit is considered to be low, as suggested by GSI. Any loss of mineral resources caused by the project will, consequently, be Not Significant.

12.3.6. **Designated Sites**

GSI Geological Heritage Sites present in the vicinity of the site include the following;

- LK022 Knocksouna (1.5km to the east of T7)
- LK001 Ballyhoura Mountains (9.7km SE)
- LK002: Ballylanders – Kilfinnane Morraine (11.6km SE)
- LK030: Tory Hill (14.7km N)
- LK024: Lough Gur (13.5km NW)

The applicant confirms that all of these Geological Sites, with the exception of Knocksouna, are outside the study area and not considered to be hydrologically linked to or influenced by the subject site. The Knocksouna site includes a series of warm water springs and a high bedrock crag to the north. The springs occur along a roughly east-west line at the foot of Knocksouna Hill, where twelve individual springs emerge through the alluvial floodplain of the River Loobagh, over a distance of 700m. The bedrock is dolomitised Waulsortian “Reef” limestone, which has been planned, streamlined and sculpted by ice during the Ice Age. Southwards, in the same field, the land is underlain by oolitic limestones with similar bedding orientation. The contact between the two bedrock units is obscured by deep glacial till and alluvium in the area of the springs. The Knocksouna site is considered to be unusual, relatively unique and to deserve recognition as a County Geological Site. The applicant highlights the project and the Knocksouna site, although connected by the Loobagh River, are not hydrologically linked. The Knocksouna site lies upstream of the Project and therefore, any potential effect will be Indirect, Long-term, Adverse and Imperceptible, as a result

of contamination by hydrocarbons, chemicals or siltation contamination entering the watercourse. In EIA terms the effect is considered as Not Significant.

The closest protected sites include Mountrussell Wood Proposed NHA (Ref 002088 – 8.2km); Blackwater River SAC (Ref 002170 – 8.9km); Ballyhoura Mountains SAC (Ref 002036 – 9.8km) and Ballyhoura Mountains Proposed NHA (Ref 002036 – 9.9km). The applicant notes that none of these designated sites are within the study area and do not have the potential to be affected by the Project. No other protected sites are considered to be within the zone of influence of the Application Site. Any adverse effect caused by the Project will be not significant.

12.3.7. **Landslide Susceptibility**

According GSI mapping, Landslide Susceptibility within the site and along the GCR is Low or Low (Inferred) risk. The applicant notes that GSI also holds records of historic landslides and records one landslide event within 10km of the site. This landslide event (ref: GSI_LS03-0009) occurred in 1697 at Kapanihane Bog within the Estate of Brook Bridges, c. 7km to the northwest, which resulted in a landslide occurring within the raised peat bog. There is no record of any impact as a result of this event and no other events have been recorded either within the site boundary or within 10km. Within the Site ground slopes are either flat or of a very low angle and, consequently, potential for natural soil movement is also considered to be low.

12.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 13.1 below.

Table 13.1: Summary of Potential Effects (Soil and Geology)
Do Nothing
• If the Windfarm were not to proceed, the current land use would remain as it is with continued grazing for cattle. There will still be potential for moderate adverse effects on the groundwater aquifer from contamination of soils by agricultural activities. (Refer to Table 9.10 of applicants EIAR)
Construction Impacts
• **Compaction, Erosion & Degradation** – Soil compaction caused by construction traffic throughout the site, which may impact hydrology. Leads to loss of soil structure, reduction is soil fertility, reduction in permeability and rainfall infiltration, Increasing the risk of surface water runoff and erosion and 'soil sealing'. Soil erosion causes loss of soil structure, reduction of soil fertility, vegetation loss and indirect siltation of water courses. The superficial soils underlying the Site are generally

clays of low permeability and coupled with the fact that the site has flat or gently sloping topography, the effects of compaction will not result in a significant increase in runoff. The potential for compaction and erosion of the soil is considered to be Short Term with a Small Adverse magnitude of impact. The potential effect is considered to be of Moderate significance. Mitigation measures will be adopted throughout the construction phase to reduce the occurrence of compaction, although it should be noted that the majority of the construction work and vehicles will take place on the new tracks and crane hardstanding's and thus of a smaller footprint.

- **Land and Land Use –** 25,635m3 of topsoil and 20,770m3 of subsoil removal will occur during construction excavations and is an unavoidable consequence of the windfarm development. This will result in an adverse effect to land capability for agriculture, causing a loss of moderately productive agricultural lands. Removal of the soil (both organic topsoil and mineral soils) and bedrock is considered to be a permanent effect as it would not normally be reversed, although some reinstatement of the agricultural capability is possible after decommissioning.
- **Land Take – Wind Farm** – There will be a long-term alteration to the current agricultural land, which a loss of c. 158.75ha of farmable area during construction, which will have a commercial impact on farmed landholdings. This loss will be reduced to c. 11.256ha following construction when lands will return to agricultural use. The effect is considered to be a Long-term, Adverse and Moderate. In EIA terms the effect is considered as Not Significant.
- **Land Take** – Turbine Delivery Route (TDR) – No land take will occur within public roads, but short sections of land takes will occur within private third-party lands, where widening is required at the 2 no. Site entrance. The effect of this land take is considered to be **Long-term, Adverse** and **Slight**. In EIA terms the effect is considered as **Not Significant**.
- **Land Take** – Grid Connection Route (GCR) – Removal of the topsoil and mineral soils to install cables within a field is considered to be a temporary effect as the ground will be reinstated in a "like-for-like" fashion immediately following installation of the circuits. The effect this will have in relation to the Grid Connection is considered to be **Temporary, Adverse and Slight.** In EIA terms the effect is considered as **Not Significant**.
- **Subsoil and Bedrock Removal** – 20,770m3 of subsoil and bedrock (to a much lesser degree) removal will occur. The potential effects include Alteration of natural geological landforms, Reduction in capacity for the soils to support vegetation, Changes in permeability and rainfall infiltration, Alteration of topography so as to reduce slope stability. Spoil generated will be reused during the construction phase with any remainder stored locally within a series of spoil repositories, for reuse during the decommissioning phase. Refer to **Chapter 2: Project Description: Drawing No. 6839-JOD-GGE-XX-DR-C-0200 – 0209** for details.
- **Excavations** – Creates potential for contaminating soil movements to occur. Processes such as soil instability, poor spoil handling, compaction and subsidence brought about by earthworks activities, can cause a release of silt into the environment, which can adversely affect local (and potentially regional) sensitive receptors, such as watercourses and their associated flora and fauna. Estimates of excavation volumes are presented in **Table 9.1.3** of the EIAR. Refer to the **CEMP** in **Appendix 2.1** which details the excavation works required. The effects

associated with general excavation works are considered to be **Long-term, Adverse** and **Significant.**

- **Site Access Tracks** – Site Access Tracks will be constructed within the firm mineral soils using unbound crushed aggregates and incorporate drainage to maintain the performance of the pavement during wet weather. The effect associated with excavations for soil and bedrock removal for the Site Access Tracks (*loss of agricultural resource, degradation of soil structure, changes to drainage, as well as increased potential for erosion*) is **Long-term**, **Adverse** and **Significant**.
- **Turbine Foundations and Hardstand Areas** – Turbines T4, T5, T6, T7 and T8 lie within the floodplain, and will be constructed using piled foundations, in order to transfer foundations loads directly onto the underlying rock formation. For all other turbines (T1, T2, T3 and T9) and associated infrastructure, the overlying topsoils will be removed until mineral till soils of sufficient competence are encountered and the construction of standard strip, pad or base foundations commenced. Refer to **Table 9.14,** for proposed foundation arrangements.
- **Bedrock Excavations and Turbine Foundations** – Significant bedrock excavations will not be required. Locally, some excavations may encounter rock, but this will be exceptional and highly localised. Any rock excavated during construction will be reused as construction fill if possible. EIAR, Table 9.14 provides Indicative Depth to Bedrock at Proposed Turbine Locations.

  Confirmatory construction stage ground investigations will confirm the quality and strength of the bedrock, where present. Where deep or large excavations are required in moderately strong to strong rock, heavy breakers will be deployed for this purpose. No rock blasting will be employed to remove rock at the application Site. The effects associated with excavations for soil and bedrock removal at Turbine and Turbine Hardstand areas *(Alteration of natural geological landforms, reduction in capacity for the soils to support vegetation, changes in permeability and rainfall infiltration as well as alteration of topography so as to reduce slope stability*) are **Permanent**, **Adverse** and **Significant**.
- **Wind Farm Site Cable Trenches** – Cable trenches throughout the Site will be excavated to a depth of 1.0m prior to installation of cable ducts. During construction, the topsoil and mineral soils will be stored separately and any excess remaining after reinstatement will either be stored permanently on site or removed for disposal off-site. Imported granular fill will be used to surround the cables, albeit with suitable excavated soils being reused for backfill. The effect associated with excavations for windfarm internal cabling *(Degradation of soil structure, changes to drainage regime and reduction in soil fertility)* are **Long-term**, **Adverse** and **Not Significant**.
- **Borrow Pits** – No borrow pits are proposed for the Site.
- **TDR** - The Turbine Delivery Route will generally use the existing public roads. However, widening will be needed at the 2 no. Site entrances. Details are presented in DIAR, Chapter 17: Traffic and Transport. The effects *(loss of soil ability to support vegetation, degradation of soil structure, changes to drainage and increased potential for erosion)* are **Long-term, Adverse** and **Not Significant** effects.
- **GCR** - Grid connection trenches will be excavated along the grid connection route, between the Substation and the Loop-in" connection to the existing110kV OHL between Kilonan and Charleville. The trenches will be within agricultural fields, to a proposed depth of 1.30m, depending on confirmatory investigations. Excavation of

topsoil and mineral soils will be required. These trenches will be backfilled using imported granular material with the excavated material stored on-site at one of the soil repositories or recycled for use elsewhere. The effects associated with excavations for cable trenches (Degradation of soil structure, changes to drainage regime, reduction in soil fertility and reduced stability) are **Permanent, Adverse** and **Not Significant**.

- **Site Compound** – 1 No. site compound and 1 no. blade laydown area will be employed. The compound will be temporary, for the duration of the construction phase. The potential effects for the temporary construction compound are considered to be **Temporary, Adverse** and **Slight.** In EIA terms, the effect is considered as **Not Significant**.
- **Total Volumes of Material to be Excavated** – Refer to EIAR **Table 9.13.** 25,635m3 of Topsoil and 20,770m3 of Subsoil will be excavated. Where excess topsoil or subsoil material is generated which cannot be utilised for reinstatement or landscaping purposes, it is proposed to develop a permanent spoil storage area (berm) where excess soil and subsoil will be stored permanently. The permanent spoil area (berm) is 4,050m2 and will be 2m in height with a storage capacity of 8,100m3. Table 9.15 describes the summary effect of soil and bedrock removal ranging from Slight to Significant.
- **Spoil Management -** Within the spoil management process there is potential for a moderate adverse effect on soil due to erosion of inappropriately managed excavated materials. However, any effects from the handling of excavated materials will be managed through good site practice, as per NRA Guidelines. A robust sediment and erosion plan, greatly reduces the risk of erosion or sediment release to surface waters. No excavated soils will be taken offsite. This process of storage, stockpiling and spoil management will have a **Long-term, Adverse** and **Moderate** effect on the geology and soils associated with the proposed project. In EIA terms, the effect is considered as **Not Significant**.
- **Vehicular Movement** – Vehicular movement causes compaction and sealing of the subsoils and has the following effects on soils and geology: Loss of soil structure, Reduction of soil fertility; and Reduction in permeability and rainfall infiltration. In EIA terms the effect is considered as **Not Significant.**
- **Peat Landslide Hazard, Ground Stability and Failure** - Peat Landslide Hazard has been screened out as a potential impact on soils and geology as this was not recorded within the footprint of the windfarm infrastructure. the overall landslide susceptibility has been assessed or inferred to be low. Due to the underlying karst features on the site, the potential effects associated with ground stability and localised failure are considered to be **Long-term, Adverse** and **Significant**.
- **Soil Contamination** – No extant contaminated soils were recorded. Accidental spillage of fuels, release of chemicals or importation of contaminated materials during construction works poses a significant pollution risk, where the potential sensitive receptors such as the native soils, underlying groundwater aquifers, existing pipeline and local watercourses have the potential to be adversely affected. The most sensitive indirect receptors in this respect are the River Maigue, its tributaries and the existing Kerry Group pipeline. The Knocksouna Site of Geological Significance, 1.5km to the east has also been considered for potential indirect impact, but determined to be of only Low sensitivity, due to the lack of hydrological

and hydrogeological connectivity. The Knocksouna Site lies upstream of the Project and at sufficient distance (1.5km) from the Project, that the weak permeability of the low vulnerability cohesive soils will effectively contain any potential spread of contaminants. At a distance of 1.5km any potential effect will be Imperceptible.

- As a potential contaminant spoil is a "foreign" material with the potential to alter the chemistry of, and fertility of the existing soil environment. Given the high-water table and proximity of construction works to the River Maigue and existing Kerry Group pipeline, sensitivity in respect to Contamination is considered to be High. Consequently, the weighted significance of the environmental effect on the soils and geology environment is considered to be **Indirect, Long-term, Adverse and Significant**.
- **Hydrocarbons** - Other possible effects associated with the use of construction plant includes release of hydrocarbons which may contaminate the soil and subsoil. A Spil has the potential to indirectly pollute water. Any spill of fuel and chemicals, release of silt and leaching from contaminated materials will present a **Long-term, Adverse** and **Significant** effect.
- **Wastewater and Sanitation -** The effects associated with wastewater and sewerage during construction without mitigation are considered to be **Short-term, Adverse** and **Moderate**. In EIA terms the effect is considered as **Not Significant.**
- **Construction or Cementitious Materials -** A number of materials will be stored and used onsite throughout the construction phase of the Project, including imported aggregates, concrete and bentonite. Should these contaminants (in the case of cement and bentonite) be spilt they have potential to indirectly adversely impact affect water quality.
- Imported aggregates will be employed as part of the construction process. Importation of materials from sources outside the Site have the potential to introduce contamination unless appropriate controls, such as material certification and on-site sampling and testing are undertaken. Where these are not inert, they have the potential to leach contaminants directly into the soils and indirectly, via flowing or percolating surface water, into watercourses and the groundwater aquifer. The effects associated with construction or cementitious materials is considered to be Temporary, Adverse and Moderate. In EIA terms, the effect is considered as **Not Significant.**
- **General Waste** – There are 6 no. temporary spoil storage areas and 1 no. permanent spoil storage area. All spoil will be managed on site. (Refer to EIAR Chapter 2: Project Description: Drawing No. 6839-JOD-GGE-XX-DR-C-0200 – 0209.) Spoil identified as potentially hazardous will be promptly stored on an impermeable surface within properly bunded areas in accordance with good site practice as described in the IWEA and Scottish Best Practice Guidelines and in accordance with EIAR Appendix 2.1, CEMP. The effects associated with the use of construction materials are considered to be **Long-term, Adverse** and **Moderate.** In EIA terms the effect is considered as **Not Significant**.

  A policy of Reduce, Reuse and Recycle will apply. All construction and operation waste materials will be correctly sorted, recycled or disposed of and follows best practice as described in the IWEA and Scottish Best Practice Guidelines and in accordance with the CEMP. In EIA terms the effect is considered as **Not Significant**.

- **Features of Geological Heritage** - The LK022 Knocksouna site of geological heritage is located 1.5km to the east of the Site and has been assessed for potential effects from the Project.
- The Knocksouna site is a local source of upwelling thermal springs that rise along the base of a rocky outcrop along the edge of the Loobagh River, upstream from the Site. The Knocksouna site is considered to be unusual and relatively unique and, for this reason, has been classified as a County Geological Site. For further details refer to EIAR **Chapter 10: Hydrology and Hydrogeology, Sections 10.3.17.7 and 10.3.20.3**.
- Since the Project and the Knocksouna site are neither hydrologically nor hydro geologically linked to the Project, there is only potential for an **Indirect, Long-term**, **Adverse,** and **Imperceptible** effect as a result of contamination by hydrocarbons, chemicals or siltation.

Operational Impacts

- **Soil Compaction, Erosion and Degradation** - No significant new excavations will be undertaken during the operational phase, hence no new compaction of soils will occur. Ongoing settlement of structures, site tracks, spoil deposition area and other infrastructure will continue to occur during the operational phase, but this is low in significance and monitored regularly. The effects are considered to be Long-term, Adverse and Slight. In EIA terms, the effect is considered as Not Significant.
- **Land Take** – **Windfarm** - No adverse effect on land use is envisaged during the operational phase of the Project, when the land take will reduce from c. 11.256ha (construction phase) to c. 5.095ha.
- **Soil Contamination** - Wherever there are vehicles and plant in use, there is the potential for a direct hydrocarbon release which may contaminate the soil and subsoil. Use of chemicals, such as lubricants, cleaning agents, pesticides etc. during this phase carries the same degree of risk. Any potential spill of hydrocarbons or other chemicals will continue to present a Long-term, Adverse, Significant effect on the soil and geological environment. In EIA terms this is considered as **Significant.**
- **General Waste** - The effects associated with waste materials is considered to be Long-term, Adverse and Slight. In EIA terms the effect is considered as Not Significant.

Decommissioning Impacts

- The Proposed Development has been designed with an operational life of 35 years, at the end of which it can be decommissioned. All structures above ground level shall be demolished and removed from the site for reuse/recycling; however, access tracks are likely to be retained for continued use by the landowners for agricultural purposes. Hardstand areas will be remediated to match the existing landscape as closely as possible. **The Decommissioning Plan (Appendix 2.1 CEMP**) specifies that the turbine hardstands will be allowed to naturally revegetate. The habitat that would be expected to develop is likely to fall into a mosaic of semi-natural grassland (GS).
- The Grid Connection and the Substation will become an asset of the national grid under the management of ESB and& EirGrid and will likely remain in place upon decommissioning of the windfarm as required by ESB/EirGrid.

- Certain aspects of activities occurring during the construction phase are anticipated to occur at reduced levels during decommissioning, such as excavation of turbine foundations that will be left in situ and covered with soil for reinstatement. Access tracks will also remain for ongoing usage as farm tracks. In addition, the use of building materials, including concrete and aggregates will not be required. In general, the potential effects associated with decommissioning will be similar to those associated with construction, but of reduced magnitude because extensive excavation and wet concrete handling will not be required. The potential environmental effect from ground disturbance, soil storage and stockpiling and contamination by fuel leaks will remain during the decommissioning period.

Cumulative Impacts

- Cumulative effects of the Project with other developments in the region, relate to the indirect effects that may arise due to the use of public roads as haul routes to bring construction materials to site and the cumulative effect on the use of natural resources. The use of local quarries, aggregate and concrete suppliers, of which there are 6 no. within 20km of the site (**EIAR Chapter 2; Table 2.5**), have been assessed to be a potential cumulative effect to the Project and these potential effects; Vehicle Movement, TDR / Haul Route as described in this table above.
- During the construction of the Project there will be a requirement for the importation of engineered fill from source quarries. There is a total of 10 no. "larger" construction projects (9 no. permitted) that have been granted planning permission within 10km. One of these projects is a solar energy development of significant in scale (planning ref: An Bord Pleanála ref 306915). Should construction work of the Project coincide with the construction of these solar developments, the demand for imported aggregate for both projects has the potential to have a cumulative impact on local quarries. However, given that there is a total of 6 no. quarry and concrete suppliers within 20km, the impact on local quarries is expected to be not significant, as supply should exceed demand.
- That notwithstanding the construction phase will coincide with increased heavy vehicle traffic on the local public road network. As such, it is considered there will be a **Temporary, Adverse** and **Moderate** cumulative effect, caused mainly by increased vehicle traffic, during the construction and decommissioning phases of the project. In EIA terms this is considered as **Not Significant.**
- During the operational phase this effect will reduce to a **Long-term, Adverse** and **Not Significant** cumulative effect. In EIA terms this is considered as **Not Significant.**

12.5. Mitigation

Mitigation measures associated with all phases of the development have been embedded within the design (See EIAR Section 9.5.1 for details). A number of mitigation measures designed to avoid, reduce, or offset any potential adverse geological impacts identified will be implemented under the following categories (See EIAR Section 9.5.2):

- **Erosion, Degradation and Soil Seeding** including phased construction, demarcation of work corridor, excavations conducted from access tracks, exposed soil stockpiles kept to a minimum;
- **Subsoil and Bedrock Removal** including minimisation of excavations by use of piled foundations, re-use or retention onsite in the permanent spoil area which will be located outside the floodplain of the River Maigue, Stockpiles will be shaped and sealed to prevent the ingress of water from rainfall;
- **Mitigation by Avoidance, Mitigation by Good Practices, Mitigation by Reduction and Mitigation by Re-use**
- **Storage and Stockpiles –** Spoil types will be treated separately (See EIAR Section 9.5.2.4 for detail), spoil to be re-used on the site where possible, where conditions allow, the 7 no. deposition area to be re-vegetated.
- **Vehicle Movements –** Will be restricted to the footprint of the site. All works will be managed and conducted in accordance with the Construction Environmental Management Plan (**Sections 3.3.3** of the CEMP in **Appendix 2.1** of **Volume IV**),
- **Ground Stability –** Earthworks will not be scheduled during sever weather conditions.(Refer to Section 9.5.2.6 of EIAR)
- **Earthworks Activities & Ground Stability – General Constraints and Anecdotal Evidence and Prevention of Landslide**
- **Soil Contamination –** Use of good practice and adherence to the CEMP, which contains specific guidance in respect to Refuelling Procedures and Spoil Management. Importation of materials will be subject to “wheel washing”, documented, certified, sampled and evaluated as per the requirements of the CEMP and Waste Management Plan (**Appendix 2.1**). The CEMP (**Sections 3.3.5** and **3.4.4** of the CEMP in **Appendix 2.1** of **Volume IV**) will be developed to include the checking of assets (plant, vehicles, fuel bowsers) on a regular basis during the construction phase of the Project.
- **Storage of Fuels & Chemicals and Refuelling**

- **Existing Contamination and Imported Materials** - Mitigation measures for concrete use
- **Wastewater and Sanitation –** including staff welfare facilities.
- **General Waste and Pollution Prevention -** Suitable protection for watercourses.
- **Emergence Response –** Refer to CEMP, to include the use of pill kits
- **Operational Phase –** Mitigation Measures to prevent contamination of groundwater from spills relating to fuel, lubricants and hydraulic fluids. Spoil waste stored in the spoil deposition areas will be monitored for stability on a regular basis.

The CEMP sets out the key environmental mitigation measures with regards to land, soils and geology for all phases of development. The CEMP **(EIAR – Volume IV, Appendix 2.1)** will be updated by the appointed contractor for the proposed development to reduce potential environmental impact.

12.6. **Residual Effects**

For all phases, following implementation of mitigation measures and good site practiced outlined in Section 9.5 of the EIAR, no significant adverse effects are likely to arise (Refer to EIAR Table 9.23, 9.24 and 9.25). Refer to Table 9.26 of EIAR for Summary of Potential Effects on the environment without and with mitigation measures.

12.7. **The Assessment: Direct and Indirect Effects**

12.7.1. **Introduction**

I have examined, analysed and evaluated Chapter 9 of the EIAR, the associated documentation, and submissions on file regarding the proposed development and the potential effects of the proposed project on land, soils and geology. During the construction phase, potential impacts include land take with the loss of agricultural land, the disturbance and relocation of 20,770m3 of subsoil and bedrock, potential spills and leakages from fuel storage and oils and erosion of exposed subsoils. During the operational phase, potential impacts include spillages and leaks of fuels and hydrocarbons which could contaminate soils and groundwater and issues relating to the proper management of the 7 no. spoil deposition areas.

12.7.2. **Contamination of Soils by Leakages and Spillages of Hydrocarbons**

In relation to the concern of the public observers relating to contamination of soils and water, I accept that large leakages and spillages of contaminants have the potential to result in significant negatives effects on the geological and water environment including groundwater. For all phases of development, potential impacts relating to accidental spills and leakages to soil from fuel storage areas and oil from the maintenance of the turbine transformers, would be managed by EIAR mitigation measures described in the EIAR.

I am satisfied that a suitably detailed and comprehensive range of measures has been proposed to ensure that no contamination impacts or contamination of groundwater will arise as a result of the proposed development.

12.7.3. **Erosion of Exposed Subsoils and Spoil during Construction and Operation**

The nature of the proposed construction works and associated heavy machinery and materials gives rise to the potential for soil erosion of spoil during excavation and during landscaping works. Soils and spoil can be eroded by vehicle movements, wind action and by water movement and this could impact the water environment.

I consider that if excavations are carried out in accordance with the final CEMP and EIAR, the mitigation measures proposed will be adequate to prevent erosion of soils and will prevent negative impacts on the water environment.

12.7.4. **An Taisce Submission (Lacustrine Sediment) (Refer to Section 4.2.3 of this report for full details)**

An Taisce have questioned whether the portion of the site located on lacustrine sediment is suitable for wind turbines and the proposed access route. In response the applicant highlights that significant site investigation works were undertaken as part of the EIAR. Soil and subsoils have been fully considered which includes the presence of lake (lacustrine) deposits. (Refer to EIAR, Section 9.3.7 of Chapter 9)

12.8. **Conclusion: Direct and Indirect Effects (Land, Soils and Geology)**

I consider the applicants assessment has identified the relevant issues in relation to Land, Soils and Geology. With the implementation of Mitigation Measures outlined in the EIAR, I consider that the proposed development will not give rise to significant adverse impacts to Land, Soils and Geology at any phase of the development.

13.0 Hydrology and Hydrogeology

13.1. Issues Raised

13.1.1. Scoping

The following prescribed bodies responded to the applicants scoping consultation process which informed the EIAR (Table 10.8 - Scoping Responses and Consultation of Applicants EIAR);

- **Environmental Health Service (HSE)** – Received 7th June 2024 – HSE submission refers to potential impact (including cumulative) on both surface and ground water, stating that it's necessary to identify public and group water scheme sources and supplies and private wells. Measures should be taken to ensure water supplies are protected. The applicant responds by stating this is addressed in EIAR, Section 10.3.18 and Section 10.5.2.8. Cumulative assessment is completed in Section 10.7.4 of the EIAR.
- **Geological Survey of Ireland (GSI**) – Received 11th June 2024 – GSI recommend use of their online databases. The applicant noted that these were used. No specific issues were raised in the scoping report.
- **Office of Public Works (OPW)** – Received 4th October 2024 – OPW identified their drainage channel and requested a 10m wide strip of land running parallel to various channels across the site to facilitate access and maintenance. The applicant notes the OPW requirements have been incorporated into the design.
- **Uisce Éireann (UÉ) -** UÉ notes that the proposals are located within the surface water abstraction catchment for the Adare Public Water Supply, with the abstraction point located on the River Maigue, located 21km downstream of the proposed development. There is a potential pollution pathway due to hydrological connectivity between the Charleville Stream_020 and Maigue_030 which are tributaries to the Maigue_080, where UÉ abstracts, that would need to be considered. The applicant responds to state the potential effects on the Adare Public Water Supply is presented in Section 10.5.2.13.

13.1.2. Planning Authority(LC&CC)

Refer to Section 4.1 of this report for full details of issues raised by the Council and applicants response. In summary, issues raised are as follows;

- **Council Flood Section (LC&CC)** – No objection on the grounds of flood risk.
- **CE's Report** – Details/Conditions in relation to mitigating impacts of flooding.
- **Elected Members (LC&CC):** Concerned about flooding impacts.

13.1.3. Prescribed Bodies

Refer to Section 4.2 of this report for full details of issues raised by prescribed bodies and applicants response. In summary, issues raised are as follows;

- **An Taisce –** Development to be assessed against Article 4 of WFD.
- **NEHS –** Comply with all mitigation measures identified in the CEMP.
- **OPW** – OPW requesting access for maintenance and a planning condition for buffer strips along channels of the Maigue Scheme.
- **Uisce Éireann** – Applicant to comply with WFD and River Basin Management Plan objectives to protect water quality. Standard conditions recommended.
- **Inland Fisheries Ireland** – IFI detailed requirements to protect watercourses.

13.1.4. **Third Party Submissions**

Refer to Section 4.3 of this report for full details including applicants response. Issues raised relate to impact of flooding, impact on Ballynagoul Geothermal Spring, Impact on local water supplies, Impact on local rivers meeting their WFD objectives, impact of increased erosion and subsequent sedimentation of local water courses, impact of soil compaction on surface waters, potential cumulative impacts with Kerry Group WWTP and potential impacts on designated sites.

13.1.5. **Applicants Response to Submissions**

I note that Hydro-Environmental Services (HES) on behalf of the applicant has prepared a response to the hydrological and hydrogeological concerns raised in observations in the Applicants Response Report, Appendix 3.

13.2. **Context**

EIAR Chapter 10 with Appendix 10-1 (Flood Rish Assessment Report), 10-2 (Original Laboratory Reports and 10-3 (Water Framework Directive (WFD) Compliance Assessment Report), Figures 10.1 – 10.11, along with the CEMP (Appendix 2.1) has assessed the potential impacts on hydrology and hydrogeology associated with the proposed windfarm (works at the Site, along the GCR and the TDR). For the purposes of the assessment, the project comprises of a 9 no. turbine windfarm, with a short Grid Connection (GC) which comprises of a 'loop in' connection to the existing 110kV overhead line (OHL) between Charleville and Killonan, and minor works along the turbine delivery route (TDR).

The EIAR provides a statement of authority and describes the methodology used, the legislation and guidance, the development description, the receiving environment, the characteristics of the proposed development and the likely significant effects and

associated mitigation measures proposed. This is followed by residual and cumulative effects for all phases of development following implementation of mitigation measures.

13.3. **Baseline**

The site measuring c. 158.75ha is comprised of agricultural pastures with fields separated by hedgerows, deeply incised field drains and natural watercourses. Several existing farm access tracks are present in the west of the Site i.e. to the west of the Charleville Stream, a tributary of the River Maigue. Topography across the site is generally flat to gently undulating. Ground elevations range from 58-61mOD (meters above Ordnance Datum) in the north of the Site, to 63-73mOD in the south of the site. Local topography falls gently towards the River Maigue which dissects the site, flowing to the north. The site is not mapped within or in the immediate vicinity of any designated areas. The nearest designated site is the Blackwater River (Cork/Waterford) SAC (Site code: 002170) situated c.6.4km to the south. This SAC is mapped within a different surface water catchment to the Project and there is no hydrological linkage between the Site and this SAC. (Refer to Appendix 1 & 2 of this report for further details on Appropriate Assessment). Also refer to EIAR Figure 10.8.

Regionally, the site is located in the Shannon Estuary South surface water catchment. This area is drained by the River Maigue and its tributaries. Downstream of the site the River Maigue flows to the north and becomes tidal at Adare, c. 20km northeast of the site. A European Designated sites is located downstream of the project site, namely, the Lower River Shannon SAC. The Site is drained by the River Maigue and its tributaries and is located within 3 no. WFD river sub-catchments of the River Maigue as follows (From EIAR, Table 10.11);

Table 13.1 WFD River Sub-catchments of the River Maigue

Table 13.1 Shannon Estuary South Catchment		
River Sub Catchment	**WFD River Sub-Basin**	**Development Infrastructure**
Maigue_SC_010	Charleville Stream_020	T1, T2, T4, T6, access tracks, 4 no. spoil storage areas, met mast, Site Entrance 1 and ecological enhancement areas. T3 and T7 also lie on the catchment divide between the Charleville Stream_020 and the Maigue_030 WFD river sub-basins.
Maigue_SC_020	Maigue_030	T5, 110kV Substation, temporary construction compound, 2 no. spoil storage areas (to the south of the substation and to the north of T02), Grid Connection and Site Entrance 2 and ecological enhancement areas.

Maigue_SC_040	Maigue_030	T7 and T9 are proposed on the catchment divide between the Charleville Stream_020 and the Maigue_030 WFD river sub basins. A spoil storage area in the vicinity of T9 also encroaches upon this sub basin.

In addition to the EPA mapped watercourses outlined in Table 13.1, the natural drainage at the site is further facilitated by a network of manmade drains located along existing hedgerows and field boundaries. The drains connect downstream to the natural watercourses which flow through the site.

The bedrock underlying the majority of the site is classified as a Locally Important Aquifer. This bedrock is of low permeability with short groundwater flowpaths. Some areas in the centre of the site are mapped to be underlain by a Regionally Important Karst Aquifer. However, due to the presence of low permeability soils and subsoils, the local hydrogeological regime is characterised by high rates of surface water runoff and low rates of groundwater recharge. The applicant notes that there will be no effect on local private groundwater wells as a result of the proposed windfarm.

13.4. **Water Framework Directive (WFD)**

Latest EPA Water Quality Monitoring has rated the River Loobagh as Q4 (Good), the Charleville Stream and Maigue River in proximity to the site as Q3-4 (Moderate). Water Quality tests were carried out by the applicant. (See EIAR Section 10.3.8.2)

A WFD Assessment is included in Appendix 10.3 of the EIAR, which assesses Surface Water Bodies (SWB's) and Ground Water Bodies (GWBs) hydraulically inked to the site. No abstraction of groundwater or alteration of drainage patterns is proposed.

Agriculture is listed as a significant pressure on the Charleville_020 and Maigue_030 SWBs in the vicinity of the Site. Urban wastewater is also listed as a significant pressure on the Charleville Stream_020 SWB.

The EIAR concludes the project will not cause a deterioration in the status of all surface and groundwater bodies assessed; Will not jeopardise the objectives to achieve 'Good' surface water/groundwater status; Does not jeopardise the attainment of 'Good' surface water/groundwater chemical status; Does not jeopardise the attainment of 'Good' surface water/groundwater quantity status; Does not permanently exclude or compromise the achievement of the objectives of the WFD in other waterbodies within the same river basin district; Is compliant with the requirements of the Water Framework Directive (2000/60/EC) as amended; and, is consistent with other

Community Environmental Legislation including the EIA Directive (2014/52/EU), the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC).

13.5. **Flood Risk**

Fluvial flood zones are mapped within the site along the River Maigue and its tributaries. A Stage III level site-specific Flood Risk Assessment (FRA) was carried out for the site to assess the capacity and design flood levels of the river channel network (River Maigue and its tributaries) (See EIAR Appendix 10.1).

Proposed turbines T4, T5, T6, T7, and T8 are inundated by flood water in the 100-yr and 1000-yr DFs (design flood (DF) events). The footprint of the project which overlaps with the modelled extent of the 20-year flood event includes 1,220m of access track, 3 no. whole hardstands and turbine bases (T4, T6 and T7) and 2 no. partial turbine hardstands (T5 and T8). The volumetric analysis in the FRA has shown that the project will therefore have an imperceptible effect on flood levels downstream of the site and there will be no increase in the downstream flood risk.

13.6. **Hydrogeology**

The bedrock geology underlying the site comprises various Dinantian Limestones lithologies. A north-northeast to south-southwest trending fault is mapped within the site, c. 50m west of T1. A smaller east to west trending fault is mapped c. 50m north of T6.

The undifferentiated Visean Limestones which underlie the north and south of the Site are classified by the GSI as a Locally Important Aquifer (LI) - Bedrock which is Moderately Productive only in Local Zones. Meanwhile, the Dinantian Pure Unbedded Limestones towards the centre of the site are classified by the GSI as a Regionally Important Aquifer - Karstified (diffuse). In terms of Groundwater Bodies (GWBs), the site is underlain by 3 no. GWBs. No groundwater quality data is available for the site.

In terms of the Project infrastructure, T2, T3 and T4 are mapped to be underlain by the Regionally Important Aquifer. All other turbines and the 110kV substation, construction compound and Grid Connection are underlain by the Locally Important Aquifer. The mapped groundwater vulnerability rating of the bedrock aquifer underlying the Site is predominantly “Low”. All proposed turbine location and the Substation are mapped in areas of “*Low*” vulnerability. Some areas of “*Moderate*” and ”*High*” groundwater vulnerability are mapped in the southeast of the site and overlap

with the Grid Connection and Site Entrance 2. Site investigations at the site comprising of trial pits did not encounter any bedrock. The EIAR notes that surface water bodies such as drains and streams/rivers are more vulnerable (to contamination from human activities) than groundwater across much of the site and are considered to be the main sensitive receptor at the site. Groundwater flow directions at the site are presumed to follow local topography, and groundwater flow paths are considered to be short due to the low permeability of the Locally Important Aquifer which underlies much of the site.

10 no. trial pits and geophysical surveys were conducted by the applicant. A summary of findings is described in EIAR Section 10.3.10. The EIAR considers there to be a low degree of connectivity between surface and ground waters in the site. High rates of surface water runoff occur due to the presence of low permeability glacial till deposits with a high clay content. It is noted that evidence for this can be seen in the high density of surface water drainage features within the site.

13.7. **Karst Features**

There are no mapped karst features within the vicinity of the site. No karst features were recorded during the site walkover surveys or the intrusive site investigations. Shallow rock was not encountered during the site investigation Trial Hole campaign (refer to Section 9.3.15), however, the geophysical surveys (Appendix 9.2 and Appendix 9.3) did identify the presence of intact limestone at 4m to 5m at the Met Mast and T5, and 6m to 8m at turbine T1. Formations typical of highly decomposed limestone were also recorded at turbines T2 and T3 (6m to 8m below ground level) and at turbines T3, T4, T6, T7, T8 and T9 (4m to 6m below ground level). See EIAR Table 10.7.

13.8. **Geological Heritage Area**

The EIAR in Section 10.3.17.7 notes that Knocksouna County Geological Site (CGS) (Site Code: LK022) is located c.1.5km to the east of T7. There is a hydrogeological element associated with this CGS with the site described as a series of warm water springs and a high, bedrock crag. The springs at Knocksouna occur along a roughly east-west line at the foot of Knocksouna Hill, where twelve individual springs emerge through the alluvial floodplain of the River Loobagh over a distance of c. 700m. The CGS is among a group of warm springs located in Munster that share a location on the eastern margin of the Mississippian (Namurian) basin where normal limestone

groundwater undergoes deep circulation and returns to the surface via fault or fracture zones. The Knocksouna CGS has been screened out of the impact assessment due to the distance between the site and the CGS, the location of the CGS upgradient of the site, the presence of hydrological barriers between the site and the CGS and due to the presence of glacial till deposits of low permeability which restrict groundwater recharge at the Site.

13.9. **Water Wells**

The EIAR notes that according to the 3rd Cycle Shannon Estuary South Catchment Report (EPA, 2024) there are 5 no. Surface Water Bodies (SWBs) in the catchment identified as Drinking Water Protected Areas (DWPAs), with the closest being c. 6.5km east and upstream of the site, which the EIAR states there no potential for impact. The closest mapped Public Water Scheme (PWS) is the Bruree PWS which has a source protection area located c. 2.7km north of the closest turbine (T9). The source protection area associated with the Rockhill PWS is located c. 3km northwest of T9 and the source protection area associated with the Ballyagran PWS is located c. 6km west of T8.

A well (GSI Name: 1411NWW033) with a locational accuracy of 1km overlaps with the southeast of the site in the townland of Ballynagoul. The applicant notes that the GSI database does not include all potential water wells. As stated in EIAR, Section 10.3.2, there are 157 no. residential dwellings within a 2km radius of the proposed turbine locations. The closest inhabited dwelling not involved in the project is located c. 702m from the nearest turbine (T8). The closest dwelling involved in the project is located c. 529m from T3. Given the local hydrogeological regime, which is characterised by high rates of surface water runoff and low rates of groundwater recharge, the EIAR notes that a 2km radius was considered to be sufficient when identifying the potential sensitive receptors in line with IGI Guidance 2013. The assessment in EIAR, Section 10.5.2.8 assumes that all local dwellings contain a private groundwater well supply.

In addition, all WFD Ground Water Bodies (GWBs) have been identified as DWPA due to the potential for qualifying abstractions of water for human consumption as defined under Article 7 of the WFD. The DWPA designation applies to all GWBs nationally, regardless of the productivity status of the underlying aquifer.

13.10. **EPA Licensed Activities**

Kerry Ingredients Ireland hold a current Industrial Emissions License (IEL), (P0386-04) to the south of the site. Process effluent from a dairy a processing plant at Charleville is currently discharged in line with its Emission Limit Values (ELVs) via an underground pipeline for treatment at a wastewater treatment plan in the townland of Rathgoggan North, which discharges treated effluent into the River Maigue. Treated effluent travels through the outfall pipeline through the site and discharges to the River Maigue just north of its confluence with the Loobagh River.

13.11. **Sensitive Receptors**

The EIAR notes that surface waters are the main sensitive receptors associated with the project due to the local hydrological regime which is characterised by high surface water runoff rates and low rates of groundwater recharge. The primary potential contamination of downstream surface waters is via elevated concentrations of suspended solids and nutrient enrichment.

13.12. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 13.1 below;

Table 13.1 – Summary of Potential Effects (Hydrology and Hydrogeology)
Do Nothing
• Should the windfarm not proceed, the existing agricultural land-use practices will continue at the site. The existing surface water drainage regime (agricultural drains) will continue to function and may be extended in some areas. The existing flooding regime that occurs at the site will continue. There may be a slight change in AAR at the site as a result of climate change.
Construction Impacts
• **Sedimentation from Runoff** - There will be a total of 46,405m3 of spoil to be managed on site. Construction activities can result in the release of suspended solids to surface waters and could result in an increase in the suspended sediment load, resulting in increased turbidity which in turn could affect downstream water quality and fish stocks. Potential effects on all downstream watercourses could be significant if mitigation measures are not implemented. • **Hydrocarbon Leakages and Cement Based Products** - Accidental spillage during refueling of construction plant with petroleum hydrocarbons can cause significant pollution risk to groundwater, surface water and associated aquatic ecosystems, and to terrestrial ecology. In addition, the accumulation of small spills of fuels and lubricants during routine plant use can also be a pollution risk. Hydrocarbons have a high toxicity to humans, and all flora and fauna, including fish, and is persistent in the environment.

It is also a nutrient supply for adapted micro-organisms, which can rapidly deplete dissolved oxygen in waters, resulting in the death of aquatic organisms. Concrete and other cement-based products are highly alkaline and corrosive and can have significant negative effects on water quality and aquatic habitats.

- **Wastewater Disposal** - Release of effluent from on-site temporary wastewater treatment systems has the potential to effect groundwater and surface water quality if site conditions are not suitable for an on-site percolation unit.
- **Morphological Changes to Surface Watercourses** - Culverting, road crossing of surface watercourses can result in morphological changes, changes to drainage patterns and alteration of aquatic habitats. Construction of structures over watercourses has the potential to significantly interfere with water quality and flows during the construction phase. Within the Site, there are a total of 2 no. new proposed crossings over mapped natural watercourses. A new crossing is proposed over the Charleville Stream between T3 and T4 and a crossing is proposed over the River Maigue between T7 and T8.
- **Groundwater Levels during Excavation Works** - Small scale local temporary dewatering may occur at some excavation locations (i.e. turbine bases, cable trenches) and these have the potential to temporarily affect local groundwater levels. However, temporary reductions in groundwater levels by short duration and transient dewatering works will be very localised and of small magnitude due to the nature and permeability of the local subsoil encountered during the site investigations. Groundwater level effects will not be significant due the local hydrogeological regime of the Site (low permeability glacial till subsoils and short groundwater flowpaths to local watercourses). Any effects will be temporary and will be contained within the site.
- **Groundwater Quality in Local Private Groundwater Well Supplies** - The most significant risk to groundwater wells will be due to groundwater contamination due to the accidental release of hydrocarbons and cement-based products as a result of construction activities within the site. There are no dwellings within 500m of any proposed turbine locations. The closest dwelling to a proposed turbine is located c. 529m from T3. The closest dwellings to the proposed 110kV Substation compound is c.180m to the northeast. Several other dwellings are also mapped along the L1537. However, the 110kV Substation is located downgradient of these houses and any shallow groundwater flow will flow to the west towards the Charleville Stream. Therefore, there is no potential to impact on these local wells. Given the significant distances which exist between local dwellings and proposed infrastructure locations, local topography and prevailing groundwater flow directions, there is no potential for effects on groundwater well supplies.
- **Potential Effects from use of Siltbuster** - Siltbusters are regularly used to remove suspended sediments on construction sites by means of chemical dosing and sedimentation (i.e. use of coagulants and flocculants to accelerate the settlement process). The benefits of using enhanced settlement systems on downstream surface water quality are widely known and are a positive effect. However, potential overdosing with chemical agents means there is a perceived risk of chemical carryover in post treatment water which could result in negative effects on downstream water quality. See example in EIAR, Plate 10.4 of Siltbuster in Mayo.
- **Potential Effects Associated with Piled Foundations** - Turbines T4, T5, T6, T7 and T7 will require piled foundations comprising of rotary bored piles into bedrock

supporting the concrete base slab with a central upstand to support the tower. The turbines will use a buoyant foundation type using 16 no. 10m long piles bored at least 3m into intact the limestone bedrock. The following potential scenarios arise in respect of potential piling works:

  - Creation of preferential pathways, through lower permeability subsurface layers (if an aquitard such as silts and clays, i.e. glacial till), to allow downward flow into the underlying bedrock aquifer;
  - Creation of preferential pathways, through a low permeability subsurface layer (an aquitard such as silts and clays, i.e. glacial till), to allow upward migration of groundwater to the surface, thus potentially altering local hydrochemistry and therefore vegetation at the surface; and,
  - Creation of a blockage to regional groundwater flow within the underlying aquifer due to placement of pile clusters.

- **Potential Effects from TDR Works** - Minor earthworks are required along the turbine delivery route. The EIAR considers 2 no. potential TDRs from Foynes Port (Limerick) and from the Port of Galway to the Site. The enabling works along the TDRs are described in Chapter 2: Project Description and are generally minor and comprise of road verge widening, hedge trimming, passing bays and all associated works.
- **Potential Effects on Surface Water Quality due to Fluvial Flooding** - T4, T5, T6, T7 and T8 and their associated hardstands and site access tracks are located in fluvial flood zones along the Charleville Stream and the River Maigue. Should a flood event coincide with the construction phase of the Project when major excavations and earthworks are being undertaking within the floodplains, there is the potential for surface water quality effects. The likelihood of a 1 in 100-year fluvial flood event happening during the 16-18 months construction programme is very low (there is only 1% chance of a flood event of this magnitude happening in any given year). Therefore, there is 1.5% chance of a 1 in 100-year fluvial flood event occurring during the construction programme.
- **Potential Effects on Public Water Supply** - The Site is not located within any source protection area associated with a PWS or GWS. No potential effects.
- **Potential Effects on Hydrologically Connected Designated Sites** - The Lower River Shannon SAC is assessed for the purposes of a conservative assessment as this is the closest downstream hydrologically connected designated site. All other downstream designated sites (River Fergus Estuaries SPA and Inner Shannon Estuary - South Shore pNHA) have been screened out of the impact assessment due to their distant location from the site and the large volumes of saline waters within the waterbodies associated with these designated sites. Note that the Project does not in any way rely upon the dilution or assimilative capacity provided by any downstream watercourse. The mitigation measures prescribed in this EIAR ensure the protection of all watercourses in the immediate vicinity of the site. By protecting watercourses proximal to the works locations, all downstream watercourses are also protected. Even in an unmitigated scenario the potential for effects on the Lower River Shannon SAC are limited due to the following:
  - The distance between the SAC and the Site with the hydrological flowpath between the Site and the SAC being c. 25km.
  - The SAC is associated the River Maigue Estuary which contains saline waters which are less vulnerable to effects than freshwaters and the significant volumes of water within the estuary limit the potential for effects.
- **Potential Effects on WFD Status** - The WFD (Water Framework Directive) status for GWBs and SWBs are defined within EIAR, **Section 10.3.16**. The GWBs underlying the Site are all assigned “Good” Status. The SWBs in the vicinity of the Site have an

assigned status ranging from “Moderate” to “Good”. Changes in surface water or groundwater flow regimes and water quality has the potential to impact on the objectives and status of the associated GWBs and SWBs.

- **Potential Effects Associated with Ecological Enhancement Proposals** - The proposed Ecological Enhancement proposals at the site includes the planting of c.0.669ha of woodland, 1.646km of hedgerow to compensate for the loss of existing hedgerow and the enhancement and revitalisation of c. 5.433km of existing degraded hedgerow. Further details are provided in the Habitat Management Plan. The measures have limited potential to impact the hydrological/hydrogeological environment due to the scale of the proposed works. During the planting works there may be a potential for temporary negative effects on surface water quality. However, the long-term effect of the ecological enhancement will be a positive effect.
- **Potential Effects Associated with Kerry Pipeline Crossing** - Potential unsupervised or poorly planned construction and excavation works in the vicinity of the pipeline, have the potential to damage the pipeline, potentially causing a leakage of wastewater on site. The greatest risk of potential effects occurs at crossings over the pipeline. Note that this pipeline does not carry raw or untreated wastewater but rather treated effluent (ELVs are detailed in IE Licence P0386-04) which limits the potential for significant adverse effects. Nevertheless, the leakage of treated wastewater would have the potential to negatively affect surface water quality within the site, as these watercourses do not have the same assimilative capacity as the River Maigue to which the pipeline discharges.

Operational Impacts

- **Potential Effects from the Progressive Replacement of Natural Surface with Lower Permeability Surfaces -** The project design has been optimised to use the existing infrastructure. Where practicable the existing Access Tracks will be upgraded as part of the Project. The works in these areas will not alter the existing runoff and recharge rates. This design prevents the unnecessary creating of additional hardstand areas which would increase surface water runoff from the site. The additional volume is low due to the fact that the runoff potential from the site is naturally high. Also, the calculation assumes that all hardstanding areas will be impermeable which will not be the case as access tracks will be constructed of permeable stone aggregate. The increase in runoff from the project will, therefore, be negligible.
- **Potential Effects from Runoff Resulting in Contamination of Surface Waters -** Some minor maintenance works may be completed. These works would be of a very minor scale and would be very infrequent. However, the works could result in the release of suspended solids to surface water and could result in an increase in the suspended sediment load, resulting in increased turbidity which in turn could affect the water quality and fish stocks of downstream water bodies. During such maintenance works there is a small risk associated with the release of hydrocarbons from site vehicles. However, no refueling works will be undertaken on-site during the operational phase. Maintenance works will likely be contained within the Site boundaries. No works will be undertaken along the GC or the TDR.
- **Effects on Downstream Flood Risk -** Construction in fluvial flood zones has the potential to increase flood risk due to floodplain storage reduction and alteration of drainage patterns. The total volume of displaced floodwater is estimated to be 7,025m3 during the construction phase and 9,555m3 during the operational phase. However, there are no receptors located immediately upstream or downstream of the

site which may be at risk from any increased flood levels. The closest downstream receptors along the River Maigue are located at Bruree, in excess of c. 3km downstream of the site.

- **Potential Effects from use of Water Supply at Substation -** It is proposed to install a groundwater well adjacent to the 110kV Substation in accordance with the Institute of Geologists Ireland, Guide for Drilling Wells for Private Water Supplies (IGI, 2007). The well will be flush to the ground and covered with a standard manhole. An in-well pump will direct water to a water tank within the roof space of the control building. The proposed groundwater well and associated extraction has the potential to effect local groundwater levels in the surrounding lands. However, the abstraction will be small (c. 3m3/day), limiting the potential for effects.
- **Potential Contamination Due to Wastewater -** Release of effluent from the welfare facilities at the 110kV Substation compound has the potential to effect groundwater and surface water quality if site conditions are not suitable for an on-site percolation unit. Impacts on surface water quality could affect fish stocks and aquatic habitats.
- **Potential Effects on WFD Status -** There is no direct discharge from the Project to downstream receiving waters. Mitigation for the protection of surface water during the operational phase will ensure the qualitative status of the receiving SWBs will not be altered. Similarly, there is no direct discharge to groundwaters associated with the Project. Mitigation for the protection of groundwater during the operational phase will ensure that the qualitative status of the receiving GWBs will not be altered.

Decommissioning Impacts

- The windfarm is expected to have a lifespan of 35 years. Upon decommissioning, the wind turbines will be dismantled and all above ground components would be removed off-site for recycling.
- The potential effects associated with decommissioning of the Proposed Development will be similar to those associated with construction but of a reduced magnitude, due to the reduced scale of the proposed decommissioning works in comparison to construction phase works. Turbine foundations and hardstands will remain and will be covered with earth and allowed to naturally revegetate. The underground cables will be cut and tied and the ducting will be left in place.
- Prior to the Decommissioning work, a comprehensive plan will be drawn up that takes account of the findings of this EIAR and the contemporary best practice at that time, to manage and control the component removal and ground reinstatement.

Cumulative Impacts

- A cumulative hydrological & hydrogeological study area is shown in EIAR, **Figure 10.11**
- The assessment detailed in this chapter is based on flow volumes obtained from the EPA Hydrotool Nodes downstream of the site. The assessment concludes that there will be no hydrological cumulative effects beyond EPA Hydrotool Node 24_188 on the River Maigue. At this location the River Maigue has a total upstream catchment area of 277km2. There will be no potential for cumulative effects beyond this cumulative study area due to increases in flow volumes (as the catchment area increases) and increasing distance from the Project.

- **Cumulative Effect with Agriculture** - Agriculture is the largest pressure on water quality in Ireland. Practices such as the movement of soil and the addition of fertilizers/pesticides can lead to nutrient losses and sedimentation of local surface watercourses, leading to negative effect on local and downstream surface water quality. Within the site itself, agricultural activities will likely be reduced during the construction phase. The mitigation measures detailed in **Section 10.6.1**, **10.6.3** and **10.6.4** for all phases of the project will ensure the protection of surface water quality. Hence, no significant cumulative effect associated with agricultural activities predicted.
- **Cumulative Effects with Industrial Emissions Licence -** Mitigation measures detailed in **Section 10.6.1**, **Section 10.6.3** and **Section 10.6.4** for all phases of the Project will ensure the protection of downstream surface water quality and quantity. The use of a Siltbuster system at the site can indirectly impact COD levels and could potentially result in cumulative effects with the discharge from Rathgoggan North WwTP (COD ELV of 75mg/l). If the use of chemicals in the Siltbuster system is not carefully managed it may potentially increase COD in the effluent. However, dosing rates will be small and water quality will be continually monitored to ensure that the correct amount of chemical is added by the dosing system. The use of the Silbuster system, if required, will have an overall positive effect on water quality. Hence, no significant cumulative effect associated with the existing IE discharge to the Charleville Stream expected.
- **Cumulative Effects with Other Developments -** A detailed cumulative assessment has been completed for all planning applications (granted and awaiting decisions) within the cumulative hydrological study area. The planning applications identified within the cumulative study area are for new dwellings or renovations of existing dwellings, as well as for the erection of farm buildings (refer to **Chapter 2**). Based on the scale of the works, their proximity to the Project and the temporal period of likely works, no cumulative effects will occur as a result of the Project (construction, operation and decommissioning phases). Other larger developments identified in **Section 2.3.3** are located outside of the cumulative hydrological study area.
- **Cumulative Effects with Other Wind Farms -** Section 2.3.2 of the EIAR identified a total of 10 no. windfarms within 20km of the Site of which 7 no. are operational, 1 no. is consented and 2 no. are proposed. **Table 10.21** of the EIAR identifies whether these windfarms are located within the delineated hydrological study area. Only 1 no. windfarm was identified in the hydrological cumulative study area. This is the operational Slievaragh Wind Farm. This windfarm drains to the Loobagh River and is located at the eastern boundary of the hydrological cumulative study area. There is limited potential for cumulative effects as the Slievaragh Wind Farm is already operational. Nevertheless, the mitigation measures prescribed in the EIAR chapter will ensure the protection of the hydrological/hydrogeological environment. Therefore, with the implementation of the proposed mitigation measures there will be no cumulative effects associated with all phases of the project with other nearby windfarms.
- **Cumulative Effects with OPW Maintenance of Drains -** The existing drains and streams at the Site undergo periodic maintenance by the OPW as part of an Arterial Drainage Scheme. This maintenance comprises of periodic de-silting as a control measure to limit flooding. The overlap of construction works associated with the Project and the OPW maintenance works would have the potential to result in cumulative effects on downstream surface water quality, particularly with respect to

suspended solids. Consultation will take place with the OPW prior to the commencement of any construction works at the Site to ensure that there is no overlap of works which may potentially have negative effects on downstream surface water quality.

13.13. **Mitigation Measures**

Mitigation Measures are detailed in Section 10.6 of the applicants EIAR and include mitigation by avoidance, mitigation by design and flooding considerations (See EIAR Section 10.6.1.3). The applicant notes that surface water drainage measures, pollution control and other preventative measures have been incorporated into the project design to minimise significant effects on water quality and downstream designated sites. A self-imposed 50m watercourse buffer was used during the design of the project and 10m for drains, thereby avoiding sensitive hydrological features. The surface water drainage plan will be the principal means of significantly reducing sediment runoff arising from construction activities and to control runoff rates.

The key surface water control measure is that there will be no direct discharge of windfarm runoff into local watercourses or into the existing site drainage network. This will be achieved by avoidance methods (i.e. stream buffers) and design methods (i.e. surface water drainage plan). Preventative measures also include fuel and concrete management and a waste management plan which will be incorporated into the CEMP. Potential contamination sources are to be carefully managed at the site during all phases of the project and measures are proposed within the EIAR to deal with these potential minor local impacts. All proposed 6 no. spoil storage areas are located outside of mapped flood zones. The substation is located in Flood Zone C.

A mobile 'Siltbuster' or similar equivalent specialist treatment system will be available onsite for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites. They will be used as final line of defence, if needed.

Mitigation measures are also prescribed to protect groundwater quality and private wells during the proposed piling works and other works (EIAR Section 10.6.2.7 and 10.6.2.8). Proposed mitigation by design includes source controls, In-line controls and treatment controls. In addition, settlement ponds, level spreaders and vegetation

filters as well as water treatment train will be utilised. Measures are outlined in Section 10.6.2.17 regarding the works crossing the Kerry Pipeline.

Mitigation measures to address surface water runoff and drainage include in line attenuation features such as check dams and stilling ponds and buffered outfalls. Both check dams and stilling ponds provide mitigation against potential effects to water quality, erosion, and discharge velocity, however they also facilitate buffered and diffuse percolation of surface water runoff into the receiving environment along the permitter of the project footprint. Attenuation features have been designed to take into consideration for a 1 in 100-year rainfall event, including an additional 20% to account for climate change. Pre-emptive site drainage management will involve taking account of weather forecasts/heavy rainfall during major soil excavation works.

Operational Phase Mitigation is described in Section 10.6.3 which includes measures in relation to management of surface water run-off and potential effects on downstream flood risk. The monitoring programme during the course of construction works is described in Section 10.6.5 of the EIAR.

13.14. **Residual Effects (Post Mitigation)**

Following mitigation measures for all phases of development as set out in Section 10.6 of the EIAR, no significant residual effects area expected as described below;

13.14.1. **Construction and Decommissioning Phase Residual Effects**

Potential Impacts	Predicted Residual Effect
1. Release of Suspended Solids, Hydrocarbons, Cement Based Products and Wastewater Disposal into Surface Waters	No significant effects on downstream watercourses and groundwater quality.
2. Potential Effects from Excavation Dewatering and Potential Effects on Surface Water Quality	No significant effects on downstream watercourses.
3. Effects from Morphological Changes to Surface Waters	The potential for the construction of watercourse crossings and associated in-stream works is a risk to downstream surface water quality. No significant effects.
4. Potential Effects on Groundwater Levels During Excavation Works	No significant effects on the local groundwater levels within the underlying GWBs and at local groundwater wells expected.
5. Potential Effects on Groundwater Quality in Local Private Groundwater Well Supplies	No significant effects on groundwater supplies (groundwater wells).

6. Potential Effects from the Use of Siltbuster	The use of Siltbuster systems will have a significant positive effect in respect of surface water quality.
7. Potential Effects Associated with Piled Foundations	No significant effects on Groundwater Quality in the underlying GWBs and groundwater hydrochemistry.
8. Potential Effects from TDR Works	No significant effects on downgradient surface water quality.
9. Potential Effects on Surface Water Quality Due to Fluvial Flooding During Construction	No significant effects expected.
10. Potential Effects on Public Water Supplies	The residual effect is considered to be a negative, imperceptible, indirect, short term, unlikely effect on water quality in the Bruree PWS and the Adare PWS. No significant effect.
11. Potential Effects on Hydrologically Connected Designated Sites	There will be no significant effects on the Lower River Shannon SAC.
12. Potential Effects on WFD Status	The Project will not compromise the ability of any SWB or GWB to meet their WFD objectives. No residual effect on Groundwater Body WFD status will occur. No residual effect on Surface Water Body WD status will occur. No significant effects on or deterioration of the WFD GWB or SWB status, risk status or prejudice to the achievement of the objectives of the WFD will occur as a result of the Project.
13. Potential Effects Associated with Ecological Enhancement Proposals	No significant effects on downstream surface water quality.
14. Potential Effects Associated with Kerry Pipeline Crossing	No significant effects on local surface water quality.
15. Decommissioning Phase	The residual effects associated with the decommissioning phase will be similar to that for the construction phase but of a reduced magnitude. Therefore, there will be no significant effects as a result of the decommissioning phase of the Project.

13.14.2. Operational Phase Residual Effects

Potential Impacts	Predicted Residual Effect
1. From the Progressive Replacement of Natural Surfaces with Lower Permeability Surfaces	The residual effect is considered to be a negative, imperceptible, direct, long-term, unlikely effect on surface waters. No significant effects expected.
2. Impacts from Runoff Resulting in Contamination of Surface Waters	The residual effect is considered to be a negative, imperceptible, indirect, temporary, unlikely effect on downstream watercourses. No significant effects on downstream watercourses.
3. Potential Effects on Downstream Flood Risk	No significant effects on proposed windfarm infrastructure as well as upstream and downstream receptors (i.e. property and people).

4. Impacts from Use of Water Supply at Substation	The residual effect is considered to be a direct, negative, imperceptible, permanent, likely effect on local groundwater levels. No significant effects on groundwater levels.
5. Potential Contamination Due to Wastewater	No significant effects on surface water or groundwater quality will occur.
6. Potential Effects on WFD Status	There will be no change in GWB or SWB status in the underlying GWB or downstream SWBs resulting from the Project. There will be no change in quantitative (volume) or qualitative (chemical) status, and the underlying GWB and downstream SWBs are protected from any potential deterioration. The Project is not likely to compromise the ability of any SWB or GWB to meet their WFD objectives. No residual effect on Groundwater Body WFD status will occur. No residual effect on Surface Water Body WFD status will occur. For the reasons outlined above, no significant effects on WFD GWB or SWB status, risk status or objectives will occur as a result of the Project.

13.14.3. **Residual Impacts Conclusion**

Based on mitigation measures proposed during all phases of development, no significant effects on the surface water quality will occur.

13.15. **Assessment: Direct and Indirect Effects**

I have examined, analysed and evaluated Chapter 10 of the EIAR, the appendices and all of the associated documentation and submissions on file in relation to hydrology and hydrogeology. The main impacts identified prior to mitigation occurs during the construction phase which includes sedimentation of watercourses and contamination by hydrocarbons and cement-based products of surface water and ground water from construction works, flooding considerations and the temporary impact on localised groundwater levels during excavation works for piling.

13.15.1. **Control of Sediments and Other Pollutants to Watercourses**

I acknowledge third party concerns in relation to potential sedimentation of watercourses and erosion of soils from the proposed construction works. I have also assessed the likelihood of soil compaction by heavy plant, and associated loss of porosity and increased runoff rates. I am satisfied that during all phases of development following implementation of mitigation measures outlined in Section 10.6 of the EIAR relating to the control of sedimentation and control of hydrocarbons and cement-based products, there will be no residual effect on surface and ground water quality. I am satisfied that the windfarm design and mitigation measures including the use of piled foundations for turbines within the flood zones (smaller footprint and less

ground disturbance) will further limit any potential effects resulting from soil compaction. I consider the applicants assessment has identified the relevant issues and that with the implementation of mitigation measures outlined in the EIAR, I consider that the proposed development is not predicted to give rise to significant adverse impacts at any phase of the development.

In relation to concerns regarding the potential impact on Designated Sites, I note the closest sites are the Lower River Shannon SAC and The River Shannon and River Fergus Estuaries SPA. I have completed an AA Screening and NIS in Appendix 1 and 2 of this report and have concluded that the proposed windfarm would not adversely affect the integrity of any European site in light of their conservation objectives (subject to the implementation of the prescribed mitigation measures).

13.15.2. **Flood Risk**

I acknowledge the submissions on the file in relation to flood risk and omission of several historic flood events from the flood risk identification stage of the SSFRA. I note the Justification Test which has been completed for the proposed windfarm infrastructure within the mapped fluvial flood zones (i.e. T4, T5, T6, T7 and T8, and associated hardstand and access tracks). Flood resilience measures have been proposed which include the reinstatement of the turbine hardstand within the floodplain to reduce the area of less permeable surfaces within the flood zone, the reduced area of operational hardstands and access tracks will be set at the 1 in 20-year flood level, with the placement of sensitive electrical components and transformers well-above flood levels. I refer to the applicants EIAR, Section 10.6.1.3 for a full description of the flood resilience proposals and the SSFRA – EIAR Appendix 10.1.

I note from the Councils Flood Section that they have raised no objection based on the grounds of flood risk. The Council have recommended conditions in relation to surface water management and management of soil stockpiles.

I note that the site is mapped as Benefited Land, associated with an Arterial Drainage Scheme (ADS). The Benefited Land is land that was drained as part of the Maigue drainage scheme for which the OPW has maintenance responsibilities. All watercourses in the vicinity of the site are mapped as ADS channels and are maintained by the OPW, with periodic dredging being completed as a control measure for flooding. The OPW state in their submission that they require a 10m wide strip of

land running parallel to the main channels and a 5m wide strip of land running parallel to smaller channels to facilitate access and maintenance activities). As stated in Table 10-8 of the applicants EIAR, these requirements have been incorporated into the design of the project and there will be no works within the 10/5m buffer zones as required by the OPW. I am satisfied that the applicants have incorporated the requirements of the OPW to enable maintenance with the aim of alleviating flooding.

The applicant has made it clear that the site is subject to flooding and is located within mapped flood zones. I consider the turbines and access road to be a water compatible development, with sensitive infrastructure and stockpiles located above the flood levels. Overall, I am satisfied that the drainage control measures for all phases of development and achievement of OPW requirements will ensure no downstream or upstream increase in local flood risk.

13.15.3. **Water Framework Directive (WFD)**

I note the observations on the file specifically the concerns raised in relation to the impacts on water quality and the ability of the development to meet their WFD Objectives. Under the WFD, An Coimisiún Pleanála is obliged to ensure that development will not result in the deterioration in status of surface or groundwater, support the restoration of surface and groundwater to good status, protect and enhance the status of artificial or heavily modified bodies and achieve compliance with the standards and requirements for designated protected areas.

I also note the applicant's response to the An Taisce observation regarding compliance with the WFD. A WFD Compliance Assessment was included in Appendix 10.3 of the applicants EIAR. With the implementation of mitigation measures relating to the protection of surface water quality and quantity, combined with the flood resilience proposals, the project will have no potential to alter the baseline WFD status or jeopardise the achievement of objectives of any local or downstream SWB, or underlying GWBs. I am satisfied the applicant has fully assessed the impacts of the proposed windfarm on water quality. Having regard to these factors, which typically include best practice and proven measures preventing water pollution, I am satisfied that there is no potential for adverse effects on groundwater or surface water bodies. I recommend that conditions in respect of the implementation of all mitigation measures set out in the EIAR and AA be required.

13.15.4. Impact on Public Water Supply (PWS) and Local Private Wells

I consider that the most significant risk to groundwater wells will be due to groundwater contamination due to the accidental release of hydrocarbons and cement-based products as a result of construction activities.

In relation to Uisce Éireann's observation regarding impact on PWS, I note the EIAR concludes that the project has no potential to result in significant effects on any downstream PWS. As described in the applicants EIAR, the local hydrogeological regime is characterised by high rates of surface water runoff and low rates of groundwater recharge. Both Bruree PWS and Adare PWS are hydrologically linked to the proposed windfarm site, however due to the distance from the site, the GSI delineated source protection areas and other considerations outlined in the applicants EIAR, Section 10.5.2.13, I consider there will be no significant impact on the Bruree and Adare PWS.

In relation to concerns raised by third parties in relation to potential impacts on local private wells, I consider that given the distances between local dwellings and proposed infrastructure locations, local topography and prevailing groundwater flow directions, and due to the shallow nature of the proposed works (road upgrade and widening) along the GCR and site entrances, I consider no effects on groundwater levels or local wells will occur.

13.15.5. Potential Cumulative Effects with Kerry Group WWTP

I note the third-party concern regarding the potential cumulative effects of the proposed windfarm. I have reviewed the cumulative assessment presented in the applicants EIAR, Section 10.7.4.2. The WwTP operates in compliance with an IE licence from the EPA and is currently operating in compliance with its discharge licence. Hence, I am satisfied there is no potential for cumulative effects following implementation of the prescribed mitigation measures and compliance with relevant conditions.

13.15.6. Impact on Ballynagoul Geothermal Springs

I note the third-party concern regarding the impact of the project on the Ballynagoul Geothermal Springs. The submission identifies the presence of the springs to the east of the site in the townland of Ballynagoul, stating that the springs are located c. 100m

from T1. The applicant has provided clarification in their response to the submission which they state that based on the mapping provided in the O'Gorman submission, the Ballynagoul Geothermal Springs are located c.590m east of T1 and c. 300m north-northeast of the proposed substation. The applicant has stated that The Ballynagoul Geothermal Springs can be considered to be less susceptible to effects than the local wells as they are associated with deeper groundwater system. The application has provided an assessment of why there will be no potential for effects on the Ballynagoul Geothermal Springs in their response to submissions in Appendix 3. In summary, it states that the potential for any element of the Project to effect the geothermal springs does not exist as the source of the spring water does not interact with any area of the proposed Project (i.e. there is no interaction with deep groundwater south of the Site). The applicant notes that piled foundations below turbines to the east and north of the springs do not pose any potential to impact on the Ballynagoul Geothermal Springs as they will not interact with the source water for the Springs.

Based on the assessment undertaken and implementation of the mitigation proposed in the EIAR to protect groundwaters, I am satisfied that potential impacts are unlikely.

13.16. **Conclusion: Direct and Indirect Effects (Hydrology and Hydrogeology)**

I am satisfied that the potential for significant adverse impacts can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on hydrology and hydrogeology.

14.0 Noise and Vibration

14.1. Issues Raised

14.1.1. Planning Authority

The PA has highlighted a potential mapping error. The applicant has responded by stating that the co-ordinates of the wind turbines and the receptors were reviewed, and they are consistent with the application. They further state that mapping of these locations is for indicative purposes only and to give the reader context.

14.1.2. **Prescribed Bodies (NEHS)**

Refer to Section 4.2.4 and 4.2.5 of this report for full details and will not be repeated here. The NEHS refers to the High Court decision in Webster/Rollo V Meenaclogher (Wind) Limited (2024 IEHC 136). The applicant in their Response Report addresses the concerns raised in relation to noise under the following headings; 1. Appropriateness of Daytime Lower Fixed Limit, 2. British Standard BS4142:2014+A1:2019, 3. Amplitude Modulation, 4. Compliance with WHO Guidelines 2018 and 5. Background Noise Measurements.

In relation to construction stage impacts, the NEHS is of the opinion that if the mitigation measures are implemented in full there is adequate protection of Public and Environmental Health during the proposed construction phase.

14.1.3. **Third Party Submissions**

Refer to Section 4.3 of this report for full details including applicants response. Issues raised relate to the impact on residential amenity, noise pollution impacting sleep, mental health and general well-being, inadequate noise mitigation measures, requesting noise levels to be in line with WHO guidance, proximity of proposed substation to residences (259m – V35ET78). The applicant has prepared a response to the noise concerns of third parties in Appendix 4 of the response submission.

14.2. **Context**

EIAR Chapter 11, and related Appendices 10-1 to 10-6, have assessed the potential impacts associated with noise and vibration. The EIAR provides a statement of authority, describes the legislation and guidance, assessment of methodology, describes noise limits, construction assessment methodology, evaluation of potential effects, describes mitigation measures and residual effects.

The guidance in the Wind Energy Development Guidelines 2006 (WEDG 2006) has been used to assess potential operational noise. In summary, the applicant highlights the following key extracts from the guidelines:

14.2.1. **General Noise Impact**

- “Noise impact should be assessed by reference to the nature and character of noise sensitive locations.”
- “Separate noise limits should apply for day-time and for night-time”

- "Noise limits should be applied to external locations and should reflect the variation in both turbine source noise and background noise with wind speed."

14.2.2. **Measurement Units**

- "The descriptor [LA90 10min] which allows reliable measurements to be made without corruption from relatively loud transitory noise events from other sources, should be used for assessing both wind energy development noise and background noise."

14.2.3. **Specific Noise Limits**

- "Noise limits should be applied to external locations and should reflect the variation in both turbine source noise and background noise with wind speed."
- "In general, a lower fixed limit of 45 dB(A) or a maximum increase of 5 dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours.
- However, in very quiet areas, the use of the margin of 5 dB(A) above the background noise at nearby noise sensitive properties is not necessary to offer a reasonable degree of protection and may unduly restrict wind energy developments. Instead in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of LA90,10min of the wind energy development noise should be limited to an absolute level within the range 35-40 dB(A)".
- "During the night the protection of external amenity becomes less important and the emphasis should be on preventing sleep disturbance. A fixed limit of 43 dB(A) will protect sleep inside properties during the night"

The applicant notes in Section 11.2.3.1 that the WEDG 2006 do not specify daytime or night-time hours. However, they note that it is considered good practice to follow the framework given in ETSU-R-97 and IOA Good Practice Guide where daytime and night-time hours are specified. The limits are based on the prevailing background noise level for '*quiet daytime'* periods, as defined in ETSU-R-97.

The applicant has provided examples of recent ACP decisions and related windfarm noise conditions in EIAR Section 11.2.3.2. This is further discussed in the EIAR in Section 11.3 in relation to Noise Limits.

The applicant reviews the policy of the Cork County Development Plan 2022 (CCDP 2022), which utilises the WEDG 2006.

Topics relating to operational windfarm noise such as Amplitude Modulation (AM), a potential characteristic of wind turbine noise, and Infrasound/Low Frequency Noise

(LFN) and Vibration, are also discussed in Section 11.2.3.7 and Section 11.2.8 of the EIAR and are discussed below.

14.2.4. **Infrasound/Low Frequency Noise**

Section 11.2.3.7 of the EIAR points out that based on the policy statement from the Institute of Acoustics (IOA), there is no need to assess infrasound as part of the noise impact assessment process, as the absolute levels are well below those reported to trigger physiological health effects based on peer reviewed research to date. The EIAR has referred to various studies carried out in relation to infrasound in support of their assessment.

In relation to Low Frequency Noise, it also states there is no need to assess low frequency noise as part of the noise impact assessment process, as the absolute levels, whilst potentially audible at typical receptor distances, are well below those reported to trigger physiological health effects based on peer reviewed research to date. Refer to Section 11.2.8 of the EIAR for further detail.

14.2.5. **Amplitude Modulation (AM)**

Amplitude Modulation' (AM) is described in the EIAR as a feature of the character of windfarm noise caused by the cyclical nature of the blades. The applicant notes that an understanding of the causal mechanisms has been gained in recent years, along with control methods to help assist with sites where AM can lead to complaints. Current scientific knowledge is such that AM cannot be predicted at the planning stage but can only be measured once the windfarm becomes operational. Refer to Section 11.2.7 of the EIAR for details in relation to AM. The methodology contained within the IoA RM, IEC 61400 and Draft Assessment and Rating of Wind Turbine Noise documents all allows quantification of all aspects of AM and a penalty scheme allows quantification of the mitigation required, if any. An appropriate penalty can be added onto the measured LA90 noise level, to allow direct comparison to an overall applicable noise limit. It can also allow a quantification of the mitigation required to reduce the rated noise levels from turbines, if exceedances are identified post the windfarm becoming operational.

14.2.6. **Vibration**

The EIAR states in relation to construction vibration that Guidance relevant to acceptable vibration is contained in the following documents:

- BS5228:2009 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration. BS 5228-2:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration (BSI, 2014) (BS5228-2).

The EIAR states that construction vibration is usually only significant from compacting or piling activities close to adjacent sensitive receptors. The construction site boundary is c. 529m from the nearest receptor (H28). Therefore, construction activity in relation to the proposed windfarm will not produce any negative impact by way of vibration on any of the sensitive receptors. On this basis, vibration impacts have not been considered further.

In addition, the applicant highlights that operation of the proposed windfarm will not pose any vibration impact on the nearby sensitive receptors. The level of ground vibration from the operation of the windfarms is below human threshold of 0.2mm/s27 at the base of a turbine, therefore it would be significantly lower at the receptor locations. Hence vibration has not been assessed further. (Refer to Section 11.2.8 of EIAR for detail).

14.2.7. **World Health Guidelines (WHO) 2018)**

WHO 2018 guidelines *'Environmental Noise Guidelines for the European Region'* gives a recommendation limit of 45 dB Lden which is based on low quality evidence. This is an annual average noise level, based on wind speed and direction in the vicinity of the site with no specific limits for night.

In Section 11.2.3.5 of the EIAR, the applicant highlights a comparison that was carried out between the WHO recommended level of 45dB Lden level and the WEDG 2006 limit level of 43dBLA90. The limit levels in the WEDG 2006 are a worst-case limit when a turbine is operating at full power, while the WHO limits are average levels. RPS considered the percentage of times when the turbines were operating at their maximum levels, based on typical Irish wind speed measurements and concluded: *It is reasonable to conclude from both these calculations that the annual average noise*

output from wind turbines in Ireland will be sufficiently lower than the maximum rated sound power to be consistent with the WHO guidelines.

Based on this, the applicant considers that compliance with the limit levels in the WEDG 2006 is consistent with the recommended levels in the 2018 WHO document.

14.2.8. **Draft Wind Energy Development Guidelines (WEDG, 2019)**

With regard to the WEDG 2019, the EIAR notes that at the time of writing, updated guidelines have yet to be published.

14.2.9. **Construction Noise**

The applicant notes that the NRA Guidelines provide noise limits which are acceptable and states, where it is deemed necessary to predict noise levels associated with construction noise, that this should be done in accordance with BS 5228. Methods of calculating the levels of noise resulting from construction activities are provided, as are updated source levels for various plant, equipment and construction activities.

The NRA guidelines for construction noise which are considered acceptable are given in Table 11.9 of the EIAR and below in Table 14.1.

Table 14.1: Noise levels that are considered acceptable based on the NRA guidelines

Day / Times	Guideline Limits
Monday to Friday 07:00 – 19:00hrs 19:00 – 22:00hrs	 70dB LAeq, (1h) and LAmax 80dB *60dB LAeq, (1h) and LAmax 65dB*
Saturday 08:00 – 16:30hrs	 65dB LAeq,1h and LAmax75dB
Sunday and Bank Holidays 08:00 – 16:00hrs	 *60dB LAeq,1h and LAmax 65dB*

*Construction at these times, other than required by an emergency works, will normally require explicit permission from the relevant local authority, in this case Limerick City and County Council.

The applicant notes that construction noise from the development, or decommissioning is not considered an intensive activity. The main noise sources will be associated with the construction of the Turbine Foundations and Turbine Hardstands. Lesser noise source activity will be construction of Access Tracks, temporary construction compound, turbine erection and the construction of the Substation. The threshold values are applicable to both construction and decommissioning noise.

The applicant notes that all workers associated with the Project will be subject to the Health and Safety Authority Guidance which states that for noise exposure noise levels likely to exceed 80dBA (expressed as Lep, d 8 hour dBA) there is the potential of risk of damage to hearing. All workers on site will be given guidance on how to comply with the 'First Action Level'.

14.3. **Baseline**

Predominant noise sources are low road traffic noise from the N20, and some low intensity agriculture activity in the surrounding farms. The applicant notes that the area is not defined as a low noise environment as the background is above 30dB LA90 during the day for all locations at all wind speeds. (Refer to Table 11.11 of the EIAR)

The EIAR notes that predicted noise levels follow the methodology given in the IOA Good Practice Guide and that noise level calculations complies with the ISO 9613-225 which provides a prediction of noise levels likely to occur under worst-case down-wind conditions.

A LiDAR positioned within the site during the noise survey was used for wind data measurements over 10-minute intervals.

The noise study area extends to 2km from the boundary of the site. Baseline noise conditions have been measured at a total of 4 no. Noise Monitoring Locations (NML 1 – NML 4) considered representative of the local noise environment. Refer to Appendix 11.1 which shows the location of each monitoring location.

EIAR, Appendix 11.4 presents the noise contours for the proposed windfarm at 8m/s standardised wind speed. The EIAR indicates 177 no. noise sensitive locations being included in this noise assessment extends well beyond the 35dB LA90 noise contour.

The method of measuring background noise is described in ISO 1996 and ETSU-R-97. Baseline noise monitoring was undertaken between 20th February and 19th March 2023 (refer to EIAR, Appendix 11.1). The applicant notes that an additional noise monitoring period was undertaken between 29th January and 1st March 2024. This additional period was only completed for NML 2 in order to gather sufficient data, during the initial noise monitoring period NML 2 was damaged.

The continuous monitoring periods coincided with the wind speed monitoring over the same period at the same 10-minute intervals using a LiDAR located at the same

location as NML 1 used for the noise monitoring. Noise data was recorded for a representative range of wind speeds during the monitoring period. Section 11.6.3 of the EIAR describes the baseline noise survey.

The applicant notes that since completion of the baseline noise monitoring, there has been no significant development in the locality of the Project, therefore baseline noise levels shall not be markedly different than those obtained during the original baseline noise monitoring.

SoundPLAN software package was used to calculate the noise level at the noise sensitive receptors as described in Section 11.2.6 of the EIAR. For EIA purposes, one candidate turbine, the Vestas V150 - 6.0 megawatts (MW) operating in standard operating mode PO6000, has been selected with a hub height of 95m for the EIA technical assessment. The tip of the blades with Serrated Trailing Edge (STE) lowers noise emissions without reducing energy output, and the selected turbine will have STE as standard. The worst-case sound power level at each wind speed from 4m/s to 12m/s was input into the noise model. The prediction modelling is based on the turbines operating at full power and all turbines fitted with STE which reduces noise emissions of each turbine.

The applicant points out that the proposed turbine has no variation in hub height. However, turbines located within the flood zone are up to 2m higher due to a raised foundation plinth. These turbines shall all have the same sound power level at all wind speeds. Therefore, the applicant states that noise emission data detailed in EIAR Table 11.3, Table 11.4 and Table 11.5 is valid for all proposed turbines to be installed.

The proposed 110kV substation will contain one transformer onsite which will generate noise. Maximum noise levels have been assumed for the final equipment to be chosen.

14.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 14.2 below;

Table 14.2 – Summary of Potential Effects (Noise and Vibration)
Do Nothing
• The 'do nothing' scenario would not result in any significant changes to the baseline. The existing use of the site would continue with or without the proposed development.

Construction Phase

- The main noise sources will be associated with the construction of the Turbine Foundations and Turbine Hardstands. Lesser noise source activity will be construction of Access Tracks, temporary construction compound, turbine erection and the construction of the Substation.
- **Construction Traffic** – Main noise impact will come from Readymix truckloads required for turbine foundations. These maximum noise levels will persist for no more than 4 hours at any receptor. All predicted noise levels are well within NRA guidelines given as acceptable and are considered slight. Construction noise is a temporary activity. All activity is predicted without additional mufflers, or without topographic screening. The maximum road traffic noise which is generated by ready-mix trucks delivering concrete for Turbine Foundations will be short term and of 9 days' duration. The predicted noise levels are well within the NRA guidelines given as acceptable and are therefore considered as not significant**.**
- **Rock Breaking -** Ground vibration from rock breaking will be below the threshold of sensitivity to humans of 0.2mm/s peak particle velocity at all receptors38. The effects of noise and vibration from onsite construction activities are therefore considered not significant.
- The construction noise effects are described as Negative, Not Significant and Temporary.

Operational Phase

- Table 11.17 of the EIAR gives the predicted noise levels at the nearest noise sensitive receptors to the Project, including 9 no. proposed turbines and substation at varying wind speeds for each sensitive receptor location. Traffic noise in the operational phase of the Project has been screened out as there will be no change in the day-to-day activity.
- A noise contour map of the 9 no. proposed turbine locations at maximum sound power output, at a wind speed of 8ms-1, at 10m height and the operational substation is presented in Appendix 11.4 of the EIAR. The contour map in Appendix 11.4 assumes that all turbines are simultaneously downwind to each location all of the time (continuously) which results in an overprediction of the noise levels.
- The assessment was made of the predicted operational noise levels from the Project based on the limits described in Section 11.2.3.1 of the EIAR taken from the WEDG 2006 and taking into consideration the recent ACP decision described in Section 11.2.3.2 of the EIAR.
- Table 11.17 of the EIAR indicates the predicted noise levels are higher than the night-time noise limit of 43 dB at two noise sensitive receptors at certain wind speeds – H9 and H28.
- It has been confirmed by the Developer that H28 is an involved landowner, to which a 45dB limit may be applied. Therefore, there is not an exceedance at this receptor, leaving an exceedance of the limits at only one property.
- The predicted noise levels are lower than the noise limits at all remaining noise sensitive receptors, at all wind speeds, and are therefore compliant with the noise limits and are not significant in terms of EIA.

- The predicted noise levels assume that all turbines are directly down-wind to nearest noise sensitive receptors, i.e. the worst-case scenario has been modelled.
- There are 29 no. properties within 5dB of the 43dB lower fixed limit, when all of the turbines are operating at their maximum noise levels. There is an inherent conservatism in the prediction noise modelling when it is carried out in line with ETSU-R-97 and the IoA GPG. Scientific papers referenced within the IOAGPG note that predicted noise levels are in the region of 2dB more conservative than the measured levels taken during post compliance monitoring.
- The turbines to be installed on this site are able to operate in various modes. If specific conditions arise that AM is generated, the operator can amend the operating mode to sufficiently mitigate the generation of AM or reduce the overall noise level in compensation to achieve set noise limits. If AM is identified as requiring a penalty, based on Figure 11.1 of the EIAR, then the turbine operational modes will be reduced to ensure the overall measured level, plus the penalty to comply with the overall limit level.
- Operational Noise is described as a Negative, Not Significant Long-Term Effect.
- **Vibration** – Refer to Section 14.2.4 of this report. No impacts predicted.

Decommissioning Phase

- Noise effects during the decommissioning phase of the Project are likely to be of a similar nature to that during construction but of shorter duration. It is likely that Access Tracks and Turbine Foundations (excluding plinths) will be left in place and covered over with topsoil unless there are environmental reasons to remove. It is likely that the duration of the decommissioning phase will be of shorter duration than that during construction. Any legislation, guidance, or best practice relevant at the time of decommissioning will be complied with. Refer to the Decommissioning Plan contained in the CEMP in Appendix 2.1 of the EIAR.
- The decommissioning noise effects are described as Negative, Not Significant and Temporary.

Cumulative

- A noise contour map of the cumulative effects of all turbines is presented with a maximum sound power output at a wind speed of 12m/s at 10m height in Appendix 11.4 of the EIAR.
- There were no windfarms or operational wind turbines within 5km of the Project, therefore a cumulative assessment was not required to be undertaken.

14.5. Mitigation Measures

14.5.1. Construction and Decommissioning Noise Mitigation

Section 11.8 of the EIAR notes that no mitigation is necessary as no significant construction noise effects have been identified in the EIAR. General guidance for controlling construction noise through the use of good practice given in BS 5228 will be followed. Works on the project will be limited to working times given in BS 5228

and any controls incorporated in any planning permission. During the decommissioning phase of the windfarm, noise levels are likely be no more than predicted in Table 11.14 of the EIAR, however, it is envisaged that decommissioning will be of shorter duration.

14.5.2. **Operational Noise Mitigation**

Section 11.8.2 of the EIAR points out that the proposed windfarm has been designed to comply with the WEDG 2006 and noise limits attached as conditions to recent ACP decisions relating to windfarms.

The EIAR has assessed that operational noise emissions from the proposed windfarm exceeds the night-time noise limit of 43dB at one sensitive receptor (H9) at wind speeds of 7m/s and greater.

Mitigation includes curtailment of the Vestas V150 turbines to protect the amenity of H9. Table 11.19 of the EIAR indicates that when directivity is considered, there are exceedances of the night-time limit of 43dB at H9 with one wind direction. A curtailment strategy is necessary to ensure the windfarm will comply with WEDG 2006.

In this regard, Turbines T2 and T3 will be operated in Sound Optimised Mode SO0 during certain conditions. Sound Optimised Mode SO0 has a lower maximum Sound Power Level at hub height of 104dB, compared to the maximum Sound Power Level of 104.9 dB when the proposed turbines are operating in Mode PO6000.

The applicant states that the curtailment strategy will ensure compliance with the 43dB night-time limit and will be implemented during the following conditions: the night-time period, from wind speeds of 8-12m/s and for wind blowing towards the East (from 315 degrees to 45 degrees as per Figure 11.6 of the EIAR). The reduction as a result of this strategy is indicated in the Table 14.3 below (as per Table 11.20 of EIAR);

Table 14.3 Impact of Curtailment Strategy on Sensitive Receptor (H9)

Receptor	Wind Direction (Blowing Towards)	Predicted Noise Level from Directivity (dBA)	Predicted Noise Level from Curtailment Strategy (dBA)	Reduction (dBA)
H9	East	43.3	4.0	0.3

14.6. **Residual Effects**

Residual effects are described in Section 11.8.2.1 of the EIAR as being the same as the operational effects identified. If AM is identified as an issue post the windfarm becoming operational, then mitigation can be incorporated into the site to ensure the limits are being complied with, as detailed in Section 11.2.7 of the applicants EIAR.

14.7. **Assessment: Direct and Indirect Effects**

I have examined, analysed, and evaluated Chapter 11 and associated appendices of the EIAR, and the submissions on file in respect of Noise and Vibration.

14.7.1. **Material Contravention of Development Plan (Night-time noise limits)**

I consider there is a material contravention of the LDP2022 in relation to night time noise limits, which has been addressed in my Planning Assessment in Section 7.4 of this report and will not be repeated here.

14.7.2. **Excessive AM and Low Frequency Noise (Special Audible Characteristics)**

LCCC and third parties have raised the issue of special audible characteristics including Amplitude (AM) and Low Frequency Noise (LFN). The issue of AM is discussed above, and I refer the Coimisiún to Section 14.2.3 of this report. In relation to LFN, this is considered in Section 14.2.2 of this report. Therein it is concluded that LFN and infrasound associated with wind turbines are expected to be below perceptibility thresholds and are not likely to result in any significant effects at NSLs.

Overall, I am satisfied that no significant effects will occur in relation to excessive AM and if it arises can be dealt with by the mitigation outlined in the EIAR.

14.7.3. **Public Nuisance**

I note third party submissions have stated the proposal is in contravention to LCDP 2022 policy EH P7 and objective EH O22, which seek to proactively manage environmental noise and prevent members of the public being significantly adversely affected by environmental noise from commercial and industrial noise activities.

Having regard to the information contained in EIAR Chapter 11, I consider the proposal will not result in any significant adverse impact on the health and quality of life of communities surrounding the application site in relation to noise and I am therefore

satisfied the proposal is not contrary with the requirements of CDP policy EH P7 and objective EH O22 as suggested.

The NEHS has noted the Webster/Rollo V Meenaclogher (Wind) Limited (2024 IEHC 136) judgement relating to on noise on windfarms being a private nuisance. The NEHS submission refers to UK guidance called DEFRA in relation to statutory nuisance in the absence of Irish Guidance. I also note third parties concerns in relation to noise impact. Specifically, a third party has also discussed Wexford (Byrne & Moorhead v. ABO Energy Ltd and Ballyduff Wind Farm) which decided by the Irish High Court on June 5, 2025. The ruling addresses private nuisance and the appropriate remedies for amenity interference. The case involved a couple living near a wind farm in rural County Wexford, who claimed that the noise from the turbines significantly disrupted their daily enjoyment and use of their home and garden. The court's judgment deviates from traditional methods of assessing damages for such nuisances in England and Wales, challenging the norms established by recent UK Supreme Court cases. The ruling clarifies how Irish courts will weigh private nuisance against the State's climate-action imperative

The applicant considers the UK guidance, DEFRA as mentioned above should not be considered when assessing a planning application under the EIA Directive and does not represent appropriate best practice guidance in that respect. The applicant points out that the planning condition noise limits as set with respect to Meenaclogher Wind Farm (limited to 40 dB LAeq at 5m/s and 45 dB LAeq at 10m/s) differ to those as applied by ACP with respect to current day wind energy applications. This was specifically highlighted, with the judgement noting the inherent risks where significant time passes between planning permission being granted and a windfarm development being constructed, with the potential for changes in noise impact assessment and statutory controls in the intervening time period. The applicant confirms that these are matters which the developer was entirely cognisant of in considering the proposed windfarm and the mitigation measures proposed. This specifically relates to AM as discussed above, which is discussed in EIAR Chapter 11.2.7 and provides for a penalty scheme to address any impact that may arise. EIAR Section 11.7.3 presents mitigation to control both overall noise levels and AM (if present). Within the Webster,Rollo V Meenaclogher (Wind) Limited High Court decision, the judge ordered an abatement strategy which curtails the nearest wind turbine, dependant on wind

speed and direction to remove the claimed nuisance. The developer has committed to applying, amongst other things, an abatement strategy in the event AM generates an exceedance to the stated noise levels (Section 11.6.6 of the EIAR).

The applicant notes that, in terms of overall noise levels, a range sound power operating modes can be applied if it is determined further to a Noise Compliance Monitoring Programme that noise limits are being exceeded. If complaints are received with respect to AM and it is determined further to a Noise Compliance Monitoring Programme that further mitigation measures are required, a curtailment strategy will be developed which will reduce to an acceptable level as defined in **Section 11.7.3** of the **EIAR** or remove the level of AM present under specific operational conditions. It is noted in the submission that the Developer is fully committed to ensuring compliance with planning conditions controlling noise levels and AM (if present) and will implement mitigation measures to ensure compliance.

Overall, I am satisfied that no significant effects will occur in relation to private nuisance and AM and if it arises can be dealt with by the mitigation outlined in the EIAR, and as outlined above.

14.7.4. **Construction Noise**

LCCC has raised the issue of Construction Noise, specifically in relation to the use of Mineral Policy Statement 2 relating to long term and substantial earth moving activity. The applicant states the programme for the entire construction is estimated at 18-month duration, but it will not constitute substantial earth moving for the entirety of the programme. The earthworks will transition through the site as the programme progresses and it is highly unlikely that substantial earthmoving will take place in a single location for a continuous 6-month period. For the above reasons, the applicant does not agree that the works are similar in nature to mineral extraction, as it doesn't involve long-term and substantial earth moving or works typical of mineral extraction (i.e. rock blasting etc.)

Based on the temporary nature of the earth movements required, I agree that the works are not similar in nature to mineral extraction and that the use of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1 and Part 2 in relation to vibration are the appropriate guidance.

14.7.5. **Mapping Error**

LCCC have pointed out a mapping error relating to the mapped location of the noise monitors leading to the noise contours potentially being plotted incorrectly in Appendix 11.4 of the EIAR (Soundplan Noise Outputs). There is concern regarding the accuracy of calculations at noise sensitive locations. The applicant has responded stating that the co-ordinates of the wind turbines and the receptors were reviewed following this query and they have confirmed that they are consistent with the application and therefore, the predicted noise levels are accurate. Further the applicant confirms that the noise monitoring locations were located as per the co-ordinates presented in **EIAR Table 11.10**. The mapping of these locations is for indicative purposes only and to give the reader context. The locations are appropriate and indicative at the scale of the mapping.

I am satisfied that the noise contours have been accurately plotted in the EIAR and hance, based on this, I am confident that the results of the noise assessment are precise.

14.7.6. **Noise Monitoring Locations**

LCCC consider the background noise measurements from the 4 no. noise monitoring locations do not reasonably/typically represent low levels of background noise in the vicinity of dwellings. Hence, it is the Councils opinion that the background noise survey is not adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development. This is based on guidance from ETSU-R-97 for the Assessment and Rating of Wind Turbines Noise.

The applicant has responded stating that the locations of noise monitoring complies with the guidance of ETSU-R-97. The applicants notes that WEDG 2006 provides different criteria for setting noise limits as follows:

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

recommended that the daytime level of the LA90, 10min of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A).
Separate noise limits should apply for day-time and for night-time. During the night the protection of external amenity becomes less important and the emphasis should be on preventing sleep disturbance. A fixed limit of 43dB(A) will protect sleep inside properties during the night.'

The applicant notes that the IOAPG requests assessment of typical noise levels and that properties to the west of the site will have a noise contribution from the N20 road which was highlighted in the assessment. The noise monitoring locations to the east of the site are further away from the road and have lower noise levels.

The applicant argues that unless the site is a low noise environment during the daytime, which it is not, the lowest fixed limit for wind turbine noise is 43dB LA90.

The applicant notes that the site was assessed in line with a 43dB limit, which is consistent with WEDG 2006 and recent ACP decisions.

The applicant notes that none of the 4 no. monitoring locations showed measured noise levels below 30dB during the day for any wind speeds when the turbines are operational. The noise sensitive receptors in the vicinity of this site are not in a low noise environment, so the background noise levels would only have the effect of increasing the noise limits applicable to the site. The applicant stresses that noise measurements were taken in areas that are representative of typical noise levels in the vicinity of noise sensitive receptors.

I am satisfied that the baseline noise assessment is appropriate and has been carried out in line with current best practice guidelines (WEDG 2006) and that the noise monitoring locations chosen are representative of the local environment.

14.8. **Conclusion Direct and Indirect Effects**

In relation to operational noise specifically and having reviewed the information submitted by the applicant in the EIAR, associated appendices and figures, I consider that a robust noise assessment, informed by adequate background noise monitoring has been carried out. The assessment has demonstrated that the proposed development complies with daytime and nighttime noise limit criteria at noise sensitive receptors as per the WEDG 2006.

I consider a suitable condition be included to limit daytime and night time noise at NSLs in line with the WEDG 2006 and the applicant is required to submit and agree a noise compliance monitoring programme for the proposed windfarm with the planning authority to include the mitigation measures required to achieve compliance with the noise limits such as curtailing of particular turbines. The condition should also require that the results of the initial noise compliance monitoring to be submitted to and agreed in writing with the planning authority within 12 months of commissioning of the windfarm.

Subject to compliance with the identified mitigation measures and noise limits and noting the separation distances between the proposed turbines and the nearest residential receptors, I do not consider that the proposed development would be likely to have a significant impact on sensitive receptors in relation to noise.

I have considered all of the written submissions made in relation to noise and vibration and the relevant contents of the file including the EIAR. I am satisfied that the potential for significant adverse noise and vibration impacts can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative noise and vibration impacts.

Notwithstanding the proposed windfarm being a material contravention of the Development Plan in terms of not complying with the night-time noise limits identified therein, I consider the proposed development is of national importance in reaching Irelands Renewable Energy Targets and complies with WEDG 2006.

15.0 Landscape and Visual Assessment

15.1. Issues Raised

Landscape and visual concerns have been raised in submissions including reference to turbines being out of scale and character with rural landscape, visual dominance, impact on scenic views/tourism, impact the visual amenities of the area, impact on Bruree village and motorists using the N20, cumulative impact and proximity to residential dwellings.

15.2. **Context**

Landscape and visual is addressed in Chapter 12 and technical appendices 16.1 and 16.2 of the EIAR. Appendix 12.1 contains a Magnitude of Visual Impacts at Representative Viewpoint Locations. The photomontages are a separate booklet and contains imagery for the viewpoints chosen for the LVIA study (VP1 – VP 28).

15.3. **Baseline**

The baseline for the landscape and visual impact assessment (LVIA) is set out in Section 12.3 landscape baseline and Section 12.3.10 visual baseline. The study area for landscape and visual receptors is 20km which is in accordance with WEDG 2006 guidelines and DWEDG 2019 guidelines for tip heights greater than 100m.

The applicant has also included a 'Central Study Area' which is the landscape within a 5km radius of the application site.

The application site is noted to be located within a flat lowland plain consisting of agricultural farmland. The foothills of the Ballyhoura mountains are located in the wider area to the southeast. Multiple rivers and streams are dispersed across the study area into the River Maigue and River Loobagh which run through the application site. The proposed site encompasses a series of pastoral fields used predominately for stock grazing, which is bound to the west by the N20 national road. Charleville and Bruree are the closest settlements located c. 2.5km south and northeast of the site respectively. Rural one-off housing typically takes the form of dispersed farmsteads and ribbon development along local roads. It is noted the future M20 major road corridor is proposed within 2km west of the proposed site.

The application site is located within the Agricultural Lowlands (LCA 01) Landscape Character Area (LCA) as defined by the LCDP 2022. Four other LCA's and Scenic Designations located within the study area are outlined in Section 12.3.9.1 and 12.3.9.2 of the EIAR. The LCAs and Scenic Designations are as follows;

<u>LCAs</u>

- LCA 02 Ballyhoura / Slieve Reagh (c. 3km southeast)
- LCA 04 Knockfierna (c. 10km southeast)
- LCA 05 Lough Gur (c. 3km southeast)
- LCA 09 Tory Hill (c. 3km southeast)

Scenic Designations

- Tory Hill View (c. 13km southeast)
- Lough Gur View (c. 14.8km southeast)
- Kilfinane Scenic Drive (c.1 4 km southeast)
- Castleoliver Scenic Drive (c. 10km southeast)

Key recreational receptors within the study area include Ballyhoura Way (c. 9km southeast), Lough Gur (c. 15km southeast) and Adare Manor Golf Course and luxury resort (c. 18km southeast).

Zone of Theoretical Visibility (ZTV) mapping shows the majority of the Study Area within 10km, will have comprehensive theoretical visibility of the proposed turbines. The Ballyhoura Mountain range screens nearly all views beyond 10km to the south-east.

Route Screening Analysis carried out shows that within the 1-2km range 'Open views' of 4-6 turbines occurs 59% of the time, however there is no possibility for visibility of 7-9 turbines.

The Wind Energy Strategy has designated the area containing the application site as *"Preferred Area"* to wind energy developments in the LCDP 2022. The closest Landscape Character Type (LCT) as designated by the Cork County Development Plan (2022-2028) is the *'LCT 5 Fertile Plain with Moorland Ridge'* and is assigned a '*Very High'* Landscape Value and Landscape Sensitivity with a '*County'* level landscape importance. The Cork wind strategy map show areas to the south of the application site as considered '*Open to Consideration*' to the west of the N20 and '*Normally Discouraged*' to the east of the N20 for wind energy development.

15.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 15.1 below;

Table 15.1 – Summary of Potential Effects (Landscape and Visual Assessment)
Do Nothing
• The receiving landscape would stay in the same or similar condition.

Construction Phase

Landscape Effects

- The development would have a modest physical impact on a low-lying, ostensibly flat landscape used primarily for agricultural farmland. It is characterised by a series of broad pastoral fields screened by a varied network of mature vegetation within a working landscape with a high degree of human modification.
- The topography and land cover of the Site will remain largely unaltered with construction being limited to access tracks, turbine hardstands, the substation, temporary construction compounds and met mast.
- Site activity will be at its greatest during the construction phase due to the operation of machinery on site and movement of heavy vehicles to and from Site. This phase will have a more significant impact on the character of the Site than the operational phase, but it is a 'short-term' impact. The substation will remain in perpetuity as part of the national grid network. The construction stage landscape effects of the Project are largely reversible.
- The construction stage landscape effects are considered to be no greater than High-medium magnitude within and around the Site (i.e. within 1km) reducing to Medium for the remainder of the central Study Area.

Visual Effects

- The most notable construction stage visual impacts will result from the erection of the proposed turbines using tower cranes. There will be stockpiles of stripped topsoil as well as construction materials awaiting use. Construction-related activity is short-term in nature.
- The significance of visual effect is considered not greater than Moderate and of an Adverse quality (<1-2km from the Site). The significance of effect will reduce to Moderate-Slight throughout the central Study Area and Slight and Imperceptible at increasing distances within the wider Study Area.

Operational Phase

Landscape Effects

- The turbines represent a long term, but not permanent impact on the landscape and is predominantly reversible. Wind turbine infrastructure already exists within the wider Study Area and can be considered a characteristic feature of the wider Study Area.
- The proposed site does not detract significantly from the productive rural character of this lowland landscape due to the broad low-lying scale of the landform, landscape elements and land use patterns. These attributes prevent the height and extent of the proposed windfarm causing the type of scale conflict that can occur in more intricate landscape areas.
- The landscape impact is deemed to be High medium within the Site and its immediate environs (c.1km) reducing to Medium for the remainder of the Central Study Area. The quality of the landscape effects is deemed Adverse. Beyond 5km from the Site, the magnitude of landscape impact is deemed to reduce to Low and Negligible.

Visual Effects

Visual Receptors:

- **Amenity and Heritage Features:** The highest significance of visual impact 'slight' occurred at VP21 – Lough Gur and VP15 - Ballyhoura Mountains.
- **Local Community:** Two viewpoints were classified with a 'Substantial-moderate' significance of visual effect including VP5 and VP7, whilst VP6 was assessed to incur a Moderate effect.
- **Centres of Population:** The highest likely visual impact on settlements related to VP1 (Charleville) which was deemed to have a ''Moderate' significance of impact.
- **Transport routes:** The highest likely visual impact along major routes is 'Substantial-moderate' (VP7 and VP9) along the N20 road.
- Three viewpoints (VP5, VP6, VP7) within 1km of the site experienced the highest likely visual impact recorded for the Development that of 'Substantial moderate' Visual Impact Significance.

Viewpoint Assessment Outcomes (Table 12.8 of EIAR) – VP no, Location, Distance to turbine, Significance / Quality / Duration of Impact.

- VP1 Northern outskirts of Charleville - 2.7km - Moderate / Adverse/ Long Term
- VP2 Residential elevated local road by Ballyclough Upper - 3.3km - Moderate-Slight / Adverse/ Long Term
- VP3 Bruree - 3km - Moderate-slight / Adverse/ Long Term
- VP4 N20 immediately west of site - 0.7km - Moderate-slight/ Adverse/ Long Term
- VP5 Local Road at Ballynagoul (north) - 0.6km - Substantial moderate/ Adverse / Long Term
- VP6 Local Road at Ballynagoul (south) 0.8km - Moderate/ Adverse / Long Term
- VP7 N20 southwest of centre of site 1km - Substantial moderate/ Adverse / Long Term
- VP8 Cemetery on southern outskirts of Charleville - 3.7km - Moderate-slight / Adverse/ Long Term
- VP9 Effin - 4.8km - Imperceptible/ Neutral/ Long Term
- VP10 Local Road west of site - 4.3km - Slight / Adverse / Long Term
- VP11 Kilmallock GAA Club - 6.7km - Slight / Adverse / Long Term
- VP12 Newtownshandrum - 8km - Imperceptible / Neutral / Long Term
- VP13 Ballyagran - 7.2km - Imperceptible / Neutral / Long Term
- VP14 Charleville Golf Course - 5.4km - Imperceptible / Neutral / Long Term
- VP15 Ballyhoura Mountains - 9.2km - Slight / Adverse / Long Term
- VP16 Athlacca - 6.6km - Imperceptible/ Neutral/ Long Term

• VP17 N20 at O'Rourke's Crossing - 3.2km - Slight/ Adverse/ Long Term • VP18 Residences at Knockfeerina - 11.7km - Slight / Adverse-Neutral/ Long Term • VP19 Co. Limerick designated scenic view - 13.5km - Imperceptible/ Neutral/ Long Term • VP20 Adare Manor and Golf Course -19km - Imperceptible/ Neutral/ Long Term • VP21 Lough Gur viewpoint - 17km - Slight / Adverse / Long Term • VP22 Bruff - 12.5km - Imperceptible/ Neutral/ Long Term • VP23 Hospital - 18km - Imperceptible/ Neutral/ Long Term • VP24 Slievereagh Hill at cycle hub and loop walk route - 15km - Slight / Adverse / Long Term • VP25 Churchtown - 13.3km - Imperceptible/ Neutral/ Long Term • VP26 Dromcollogher - 16km - Imperceptible/ Neutral/ Long Term • VP27 R515 west of Garrynderk North - 2.4km - Slight / Adverse / Long Term • VP28 R515 at Bresheen South - 4.28km - Slight / Adverse / Long Term
Decommissioning Phase
• The decommissioning phase will see a similar nature of effects to the construction stage due to the movement of heavy machinery within the proposed site and to and from the Site removing turbine components. Effects will be temporary in duration. No significant impacts expected.
Cumulative
• See Section 12.4.5 of the EIAR for details. • The proposed site is considered to contribute to a cumulative landscape and visual impact in the order of 'Low'.

15.5. **Mitigation Measures**

Other than those embedded landscape and visual mitigation measures that formed part of the iterative design process of this project, other specific landscape and visual mitigation measures are not considered necessary or likely to be effective.

15.6. **Residual Effects**

No change to the main LVIA which concludes that no significant landscape and visual effects and no significant cumulative effects.

15.7. **Assessment: Direct and Indirect Effects**

15.7.1. **Distance to Residential Properties**

A number of submissions have raised concerns in relation to the proximity of the proposed turbines to existing dwellings and non-compliance with the setback distances outlined in the DWEDG 2019.

The Coimisiún will note that permission is being sought for a turbine with a tip height of 170m. Setback distance for visual amenity purposes is 4 times the tip height as set out in in Section 6.18.1 and SPPR 2 of DWEDG 2019. Based on the turbine tip height of the proposed windfarm the setback required is 680m (170m x 4).

The applicant has stated that there is 1 no. dwelling belonging to an involved landowner contained within the recommended setback distance of 680m as per the DWEDG 2019. This dwelling referenced as H28 is located c. 529m from turbine T3 and is identified on Figure 1.3 of the EIAR.

The applicant has outlined the setback distances from 180 no. dwellings in Table 14.2 of the EIAR, with all sensitive receptors stated as being in excess of 700m from the nearest turbine with the exception of dwelling H28.

Submissions have raised specific concerns in relation to the setback distances from dwellings H9 and H30 and whether the dwelling including their curtilage are in accordance with DWEDG 2019 guidance. For clarity, the curtilage of a domestic dwelling house for the purposes of the DWEDG 2019 is defined as the land immediately surrounding a dwelling house which is used for purposes incidental to the enjoyment of the dwelling house and excludes any open fields beyond the immediate surrounds of the dwelling.

I note the applicant has provided ITM coordinates for each of the proposed turbine locations in Table 2.3 of the EIAR. I have also assessed the ITM coordinates provided by the applicant in relation to each sensitive receptor in Table 14.2. I note the applicant has measured the distance from the turbine to the centre of the buildings rather than to the curtilage of the dwelling which is not in accordance with the DWEDG 2019 guidance. Notwithstanding this, I am satisfied that both dwellings H9 and H30 have a minimum setback distance of 680m from the nearest turbine when measured to the nearest point of their curtilage.

Having remeasured the ITM coordinates for each of the proposed turbines to the nearest point of the curtilage of the sensitive receptors listed in Table 14.2 of the EIAR,

I am satisfied that the minimum setback distance of 680m has been achieved as per WEDG 2019 with the only exception of dwelling H28.

The setback distance outlined in DWEDG 2019 is for the purposes of visual amenity. As indicated in SPPR2 of WEDG 2019, for visual purposes the 4 times the tip height is the guide, subject to a mandatory minimum setback of 500m for any residential property. In all cases, this minimum setback of 500m has been provided at the application site.

Overall, I consider the setback distances of the proposed turbines from surrounding residences are in accordance with the requirements of the DWEDG 2019 with the exception of dwelling H28, an involved landowner. I accept the proposed turbines will be visible and prominent when viewed from local residential properties within the immediate area of the application site, however I am satisfied the proposed turbines will not be overbearing on any individual residence.

15.7.2. **Landscape Effects**

A number of submissions have raised concerns in relation to landscape impacts due to the height and scale of the turbines dominating the lowland landscape. The Council have also raised concerns in relation to the negative landscape impact of the proposal given their height and scale.

The proposed windfarm site is not subject to any specific landscape designation but is located within the Landscape Character Area of '*LCA 01 Agricultural Lowlands'*. The LCDP 2022 describes the area as *'the largest of the Landscape Character Areas in Limerick and comprises almost the entire central plain. This landscape is a farming landscape and is defined by a series of regular field boundaries, often allowed to grow to maturity'*.

I note of the 10 no. Landscape Character Areas identified in the LCDP 2022, only 4 no. areas are considered to be suitable for wind energy developments of which includes '*LCA 01 Agricultural Lowlands'*.

There is no Landscape Capacity Type assessment as such within the Development Plan, but it does include a Wind Energy Strategy Map (Map 9.1), which is a plan-led approach to the identification of areas suitable for wind energy development. The

application site falls within a location considered to be a '*Preferred Area*' for wind energy development.

I do acknowledge that the height and scale of the proposed wind turbines is such that they will undoubtedly have the potential to impact on the visual amenities and landscape character of the area. Furthermore, due to their scale, these impacts cannot be effectively mitigated such as by screening vegetation. The careful locating, design and layout of the turbines is therefore the only effective means of reducing the significance of impact. In this regard, I note that the applicant asserts that the siting, scale and spatial extent of the proposed turbines has taken into account the standards of the WEDG 2006 guidelines for the '*hilly and flat farmland'* landscape type.

On balance, I consider the proposal to be generally in accordance with the WEDG 2006 design guidance for '*hilly and flat farmland'* landscape types. The overall layout of the windfarm is generally acceptable in visual terms. The turbines and access route are general sited to follow the natural contours of the local landscape and underlying pattern field, which helps in blending them into the setting. The turbines' slender profile and the project's overall design help reduce visual clutter. The farmland landscape surrounding the application site is not considered a particularly sensitive landscape and is constantly evolving over time.

I note the findings of the LVIA that construction stage landscape effects are considered to be no greater than High-medium magnitude within and around the Site (i.e. within 1km) reducing to Medium for the remainder of the central Study Area and diminishing further with distance thereafter.

In relation to the operational stage effects on landscape character, I acknowledge that the proposal will result in a change in character of the immediate area due to the introduction of these tall mechanical structures. I note that other windfarms are located within the wider study area, particularly in the Ballyhoura Mountain area and thus the proposal can be considered as a characteristic feature of the surrounding landscape. From many viewpoints, the proposed development would form a substantive dominant element in the landscape, although this would be viewed amongst an already altered working and inhabited landscape type with a patchwork of mostly actively managed land uses, with commercial forestry and urban settlements.

I concur with the findings of the LVIA that the magnitude of the landscape impact is deemed to be high - medium within the site and its immediate environs (c.1km). As with many impacts, the landscape impact of the turbines would dissipate moving away from the application site. Beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to Low and Negligible. I consider the landscape impact up to 1km from the application site will be significant on visual receptors.

Overall having regard to the broad low-lying scale of the landform, the working and inhabited landscape type and nature/extent of the proposed windfarm, it is my view, that the proposed development would not adversely impact on the visual quality of the landscape beyond those which might be reasonably expected on lands which are designated in the LCDP 2022 as a '*Preferred Area'* for wind energy developments. Furthermore, I do not consider the effects on the landscape as a result of the proposed windfarm would be disproportionately overbearing or dominating.

15.7.3. **Visual Effects**

Submissions have raised concerns in relation to the visual impact of the proposed windfarm. It is stated that the windfarm will be highly visible from the surrounding area including the N20 and would constitute a highly visually obtrusive development, leading to impacts on tourism and amenity features in addition to scenic routes in the area. Other submissions raised concerns about the proposal being contrary to Objective EHO21 (Views and Prospects) of the LCDP 2022 and the impacts on heritage features in the area such as Lough Gur, De Valera's Cottage and the Kilmallock Architectural Conservation Area. Impact on heritage features are considered separately under Section 17 Archaeology and Cultural Heritage of this report.

15.7.3.1. **LVIA Photomontage Viewpoints**

The 27 no. LVIA photomontage viewpoints listed in Table 12.7 of the EIAR portray the predicted views from key receptor types in the form of, the local community, designated views, centres of population, transport routes and tourism, recreational & heritage features.

Having inspected the application site and surrounding area and observed vistas from each of the viewing reference points in addition to other points along the public road

network and in addition to reviewing the submissions and all documentation, I am satisfied the locations for the photomontage viewpoints chosen within the LVIA to be representative and allow for a proper assessment of the landscape and visual impacts of the proposed development.

The photomontages indicate the impact and extent of visual effect of the proposed turbines. 13 no. of the viewpoints are within 5km of the turbine site, which I consider the area where those living and/or working would be most likely to be visually affected by the proposal. Beyond the immediate vicinity of the site (2km), I note that the route screening analysis undertaken by the applicant demonstrates that views of the proposed windfarm will be partially or fully screened from many sections of local roads within 5km of the site due to intervening hedgerows and treelines. Open views ranges from just under 13% of road viewing scenarios within 1km and decreases to 2% out to the 4-5km band.

I note that 2 no. of the 13 no. viewpoints would experience the highest likely visual impact recorded for the proposed development to be of '*Substantial-Moderate'* visual impact significance (VP5 and VP7) as outlined in Table 12.8.

A further 6 no. viewpoints (VP1, VP2, VP3, VP4, VP6 & VP8) would experience '*Moderate or Moderate-Slight'* visual impact significance. With all 10 no. viewpoints having a *'negative'* visual impact quality. The remainder of the viewpoints (VP10, VP17, V27 & VP28) are considered to experience '*slight*' impacts apart from VP9 which is '*imperceptible'*.

From a review of the viewpoints within a 5km radius, I would consider the magnitude of the impact of the proposed development from a visual perspective to be *'medium-high'* and I would consider this significant. The visual impact of the proposed turbines would lessen with distance away from the site due to the local topography, field/roadside boundary vegetation and the built environment. From viewpoints greater than 5km, views of the application site would be available from across the flat landscape. The significance of the impact on these areas would reduce with distance primarily due to the perceived magnitude of change.

Viewpoints from surrounding settlements including Charleville (VP1& VP8), Bruree (VP15), Effin (VP9), Kilmallock (VP11), Bruff (VP22), Hospital (VP23), Dromcolliher (VP26) and the County Cork villages of Newtownshandrum (VP12) and Churchtown

(VP25) have been assessed in the LVIA. The significance of change, arising from the proposed development would result in the highest impact on Charleville town being '*moderate/moderate-slight'*. The remaining viewpoints would have a '*slight or imperceptible'* significance.

I note Sections 12.3.7,12.4.3.3 and 12.4.3.4 of the EIAR addresses the potential impacts of the development on tourism and amenity features with reference to the closest tourist attractions in the area. I note the applicant has included 6 no. viewpoints (VP8, VP15, VP16, VP19, VP20 and VP21) in the LVIA as representative of tourism, recreational & heritage features.

The applicant has also considered all relevant designated scenic views and prospects within 20km of the site as per the LCDP 2022 under Section 12.3.9.2 and Figure 12.2 of the EIAR. I note the scenic routes referenced as Kilfinane and Castleoliver located to the southeast of site were not considered due to their location outside of an area shown by the ZTV pattern to have potential visibility of the proposed turbines.

Furthermore, I am satisfied that the scenic route referred to as '*S13 Kilfinnan - Shanballymore Road'* in the Cork County Development Plan 2022- 2028 will not be impacted by the proposal as the route is also outside the ZTV pattern and on the southern side of Ballyhoura mountains with no visibility possible due to the intervening mountainous landform.

The proposed turbines and associated development would be partially visible from the Lough Gur viewpoint (VP21) however the turbines are a distant background feature. I acknowledge that the proposed turbines are visible, however I do not consider them to be unduly intrusive in the landscape as seen from this vantage point. I do not consider them to distract from the visual setting of Lough Gur's archaeological landscape and public amenity. I accept the findings of the LVIA that the visual impact is assessed as *'slight'* in visual impact significance.

I note that proposed turbines are not visible from the Tory Hill scenic route or Adare Manor as represented by VP19 and VP20 with foreground vegetative screening and intervening terrain limiting any visibility of the proposal. I consider the significance of visual impact is '*imperceptible*' for both viewpoints. I am satisfied that the proposed turbines, will not result in significant visual effects on the scenic sensitivities of Lough

Gur and Tory Hill views and prospects and therefore the proposal is not contrary to Objective EHO21 (Views and Prospects) of the LCDP 2022.

With regard to impacts on the public mountain biking and trails in the Ballyhoura mountains, I note the applicant has included VP15 which represents the Ballinaboola Loop in the Ballyhoura Mountains and VP24 was selected as a representation of the Slievereagh Hill cycle hub and loop walk route. I acknowledge that the proposed turbines will be visible from both elevated viewpoints. The potential visual impact significance from the proposed greenway locations at Ballinaboola Loop and Slievereagh Hill (Viewpoints 15 and 24), has been deemed to be '*slight'*.

In relation to visual impact on the N20 and potential driver distraction, I have assessed the full extent of the N20 in a northbound and southbound direction from Charleville to O'Rourke's Cross including from the selected viewpoints. I am of the view that the alignment of the road is such that the driver is not presented with sustained full-frontal views of fully exposed turbines and that any such views are intermittent. Intervening roadside vegetation and the built environment provide a degree of screening however I acknowledge that sections of the road provide more open views of the application site.

Accordingly, whilst I accept that landscape and visual effects will occur in respect of the N20 as represented by VP4, VP7 and VP17, I consider that turbines may distract motorists when they are being constructed or when they are new, however over time the turbines will become part of the landscape and in general will not cause any significant distraction to motorists. No evidence has been presented in third-party submissions to indicate that wind turbines in close proximity to motorways leads to behavioural adaptations among passing drivers.

15.7.4. **Cumulative Impact**

Submissions have raised concerns that cumulative impacts have not been adequately addressed, in particular, the proposed Ballinlee wind farm and that the cumulative visual impact is excessive when other existing windfarms are considered.

In general, I am satisfied that the cumulative baseline within the EIAR is up to date and sufficiently comprehensive. The location of other operational and consented windfarms within the 20km study area are outlined in Section 12.4.4 of the EIAR and form part of the landscape and visual baseline.

The addition of the proposed development in combination with operational, permitted and proposed (in planning) are assessed in cumulative assessment scenarios and are illustrated in the cumulative ZTV maps provided in Figure 12.12 and Figure 12.13 showing the existing and imminent cumulative baseline and include the proposed Ballinlee Wind Farm (7.7km northeast) and permitted Tullacondra Wind farm under ABP ref 322787-25 (20.6km southwest). I note the proposed Ballinlee Wind Farm is also located within the Agricultural Lowlands (LCA 01) LCA and within a "*Preferred Area*" to wind energy developments under a Wind Energy Strategy of LCDP 2022.

The closest existing wind energy development to the proposal is the Rathnacally Wind Farm, consisting of two turbines located c. 5.9km to the south. Based on the scale of the Rathnacally Wind Farm and separation distance from the application site, I am satisfied that no significant cumulative effects are likely to arise.

The 10 no. existing, consented or proposed wind energy developments within the study area are located outside of the 5km Central Study Area. These wind energy developments are predominately in the upland areas of the outer southern sections of the study area, the largest being the Knocknatallig (6 no. turbines) and Castlepook Wind Farms (14 no. turbines) located with the Ballyhoura Mountains. The existing and permitted wind farms within the study area highlighted on the cumulative ZTV map show that 55.8% of the study area has the potential to afford visibility of existing or consented developments in addition to the proposed development.

I note the route screening analysis (RSA) undertaken for the proposed development indicates that there is limited open view visibility of it from beyond 2km given the lowland nature of the surrounding terrain. The LVIA finds that it is likely that only from elevated terrain such as that within the outer southern quarters of the study area that the proposed development and the proposed Ballinlee Wind Farm would be potentially visible at the same time. Given the distance between the application site and the Ballinlee/Tullacondra Wind Farms, all turbines would be interpreted as individual windfarms. The LVIA notes that the proposal will contribute to a cumulative landscape and visual impact in the order of *'Low'* in respect of the current cumulative scenario.

Overall, I am satisfied that cumulative landscape and visual effects of the addition of the proposed development in combination with operational, consented and proposed

(in planning) windfarms have been comprehensively assessed and I accept the findings of the cumulative assessment.

The cumulative effects with other developments are noted to be not significant in the LVIA. I consider that the proposed development would not generate any significant cumulative effects within a landscape setting already hosting wind energy developments that has revealed capacity for windfarms of a similar scale to be accommodated without unduly impacting or dominating the setting.

15.8. **Conclusion Direct and Indirect Effects**

Having regard to the examination of the information contained in Chapter 12 of the EIAR and the accompanying documentation within Appendix 12.1 and all of the written submissions made in relation to landscape and visual impact, I am satisfied that potential effects on landscape and visual receptors as a result of the proposed windfarm have been avoided by the inclusion of imbedded design mitigation measures and the inclusion of appropriate setback distances from sensitive visual and residential receptors.

I consider significant negative visual effects as a result of the proposed windfarm will be experienced by a small number of residential properties within c. 1.0km where these have open views of the proposed turbines. This will reduce to not significant beyond 1km where views will be intermittent, limited or screened. These effects are an inevitable consequence of the introduction of large-scale wind turbines into a flat lowland landscape. In reaching this conclusion, I have had regard to the cumulative impact of other windfarms located within the LVIA study area.

On balance, based on National Policy supporting renewable energy (see Section 5.0 of this report), I consider that the potential benefits associated with renewable energy generation including wind energy within the context of a climate emergency, outweigh the potential adverse localised landscape character effect and potential perceived adverse localised visual effect for a small number of residential receptors.

I am therefore satisfied, that the proposed development would be consistent with the Climate Act and National Policy in support of renewable energy and a refusal of permission would not be warranted on the basis of residual landscape and visual effects.

16.0 Air Quality and Climate

16.1. Issues Raised

No issues raised in relation to air quality and climate.

16.2. Context

16.2.1. Air Quality

EIAR Section 13.2 has assessed the potential impacts on the air quality associated with the Proposed Development. In relation to Air Quality, the EIAR provides a statement of authority, describes the legislation and guidance, the assessment methodology, describes air quality standards, the baseline conditions, the likely significant impacts and associated mitigation measures, cumulative and residual effects.

16.2.2. Climate and Greenhouse Gases

EIAR Section 13.3 and Appendix 13.1 (Carbon Calculator) has assessed the potential impacts on climate associated with the proposed Development. The EIAR provides a statement of authority, describes the impact of global warming, the relevant legislation and guidance, assessment methodology, existing climate, calculates carbon losses and savings and describes potential likely effects and associated mitigation measures, cumulative impacts and residual effects. Section 13.3 of the EIAR details Irelands commitment to addressing climate change and greenhouse gases including international agreements such as Kyoto Protocol the Climate Action and Low Carbon Development (Amendment) Act 2021 which commits Ireland to move to a climate resilient and climate neutral economy by 2050. The applicant notes that continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term in considered scenarios and modelled pathways. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damage to nature and people (IPCC, 202316). Section 13.3 outlines the detrimental impacts of climate change and the efforts that are taking place to reduce greenhouse gas emissions and speed up the transition away from fossil fuels to renewable energy. It describes Irelands

commitment to renewable energy including our commitment to onshore wind of 2GWs by 2025 and 9 GWs by 2030. The applicant notes that the Climate Action Plan 2025 (CAP 2025) re-affirms Irelands previous commitment to increasing the share of renewable electricity to 50% by 2025 and 80% by 2030. Overall, the share of renewable electricity generation in Ireland increased from 38.6% to 40.7% from 2022 to 2023. The figure for 2024 will likely be between 40% and the interim, end of year target of 50% set out in CAP25.

The applicants notes that the proposed project will have a long-term positive impact by providing a sustainable energy source. Should the Project not proceed, fossil fuel power stations will be the primary alternative to provide the required quantities of electricity. This will further contribute to greenhouse gas and other emissions. The LCDP 2022-2028 includes renewable energy targets for 2030, including a 386.45MW target for wind. The current installed capacity of County Limerick stands at 243.35MW20, leaving a short fall of 152.1MW to be achieved in the next 5 years. The Project would contribute circa 36% of this target for new onshore wind energy in Limerick.

16.3. **Baseline**

16.3.1. **Air Quality**

The EIAR, Section 13.1.4 notes that there are 166 no. sensitive receptors within 2km of the proposed turbines. This includes 3 No. commercial properties, 6 No. derelict houses and 157 no. residential receptors of which 5 no. are involved in the Project (EIAR, **Figure 1.3**), mostly along existing public roads. For general dust and exhaust emissions, receptors situated within 1km of the site infrastructure are defined as sensitive receptors. There are 33 no. sensitive receptors within 1km of site infrastructure. Users of the public roads within the vicinity of the Project are also considered as sensitive receptors. For nuisance dust (larger dust particles) receptors situated within 250m the site are defined as sensitive receptors based on IAQM 2024. There are no sensitive receptors within 250m of site infrastructure. For cumulative impacts, a 20km radius of the project are assessed as per those developments outlined in EIAR, Table 2.1.

The air quality standards and baseline environment is described in Section 13.2.2 – 13.2.5 of the EIAR. The EPA has designated four Air Quality Zones for Ireland: Zone

A: Dublin City and environs Zone B: Cork City and environs Zone C: 16 urban areas with population greater than 15,000 Zone D: Remainder of the country. These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the Cafe Directive. The site lies within Zone D, which represents rural areas located away from large population centres. The EIAR presents the findings from the latest EPA report on air quality in Ireland published in 2024, which provides PM25, PM10, O3, NO2 and SO2, concentrations for areas in Zone D.

The EIAR notes that the closest monitoring site to the Project within the same air quality zone is Mallow, Co. Cork. Mallow monitoring site is located 27.8km South-east of the Site. Results from the monitoring campaign during 2023 showed that Mallow exceeded WHO 24-hour mean guideline (15µg/m3 24-hour mean) for (PM2.5) on 8 occasions in 2023 and exceeded the annual mean (5µg/m3) guideline with a mean of (6.1µg/m3) for 2023. Mallow also exceeded WHO guideline (50µg/m3 24-hour mean) for (PM10) on two occasions in 2023. Mallow did not exceed WHO guidelines for any other parameter in 2023. The annual mean PM10 and PM2.5 levels for Mallow were (10.5 µg/m3) and (6.1 µg/m3) respectively. These values are below the limit values set out by Directive 2008/50/EC as per Table 13.2 of the EIAR.

16.3.2. **Climate**

Climate and weather in the existing environment is described in Section 13.3.3 of the EIAR. The Met Éireann weather station at Shannon Airport located c.37km to the north-east of the site, is the nearest weather and climate monitoring station to the site that has meteorological data. Meteorological data recorded at Shannon over a c. 30-year period from 1991-2020 is shown in Table 13.4 of the applicants EIAR. Graph 13.1 of the applicants EIAR shows the mean air temperature and precipitation amount (mm) recorded at Shannon Airport from 1991 – 2020. The mean annual air temperature as shown in Table 13.4 of the applicants EIAR is between 1981 and 2020 was 10.70 degrees Celsius. Mean monthly temperatures ranged from 6.1°C in January to 15.8°C in August. Mean annual rainfall over this period was 1019.70mm, with a maximum monthly mean rainfall of 115.40mm in December and a minimum monthly mean rainfall of 62.3mm in April.

16.3.2.1. **Carbon Calculator**

Section 13.3.4 of the applicants EIAR describes the calculation of carbon losses and savings from the proposed development.

The climate impact of the Project was assessed using the Carbon Calculator Tool (version 1.8.1, released date 11 Dec 2023). The applicant notes that the carbon calculator specifically designed for assessing the climate impact of windfarms was developed under the guidance of the Scottish Government, Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and Forestry Research (impact assessment). Commonly used guidance produced by SNH in 2003 (in a technical guidance note) has been used to determine carbon payback in the absence of any more detailed methods to determine the impacts on soil carbon stocks. The use of the Scottish carbon calculator in assessing the climate impact and determining carbon payback for this Development is acceptable, as the peat habitat of Scotland is similar to Ireland and at similar latitudes, the simulated land-atmosphere interactions are applicable. This accepted as best practice in Ireland. A limitation of the Scottish Carbon Calculator is the model assumes that the Development is constructed on peatlands (the only options in the model are acid bog and fen). Therefore, the carbon losses calculated are considered worst-case and conservative.

The worksheet models and online tools calculate that the Proposed Development will give rise to 92,764 tonnes (wort case) of CO2 equivalent losses over its 35-year life.

c. 46,689 of CO2 will be displaced per annum from the largely carbon-based traditional energy mix by the Project. In total, it is estimated that 1,634,117 tonnes of CO2 will be displaced over the proposed 35-year lifetime of the windfarm. The carbons losses due to the construction and operation of the Project will be offset by the Project in c. 24 months of operation.

16.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 16.1 below;

Table 16.1– Summary of Potential Effects (Air Quality and Climate)
Do Nothing
• **Air Quality** - If the Project was not to proceed, the opportunity to reduce emissions of carbon dioxide (CO2), nitrogen oxides (NOx), and sulphur dioxide (SO2) to the atmosphere would be lost due to the continued dependence on electricity derived from

coal, oil and gas-fired power stations, rather than renewable energy sources such as the Project. This would result in an indirect, adverse effect on air quality.

- **Climate** - If the Project was not to proceed, greenhouse gas emissions associated with construction and decommissioning works would not arise. However, the greenhouse gas savings that would be gained from the operation of the Project would also be lost leading to a long-term, moderate, adverse effect.

Construction Impacts

Air Quality

- **Dust Emissions** - The main potential source of effects on air quality during construction is dust. There is potential for the generation of dust from excavations and from construction including construction of Site access tracks, turbine hardstands and the trenches for the cable ducting for the Grid Connection (GC). The potential nuisance issues arising from this are dependent on the terrain, weather conditions, (i.e., dry and windy conditions), and the proximity of receptors. Dust from cement can cause ecological damage if allowed to migrate to water courses, however, ready-mix concrete will be used with no on-site batching taking place. Therefore, this will not be a potential source of emissions.
- The potential effect from dust becoming friable and a nuisance to workers and local road users, if unmitigated, is considered, a slight, adverse, short-term, direct effect during the construction phase based on the UK IAQM 2024 guidance which is considered best practice in Ireland. There is no likely significant effects from dust.
- Generally, (depending on the conditions outlined), dust disturbance is most likely to occur at sensitive receptors within c. 250m of the source of the dust, IAQM (2024). It is considered that the principal sites of friable dust generation will be the Turbine Foundations, Hardstands, and also along new site access tracks. The closest inhabited dwelling not involved in the Project is (H33) located 702m from the nearest turbine (T8). The closest dwelling involved in the Project is H28 located 529m from T3. Therefore, these principal source sites of dust generation are greater than 250m distance from these sensitive receptors. In addition, vegetation such as trees and hedgerows in the vicinity will help to mitigate any airborne dust migrating off the Site. Any effects of dust on vegetation will be confined to the construction and possibly the Decommissioning phases and be temporary, slight, adverse and not a significant effect.
- **Haul Route** - If unmitigated, there would also be dust deposition arising from mud on public roads, resulting from traffic leaving the construction Site. Effects from dust deposition at sensitive receptors would give rise to disturbance issues for residents of those properties. The effect would be short-term, slight adverse and not significant on sensitive receptors. There is no likely significant effect of dust emissions during the construction, operation and decommissioning phases.
- **Exhaust Emissions:** The operation of construction vehicles and plant on site and transport of workers will create exhaust emissions such as Co2, CO, NOx and PM10 and PM25. This potential effect will not be significant and will be restricted to the duration of the construction phase and localised to works areas. Therefore, this is considered a short-term, slight adverse and not significant effect.

Climate

- **Greenhouse Gas Emissions:** c. 7,965 loads of material and building supplies will be delivered and removed from the site, particularly within the first 6 months of construction. It is estimated that 55-60 staff light goods vehicles (LGV) will visit the site daily during the peak construction period and construction vehicles working on the site. The main GHG produced by vehicles is CO2. Smaller quantities of N2O and CH4 are also produced (and emitted) by the fuel consumption process. The potency of these GHGs are very high, with 1kg of N2O releasing the equivalent of 298kg of CO2 into the atmosphere and 1kg of CH4 releasing the equivalent of 25kg CO2. The relatively insignificant quantity of greenhouse gases that will be emitted over the short duration of the construction phase, will have at worst, a slight, adverse and short-term potential effect. There will be no likely significant effects on air quality from vehicle movements.

Operational Impacts

- **Dust:** There will be a small number of light vehicles accessing the Site during the operational phase. This could lead to some localised dust being generated, though this will be small and sporadic as only approximately one to two site visits per week will occur at the Project. In the unlikely event that a turbine or elements of a turbine need to be replaced during the lifetime of the windfarm, there would be significantly less traffic than during the initial construction phase. There would only be one turbine delivered, compared to 9 no. turbines and the Site access tracks and other Site infrastructure will already have been established. Therefore, the operational phase will have an imperceptible, adverse, long-term and not significant effect on dust effects.
- **Emissions:** As there is expected to be only a small number of light vehicles accessing the Site during the operational phase, the operational phase will have an imperceptible, adverse, long-term and not significant effect on exhaust emissions.

Climate

- **Greenhouse Gas Emissions:** The operational phase of the Project does not contain any element which will produce greenhouse gaseous emissions or odorous emissions. The Project will displace carbon dioxide from fossil fuel-based electricity generation, over the proposed 35-year lifespan of the Project. The Project will assist in reducing carbon dioxide (CO2) emissions 46,689 tonnes per annum that would otherwise arise if the same energy that the Development will generate were otherwise to be generated by conventional fossil fuel plants. This is expected to have a **moderate, positive** and **long-term** effect on the climate. There will be no significant effect on climate.
- The calculations in the EIAR show that the annual electrical needs for 37,130 homes can be met by the electricity produced from the Project. In terms of CO2 offset of electricity generated, between 46,689 tonnes of CO2 will be offset annually. This will have a moderate, positive and long-term effect in helping Ireland reduce its greenhouse gas emissions and meet its international obligations.

Decommissioning Impacts

Air Quality

- **Dust:** Effects during the decommissioning phase of the project are anticipated to be less than those arising during the construction phase. The Site Access Tracks will

remain in place to serve agriculture activity, and the turbine hardstands will be reduced in level to the same level as the surrounding area and allowed to revegetate into the surrounding habitat. The turbines being removed from site for recycling/reconditioning. The turbine blades can be cut into manageable lengths on decommissioning and hauled off site. The decommissioning phase is expected to last c. 12-24 weeks. As site access tracks and other site infrastructure will be left in place, and dust generation will be limited to that generated from a low volume of HGV traffic, the decommissioning phase will have a not significant, adverse and temporary effect on dust effects.

- **Emissions:** The exhaust emissions associated with the low volume of HGV traffic during the decommissioning phase will have a not significant, adverse and temporary effect on exhaust emissions.

Climate

- **Dust:** Effects during the decommissioning phase of the project are anticipated to be similar to construction phase. The mitigation measures prescribed for the construction phase of the Project will be implemented during the decommissioning phase thereby minimising any potential effects.

Cumulative Impacts

Air Quality

- There are 10 no. windfarms listed in EIAR, **Table 2.1**, of which 7 no. are operational, 1 no. is consented and 2 no. are proposed windfarms within 20km of the site. The above-mentioned Wind Farms will not impose any cumulative air quality impacts if constructed simultaneously to the proposed Project as they are located outside the zone of influence for air emissions. Also, all permitted windfarms will have to comply with site specific planning conditions and mitigations measures that were detailed in their planning application.
- The nature of the Project and other energy developments within 20 kilometres are such that, once operational, they will have a cumulative long-term, significant, positive effect on air quality.

Climate

- The nature of the Project is such that, once operational, it will have a long-term, moderate, positive effect on the climate. It is considered that the cumulative effect will be positive in terms of carbon reduction and the climate.
- During the construction phase of the Project and other consented developments within 20 km (as is consistent with the EPA "Guidelines on the information to be contained in environmental impact assessment reports" (2022)) that are yet to be constructed, there will be minor exhaust emissions from construction plant and machinery and dust emissions from construction activities. Given the distances from the Site, they are not in the direct vicinity of the Project. Even if construction of the above wind energy development takes place at the same time as construction for the proposed Project, given the distances from the Site, there would not be any cumulative air quality effects.
- There will be no cumulative effects arising on climate from the proposed development and other permitted or proposed projects and plans in the area.

16.5. Mitigation Measures

16.5.1. Air Quality

Mitigation measures are discussed in Section 13.2.8 in relation to exhaust emissions and dust and comprise standard good practice measures. The applicant notes that as the operation of the proposed windfarm will have positive effects on air quality, as detailed in EIAR **Section 13.6.3.2**, mitigation measures are considered unnecessary. Where turbine components are being replaced the same mitigation measures as per the construction phase will apply. Mitigation measures during the decommissioning phase will be similar to those employed during the construction phase. The Decommissioning Plan (Management plan no. 6 to the CEMP, Appendix 2.1) is a live document and outlines the mitigation measures required during decommissioning.

16.5.2. Climate

Mitigation measures for all phases of development are discussed in Section 13.3.7 of the EIAR and include general good practice site control measures. A Decommissioning Plan is included as Appendix 2.1 (Management Plan No. 6 to the CEMP).

16.6. Residual Effects

16.6.1. Air Quality

No significant residual direct or indirect impacts have been identified at any stage of the proposed development. Once operational, the proposed windfarm will result in the avoidance of emissions from fossil fuel generators, with a residual positive impact on air quality.

16.6.2. Climate

During construction, there will be a short-term, imperceptible, adverse effect on climate as a result of greenhouse gas emissions. There will be no significant residual effect on air and climate as a result of the construction phase. Any effects and consequential effects that occur during the Decommissioning phase are similar to that which occur during the construction phase, albeit of less impact.

There will be a long-term, moderate, positive effect on climate as a result of reduced greenhouse gas emissions. There will be no significant residual effect on greenhouse gas emissions as a result of the Project during the operational phase.

16.7. **The Assessment: Direct and Indirect Effects**

16.7.1. **Air Quality**

I have examined, analysed and evaluated Chapter 13 of the EIAR, in relation to Air Quality. I am satisfied with the applicants understanding of the baseline environment with air quality in the area expected to be good and typical of a rural environment located in Zone D (as per EPA designation). The main potential for significant effects will arise during the construction stage associated with exhaust emissions from plant and machinery and the generation of dust from construction works. Subject to the mitigation measures proposed in the EIAR and a construction stage CEMP, which will comprise good practice methods and measures, I am satisfied that no significant adverse effects on air quality are likely to occur during any phase of the development.

During the operational phase, I consider there will be a slight positive residual impact on air quality due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions.

I accept the conclusions of the EIAR and am satisfied that following the implementation of mitigation measures outlined in the EIAR, that no significant impacts are likely in relation to air quality either alone or in combination with other developments.

16.7.2. **Climate**

I have examined, analysed and evaluated Chapter 13 of the EIAR and associated Appendix 13.1, in relation to Climate. It is my view that the proposed windfarm would not have significant adverse effects on climate during any phase of the development.

I consider that the construction phase would generate GHG emissions primarily from construction materials, and the operation of vehicles and plant.

The EIAR uses the Scottish Carbon Calculator to calculate the total carbon emissions associated with the proposed windfarm development including manufacturing of the turbine technology, transport, construction of the development and carbon losses. The model also calculates the carbon savings associated with the proposed windfarm. It estimates that the 92,764 tonnes of CO2 that will be lost to the atmosphere due to the

construction, operation and decommissioning of the proposed windfarm will be offset in c. 24 months of operation due to the renewable energy generated. This would be a significant positive outcome, aligning with Ireland's trajectory towards net zero by 2050.

During the operational phase there will be a positive residual impact on climate due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions. The EIAR estimates displacement of c. 46,689 tonnes of CO2 per annum. Over the proposed 35-year lifetime of the development, 1,634,117 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation. I consider that the proposed development would have a significant positive, long-term impact on climate due to its contribution to renewable energy targets and the reduction of GHG emissions. The operational phase would further enhance this positive impact through continuous renewable energy generation, contributing to the Climate Action Plan 2025 (CAP25) commitment of achieving 80% of electricity demand from renewable sources and a key target of achieving 9 GW of onshore wind capacity by 2030.

I accept the conclusions reached in the EIAR that the impacts on climate associated with the proposed development on its own and in combination with other existing permitted or proposed developments are not likely to be significant and will be mitigated by the measures outlined in the EIAR.

16.8. **Conclusion: Direct and Indirect (Air Quality & Climate)**

16.8.1. **Air Quality**

I am satisfied that the potential for significant adverse impacts on air can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on air quality.

16.8.2. **Climate**

The proposed windfarm will have an export capacity of c. 54MW and the project accords with relevant guidelines and would contribute positively to Ireland's environmental climate objective of accelerating renewable energy generation. The

windfarm would have a significant positive impact on climate due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions. Over the proposed 35-year lifetime of the development, 1,634,117 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation, which is a significant positive, long-term impact on climate due to its contribution to renewable energy targets and the reduction of GHG emissions.

I am satisfied that the potential for significant adverse impacts on climate can be avoided by the mitigation measures outlined in the EIAR. I consider the proposed windfarm development would have a significant positive effect on climate and am satisfied that the development would not have any unacceptable direct, indirect or cumulative impacts.

17.0 Archaeology and Cultural Heritage

17.1. Issues Raised

17.1.1. Scoping

The EIAR notes that no responses were received in relation to the scoping report issued to the DAU. An online meeting held with Limerick City & County Council (LCCC) on 13th September 2024, which was attended by the LCCC Archaeologist who stated that a programme of archaeological test trenching should be carried out to assess the Project. The applicant notes that it is proposed to commission archaeological geophysical surveys and test trenching post grant of planning and in advance of the construction phase and these site investigations have been included as mitigation measures in this chapter (Refer to applicants EIAR, Section 15.5).

17.1.1.1. Limerick City and County Council (LC&CC)

Refer to Section 4.1 of this report for full details of issues raised by the Council. In summary;

- **Council Conservation Officer:** Conditions are recommended in the event of planning permission. Concerns are raised in relation to lack of assessment of the potential visual impacts on Kilmallock ACA and local NIAH/Historic Gardens/Designed landscapes. Details of the predicted effects of RPS Reg No 135 and mitigation measures for heritage constraints along the turbine delivery route are required.

- **Council Archaeologist:** The locations of T9, T8, T6, T4 and the substation will impact upon potential archaeology that has not yet been registered by the Archaeological Survey of Ireland. This will necessitate a redesign to negate the impact. 9 no. conditions are recommended in the event of a grant of permission.

17.1.2. **Prescribed Bodies**

Refer to Section 4.2 of this report for full details of issues raised. In summary;

17.1.2.1. **Minister for Housing, Local Government and Heritage (DAU)**

- There are a large number of recently identified non-Statutory Sites and Monuments Record (SMR) sites located within the site. Exclusion zones may be necessary to protect vulnerable heritage assets.
- There are a number of more substantive errors or omissions in the assessment of this project related to unassessed impacts to terrestrial archaeological heritage and baseline archaeological/cultural heritage environment not adequately characterised.
- The proposed development could have quite extensive direct impacts to a ritual landscape, but there is insufficient information available in the archaeological baseline to assess this.
- Further archaeological assessment would be required to fully understand the potential medieval settlement landscape.
- Department advises the inclusion of conditions the event of a grant of permission if further Information is not being requested by the Board.

17.1.2.2. **The Heritage Council**

- **Archaeology** - A geophysical survey should be undertaken on the footprint of the development and the adjacent area given there seems to be a complex of prehistoric monuments within the area of this proposed development.
- **Architectural Heritage** - Any impact from construction traffic, accessing the site, on such features should be assessed, which should include the structural integrity of bridges (all arches) to be traversed by heavy loads.

17.1.2.3. **An Taisce**

- **Architectural Heritage Impact:** Concern over the impact on Garroose Bridge, a recorded monument (Ref: 21904703) during construction phase.
- **Recorded Monument Impact:** The integrity of 10 no. historic monuments in the vicinity requires preservation via a 20m buffer zone and further archaeological investigation to be carried out.

17.1.3. **Third Party Submissions**

Issues raised were as follows;

- Built and cultural heritage concerns including impacts to archaeology and protected structures. (Cnoc Samhna, Ballynoe Standing Stone, fairy forts and moats, Bruree Castle and Graveyard and Eamon De Velera's cottage).
- New archaeological sites not assessed in the EIAR contrary to Directive 2014/52/EU.
- LiDAR survey results for the entire site were not presented.
- Impact of construction traffic on heritage assets of Garroose Bridge and Bruree Bridge. (structural problems)

17.1.4. **Applicants Response**

Tony Cummins (John Cronin & Associates) on behalf of the applicant has prepared a response to the Archaeology and Cultural Heritage raised in observations. Refer to Appendix 6 of Applicants Response to Observations Report.

17.2. **Context**

EIAR Chapter 15, Appendix 15 – 1 (Cultural Heritage Photographic Record), Appendix 15.2 (Archaeological Survey of Ireland (ASI) Inventory Descriptions, (2km Study Area), July 2025) and Figures 15.1 – 15.7 presents the results of an archaeological, architectural and cultural heritage impact assessment of the proposed development. The assessment was based on desktop research, field surveys carried out in June 2022, October 2022, December 2024 with photographic records being provided in EIAR Appendix 15.1 and Table 15.10, GIS based mapping, aerial/satellite imagery and archaeological monitoring of excavation of geotechnical trial holes during the design phase. The EIAR provides an assessment of methodology, describes the legislation and statutory consultation undertaken, existing environment, describes the likely effects and associated mitigation measures, residual effects and the cumulative impacts.

The EIAR notes that known cultural heritage constraints located within inaccessible private lands surrounding the Site comprise features of medium-high values and their sensitivities to indirect effects of a visual nature, have been assessed based on their classifications, designations, conditions as recorded by the ASI and reviews of historical maps and modern aerial/satellite images.

The EIAR notes that the assessment of the significance of visual effects on publicly accessible cultural heritage receptors within 20km of the site is presented in the Landscape and Visual Amenity Assessment (Chapter 12) which was reviewed as part

of the Cultural Heritage assessment. (Refer to EIAR, Section 15.4.5 for assessment of likely effects).

The current (Record of Protected Structures) RPS for County Limerick is published in the Limerick Development Plan 2022—2028 (LCDP 2022) and the current County Cork RPS is published in the Cork County Development Plan 2022-2028 (CCDP 2022). Both plans contain a variety of policy in relation to the protection of Cultural Heritage and Archaeology. LCDP 2022 contains policies including EH 036, EH 037, EH039, EH 040, EH 050, EH 052, and EH 053. CCDP 2022 contains the following relevant objectives HE 16-5, HE 16-9, HE 6-10, HE 16 -13, HE 16-14, HE 16 -15, HE 16-16.

17.3. **Baseline**

The study areas reviewed for the assessment comprised the area within the boundary of the windfarm (hereafter 'the Site') and the surrounding lands extending for 2km in all directions as well as a 100m wide study area centred on the temporary accommodation work areas required on the TDR to facilitate the delivery of turbines to the site. The wider landscape extending for 10km in all directions from the Site was reviewed to determine the presence of any nationally significant cultural heritage constraints with heightened visual sensitivities. The EIAR describes the following baseline in Section 15.3, 15.3.13, 15.4.2 and 15.4.5, summarised as follows;

- **Newly Discovered Archaeological Sites** - There are no recorded archaeological sites located on the footprint of, or directly adjacent to, any of the proposed development areas and no potential unrecorded archaeological sites were identified within these areas during the desktop study and field inspections carried out as part of this assessment. As detailed in EIAR Section 15.3.6, a review of LiDAR imagery of the site revealed the presence of 7 no. previously unrecorded potential ring-ditch sites within the subject site. These are located at distances of 25m-70m to the west of an existing farm track which will be upgraded to form an access track within the site. I note that no development works are proposed at their locations. (Refer to EIAR, Appendix 15.2 – ASI Inventory Description and Table 15.7 and Figure 15.5)
- **Archaeological Sites and Protected Structures (within 2km of Site)** - There are 53 no. recorded archaeological sites, 7 no. potential archaeological sites, 2 no. protected structures and 5 no. NIAH-listed structures, located within 2km of the Site. (Refer to EIAR Table 15.5 and Figure 15.1)
- **Bronze Age or Iron Age Sites** – 12 no. sites within the study area likely date to the Bronze Age or Iron Age and these comprise three barrows (LI047-036---

-, LI047-059---- and LI047-114----), two *fulachtai fia*, one of which has been excavated (LI047-062001- and LI047-060----), a hillfort (LI047-092----) and 6 no. ring-ditches (LI046-035----, LI047-032002, LI047-110----, LI047-111----, LI047-112---- and LI047-113----).

- **Prehistoric Archaeological Monuments (within 10km of the site) with potential ritual visual alignment in the wider landscape** – 3 no. monuments with potential alignment attributes including a stone row (LI038-146----) in Graig, a megalithic structure (LI047-022021-) in Ash Hill and a wedge tomb (LI055-033----) in Mountrussell. EIAR confirms that none are aligned towards the project.
- **Ringforts and Enclosures (within 2km study area)** - There are 5 no. recorded ringforts (LI039-100----, LI046-018----, LI047-034----, LI047-041---- and LI047-063----) and 11 no. enclosure sites, and the potential exists that examples of these may comprise unclassified ringforts.
- **High Medieval Sites in Study Area** - Include 2 no. castles (LI047-029---- and LI047-039----), one of which has an associated bawn (LI047-029001-), a deserted medieval settlement (LI047-103----) and a church (LI047-030001-) and associated graveyard (LI047-030002-).
- **National Monuments in State Care (within 10km of the site)** - There are 6 no. National Monuments in State Care within the 10km area including 4 no. medieval buildings in Kilmallock town, located c. 6.4km to the east, a 19th century cottage (childhood home of Eamon De Valera) located c. 3.9km to the north in Knockmore townland and a medieval church in Ardskeagh townland located 6.5km to the south (Refer to EIAR, Table 15.6 and Figure 15.3).
- **Record of Protected Structures/Architectural Conservation Areas (ACA)** – The RPS published in the LCDP 2022 and the CCDP 2022 does not include any structures located within the boundary of the Site and it is not located within, or in the close environs of, an ACA. There are 2 no. Protected Structures located within the 2km Study Area comprising a farmhouse (RPS 135) located 190m to the east of the Site and a 19th century country house (RPS 391), known as Cuan Mhuire, located 1.9km to the northeast (Refer to EIAR, Figure 15.4).
- **National Inventory of Architectural Heritage (NIAH) -** The NIAH lists 5 no. structures within the 2km Study Area, which are not included in the RPS. These comprise Garroose Bridge (NIAH 21904703) located c. 535m outside the east end of the Site, a kiln site (NIAH 21904701) located c. 810m to the southwest, St Patrick's Roman Catholic Church (NIAH 21904704) located c.1.4km to the south, a railway bridge (NIAH 21904705) located c. 1.5km to the southeast and a thatched house (NIAH 21904709) located c.1.9km to the southeast (Refer to EIAR, Figure 15.4). All of these structures are assigned a 'Regional' rating by the NIAH, as is a protected structure (RPS 391) within the Study Area which is also listed in the NIAH (ref. 21804006). A review of the NIAH Historic Gardens

and Designed Landscapes Survey revealed that it does not list any of the lands located within the boundary of the site.

- **Previous Archaeological Work in the Wider Area: Excavations Database -** No archaeological features, deposits or artefacts were identified within the Site during this monitoring project of the Kerry Ingredients Ltd. wastewater outfall. A number of the recorded archaeological sites within the 2km Study Area were identified and fully excavated during archaeological monitoring of the construction of the Bruff-Mallow gas pipeline in 198628 (**Table 15.5** and **Appendix 15.2**).
- **Undesignated Cultural Heritage Assets -** The Site extends within the townlands of Garrane, Creggane and Ballynagoul and a review of the National Folklore Collection UCD Digitisation Project revealed that it does not contains any entries in relation to traditions or folklore associated with these townlands.
- **Proposed Turbine Delivery Route -** There are no known cultural heritage constraints located within 100m of the locations of the TDR temporary accommodation works detailed in EIAR Chapter 2 (Tables 2.6 and 2.7). In addition, the proposed temporary accommodation works are located within existing public road corridor, and no third-party lands are required.

17.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 17.1 below;

Table 17.1 – Summary of Potential Effects (Cultural Heritage)
Do Nothing
• If the proposed development were not to proceed, no changes would be made to the current land-use practice of agriculture. It is not anticipated that the do-nothing scenario would have any negative effects on the existing environment in terms of archaeology, architectural and cultural heritage. Land use would continue without the need for mitigation measures.
Construction Impacts
<u>Direct Effects</u> • **Previously Unrecorded Potential Ring-Ditch Sites** - As detailed in EIAR Section 15.3.6, LiDAR imagery revealed the presence of 7 no. previously unrecorded potential ring-ditch sites within the Site. These are located at distances of 25m-70m to the west of an existing farm track which will be upgraded to form an Access Track within the site. Given these factors, no direct impacts on the known archaeological resource are predicted during the construction phase. • **Sub-Surface Archaeological Potential** - The mitigation measures presented in EIAR Section 15.5.1 will provide for either the preservation *in situ* of any currently unknown, sub-surface archaeological features within the site by avoidance or the proper and adequate recording of this resource by full archaeological excavation. Preservation *in situ* shall allow for a negligible magnitude of effect resulting in a potential not

significant/imperceptible significance of effect in the context of residual effect on the unrecorded archaeological resource. Preservation by record shall allow for a high magnitude of effect, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a potential slight/moderate range of significance of effect in the context of residual effects on the unrecorded archaeological resource.

- **Impact of Ground Excavation Works** - The proposed locations of turbines and associated infrastructure within the Site are occupied by a combination of pasture fields and marginal lands. No surface traces of any potential unrecorded archaeological sites were noted within the footprint of these locations during the compilation of the assessment. While no surface features were noted in these areas the potential does exist for the presence of subsurface archaeological sites, features or artefacts within their locations. As the existence, nature and extent of any unrecorded subsurface archaeological remains within the Site are unknown; the magnitude of potential impacts is indeterminable but ground works during the construction phase will have the potential to result in permanent, direct, adverse, moderate to significant effects on any unrecorded archaeological sites that may exist within the footprint of development areas that will be subject to ground excavation works, and this will require mitigation (see EIAR, Section 15.5).
- **TDR Work Areas** - There are no known cultural heritage constraints located within 100m of the locations of the TDR temporary accommodation works. In addition, the proposed temporary accommodation works are located within existing public road corridors and no third-party lands are required. It is predicted that the construction phase of the TDR will not result in any direct effects on the known cultural heritage resource.

Indirect Effects

- The recorded archaeological sites within the boundary of the Site, including the potential previously unrecorded examples identified as part of this assessment, retain little or no surface expression and indirect adverse effects on their settings are, therefore predicted to be negligible in magnitude and imperceptible to not significant in significance.

Operational Impacts

Direct Effects

- **Wind Farm -** The successful implementation of the construction phase mitigation measures outlined in Section 15.5 will result in the preservation in situ by avoidance, or the preservation in record by archaeological excavation, of any unrecorded, sub-surface archaeological sites or features that may exist within proposed development areas. There will, therefore, be no predicted direct impacts on any such potential unrecorded archaeological sites during the operational phase.
- **TDR** - In the event that any turbines are required to be replaced using the same TDR during the operational phase, no likely direct effects on the cultural resource are predicted.

Indirect Effects

- There are 53 no. recorded archaeological sites, 7 no. potential archaeological sites, 2 no. protected structures and 5 no. NIAH-listed structures, located within 2km of the Site. The majority of the recorded archaeological sites within the 2km Study Area are recorded by the ASI to be levelled or partially levelled (EIAR, Table 15.5).
  All of the archaeological sites in the Study Area are located within private lands which are not accessible to the public and have no tourist or amenity attributes.
  None are National Monuments in State Care, are subject to Preservation Orders or are monument types that have potential visual attributes associated with ritual practices such as alignments across the landscape towards astronomical events, e.g., stone circles, stone rows or megalithic tombs, that could be potentially impinged upon by wind turbines. The magnitude of potential indirect effects on their settings was primarily based on a consideration of their existing condition (e.g., whether extant or levelled) and distances from elements of the proposed infrastructure that may impinge their settings. EIAR, Table 15.12 assesses indirect impacts on the 6 no. National Monuments in State Care within 10km of the site with the magnitude of effect being Low, the duration Long Term, with a Slight Significance of Effect.
- **Impact on the Wider Setting of Cultural Heritage Constraints** - The archaeological sites that have been recorded as levelled or containing no visible surface traces by the ASI do not retain setting attributes with potential visual sensitivities. There is a variety in the range of magnitude and significance of impacts on the archaeological sites within the study area ranging from None Predicted to Slight., Moderate or Long Term (Refer to EIAR, Table 15.11). As detailed in Section 15.4.5, the project will result in a range of long term, indirect adverse effects of a visual nature on the wider setting of cultural heritage constraints within the surrounding lands which will range from slight to moderate in significance. Given the nature of the wind turbines, there are no mitigation measures that can address these indirect visual impacts, but it is noted that they will have the capacity to be reversed at the decommissioning phase.
- **Landscape and Visual Impact Assessment (LVIA) Review** - There are 6 no. National Monuments in State Care within 10km of the Site and none of these are located within c.3.9km of its boundary. 4 no. of these National Monuments are located within Kilmallock town, which is c.6.4km to the east of the Site.
  A review of the Landscape and Visual Impact assessment (LVIA; **Chapter 12**) revealed that the visual impact on a viewpoint (VP11) at Kilmallock GAA club was assessed as low-negligible in magnitude. This viewpoint is representative of general views from Kilmallock Town and the 4 no. national monuments located within the town streetscape. The assessment notes that blade sets of the proposed turbines from that location are partially visible above the dense band of mature vegetation in the distance. They present at a modest scale in silhouette against the sky with a low degree of contrast. At distance the turbines are small features and therefore do not unduly detract from visual amenity or the view across assessed location within the town.
  In addition, the LVIA also assesses potential visual impacts on two heritage receptors within the wider landscape: Lough Gur located c. 17km to the northwest (VP21) and Adare Manor located c.19km to the northwest (VP20). The assessment of visual impacts on Lough Gur is deemed to be low-negligible in magnitude and slight adverse in significance. The assessment of visual impacts on Adare Manor is deemed to be imperceptible / neutral in significance.

- **Ritual Alignments in 10km Study Area** - The recorded archaeological resource within an area extending for 10km from the Site was reviewed to determine if any known archaeological sites with ritual alignments, such as stone circles, stone rows or megaliths, within the wider landscape have recorded alignments set towards the Site. 3 no. examples of these monument types were identified within 10km of the Site, and none have recorded alignments extending towards the location of the Site (Refer to EIAR, Section 15.3.2). No indirect effects on such alignment attributes are, therefore, predicted.
- **TDR** - In the event of any turbine component requiring replacement, they will use the same TDR during the operational phase. No likely indirect effects on the cultural resource are predicted.

Decommissioning Impacts

- No direct effects on known elements of the cultural heritage resource are predicted during the decommissioning phase as there are no recorded cultural heritage sites located within the footprint of the various elements of the site that will be subject to decommissioning. Any previously unrecorded archaeological remains identified during archaeological monitoring of the construction phase will either be preserved by avoidance or preserved by record (excavation) and no decommissioning effects on such potential features are predicted. The decommissioning phase will result in the reversal of the long term, slight, indirect, adverse visual effects on the setting of cultural heritage constraints located within the wider landscape.

Cumulative Impacts

- A review of operational, consented and proposed windfarm developments within the surrounding landscape was carried out in order to assess potential cumulative effects on the cultural heritage resource (EIAR, Table 15.13). This included a review of information contained in the online planning files published on the An Coimisiún Pleanála, County Limerick and County Cork planning enquiry systems. A review of other developments within 10km of the site (Refer to EIAR Chapter 2; Section 2.3.3) was also carried out.

17.5. **Mitigation Measures**

Mitigation Measures for construction phase are described in Section 15.5.1 (Indirect) and 15.5.2 (Direct) of the EIAR and include pre-construction and construction phase archaeological site investigations and protection measures for known monuments in line with relevant guidelines. The applicant notes that the project layout is based on desktop studies and field surveys undertaken during design phase. Hence, the design of the windfarm takes account of all known and potential archaeological sites identified within the site boundary.

Sub-Surface Archaeological Potential - Mitigation Measures include pre-construction geophysical surveys, carried out by a suitably qualified archaeologist,

followed by a programme of archaeological test trenching which will be informed by the results of the geophysical survey and monitoring of ground works. The site investigations will be carried out under a National Monuments Service (NMS) licence.

In the event that any sub-surface archaeological features are identified during the site investigations they will be recorded and then securely cordoned off while the NMS are consulted to determine further appropriate mitigation measures, which may include preservation in situ (by avoidance) or preservation by record (archaeological excavation) as well as monitoring of construction phase ground works within their environs and further mitigation such as preservation in situ and by record as necessary.

Archaeological Exclusion Areas - Protective cordons extending for 20m from the outer edges of all known and potential archaeological sites within the boundary of the site will also be securely delimited off with fencing and clearly signed as 'No Entry Areas' for the duration of the construction phase. No ground reduction works or other ancillary development works including, but not limited to, drainage/services, spoil storage, traffic/parking, compounds, or landscaping/planting, will occur within the archaeological exclusion areas and their locations will be identified during site inductions during the construction phase.

Monitoring of Mitigation Measures – The applicant notes that there are a number of obligatory processes to be undertaken as part of archaeological licence applications which will allow for monitoring of the successful implementation of the archaeological mitigation measures identified in EIAR, Section 15.5.1. These include the submission of method statements detailing the proposed strategy for all site investigations for the approval of the NMS as part of licence applications. A report will be compiled on all archaeological site investigations to comply with the licensing process which will clearly present the results in written, drawn and photographic formats and copies will be submitted to the NMS, the Planning Authority and the National Museum of Ireland.

Features of Local Architectural/Cultural Heritage - The project will result in no predicted direct effects on any architectural or other cultural heritage constraints on site or on the TDR and, therefore, no mitigation measures are required.

17.6. **Residual Effects**

Construction Phase (Indirect) and Operational Phase (Direct) Residual Effects - No residual indirect construction phase or direction operational phase effects are predicted following the implementation of the mitigation measures described in EIAR Section 15.5.1.

Operational Phase (Indirect) Residual Effects - Visual Impact on Cultural Heritage Constraints - The operational phase will result in a range of slight to moderate, long term, adverse residual indirect effects on cultural heritage constraints within surrounding lands. It is noted that these indirect visual effects will have the capacity to be reversed by the decommissioning phase.

17.7. **Assessment: Direct and Indirect Effects**

I have reviewed and considered the relevant sections as set out in Chapter 15 of the EIAR and all relevant documentation on file including public submissions. I am satisfied that the structure and content of the chapter, as well as the overall quality of data used, judgements and conclusions presented by the applicant are reasonable, and along with the submissions on file and my inspection of the site, allows for an assessment of the likely significant effects of the proposed development on Cultural Heritage.

17.7.1. **Response to Limerick City and County Council – County Archaeologist Report and Prescribed Bodies Including An Taisce, The Heritage Council & Department of Housing, Local Government and Heritage (DHLGH)**

I note that the Limerick County Archaeologist has raised concerns in relation to the Cultural Heritage chapter of the EIAR, specifically that the locations of T9, T8, T6, T4 and the substation will impact upon potential archaeology that has not yet been registered by the ASI, which will necessitate a redesign to negate the impact. The County Archaeologist has recommended 9 no. conditions in the event of a grant of permission.

The applicant in Appendix 6 of their Response to Submissions Report has acknowledged that the potential exists for the presence of subsurface archaeological sites, features or artefacts within the site, which is explained in EIAR, Section 15.4.2, and that any unrecorded archaeological sites that may exist within the footprint of development areas will be subject to ground excavation works and will require

mitigation, as required. The applicant has responded as follows to the 9 no. suggested LCCC conditions;

Table 17.2 Applicants Response to LCCC Suggested Archaeology Conditions	
Suggested Condition No.	**Applicants Response to Condition/s**
1 & 2	A licensable archaeologist will be appointed by the Developer to manage all required archaeological mitigation works as well as consultations with the LCCC Archaeologist, NMS and ASI. The name of the appointed archaeologist will be submitted within one month of a grant of planning.
3	While EIAR mitigation proposed 20m protective cordons, the Developer will adopt larger buffers where required by the planning conditions, for example 25m as recommended by the LCCC Archaeologist, subject to confirmation of each monument's extent by geophysical survey and/or test excavation.
4	A geophysical survey of development areas will be conducted following a grant of planning. It is noted that the licensing application period for geophysical surveys can often exceed 1 month and the LCCC Archaeologist will be kept appraised of the progress of this licence application following a grant of permission.
5	A programme of archaeological test trenching will be carried out which will be informed by the results of the geophysical survey and will include a representative sample of the development.
6 & 7	The LCCC Archaeologist and NMS will be consulted in relation to the formulation of appropriate further mitigation measures for any archaeological sites or features identified during geophysical surveys and test trenching, i.e. preservation in situ (by avoidance) or preservation by record (by licensed archaeological excavation).
8 & 9	The appointed archaeologist will conduct monitoring of ground disturbance works. In the event that any archaeological material is identified during monitoring the appointed archaeologist will consult with the NMS and the LCCC Archaeologist in relation to appropriate mitigation measures, i.e. preservation in situ (by avoidance) or preservation by record (by licensed archaeological excavation).

Based on the assessment undertaken in the EIAR, it is evident the applicant has designed the location of the windfarm infrastructure in order to avoid potential archaeological constraints. I have considered the responses of the applicant to the recommended LCCC conditions and consider them to be reasonable. In relation to suggested Condition No. 4, I consider the carrying out of geophysical surveys of the development areas to be adequate, rather than the suggested surveying of the entire site.

I also note The Heritage Councils and DHLGH observation in relation to potential for undiscovered archaeology on the site, which includes a possible ring-ditch within the

sub-station compound, a possible rectilinear earthwork at/adjacent to T06 and a possible rectilinear earthwork at proposed temporary spoil storage to west of T09 access road. The DHLGH also note 3 no. possible ring-ditches within the environs of T09 and associated infrastructure and state that full exclusion zones of appropriate size and scale would need to be put in place and secured/demarcated to ensure the preservation in situ of these sites during construction and decommissioning phases.

In addition to LCCC suggestion, a 25m exclusion buffer has also been raised in the submission by An Taisce as well as further archaeological investigations prior to commencement of works on the site. I note the DHLGH submission which advises that similar archaeological buffer zone measures to those at construction phase may also be required at decommissioning phase and that the advice of a suitably qualified archaeologist may be needed to inform any plan for decommissioning of the development. In this regard, I recommend a specific condition relating to the inclusion of a 25m archaeological exclusion zone for both construction and decommissioning phases, which the applicant was also agreeable to in their response.

In relation to the 7 no. conditions suggested by the DHLGH, the applicant has responded to state that suggested Condition 1,2,4,5,6 and 7 will be complied with as part of the pre-construction, construction and decommissioning phases of the proposed development. The applicant states in relation to suggested Condition No. 3 that the NMS and LCCC Archaeologist will be consulted in relation to any potential design responses to result in the preservation in situ of newly identified potential archaeological sites at the sub-station, T06 and spoil storage area.

The applicant has responded to state that the site investigations will occur well in advance of the construction phase in order to allow sufficient time for the completion of investigations, compilation of reports and consultations with the NMS and LCCA in relation to the formulation of appropriate further mitigation measures for any identified archaeological sites or features, i.e. preservation in situ (by avoidance) or preservation by record (by licensed archaeological excavation), including geophysical surveys of the location of the proposed Project.

Overall, I am satisfied the impacts are generally construction management related issues that can be effectively mitigated through the mitigation measures proposed in the EIAR including archaeological monitoring of all ground works, exclusion zones etc.

and suitable planning conditions where appropriate. In addition, the Coimisiún will be aware that Section 37H(6) of the Act details that a person shall not be entitled solely by reason of a permission to carry out any development.

17.7.2. **Response to Limerick City and County Council – Conservation Officer Report**

I note the concern raised by the Limerick Council Conservation Officer in relation to lack of assessment of the potential visual impacts on Kilmallock ACA and local NIAH/Historic Gardens/Designed landscapes. Details of the predicted effects of RPS Reg No 135 and mitigation measures for heritage constraints along the turbine delivery route are required. Conditions are recommended in the event of planning permission being approved.

The applicant has responded to these concerns in their Response to Submissions Report in Appendix 5 – Landscape and Visual Impact.

I acknowledge the moderate, long term adverse visual impact the proposal will have on the setting of cultural heritage constraints as described in EIAR Table 15.11 within surrounding lands. I do not consider the impact upon the setting of these cultural heritage constraints to be so significant to warrant refusal of the proposed development. Nor do I consider the impact on the wider archaeological importance of the area to be significant.

I acknowledge the assessment of impact on the 6 no. National Monuments in State Care located within 10km of the site as described in Table 15.6 and Table 15.12 of the EIAR. The monuments are located between c. 4km – c.6.5km from the nearest turbine. 4 no. of the National Monuments are located in Kilmallock Town c.6.5km from the nearest turbine. The predicted impact on these high-sensitive monuments will be an adverse long term slight effect. I share the Applicant's contention that the distance of the site from these structures are such that significantly adverse cultural heritage impacts are avoided. I have reviewed Chapter 12 of the EIAR in relation to LVIA, specifically VP11 at Kilmallock GAA club and agree with the findings that the visual impact is assessed as low-negligible in magnitude is representative of general views from Kilmallock town and the 4 no. National Monuments.

17.7.3. **Response to OPW**

The OPW submission has focused on the effects of the proposed windfarm on National Monuments which are in State Care, specifically 14 no. Monuments within a 20km radius of the site including NM 212 Kilmallock Friary 6.4km east, NM 408 Kilmallock Collegiate, Church 6.45m east, NM 173 King's Castle, Kilmallock 6.4km east, NM 680 Medieval house, Kilmallock 6.4km east, NM 576 De Valera's Cottage 3.9km north, NM 314 Ardskeagh Church 6.5km south, NM 490 Kilbolane Castle 11 km, NM 333 Liscarroll Castle 15 km, NM 247 Lough Gur 17 km, NM 301 Ballybeg West Castle 18 km, NM 202 Buttevant Friary 18 km, NM 622 Adare Castle 18.5 km, NM 395 Tullylease Church 19 km, NM 194 Hospital Church 20 km.

The submission mainly relates to 4 no. of these sites, namely Kilmannock National Monuments (No.s 212, 408, 173 and 680, Lough Gur, De Valera's Cottage and Liscarroll Castle). I will carry out an assessment of the impacts on these below;

Kilmallock National Monuments (No.s 212, 408, 173, 680) - The applicant notes that the selection of the Kilmallock viewpoint (VP11) for the Visual Impact Assessment was intended to best represent the nature of views afforded to the residents of Kilmallock (as visual receptors) rather than particular national monuments. The OPW submission states that the assessment at VP11 is relying on screening by trees, which they do not consider appropriate for a number of reasons such as winter cover, ownership, lifespan of vegetation, maintenance etc. The applicant argues that the level of vegetation screening is an important part of any visual assessment and that in the case of VP11, it is a dense band of mature, mixed-species trees in the middle ground that partially screen the proposed turbines. Even in winter, distant vegetation such as this is not as visually permeable as it would be in the immediate foreground due the dense branch structure. The applicant recognises there may be marginally increased visibility through the treetops from VP11 during winter months, although this would not alter the impact assessment in relation to turbines that are nearly 7km away. The applicant maintains that there is no significant Landscape and Visual Effect from the turbines in VP11 from Kilmallock GAA club.

I have examined the LVIA Photomontage Booklets, including VP11, which is contained in Book 1. I consider the vegetation and treeline indicated in VP11 creates a strong visual barrier between the village and the wind turbines. Furthermore, I do not

consider the visual impact to be significant due to the distance between the village and the turbines, with the turbines just reaching above the treeline.

Lough Gur – The OPW submission refers to VP21 and states '*Lough Gur is located 17km to the northwest(VP21). The OPW notes that the turbines will be located in the centre of the protected view from this highly significant archaeological site and location of natural beauty. The OPW is concerned about the visual impact of this proposed development and the cumulative impact as presented in the planning application documentation'*. The applicant responds that the visual impact was carried out in accordance with relevant guidelines. Lough Gur is rated as a 'High' sensitive scenic view in the EIAR, with the overall significance deemed to be 'Slight'. The reasoning for this by the applicant is that the turbines are situated a distance of 17.4km from Lough Gur and sit as a background feature in the agricultural landscape.

I have examined the accompanying LVIA Photomontage Booklets, including VP21, which is contained in Book 2. I agree with the findings of the LVIA assessment and consider that although the wind turbines are visible in the far distance, the overall impact in the scenic view is not significant.

De Valera's Cottage - De Valera's Cottage is a dwelling located c.1km north of Bruree and c. 4km from the nearest turbines. It forms part of the De Valera Museum and Bruree Heritage Centre. The OPW submission states that the visual impact on the national monument has not been undertaken and they request ACP to seek confirmation from the applicant that there is no impact.

The applicant considers the request for further information unnecessary because in their opinion the experience of visiting De Valera's Cottage is largely an internal one inside the cottage rather than relating to the particular landscape and visual setting of the cottage. Furthermore, the cottage is surrounded by dense vegetation at close quarters and the Route Screening Analysis (RSA) undertaken as part of the LVIA illustrates that there is no visibility of the proposed turbines anywhere in the vicinity of the cottage. Refer to Figure 12.10 of EIAR which comprises a route screening analysis map. Having carried out a site visit of De Valera's Cottage, I am satisfied that there will be no significant visual impact on the setting of the National Monument by the proposed windfarm due to the intervening distance of c. 4km and the fact that it is screened on all sides by trees and hedgerows.

Liscarroll Castle - The OPW requests that ACP seek additional information to demonstrate the visual impact, if any, on Liscarroll Castle. The applicant considers this unnecessary to undertake because the Liscarroll Castle is located c. 16.5km from the nearest proposed turbine and based on the Zone of Theoretical Visibility (ZTV) is located in an area likely to have little potential for visibility of the proposed turbines. Refer to Figure 12.9 of EIAR indicating castle located outside the ZTV pattern. The applicant has highlighted that at a distance of 16.5km even it there was some potential for visibility it would be blade tip, although actual visibility would be precluded by vegetation. Based on the above, I consider there is no likelihood of significant impacts to the setting of Liscarroll Castle due to the intervening distance between the turbines and the national monument.

NIAH Historic Gardens – The applicant notes that in relation to designed landscapes and specifically those historic gardens that are on the NIAH Historic Garden Survey, it should be noted that those referenced by the LCCC Conservation officer, which are closest to the site, are all currently contained in private agricultural use. Thus, they present as typical farmland and do not appear to attract public visitation, which is necessary to be considered a relevant visual impact receptor. They are, in theory, relevant landscape receptors but again, this is largely dependent on whether they distinctly contribute to a sense of heritage in the local landscape, which is limited by being contained in typical agricultural farmland. The specifically referenced historic gardens are each addressed by the applicant including the following;

Creggane Castle (NIAH ref. 1639) is located c. 1km from the nearest turbines and is described by the applicant as a remnant structure which aside from a roadside stone wall, the landscape appears as a farmyard surrounded by typical agricultural fields, trees and hedgerows. The applicant highlights that VP7 from the N20 only 300m to the southeast provides a sense of the scale and nature of views from within the same vicinity but provides a more open view and considers the effect will be not significant.

Bruree House (NIAH ref. 1640) is a garden centre surrounded by agricultural fields located c.2km north from the nearest turbine and considers visual effects will be not significant.

Maiden Hall (NIAH ref. 1641) located c. 2.8km south of the site appears as a farmstead set back from the road by 250m in all directions and contained in well

maintained agricultural fields. There are some mature treelines within the estate, but this alone does not give a strong sense of landscape heritage or belonging to a designed landscape. Surrounding roads show little or no visibility of the proposed turbines in the Route Screening Analysis. Due to distance and screening, I consider that visual effects will not be significant.

Treanlewis House (NIAH ref. 1642) appears to be a remnant estate where agricultural farmland has been left largely unmanaged and reverted to rushes and scrub and there is little sense that it is part of a former designed landscape. Viewpoint VP6 is immediately adjacent to the west and gives a sense of the scale and nature of visibility. Visual effects will not be significant.

I have considered the assessment contained in Appendix 5 of the Applicants Response Submission, reviewed the relevant photomontages, and carried out a site visit in relation to NIAH historic gardens discussed and am satisfied there will be no significant visual impacts from the turbines on the NIAH historic gardens and their setting in the landscape within the vicinity of the proposed project site.

Overall, I do not consider there to be significant operational impacts.

17.7.4. **Response to Third Party Concerns**

I acknowledge the concerns of Bruree-Charleville-Effin Wind Farm Action Group in relation to the applicants EIAR not including an assessment of a number of archaeological sites identified in the area by Dr Eugene Costello between the end of 2023 and spring 2025, which were reported to the ASI but have not been added to the NMS online viewer. These newly discovered sites include enclosures, ring ditches, a barrow and a ringfort. 8 no. of these sites are located within the boundary of the windfarm site (referred to in the Bruree-Charleville-Effin Wind Farm Action Group submission as Sites 2-8 and 10). Table 17.3 below outlines the concern of the third party and the applicants response.

Table 17.3 Applicants Response to Bruree-Charleville-Effin Wind Farm Action Group Concern

Site No.	Bruree-Charleville-Effin Wind Farm Action Group Concern	Applicants Response to Concern/Comment
1	N/A	N/A

2	Roadway between T8 and T7 will impact the northern part of site no. 2 (an enclosure)	Site 2 (enclosure) – the indicated location of this site is c.10m-15m to the south of the proposed site access track between T8 and T7
3	Soil storage location will impact site no. 3 (an enclosure)	Site 3 (enclosure) – the indicated location of this site is within the footprint of a proposed spoil retention area
4	Works around T9 hardstand will impact site no. 4 (a ring-ditch)	Site 4 (ring-ditch) – the indicated location of this site is c.20m to the south of the T9 hardstand
5	Roadway and T6 hardstand will impact the east of site no. 5 (an enclosure)	Site 5 (enclosure) – the indicated location of this site is adjacent to the T6 hardstand and associated site access track
6	N/A	N/A
7	N/A	N/A
8	Sub-station is planned on top of site no. 8 (a ring-ditch)	Site 8 (ring ditch) – this site is located within the south end of the footprint of the proposed sub-station.

In this regard, the applicant has acknowledged in their Response Report in Appendix 6, that there will be the potential to result in direct impacts on three of the identified (Sites 3, 5 and 8, as per table above). The applicant highlights that these impacts were considered acceptable to the DHLGH whose submission contains a recommended planning condition for the Full Archaeological Excavation of these potential archaeological sites prior to construction. To address issues raised in observations, the developer will commission an advance preliminary targeted geophysical survey of areas suitable for survey at these three potential archaeological sites in order to appraise their archaeological potential and the potential for preservation in situ, to be carried out in consultation with the NMS and the LCCC Archaeologist and a report on this targeted geophysical survey will be submitted to the Planning Authority. Further, the applicant has acknowledged that there is potential for undiscovered archaeology on the site as per EIAR Section 15.4.2 and Mitigation Measures detailed in EIAR, Section 15.5.1. I consider that it is a reasonable and proportionate approach to the potential for impacts on unknown subsurface remains or sites and I am satisfied the potential for significant adverse impacts on Cultural Heritage can be avoided, managed and/or mitigated by measures that form part of the proposed development, the proposed mitigation measures outlined in the EIAR and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts.

The third-party submission also has concerns that the archaeological inspections included field visits to some parts of the site which were undertaken when it was

summertime, with heavy vegetation (wild iris and tall grass). This is considered to be extremely inadvisable given the likelihood of such vegetation obscuring surface traces of archaeological sites. The applicant responds by stating that archaeological site inspections were also conducted during the months of October 2022 and December 2024. In this regard, I am satisfied that a sufficient quantity of field surveys were undertaken to inform the EIAR appropriately.

17.8. **Conclusion: Direct and Indirect (Cultural Heritage)**

I have considered all of the written submissions made in relation to archaeology, architectural and cultural heritage and the relevant contents of the file including the EIAR. I consider a robust assessment has been undertaken in the EIAR.

In relation to the potential impact on archaeological sites and undiscovered archaeological sites, the applicant has stated they will commission an advanced preliminary targeted geophysical survey of areas suitable for survey at potential archaeological sites, in order to appraise their archaeological potential and their potential for preservation in-situ. This appraisal will be carried out in consultation with the NMS and the LCCC Archaeologist. A report on this targeted geophysical survey and any proposed preservation in situ by design will be submitted to the Planning Authority. In relation to Archaeological Buffer Zones, I recommend a 25m buffer can be adopted where required by planning condition.

I am satisfied that the potential for significant adverse impacts on archaeology, architectural and cultural heritage can be avoided, managed and/or mitigated by measures that form part of the proposed development, the proposed mitigation and monitoring and through suitable conditions. I consider the proposed mitigation in relation to archaeological sites/features which includes monitoring of all ground works and fencing of Archaeological Exclusion Areas to ensure accidental damage will not occur during any phase of development, to be appropriate and I consider this can be dealt with by condition. With the implementation of mitigation measures outlined in Chapter 15 of the EIAR the potential for negative effects on unrecorded sites and artefacts during excavations, will be reduced.

I consider the visual assessment of the impact of the proposed wind farm on cultural heritage assets to be robust and am satisfied that there will be no significant impact on the setting of any cultural heritage asset.

Overall, I am satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on archaeology, architectural and cultural heritage, due to the separation distances, the intervening topography and and the mitigation measures proposed within the EIAR.

18.0 Material Assets (Land Use, Telecommunications, Electricity Networks, Air Navigation, Quarries and Utilities)

18.1. Issues Raised

Issues raised in submissions to this application are generally in respect of matters impacting broadband/telecommunication connectivity, disruption to farming activities, impact on bovine interests and potential risk to the Cork-Dublin gas pipeline.

The EIAR notes the responses to Scoping and Consultation carried out by the applicant with the Irish Aviation Authority and a number of telecommunications providers. A summary of the consultation responses received is set out in Tables 16.1 (Telecoms) and 16.2 (Aviation) of the EIAR.

18.2. Context

Material Assets is addressed in Chapter 16 and technical appendices 16.1 and 16.2 of the EIAR. The appendices contain a Telecommunications Impact Assessment (TIA) and Aviation Review Statement (ARS). Appendix 2.1 includes a Waste Management Plan (WMP) (Management Plan No 5).

18.3. Baseline

The EIAR notes that 4 no. licensed microwave radio links and 2 no. telecommunications masts were identified that could potentially be affected by the Project depending on the final turbine layout, belonging to the Eir and Vodafone network.

An existing overhead 110kV transmission line runs through the south of the Site and connects to the Charleville 110kV substation.

The closest international airport to the site is Shannon Airport, located c. 36km to the north. Kerry Airport, the nearest regional airport, is c. 62km to the southwest. Feohanagh Airstrip is the closest aerodrome situated c.19km to the northwest.

The applicant lists 13 no quarries in the Cork and Limerick area with potential to provide the c. 74,200 m³ of crushed stone that will be required for the construction of the proposed development.

An industrial outflow pipeline runs through the site from South to North and conveys treated wastewater from the Kerry Ingredients (Ireland) Limited wastewater treatment plant at Rathgoggan North to a discharge point on the Maigue river. (Refer to Section 3.0 of this report for Planning History)

During the construction phase, waste will be produced from surplus materials such as packaging materials, canteen and domestic waste. The volume of excavation for construction of the windfarm site will be c.25,635m^3 of topsoil and c. 20,770m^3 of subsoil.

No significant issues have been identified with regard to utilities or services within the proposed windfarm site or along the proposed grid connection route.

18.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 18.1 below.

Table 18.1: Summary of Potential Effects (Material Assets)
Do Nothing
• If the Project does not proceed, there will be no effects on any material assets.
Construction Impacts
• **Land Use/Agriculture** - The Project will have a temporary, slight, adverse effect on agricultural land use due to the removal of grazing lands during the construction phase. • **Telecoms** - (Refer to EIAR Section 16.5) - Potential for cranes operating to interfere with signals which pass through the area. The effect can be classed as temporary, slight, adverse in nature. • Use of electrical power tools and the use of electrical generators may generate temporary electromagnetic emissions. • Potential impact on a broadband cable (Virgin Media) running along the western Redline Boundary. • **Electricity Networks** – (Refer to EIAR Section 16.6) – Impact on overhead 110kV transmission line which runs through the south of the Site. During the process of connecting the proposed development to the national grid, some minor, temporary outage to electrical supply will occur. • **Quarries** - Impact on natural resources such as aggregates from the quarries in proximity to the Project. This will have a short-term, slight, adverse effect on natural resources for the duration of the construction phase.

- **Utilities** - There are no gas mains or Uisce Eireann pipelines located within the Site, therefore there is no potential for significant effects to occur. Gas infrastructure along the Turbine Delivery Route and Construction Haul Route will remain undisturbed.
- **Waste -** (Refer to EIAR Section 16.9.4) – c. 25,635m^3 of topsoil and 20,770m^3 of subsoil will be excavated. Excavated materials will be re-used or stored on site as outlined EIAR Appendix 2.1: Spoil Management Plan.
- Material to be removed from the construction works within the Site. Its removal and reuse / recycling / recovery / disposal will be carried out in accordance with the Waste Management Act 1996 (as amended).
- Waste material will be classified hazardous or non-hazardous in accordance with the EPA publication Waste Classification and disposed accordingly by a suitably licenced waste facilities operator for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate.
- Waste materials will be required to be temporarily stored in the temporary site compound or adjacent to it, onsite, pending on collection by a waste contractor.

Operational Impacts

- **Land Use/Agriculture** – The project will have a long-term, slight, adverse effect on agricultural land use for the duration of the operational phase. The immediate surrounding agricultural grasslands will remain in agricultural use.
- **Telecoms** - No impacts were predicted on the 4 no. radio links identified. However, mitigation is proposed for 1 No. Eir Link – PTP microwave link from Kilmallock to Ballyagran as the clearance distance is only 17.9m.
- **Electricity Networks** - The Project will contribute directly and in the long-term to the electricity network by strengthening it through the addition of electrical transmission infrastructure and through renewable energy generation. The installation of new infrastructure will result in a long-term, slight positive impact on transmission infrastructure, with no impact on distribution.
- **Aviation** – No effect predicted on the operations of Shannon Airport as the Project will have no impact on their obstacle limitation surfaces (OLS).
- **Quarries** - During the operation phase, a small amount of granular material will be needed to maintain site access tracks. These natural resources will not be replaced, therefore slight, adverse effects on the source quarry as a result.
- **Utilities** - No impacts were predicted.
- **Waste** - It is anticipated that very small amounts of waste will be generated from staff during inspections and maintenance works. The potential effects on waste infrastructure for the operational phase are long term, neutral and imperceptible.

Decommissioning Impacts

- During decommissioning of the Project, effects will be similar to those assessed for the construction phase. No significant effects are likely.
- During the decommissioning phase of the Project, stone will be imported to site to rebuild hardstands for turbines within the floodplain (T4, T5, T6, T7 and T8). This will have a short-term, slight, adverse effect on natural resources for the duration of the decommissioning phase.
- Turbine foundation plinths will be dismantled to below existing ground level and covered over with topsoil, the underground sections will be left in place during

decommissioning and allowed to naturally revegetate over time. The effects are long term, neutral and imperceptible. • All infrastructure including turbine components will be separated and removed off-site for re-use and recycling where practicable or disposed of in accordance with waste legislation and best practice guidelines at the time of decommissioning. Waste produced during the decommissioning phase will likely have a moderate, adverse effect on the capacity of the licenced waste facilities used at the time of decommissioning.
Cumulative Impacts
• No significant cumulative impacts have been identified in the EIAR.

18.5. **Mitigation Measures**

A summary of mitigation is set out below:

18.5.1. **Telecoms**

- All electrical elements of the Project are designed to ensure compliance with Electro Magnetic Fields (EMF) standards for human safety.
- To offset any potential impacts of turbine T09 on the Eir radio link between Kilmallock and Ballyagran, measures such re-routing the radio link via an alternative telecoms mast site can be implemented.
- Compliance with the EMC Directive 2014/30/EU (as amended) ensures that electromagnetic emissions from the devices used will not interfere with other equipment.

18.5.2. **Electricity networks**

- Confirmatory drawings for all existing services will be sought upon consultation with ESB Networks.
- Immediately prior to construction taking place, the area where excavation is planned will be surveyed by CAT scan (sub-surface survey technique to locate any below ground utilities) and all existing services will be verified. Temporary warning signs will be erected.
- The as-built location of the installed ducts will be surveyed and recorded using a total station/GPS before the trench is backfilled to record the exact location of the ducts. The co-ordinates will be plotted on as-built record drawings for the grid connection cable operational phase.
- Clear and visible temporary safety signage will be erected all around the perimeter of the live work area to visibly warn members of the public of the hazards of ongoing construction works.

18.5.3. **Aviation**

- The IAA and the Local Authority will be informed of the coordinates of the constructed positions of the turbines and the highest point of turbines or any infrastructure greater than 100m at least 30 days prior to erection.
- The IAA and Local Planning Authority will be notified at least 30 days in advance of intended crane erection.
- An aeronautical lighting scheme for the Project will be agreed and installed in consultation with IAA and Shannon Airport.

18.5.4. **Quarries**

- Existing tracks have been used where possible, and the layout was designed to minimise the length of new track required in order to reduce the requirement for additional stone material.
- Any material won on site is suitable it will be used. Local quarries have been identified to reduce impact on transportation.
- The source quarry will be chosen based on stone which is chemically similar to that occurring at the Site, to reduce hydrogeochemical impacts.

18.5.5. **Utilities**

- A Management Plan has been developed for the crossing of the industrial pipeline and is attached as Appendix 2.1: CEMP - MP7 Method Statement for Crossing Industrial Pipeline.
- The required setback distances outlined by Gas Networks Ireland were adhered too for all site infrastructure.

18.5.6. **Waste**

- See Section 16.9.7 of the EIAR for measures relating to staff facilities, sewage, concrete, packaging, refuelling, metals and chemicals/fuels/oils.
- A Chemical and Waste Inventory will be maintained as outlined in the Appendix 2.1 (Waste Management Plan No. 5).

18.6. **Residual Effects**

The residual effects on agricultural land use will be slight, adverse and temporary for the duration of the construction/decommissioning stages and negligible for the operational lifespan of the Project. The residual impact on surrounding agricultural land uses is slight during construction and decommissioning and negligible during the operational phase.

The Project is likely to have a not significant and long-term neutral effect during the operational phase on telecommunications. Residual effects on any PTP radio link due

to the Project are considered not significant. The residual impact on electricity network during the operational phase is likely to be moderate positive and long-term.

The residual effects of the proposed development on local quarries are considered to have no significant adverse effects. There will be a slight, permanent, adverse residual effect on natural resources in the area.

The residual impacts on utilities during the construction phase will be imperceptible and not significant during the construction, operational and decommissioning phases. The residual impact on waste facilities is likely to a long-term imperceptible effect during the operational phase.

18.7. **Assessment: Direct and Indirect Effects**

I have examined, analysed and evaluated chapter 16 of the EIAR, all of the associated documentation and submissions on file in respect of material assets. I am generally satisfied that the applicant's presented baseline environment is comprehensive and that the key impacts in respect of likely effects on materials assets, as a consequence of the development have been identified.

18.7.1. **Telecommunications and Aviation**

I am satisfied the applicant has carried out consultation regarding the potential for electromagnetic interference with the relevant telecommunication providers and that no turbines are proposed within the areas requested to be left clear of turbines. The applicant has proposed mitigation for 1 No. Link – PTP microwave link from Kilmallock to Ballyagran as the clearance distance is 17.9m and is detailed in Section 6.1 of the Telecommunications Impact Assessment Report (EIAR Appendix 16.1). I am satisfied that suitable mitigation measures were integrated during the design phase by avoiding known routes of telecommunication links.

I consider it reasonable that in the event of an issue arising regarding the development causing interference with telecommunications signals, a suitable condition can be attached whereby the developer would be required to introduce effective measures to minimise interference with telecommunications signals in the area at their own expense.

The applicant has noted that lighting requirements for turbines from the IAA will be complied with and any further details will be agreed in advance of construction with

the IAA. In addition, the coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for windfarm developments. I note that the IAA has no objection, subject to condition. I am satisfied that telecommunications and aviation have been satisfactorily and no significant effects will occur based on the mitigation measures proposed.

18.7.2. **Existing Built Services and Utilities**

I note that a temporary outage to the electricity network is proposed to allow for a new loop in grid connection to the Charleville and Killonan 110kV OHL, however I am satisfied the installation of new infrastructure will result in a long-term, slight positive impact on transmission infrastructure, with no impact on distribution.

Furthermore, I am satisfied the applicant has applied a sufficient buffer zone of 850m between T1 and the existing high voltage overhead power line in excess of 500m as required in the EirGrid policy document "Policy on Wind Turbine Clearance to OHL's Rev 1.

I am satisfied that the details of all services and utilities including the Cork-Dublin natural gas-line, the industrial outflow pipeline and Virgin Media cable along the western site boundary along the grid connection route/construction haul route and methodology for crossing/diversions can be agreed in a finalised CEMP and conditioned in the event of a grant of permission.

18.7.3. **Impact on livestock**

Concerns have been raised in submissions regarding impacts on farming activities and livestock as a result of a potential increase bovine TB transmission risk to local livestock herds from disturbed badgers.

It is not uncommon for wind farms and agricultural interests to operate alongside each other including grazing by livestock. It is anticipated that existing grazing will continue onsite throughout the operation of the proposed wind farm and for the surrounding agricultural grasslands to remain in agricultural use.

I note the presence of a badger sett along the eastern boundary of the site with the status of the sett (i.e. main, annex, subsidiary or outlier) to be confirmed as part of pre-construction badger surveys. Badgers do occur in the wider area and may at times forage within the site. No disturbance of the recorded badger sett is predicted on

account of the distance to construction activities and proposed mitigation measures. The reduction in improved agricultural grassland and hedgerows as part of the proposal is considered unlikely to cause fragmentation to other areas of more suitable habitat.

Whilst the concerns regarding the spread of bovine TB is noted, I am satisfied that the proposed development would not result in adverse effects on badgers in terms of habitat loss, fragmentation, disturbance or mortality. Mitigation measures including pre-construction walkover survey to check for any further badger setts will ensure that any new constraints are identified in order to be mitigated further.

In the absence of such evidence or peer reviewed studies which indicate that wind farms have a negative impact on livestock or increase TB transmission risk, I am satisfied that the proposed development would not have a significant effect on farming activities or livestock in the local area.

18.8. **Assessment and Conclusion**

I have considered the written submissions made in relation to Material Assets and am satisfied that they have been appropriately addressed in terms of the application and that no significant adverse effect is likely to arise, subject to compliance with relevant legislation and guidance, implementation of the EIAR and final CEMP mitigation measures and monitoring and compliance with recommended conditions. The proposed development will not give rise to any significant residual or cumulative impacts with other developments in the surrounding area.

19.0 Traffic and Transport

19.1. **Issues Raised**

Submissions and observations have raised concerns in relation to the capacity of the road network (L1537), impact of construction traffic on road safety, congestion impacts on Charleville town centre and damage to road surfaces.

Concerns raised by the Council and TII in relation to Traffic and Transport are outlined in Section 4.1 and 4.2.11 of this report.

19.2. **Context**

Traffic and Transport is addressed in Chapter 17 and technical appendices 17.1 - 17.7 of the EIAR. The appendices contain the following documents; Traffic and Transport

Assessment, Traffic Management Plan, Swept Path Analysis – Foynes Port, Swept Path Analysis – Galway Port (Turbine blades only), Road Safety Audit, N20 Site Entrance 1 (Temporary) Junction Design Report and a Bridge Inspection Report.

19.3. **Baseline**

Section 17.2 of the EIAR describes the baseline environment. The application site will benefit from two proposed access points. Site Entrance 1 on the N20 is located at an existing farm entrance which will be upgraded as part of the Project and will be used for the abnormal load deliveries including turbine components, cranes and transformers during the construction stage.

Site Entrance 2 is also an existing farm entrance and is located on the L1537. It will be upgraded and used by wind farm construction, operations and decommissioning traffic to access the project.

The road network associated with the turbine delivery route is summarised in Section 1.2 of this report and detailed further in Section 17.2.9 of the EIAR. Construction haul route for general heavy goods vehicles (HGV) and light goods vehicles (LGV) traffic is outlined in 17.2.10 of the EIAR.

Existing traffic volumes on the N20 were obtained from the TII traffic counter on the N20 at Rockhill which is located to the north of site Entrance 1. The results from the automatic traffic counter show that in 2024 the N20 had an annual average daily traffic (AADT) of 11,555 no. vehicles with 8.4% HGV traffic. Existing traffic volumes on the L1537 are calculated from the classified traffic counts carried out on the 13th January 2023 at the R518 and R515 junctions. The AADT at the R518 junction in Bruree village is of 610 no. vehicles and 400 no. vehicles at its junction with the R515. This equates to a two-way traffic flow of c. 52 no (2% HGV traffic) and 34 no vehicles (6% HGV traffic) during peak hour traffic periods respectively.

19.4. **Potential Effects in the Absence of Mitigation**

Likely significant effects of the development, as identified in the EIAR are summarised in Table 19.1 below.

Table 19.1: Summary of Potential Effects (Traffic and Transport)
Do Nothing
• In the 'Do-Nothing' scenario, the proposed development will not be constructed and there will be no alteration to existing land-uses, no generation of waste, traffic

generation and there will be no additional effects on the public road network or on existing access arrangements.

Construction Impacts

- It is estimated that during the wind farm construction, an approximate total of 7,965 no. loads of material and building supplies will be delivered and removed from the Site.
- Timescale for the completion of the construction phase is 18 months.
- It is estimated that 55-60 no. staff light goods vehicles (LGV) will visit the site daily during the peak construction period.
- A maximum of 30 no. HGV vehicles (60 HGV movements) will visit the Site on a daily basis during the first month of the contract.
- A maximum of 165 no. HGV vehicles (330 HGV movements) will visit the Site on a daily basis during Months 2 to 10.
- The peak traffic will occur on 9 no. days when turbine foundations are poured. Concrete pours for individual turbine foundations will generate 120 no. HGV arrivals (240 no. HGV movements).
- Months 10 to 18 will involve HGV movements for works associated with turbine delivery, turbine erection etc. It is anticipated that a maximum of 18 no HGV vehicles (36 no. HGV movements) will visit the site on a daily basis during this period.
- The effects of the additional traffic volumes on the local road network are assessed as moderate and temporary.
- Vehicles joining the R518 from the L1537 will experience a delay of 14 seconds with the additional traffic generated by wind farm construction.
- R518 / L1537 and R515 / L1537 junctions will not exceed the 0.85 ratio of flow to capacity (RFC) in 2036 when wind farm construction traffic is combined with forecast traffic and traffic from future developments.
- Motorists will experience delays of 95 seconds when the temporary traffic lights are installed on the N20 for traffic management during the construction of Site Entrance 1 to the Project.

Operational Impacts

- Weekly maintenance on site, with relatively low volume of vehicles, normally with vans.
- The frequency of vehicle trips associated with servicing, monitoring and upkeep of the site are expected to be in the region of 230 no trips per year.
- The proposed development would not significantly impact the future operational capacity of the assessed junctions as detailed in Appendix 17.1 (Traffic and Transport Assessment) of the EIAR.
- Impact rated not significant negative traffic effects.

Decommissioning Impacts

- Decommissioning period will take c. 4 to 6 Months.
- Decommissioning traffic to use site entrance no 2 only.
- Drivers will experience short delays (17 seconds) due to increased traffic volumes at the R518 / L1537 junction in Bruree village and at the R515 / L1537 junction near Charleville.

• The effect of decommissioning traffic on the national, regional and local road networks is assessed as non-significant. • The R515 / L1537 and R518 / L1537 junctions with additional development traffic will continue to operate with reserve capacity. • A traffic management plan for the decommissioning phase will be developed as the destination for recycled turbine parts is unknown.
Cumulative Impacts
• See Section 17.5 and Table 17.14 of the EIAR. Consideration of wind turbines existing and permitted within 20km of the site and other permitted development in the general area are set out. • Capacity of the R515 / L1537 and R518 / L1537 junctions with traffic from the significant adjacent developments. Forecast growth on the public road network plus an additional 10% of existing traffic volumes will operate within reserve capacity during construction in 2036 and decommissioning in 2071.

19.5. **Mitigation Measures**

Section 17.4 of the EIAR outlines mitigation measures incorporated into the project design with respect to traffic and transport. Due to the low operational traffic anticipated during operation of the proposed development, no mitigation measures are proposed for that phase. A summary of mitigation during the construction phase is set out below:

- Appendix 17.2 of the EIAR includes a Traffic Management Plan (TMP).
- Dedicated project coordinator to be appointed for the duration of the project construction, being the main point of contact for traffic management.
- Access at all times to properties in proximity to the works.
- Local residents, businesses and emergency services to be informed in advance of any works taking place on site.
- The Applicant or developer will consult with An Garda Síochána, TII, PPP operators and all relevant Local Authorities to obtain all necessary abnormal load permits and discuss the requirement for a Garda escort. Specification for any enabling works to be carried out on the Turbine Delivery Route to be agreed with relevant authority/body prior to delivery of abnormal loads.
- Turbine Delivery Route survey will be undertaken to identify any overhead lines or height restrictions at toll booths etc.
- Prior to the delivery of turbine components, a trial run shall be carried out between Foynes Port / Port of Galway and the Project entrance using an abnormal load vehicle.

- During the construction and Decommissioning phases, road works signs in accordance with the requirements of Chapter 8 of the Traffic Signs Manual at site entrances and along the turbine delivery route.
- Wheel cleaning equipment to be installed, vehicle containers/loads to be covered, all dust generating activities minimised during windy conditions.
- A pre-construction road condition survey shall be carried out prior to any works commencing on site. Reinstatement of defects on the public road network resulting from construction traffic shall be made good to a specification agreed with the relevant local authority / TII.
- All works on the public road network will be carried out using an approved road opening licence and traffic management plan.

19.6. **Residual Impacts**

See Section 17.6 of the EIAR. After mitigation there will be no residual likely significant effects for the operational phase. There is likely to be a slight residual effect on the condition of road surfaces at the site entrance no 2 due to vehicles turning. Following final road reinstatement, there will be no residual effects associated with the construction or decommissioning phases of the Project.

19.7. **Assessment: Direct and Indirect Effects**

19.7.1. **Local Road Network Capacity and Road Safety (Construction Phase)**

Chapter 17 of the EIAR and the traffic management plan (TMP) (appendix 17.1) provides details relating to the proposed means of access to the site during the construction, turbine delivery and operational phases of the proposed development. The turbine components will be transported on the public road network using abnormal load vehicles from either Shannon Foynes Port or Port of Galway and the application site via the national and local roads.

I note site entrance no. 1 on the N20 will be upgraded from an existing agricultural entrance to be used as a temporary entrance for abnormal loads including turbine components, cranes and transformers and will not be used by general construction traffic. General construction traffic will gain access via site entrance no. 2 on the L1537 road. HGV access to site entrance no. 2 will operate using a one-way system as outlined in Figure 17.5 of the EIAR. HGV traffic will approach the site from the R515 / L1537 junction and travel north to site entrance no 2. HGV's exiting from the site will travel north on the L1537 to the R518 regional road in the village of Bruree. Haul routes

for material suppliers is shown in Figure 17.6 with all construction materials will be delivered to the site via site entrance no. 2.

Having regard to the identified construction haul routes and turbine delivery routes, I am satisfied that the capacity of the existing local road network and the wider national road network to accommodate estimated construction trip generation have been adequately demonstrated within the EIAR. Furthermore, I am satisfied that construction traffic will comprise of standard HGVs and LGVs, which are all standard vehicles currently in use on the local road network and the anticipated vehicles and loads including abnormal loads are all within the acceptable national limits. The applicant has outlined the typical delivery vehicle specifications in Section 17.2.14 of the EIAR and I note a Category 3 structural assessment for exceptional abnormal loads is not required.

I note swept path analysis has been carried out for the 2 no. identified turbine delivery routes (TDR) from Foynes Port & Galway Port in Appendices 17.3 and 17.4. Temporary accommodating works have been identified consisting mainly of minor works within the public road and road verge, and locations of localised enabling works are detailed in Section 17.2.9 of the EIAR and Section 4.7 of the TMP. Enabling works on the public road network will be carried out using traffic management and temporary traffic signals where required. The applicant has proposed specific mitigation measures for the delivery of abnormal loads including off peak/nighttime delivery, a trial run/survey of TDR route prior to delivery, Garda escort and agreed specification for any enabling works to be carried out. I note the report from the Councils Road Section which has not raised any concerns regarding the capacity of the local road network or the TDR with conditions recommended.

The project timeframe is an 18-month construction period with predicted daily traffic movements outlined in Table 17.10 of the EIAR. The first month of the construction period will involve deliveries of materials for site access works, temporary construction compound, site offices and site security. It is predicated that a maximum of 30 HGV vehicles (60 HGV movements) will visit the site on a daily basis during the first month.

Months 2 to 10 will involve deliveries of materials for turbine hardstands, turbine foundations, site access tracks, wind farm internal cabling, onsite substation and control building.

A maximum of 165 no. HGV vehicles (330 no. HGV movements) will visit the site on a daily basis during this period. The peak traffic will occur on 9 days during the 9 month period when turbine foundations are poured.

Concrete pours for individual turbine foundations will generate 120 no. HGV arrivals (240 no. HGV movements). Months 10 to 18 will involve HGV movements for works associated with turbine delivery, turbine erection, turbine commissioning etc. A maximum of 18 no. HGV vehicles (36 no. HGV movements) will visit the site on a daily basis during this period. It is estimated that 55-60 no. staff in light goods vehicles (LGV) will visit the site daily during the peak construction period. Parking for staff will be provided within the temporary construction compound.

Junction traffic analysis data presented in the EIAR is based on the expected traffic flows to and from the site. The analysis focused on the following junctions, R518 / L1537 Junction (Bruree Village) and R515 / L1537 Junction. Both junctions will not exceed the 0.85 ratio of flow to capacity (RFC) in 2036 or 2071 when wind farm construction / decommissioning traffic is combined with forecast traffic and traffic from future developments based on Junctions 9 PICADY software. I note drivers will experience some delays due to increased traffic volumes during the wind farm construction and decommissioning periods. In 2035 and 2075 vehicles joining the R518 from the L1537 junction will experience a delay of 14 seconds and 16 seconds. In 2036, vehicles joining the R515 from the L1537 will experience a delay 16 seconds and in 2075 it will be 17 seconds. The effect of these delays is assessed as non-significant.

Having regard to the nature and scale of the proposal, I do acknowledge that the proposed development will introduce a significant increase in traffic, including HGV traffic, on the local and national roads that provide access to the project site during the 18 month construction phase and that this will be particularly intense during the 9-day period when it is proposed to pour the concrete foundations for the proposed turbines. However, I consider that the construction phase traffic can be managed through developer engagement with the local authority/TII, timing of HGV movements, HGV one way system (L1537), the appointment of a traffic management coordinator etc. I am satisfied the implementation of a one-way system for HGV traffic using the L1537 will minimise the likelihood of HGVs meeting head-on or conflict with other vehicles.

I do acknowledge that disruption will occur to residents using the L1537 and along the construction haul route during the construction phase of the proposed development. Given the short-term and temporary nature of the impacts, I consider that a robust construction traffic management plan (CTMP) could adequately address the general concerns expressed by the planning authority and observers. I am satisfied that traffic levels associated with the project will not have a significant impact on congestion levels in Charleville town centre as raised by submissions. Peak hour traffic volumes show an overall increase of a 9% (AM) and 2% (PM) during construction phase. I do acknowledge that HGV levels may increase by more over this period.

I am satisfied that the suitably controlled delivery of turbine components can be achieved without impacting on public safety by reason of a traffic hazard or otherwise significantly impacting on the national road network. Should other projects be constructed in tandem with the proposal in the surrounding area, traffic impacts could reasonably be addressed as part of a live adaptable CTMP.

In relation to the operational phase, I consider the impacts will not be significant, due to the nature of the proposal and the traffic it will generate. The frequency of vehicle trips associated with servicing, monitoring and upkeep of the site are forecasted to be 230 trips per year. With regard to the decommissioning phase, the nature of works will be similar to the construction phase, but the extent will be substantially less due to the foundations and other infrastructure being left in situ. I am satisfied that, subject to compliance with a decommissioning plan to be agreed with the planning authority, the traffic impacts associated with the decommissioning phase would not be significant.

I note the Roads Section of the Council has raised concerns with regards to the impact on the road structure and condition both during and after construction period. Planning conditions are recommended by the section for the requirement of condition surveys to be carried out. A large number of public submissions have also raised similar concern regarding the impact on the local road network and condition/structural capacity of the L1537 and bridges along the construction haul route.

The contents of the Bridge Inspection Report (Appendix 17.7 of the EIAR) are noted in this regard. I am satisfied that this issue can be addressed by the attachment of a condition requiring a financial bond of security to ensure the satisfactory reinstatement of the public road and the requirement of pre/post condition survey of the local roads

including bridges and drainage/culverts during the construction phase to be undertaken with any damage to the road/other structures be rectified at the developer's expense.

Overall, I am satisfied, taking account of mitigation measures outlined in the EIAR and TMP, that the applicant has satisfactorily demonstrated adequate capacity in the local/national road network to accommodate the volume and the frequency of construction traffic generated by the proposed development. I consider that the short-term negative impacts of construction traffic, would be outweighed by the long-term positive impacts of a renewable energy project. Furthermore, I am satisfied the proposed development, would not give rise to any significant adverse cumulative traffic impacts in-combination with any other projects in the area.

19.7.2. **National & Local Roads Policy**

Transport Infrastructure Ireland (TII) has raise concerns in respect to policy provision contained in the Spatial Planning and National Roads Guidelines for Planning Authorities (DECLG 2012) in particular Sections 2.5 – 2.6 and the proposed usage of site entrance no. 1 by the applicant to serve the proposed development located off the N20 where a 100kph speed limit applies.

For clarity Section 2.5 of the DECLG (2012), relates to the creation of any additional access point from new development or the generation of increased traffic from existing accesses to national roads to which speed limits greater than 60 kmh apply.

Section 2.6 of the DECLG (2012), provides that notwithstanding the provisions of Section 2.5 planning authorities may identify stretches of national roads where a less restrictive approach to the management of access to a national road in '*exceptional circumstances*' but only as part of the process of reviewing or varying the Development Plan. TII notes the LCDP 2022 does not provide for these '*exceptional circumstances'*.

TII requests the Coimisiún consider the proposal in the context of road safety and official policy. It outlines a number of matters for consideration such as the temporary use and reinstatement of site entrance no 1, installation of temporary safety barrier, make good of any damage to the carriageway and incorporation of all recommendations of the Road Safety Audit in the final design.

The applicant has stated that the permanent access point to the project is located on the L1537 local road. Site Entrance 1 will only be used during delivery of abnormal loads such as turbine components, cranes and transformers and will not be used for general construction traffic. The existing field access will be upgraded as part of the project to allow for temporary overrun area, dwell area and appropriate visibility splays. Site entrance 1 will be closed and reinstated, with all other general construction and operational traffic to access the development via site entrance no 2. I note that a 3.0m setback and sightlines of 215m have been demonstrated in each direction on drawing reference 6839-JOD GGE-XX-GR-C-0210.

With respect to road safety, I note the applicant has provided a Stage 1 Road Safety Audit of the proposed temporary traffic management works at the site entrance no 1 with the N20. This is provided in Appendix 17.5 of the EIAR. The audit team identified three problems which the applicant has noted have been resolved as part of the design team response. I am satisfied with the conclusion of the Road Safety Audit and together with the measures outlined in the Traffic Management Plan, will provide a safe environment for the delivery of abnormal loads during the construction phase. The applicant notes that components for each turbine will be delivered to site in three separate abnormal load convoys over the period of one week. The convoys will travel at times agreed with An Garda Síochána. I consider the proposed development will have a slight negative effect on the N20 for a limited period only. The applicant has broadly agreed with and implemented through the project design, the TII matters for consideration raised in their submission. A temporary fencing will be installed in preference to a temporary traffic barrier.

The Coimisiún will note that under objective TRO39 (b) of the LCDP 2022 seeks to avoid the creation of any new direct access points from development, or the generation of increased traffic from existing direct access/egress points to the national road network, to which speed limits greater than 60km/h apply. Furthermore, Policy TR P12 of the LCDP 2022 seeks to protect the capacity of the national road network, having regard to all relevant Government guidance and associated junctions, including DoECLG Spatial Planning and National Roads Guidelines (DoECLG, 2012).

While the proposed development will not create a new access onto the national road, it will generate additional traffic for a limited period from an existing direct access onto the N20 national road.

I am of the opinion that the additional traffic generated can be safely absorbed by the existing road network. While the proposal may contravene the above Development Plan policy, I am satisfied the proposed development is not a material contravention. Should the Board be minded to grant permission for the development, I satisfied the consideration of Section 37G (6) of the Planning and Development Act 2000, as amended is not required in this instance. I draw the Coimisiún's attention to previous approval decisions under ABP reference number 316178-23 and 318689-23 whereby the context, location and issues raised are similar in nature to the subject application.

Overall, I consider that the proposed development is of strategic importance having regard to the provisions of the Climate Action Plan 2024 and 2025 which seeks to accelerate renewable energy generation, including a 9 GW onshore wind capacity by 2030. The proposed development will contribute to meeting the objectives of the Climate Action Plan. I am satisfied the impact on capacity and operation of the road network have been appropriately addressed in terms of the application documents including the Junction Design Report (Appendix 17.6 of EIAR) and that no significant adverse effect is likely to arise, on a permanent or temporary basis, subject to compliance with relevant legislation and guidance, implementation of the measures outlined in the Road Safety Audit recommendations, Traffic Management Plan and Section 17.4 of the EIAR.

19.7.3. **Site Entrance No. 2**

Submissions have raised concerns in relation visibility splays at site entrance no 2 and the lack of a road safety audit. I note the applicant proposed a new site entrance to the south of an existing agricultural entrance.

I have reviewed the design for the entrance along the L1537 as submitted by the applicant on drawing reference number 6839-JOD-GGE-XX GR-C-0211. I note that a 3.0m setback and sightlines of 70m have been demonstrated in each direction. Having visited the site, I note sightlines in excess of 70m can be achieved looking southbound from the existing agricultural entrance. The applicant has referred to a vehicle speed survey on the L1537 on 20th November 2024. The vehicle speeds were measured on a straight section of the L1537 to the north of Site entrance 2 over a one-hour period with the survey results detailed in Table 2 of the Traffic and Transport Assessment (Appendix 17.1 of the EIAR). A design speed was calculated to be

50km/h. Visibility splays of 70m for a design road speed of 50km/h is in accordance with the standards (Table 5.5) set out in the TII document DN-GEO-03060 '*Geometric Design of Junctions'.* From my observations during the site inspection vehicles travelling southbound on the L1537 are restricted in speed generation just to the north of the proposed site entrance given the curved alignment of the carriageway.

I note the Road Section of the Council had no objection to the proposed site entrance based on the documentation submitted with the application or raised any significant issue with the proposal. The Road Section has recommended conditions requiring a stage 1/ 2 road safety audit and revised sightline plans inclusive of a topographical survey for site entrance no 2 based on 2.4 setback and 90m sightline. The applicant has stated that this data can be submitted to the Local Authority.

Overall, I am satisfied that proposed site entrance no. 2 can accommodate refinements to meet necessary the sightline requirements, without altering the assessment set out in this report. As such, I am satisfied this matter can be adequately addressed by way of condition, with detail to secure final entrance sightline designs.

19.8. **Assessment and Conclusion**

I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. I am satisfied that potential effects on traffic and transport as a result of the proposed development will be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. The main significant direct effects on traffic and transport are short term, temporary HGV traffic movements increase on the N20, R518, R515 & L1537 during the construction stage and turbine foundation concrete pours which will be mitigated by traffic management measures outlined in the TMP and EIAR. In reaching this conclusion, I have had regard to the cumulative impact of the wind farms and other relevant projects in the study area.

20.0 Major Accidents and Natural Disasters (MA&ND)

20.1. **Issues Raised**

No specific issues raised in relation to MA&ND under this Chapter. Concerns relating to flooding and impact on water quality are assessed earlier in this report.

20.2. **Context**

The EIAR does not contain a specific Major Accidents and Natural Disasters (MA&ND) Chapter, however, Section 1.6.2.3 discusses MA&ND. The applicant notes that a windfarm is not a recognised source of chemical pollution. Should a major accident or natural disaster occur, the potential sources of pollution on site during both the construction and operational phases are limited. Sources of pollution with the potential to cause significant environmental effects and associated negative effects on health include bulk storage of hydrocarbons or chemicals and storage of waste, none of which will occur on the site. The site is not regulated under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 i.e. SEVESO sites and so there is no potential effect from this source. The closest SEVESO site, at the Raheen Industrial Estate, Limerick is located c. 23.1km north from the site.

The EIAR, Construction & Environmental Management Plan (CEMP) includes Management Plan 1 - Emergency Response Plan (MP1-ERP) in Appendix 1, which provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection. The plan was developed alongside the Water Quality Management Plan (MP2), the Surface Water Management Plan (MP3), the Spoil Management Plan (MP4), Waste Management Plan (MP5), Decommissioning Plan (MP6) and Method Statement for Crossing Industrial Pipeline (MP7).

Environmental incidents may include flooding, spillages (oil and chemicals), contaminated run-off, riverbed disturbance, damage to underground services, damage to habitats, poor waste disposal and storage. These plans provide a benchmark for best practice and to define Garrane Green Energy Limited's minimum requirements for environmental management and mitigation. The appointed contractors will further develop the ERP. This will include procedures for dealing with containment of accidental chemical or fuel spills, potential overload of the drainage system by silt during unforeseen adverse weather conditions etc. The appointed contractors will prepare a Communication Plan for emergency response in the event of a spillage. Detailed procedures will be outlined in this document.

20.3. **Baseline**

The applicant reiterates that there are no significant sources of pollution in the wind farm with the potential to cause environmental or health effects. Also, the spacing of the turbines and distance of turbines from any properties and infrastructure limits the potential for impacts on human health from pollution. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to peat-slide, flooding and fire. The site is relatively flat with no peat identified on the site, so the risk of peat slide is negligible. The risk of peat-slide is further addressed in EIAR, Chapter 9.

Flooding - Flooding can result in downstream MADs. The increased flood risk associated with the Project is outlined in detail in Sections 10.5.3.3 and 10.6.3.3 of the EIAR. The potential health risks associated with flooding is discussed in Section 10.7.6 of the EIAR. Potential health effects arise mainly through the potential for surface and groundwater contamination which may have negative effects on public and private water supplies. There are no mapped PWS or GWS in the immediate vicinity of the Site. Notwithstanding this, the Project design and mitigation measures ensures that the potential for effects on the water environment will not be significant. The Bruree PWS and Adara PWS are located downstream of the Site along the River Maigue. The potential effects are assessed above in Section 10.5.2.13 and Section 10.6.2.12 of the EIAR and have demonstrated that there is no potential for effects. Flooding of property can cause inundation with contaminated flood water. Flood waters can carry waterborne disease and contamination/effluent. Exposure to such flood waters can cause temporary health issues.

A detailed Stage III Flood Risk Assessment has been carried out for the site, summarised in Section 10.3.7 of the EIAR. The Flood Risk Assessment, combined with the assessment of changes in permeable surfaces (Section 10.5.3.1) demonstrates that the risk of the proposed works contributing to downstream flooding is insignificant. On-site (construction and operation phase) drainage control measures will ensure no downstream increase in local flood risk.

The applicant notes that the closest mapped flood events to the site are 2 no. historic and 1 no. recurring flood events along the N20 road on the western side of the site. Provisional analysis of the OPW Flood Maps indicates that a significant portion of the proposed site is susceptible to fluvial flooding. To address this, a detailed Site-Specific

Flood Risk Assessment (SSFRA) has been carried out and the risk of flooding is addressed fully in Chapter 10: Hydrology and Hydrogeology and Appendix 10.1 Stage III SSFRA.

Geological Faults - As mentioned previously in this report, there are 2 no. geological faults that traverse the site. (Refer to Section 12.3.4 of this report for detail)

20.4. **Potential Effects in the Absence of Mitigation**

I consider the likely significant effects of the development, which are summarised in Table 20.1 below;

Table 20.1 – Summary of Potential Effects (MA&ND)
Do Nothing
• If the wind farm were not to proceed, the existing uses for the site would continue. • The opportunity to capture a significant part of County Limerick's and Ireland's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment would also be lost. This loss of employment and investment would negatively impact the local economy.
Construction Impacts
• **The Management Plan 1- Emergency Response Plan (MP1-ERP) (EIAR, CEMP, Appendix 1)** has identified numerous causes of environmental incidents on the site including leaking plant or equipment, fire, vandalism, overfilling of containment vessels, Flooding on site, Leaking Portoloo, Discharge of raw or partially treated effluent, wind-blown waste, litter or dust, fuel drips or spills during refuelling, Leak from fuel or chemical containers, contaminated water or sediment/silt entering the water courses or drains and blade throw (results from wind turbine failure and may include splintering of rotor blades and detachment of debris). Refer to Section 1.3 of the MP1-ERP. The Plan notes that any of these incidents could affect drainage systems, surface waters, aquatic ecosystems, groundwater and soils. These incidents could also affect air quality by producing toxic fumes and airborne pollutants which may damage human health, wild and domestic animals and ecosystems.
Operational Impacts
• **The Management Plan 1- Emergency Response Plan (MP1-ERP) (EIAR, CEMP, Appendix 1)** – Similar to Construction Impacts above, the ERP has identified potential risks and the responses in the event of an accident or emergency. • **Flood Zone** - Flooding can result in downstream MA&NDs. The site is partly located in a flood zone according to the Catchment Flood Risk Assessment and Management (CFRAM) OPW Flood Risk Assessment Maps associated with the River Maigue and its tributaries, in particular, the Charleville Stream. Flood Risk Assessment (EIAR, Appendix 10.1), have been incorporated into the Project to ensure that the

infrastructure is not at significant risk of flooding and to ensure that the Project does not significantly affect the downstream flood risk. The increased flood risk associated with the Project is outlined in detail in EIAR Sections 10.5.3.3 and 10.6.3.3. The potential health risks associated with flooding is discussed in EIAR Section 10.7.6. • **2 no. Geological Faults** - Faults and other discontinuities can be associated with groundwater pathways as well as seismic movement.
Decommissioning Impacts
• Risks are similar to Construction Phase as outlined in the MP1-ERP (See above).
Cumulative Impacts
• No significant cumulative effects predicted for the project to be impacted by major accidents or natural disaster or the proposed developments potential to cause major accidents or natural disaster.

20.5. **Mitigation Measures**

Section 1.4 of the MP1-ERP notes that current legislation including the Safety, Health and Welfare at Work Act 2005 and the Safety Health and Welfare at Work (Construction) Regulations 2013, has been taken into account in the production of the Plan and will be developed by the appointed Contractor's in a final CEMP. This will ensure an effective response to disasters or the risk of accidents.

The CEMP in Section 3 outlines the Environmental Controls to be taken into account by the appointed contractor during construction of the project.

The CEMP in Section 3.1 notes that the main mitigation measure is by design or avoidance. A suitable separation distance from turbines and other key infrastructure to properties has been embedded in the EIA Project design. Additional mitigation to protect site personnel and the public will also be implemented for the operational phase. These include measures such as signage, facility for remote turbine deactivation and access to turbines for site personnel being restricted in storm events.

The CEMP notes that measures are set out in Chapter 17 – Transport and Transportation relating to how delivery of goods and services would be managed during works to minimise impacts, with all machinery and equipment being in compliance with the Machinery Directive (2006/42/EC).

Mitigation for the protection of ecology is outlined in Section 3.2 of the CEMP. The plan notes that the implementation of mitigation through avoidance principles, pollution control measures, surface water drainage measures and other preventative measures

have been incorporated into the project design in order to minimise potential significant adverse impacts on water quality at the site. An Ecological Clerk of Works (ECoW) with experience in overseeing wind farm construction projects will be appointed by the contractor for the duration of the construction phase to ensure that the CEMP is effectively implemented and that all planning conditions relating to biodiversity are complied with.

Contamination - Section 1.2 of the ERP notes that all construction works on site, and specifically construction works to be undertaken within 50m of any EPA mapped watercourses or 10m drains, will be completed in compliance with current legislation and best practice as detailed within the CEMP (Refer to Section 3.2.3) and in particular the MP4 - Spoil Management Plan and the MP3 - Surface Water Management Plan. Also refer to Section 3.4 of the CEMP.

The CEMP notes in Section 3.2.3.2 that a comprehensive suite of drainage measures has been developed to protect all receiving waters from potential significant effects during the construction of the Project in the catchment, and along the proposed TDR. (Refer to Section 3.4 and Management Plan - 3 SWMP of the CEMP). Measures for flooding is addressed in Section 3.4.1.3 of the CEMP.

Section 3.3 of the CEMP addresses mitigation in relation to Soils and Geology to avoid contamination and pollution prevention, which is in line with the ERP. It states that the primary mitigation measure employed has been the design of the Project in terms of locating the turbines, access roads, material storage areas and other site infrastructure on agricultural lands and minor forestry, where the soils are extensively worked and drained, so as to be remote from residential and sensitive commercial properties. Further detailed mitigation is detailed for the construction and decommissioning phases of the development.

Flooding - A detailed Stage III Flood Risk Assessment (FRA)has been caried out for the Site, summarised in Section 10.3.7 of the EIAR. This FRA, combined with the assessment of changes in permeable surfaces **(Section 10.5.3.1)** demonstrates that the risk of the proposed works contributing to downstream flooding is insignificant. On-site (construction and operation phase) drainage control measures will ensure no downstream increase in local flood risk.

The mitigation measures and procedures described in the CEMP including the appendices, will ensure the protection of the environment from contamination. A final CEMP will be updated prior to the commencement of the development which will be a live document to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary.

20.6. **Residual Effects**

Fire - The applicant refers to an article in Wind Power Engineering Magazine estimated that 1 in 2,000 wind turbines catch fire each year. Overall, the data shows that wind turbine fires are relatively rare. The wind farm will be designed, built and operated in line with current best practice. It is therefore considered that the risk of significant fire occurring, affecting the wind farm and causing the wind farm to have significant environmental effects is limited.

Geological Faults - The Irish landmass is one of the least seismically active regions in the World, where no significant earthquakes (ML ≥ 5.4) have been recorded since records began. The applicant notes that the most significant seismic event recorded in Ireland by the British Geological Survey was a low energy, 3.70 magnitude seismic event, that occurred on 11th January 1951 within the Irish Sea, more than 100km from the wind farm site. In light of the above, an assessment has been made with regard to the likely effects from such seismic activity. This has determined that any ground movement recorded can be expected to be negligible with respect to the Project proposed; where Peak Ground Accelerations can be expected to be in the order of 0.02g2. Such ground accelerations are considered to be Not Significant.

Contamination – The EIAR explains that there is a potential risk of contamination from site activities from potential release of hydrocarbons during all phases of development as outlined above. However, following implementation of environmental protection measures outlined in the CEMP to reduce the risk of accidental spillage and contamination of pollution risk to groundwater, surface water and associated ecosystems, and to terrestrial ecology, the risk of contamination is very unlikely to occur and will have limited consequences should it do so. Hence, there will be no significant residual effects associated with this potential impact.

20.7. **Assessment: Direct and Indirect Effects**

I have examined, analysed, and evaluated the CEMP and accompanying Management Plans. A wind farm by its nature is not a recognised source of pollution and it is not subject to an Industrial Emissions Directive Regulation or any other EPA regulatory consent. I consider there is a low risk for significant natural disasters to occur having regard to the stable geology and mild climate of the country.

The EIAR provides an assessment in relation to the likely impacts and proposed mitigation of any major accident or natural disaster. This includes an assessment relating to transportation, contamination and fire during construction, operation and decommissioning phases. The EIAR confirms that the wind farm will be designed and built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. Furthermore, prior to commencement of development, an updated CEMP will be prepared by the appointed contractor to ensure an effective response to disasters, or the risk of accidents. The final CEMP will be prepared and implemented prior to commencement to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated. I consider based on the assessment undertaken and the mitigation proposed that the proposed development has a low potential to cause natural or major accidents and that the final CEMP can be dealt with by way of condition.

20.8. **Conclusion Direct and Indirect Effects**

I consider that an adequate description of the expected significant adverse effects on the environment due to the project's vulnerability to major accidents and disasters has been provided in the applicants EIAR. The EIAR outlines comprehensive mitigation strategies designed to minimise such impacts. I consider that the risks identified to be reasonable and the mitigation measures proposed will be adequate to minimise the risks highlighted. Based on the above, I am satisfied that the overall risk of Major Accidents and Disasters has been adequately addressed and the risk of MA&D is low.

21.0 Interactions

Chapter 18 of the EIAR evaluates the potential interaction of effects described within the EIAR. A matrix of the interactions is presented in Table 18.1 of the EIAR. The EIAR notes that the potential for interactions has been assessed through the EIAR as

part of the Impact Assessment process and that where any potential negative impacts have been identified during the assessment process, these impacts have been avoided or reduced by design and the proposed mitigation measures, as presented throughout the EIAR and highlighted in Section 18.2 of the EIAR.

I have considered the interactions and interrelationships between environmental effects and am satisfied that significant impacts in relation to interactions can be avoided, managed and mitigated by the measures contained within the EIAR and any recommended planning conditions.

22.0 Reasoned Conclusion

Having regard to the examination of environmental information provided in respect of the proposed development, in particular the EIAR and the supplementary information provided by the Applicant, the submissions from the local authority, prescribed bodies and observations received over the course of the application, it is considered that the main significant, direct, indirect and cumulative effects on the environment, with the implementation of proposed mitigation measures are as follows-

- **Climate**: The proposed development would have a significant positive impact on climate due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions. Over the proposed 35-year lifetime of the development, 1,634,117 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation, which is a significant positive, long-term impact on climate due to its contribution to renewable energy targets and the reduction of GHG emissions.
- **Landscape and visual:** Significant negative visual effects as a result of the proposed windfarm will be experienced by a small number of residential properties within c. 1.0km where these have open views of the proposed turbines. This will reduce to not significant beyond 1km where views will be intermittent, limited or screened. These effects are an inevitable consequence of the introduction of large-scale wind turbines into a flat lowland landscape.
- **Traffic**: Significant negative impacts arise during the construction phase of the development. These impacts include additional traffic movements on the National/local road network, movement of abnormal loads on the N20 resulting

in delays and the provision of a construction one way haul route on the L1537. Traffic impacts will be short-term and temporary and will be adequately mitigated during construction by the implementation of measures set out in the EIAR, including the final CEMP and Traffic Management Plan.

- **Biodiversity & Ornithology**: Significant local negative impacts on biodiversity and ornithology will occur due to the removal of linear habitats on site, including existing treelines and hedgerows (1,649m). This will be mitigated through the delivery of measures outlined the BEMP including the new hedgerow planting programme (1,620m), additional hedgerow enhancement (1,359m) and re-vitalisation of existing unmanaged hedgerows (4,074m), as well as the planting of 0.67 ha of native woodland the within the site. I consider the replacement and management of c. 7,000m of hedgerow will offset of the negative impacts.
- A potential significant impact on bats and the potential loss of any bat roosts can be avoided through the omission of turbine T2.
- Development of turbine T1 c. 170m from the Charleville lagoons poses a significant risk to waterbird species using the lagoons. Significant impacts on these waterbird species can be avoided through the omission of turbine T1.
- **Archaeology and Cultural Heritage:** Ground excavation works during the construction phase will have the potential to result in significant effects on any unrecorded sub-surface archaeological features or deposits that may exist within the footprint of development areas. With the implementation of mitigation measures outlined in Chapter 15 of the EIAR the potential for negative effects on unrecorded archaeological sites during excavations, will be reduced.

The EIAR has considered that the main significant direct and indirect effects of the proposed development on the environment would be primarily mitigated by environmental management measures, as appropriate. Notwithstanding the foregoing having regard to the pressing need to roll out alternative energy sources, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

23.0 The Likely Significant Effects on a European Site

23.1. Introduction

In this section of my report, I carry out a Stage 1 and 2 Appropriate Assessment in relation to the proposed development. I have assessed the Applicants AA Screening and NIS. I have reviewed the Council, the DAU and the Observer to the Application documentation regarding issues relating to Appropriate Assessment and have analysed the Applicants submission on the observations received, which has sought to address the various concerns raised.

I have completed my own assessment below and have provided a reasoned conclusion at the end of my assessment. An Coimisiún Pleanála competent authority for making the decision.

The areas addressed in this section are as follows;

- Compliance with Articles 6(3) of the EU Habitats Directive
- Appropriate Assessment Screening Determination (See Appendix 1 of this Report)
- Appropriate Assessment Screening (See Appendix 2 of this Report)
- Appropriate Assessment Conclusions

23.2. Compliance with Articles 6(3) of the EU Habitats Directive

Article 6(3) of this Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European Site.

23.3. Issues Raised in relation to Appropriate Assessment

23.3.1. Prescribed Bodies, Third-Party Concerns and Observers to the Application

The Dept. of Heritage, Local Government and Heritage (DAU) as well as a number of third parties observers have raised their concern in relation to the level of information submitted with the application regarding the impact of the proposed wind farm on nearby Natura 2000 sites, ornithology and biodiversity in general. I have detailed

these concerns in Section 4.2.1 (DAU) and Section 4.3 (Third party observations[5]) of this report and will not repeat here.

23.3.2. **Limerick City and County Council**

I note the Planning Authority have raised 3 no. concerns regarding potential impacts on the River Shannon SAC and SPA, as follows;

- **Water Quality/Sedimentation/Spoil Management** - The repost outlines that spoil from trenching not backfilled will be permanently stored behind the substation. The document should outline how this material will be dealt with medium to short term. It should be covered or planted to prevent run-off in periods of inclement weather.
- **Migratory Fish** - The Council notes that there will be works on/near at least 2 no. rivers with bridges, which has the potential to impact migratory fish. Although outside the SAC, the Council considers that direct impacts on an SAC QI species (Salmon and Lamprey) on an ex-situ basis cannot be ruled out.
- **Otters** - Another issue raised by the Council relates to Otters which were recorded on the Charleville Stream within the project site. The NIS considers it unlikely that the otter population within the subject site would commute to the Lower River Shannon SAC due to the channel distance of c. 25km. The Council considers there is likely interaction between the SAC population and those found on the site in the form of gene flow and population dynamics.

The Council has requested clarification on these issues and have noted that should the issues be considered sufficiently dealt with, the NIS conclusions are considered acceptable and the mitigation measures proposed are considered sufficient.

Applicants Response - The applicant has responded by stating that Atlantic salmon and Otter occur in the watercourses between the SAC and the wind farm site. However, based on the strict mitigation measures proposed to contain water pollution (as detailed in NIS Section 3.2, EIAR Chapter 10: Hydrology and Hydrogeology and Appendix 2.1 Construction and Environmental Plan (CEMP), the applicants are confident that there is no significant risk to these species as a result of water pollution associated with any phase of the proposed project and as such there will be no

[5] Friends of the Irish Environment (REVIEW ALL SUBMISSIONS)

adverse effect on the integrity of the SAC. It is also noted that the two required bridge crossings will utilise clear span bridges and will not involve instream works.

23.4. **The Natura Impact Statement (NIS)**

The application was accompanied by an Appropriate Assessment (AA) Screening Report (Stage 1) and NIS (Stage 2) which was prepared by Dr. Brian Madden (BioSphere Environmental Services), in line with current best practice and describes the proposed development, the project site and the surrounding area (Section 2.1). The NIS was intended to be read in conjunction with the submitted EIAR.

The application was accompanied by an NIS which was prepared in line with current best practice and describes the proposed development, the project site and the surrounding area. The NIS contained a Stage 1 Screening Assessment concluded that a Stage 2 Appropriate Assessment was required. It concluded as follows;

> *'On the basis of objective and best scientific information, it is concluded that in the absence of mitigation, likely or possible significant effects on two of the European sites listed in **Table 2** (and below) could not be excluded during the construction, operational and/or decommissioning stages of the proposed Project:*
>
> - *Lower River Shannon SAC*
> - *River Shannon and River Fergus Estuaries SPA*
>
> *As a result, it is respectfully submitted that the competent authority should carry out an Appropriate Assessment (AA) in respect of the Proposed Project. A Natura Impact Statement has been prepared to assist with the AA.*
>
> *For five sites within the identified zone of influence (as listed in **Table 2**), no pathway was identified between the site for the proposed Project (Source), including the Grid Connection Route and the Turbine Delivery Route, and the relevant European site (Receptor). These five sites are:*
>
> - *Ballyhoura Mountains SAC (code: 002036)*
> - *Blackwater River (Cork/Waterford) SAC (code: 002170)*
> - *Tory Hill SAC (code: 000439)*
> - *Glen Bog SAC (code: 001430)*
> - *Kilcolman Bog SPA (code: 004095)*
>
> *Therefore, it is concluded beyond reasonable scientific doubt, and in view of the best available scientific knowledge, that there is no potential for likely significant effects on the above listed five sites or their qualifying interests or the Special Conservation Interests of the above listed five sites as a result of the proposed Project when considered individually or in combination with other plans and projects.*

Accordingly, it is concluded that no further assessment is required for these five sites and that they can be 'screened-out'. It is noted that measures intended to avoid or reduce the harmful effects of the proposed Project on European sites, i.e. "mitigation measures", have not been taken into account in this screening stage appraisal.'

The applicants NIS outlined the methodology used for assessing potential impacts on the habitats and species within 2 no. European Sites that have the potential to be affected by the proposed development. It predicted the potential impacts for these sites and their conservation objectives, it suggested mitigation measures, assessed in-combination effects with other plans and projects and it identified any residual effects on the European sites and their conservation objectives.

The applicants NIS concludes as follows;

'This Natura Impact Statement has assessed the potential effects of a proposed Wind Farm Project at a site at Garrane, Co. Limerick on the integrity of identified relevant European sites.

For the reasons set out in detail in this NIS, in the light of the best scientific knowledge in the field, all aspects of the proposed Project, by itself or in combination with other plans or projects, which may affect the relevant European Sites have been considered.

The NIS contains information that the Commission, as competent authority, may consider in making its own complete, precise and definitive findings and conclusions as to the effects of the proposed Project. It is respectfully submitted that the information contained in this NIS is such that the competent authority will be capable of determining that all reasonable scientific doubt has been removed as to any adverse effects of the proposed Project on the integrity of the relevant European sites.

In conclusion, on the basis of the assessment set out in this NIS, it is respectfully submitted that the competent authority is able to determine that no reasonable scientific doubt remains that the proposed Project will not adversely affect the integrity of any European site, in view of the conservation objectives of that site.'

23.5. **AA Screening Determination (See Appendix 1 of this Report)**

In accordance with Section 177U(4) of the Planning and Development Act 2000 (as amended) and on the basis of objective information, I conclude that the proposed development is likely to have a significant effect on the protected birds and habitat of the following sites 'alone' in respect of effects associated with construction and disturbance on bird species within the nearby SACs/SPAs;

- *Lower River Shannon SAC [002165]*

- *River Shannon and River Fergus Estuaries SPA [004077]*

The applicants AA Screening included 7 no. European Sites in total. I do not consider that any other European sites fall within the zone of influence of the project based on a combination of factors including the nature and scale of the project, the distance from the site to European sites, and any potential pathways which may exist from the development site to a European site, aided in part by the applicant's Appropriate Assessment Screening Report and NIS for the proposed development, the conservation objectives of Natura 2000 sites, the lack of suitable habitat for qualifying interests, as well as by the information on file and I have also visited the site. Thus, having regard to the qualifying interests for which the sites were designated and in the absence of connections to and distance between the application site, it is therefore reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the following 5 no. European Sites in view of the site(s) conservation objectives;

- *Ballyhoura Mountains SAC [002036]*
- *Blackwater River (Cork/Waterford) SAC [002170]*
- *Tory Hill SAC [000439]*
- *Glen Bog SAC [001430]*
- *Kilcolman Bog SPA [004095]*

I conclude that a Stage 2 Appropriate Assessment is not therefore required for the 5 no. sites outlined above.

To conclude, I consider that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act 2000] is required on the basis of the effects of the project 'alone' for the following sites, for which the potential for significant effects could not be excluded:

- *Lower River Shannon SAC [002165]*
- *River Shannon and River Fergus Estuaries SPA [004077]*

This conclusion is based on:

- Objective information presented in the Applicants Screening Report and NIS,

- Standard pollution controls that would be employed regardless of proximity to a European site and effectiveness of same,
- Distance from European Sites,
- The absence of meaningful pathway to any European Site,
- Impacts predicted would not affect the conservation objectives.

No measures intended to avoid or reduce harmful effects on European sites were taken into account in reaching this conclusion.

23.6. **Appropriate Assessment Conclusion - Stage 2 (Appendix 2 of this Report)**
The proposed development has been considered under the assessment requirements of Section 177U and 177AE of the Planning and Development Act 2000 and having regard to:

- The scientific information on file in respect of the Lower River Shannon SAC [002165], River Shannon and River Fergus Estuaries SPA [004077],
- The available information as presented in the submitted documents regarding habitats, species, ground and surface water pathways between the application site and the European sites and other information available, (incl. the desktop studies and field surveys), NPWS website and aerial imagery,
- The nature and scale of the proposed development and works and the nature of potential likely significant effects,
- The separation distances and the lack of connections between the proposed development site and the European sites examined in this assessment,
- The nature of the qualifying interests, special conservation interests and conservation objectives of the European sites,
- The potential impacts and mitigation measures proposed for all phases of the proposed development.

This conclusion is based on a complete assessment of all aspects of the proposed project. I consider that it is reasonable to conclude on the basis of the information on the file, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, that the proposed development, individually or in combination with other plans and projects would not adversely affect the integrity of the European sites including the Lower River Shannon SAC [002165], River Shannon and River Fergus Estuaries SPA [004077] or any other European site, in view of the site's Conservation Objectives.

23.7. **Appropriate Assessment Conclusions**

I am satisfied that the proposed development individually or in combination with other plans or projects would not adversely affect the integrity of any European sites in light of their conservation objectives (subject to the implementation of mitigation measures outlined in Appendix 2 of this Report and the applicants EIAR and NIS).

24.0 Recommendation

Having regard to the foregoing, I recommend that permission for the proposed development be approved, subject to conditions, for the following reasons and considerations as outlined in the Draft Order below.

25.0 Draft Order

25.1. **Reasons and Considerations**

The Coimisiún reached its decision in accordance with its duties under Section 15(1) of the Climate Action and Low Carbon Development Act 2015, as amended, and the requirement to, in so far as practicable, perform its functions in a manner consistent with inter alia the Climate Action Plan 2025 and the furtherance of the national climate objective.

And in coming to its decision, the Coimisiún had regard to the following:

- European legislation, including of particular relevance
    - Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directive) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.
    - EU Renewable Energy Directive 2009/28/EC which aims to promote the use of renewable energy and amending Directive EU/2023/2413 which aims to speed up the EU's clean energy transition as implemented by European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025)

- Directive 2011/92/EU (The EIA Directive) as amended by Directive 2014/52/EU as implemented by Article 94 and Schedule 6 (paragraphs 1 and 2) of the Planning Regulations as amended.
- Directive 2000/60/EC, the Water Framework Directive and the requirement to exercise its functions in a manner which is consistent with the provisions of the Directive and which achieves or promotes compliance with the requirements of the Directive.

- National and regional planning and related policy, including:
  - National policy with regard to the development of alternative and indigenous energy sources and minimisation of emissions from greenhouse gases, particularly the NPF First Revision 2025 and National Policy Objective 70.
  - Wind Energy Guidelines: Guidelines for Planning Authorities 2006 and the draft guidelines published in 2019.
  - The objectives and targets of the National Biodiversity Action Plan 2023-2030.
- Regional and local planning policy, including:
  - Regional Spatial Economic Strategy for the Southern Region 2020-32;
  - Limerick Development Plan 2022-2028.
  - Cork County Development Plan 2022-2028
- Other relevant national policy and guidance documents.
- The nature, scale and design of the proposed development as set out in the planning application and the pattern of development in the vicinity.
- The likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the proposed development and the likely significant effects of the proposed development on European sites.
- The reports of the Planning Authority received in response to same.
- The submissions made on the planning application to the Coimisiún in connection with the application.

- The report and the recommendation of the Inspector, including the examination, analysis and evaluation undertaken in relation to appropriate assessment and environmental impact assessment.

25.2. **Appropriate Assessment: Stage 1**

The Coimisiún considered the Screening Report for Appropriate Assessment and all other relevant submissions and carried out an appropriate assessment screening exercise in relation to the potential effects of the proposed development on designated European sites. The Coimisiún noted that the proposed development is not directly connected with or necessary for the management of any European Site and considered the nature, scale, and location of the proposed development, as well as the report of the Inspector. The Coimisiún agreed with the screening exercise carried out by the Inspector.

The Coimisiún concluded that, having regard to the qualifying interests for which the sites were designated and in the absence of connections to and distance between the application site and the European sites, including *Ballyhoura Mountains SAC [002036], Blackwater River (Cork/Waterford) SAC [002170], Tory Hill SAC [000439], Glen Bog SAC [001430], Kilcolman Bog SPA [004095]* they could be screened out from further consideration and that the proposed development, individually or in combination with other plans or projects would not be likely to have significant effects on these European Sites or any other European Site in view of the sites' conservation objectives and that a Stage 2 appropriate assessment is therefore not required in relation to these European Sites.

The Coimisiún considered that an appropriate assessment of the implications of the proposed development for *the Lower River Shannon SAC [002165*] and *the River Shannon and River Fergus Estuaries SPA [004077*] required further investigation.

25.3. **Appropriate Assessment: Stage 2**

The Coimisiún considered the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment of the implications of the proposed development for the Lower River Shannon SAC [002165] and the River Shannon and River Fergus Estuaries SPA [004077].

The Coimisiún considered that the information before it was adequate to allow the carrying out of an Appropriate Assessment as well as the report of the Inspector. In

completing the assessment, the Coimisiún considered the likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects, the mitigation measures which are included as part of the current proposal and the Conservation Objectives for these European Sites. In completing the Appropriate Assessment, the Coimisiún accepted and adopted the Appropriate Assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European Sites, having regard to the sites' Conservation Objectives.

In overall conclusion, the Coimisiún was satisfied that the proposed development would not adversely affect the integrity of the Lower River Shannon SAC [002165] and the River Shannon and River Fergus Estuaries SPA [004077] or any other European Site in view of the sites' Conservation Objectives.

25.4. **Reasoned Conclusion**

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

a) the nature, scale and extent of the proposed development,

b) the Environmental Impact Assessment Report (EIAR) and associated documentation submitted in support of the application,

c) the Screening for Appropriate Assessment and NIS and associated documentation submitted in support of the application,

d) the planning authority reports, and the submissions received from the Observers and Prescribed Bodies, and

e) the Inspector's report.

The Coimisiún 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, residual and cumulative effects of the proposed development on the environment.

The Coimisiún agreed with the examination, set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated

documentation submitted by the applicant and submissions made in the course of the application.

The Coimisiún considered, and agreed with the Inspectors reasoned conclusions, that the main significant direct and indirect effects of the proposed development on the environment are and would be mitigated as follows:

- **Climate**: The proposed development would have a significant positive impact on climate due to the displacing of fossil fuel energy generation and the associated displacement of CO2 and other greenhouse gas emissions. Over the proposed 35-year lifetime of the development, 1,634,117 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation, which is a significant positive, long-term impact on climate due to its contribution to renewable energy targets and the reduction of GHG emissions.
- **Landscape and Visual:** Significant negative visual effects as a result of the proposed windfarm will be experienced by a small number of residential properties within c. 1.0km where these have open views of the proposed turbines. This will reduce to not significant beyond 1km where views will be intermittent, limited or screened. These effects are an inevitable consequence of the introduction of large-scale wind turbines into a flat lowland landscape.
- **Traffic**: Significant negative impacts arise during the construction phase of the development. These impacts include additional traffic movements on the National/local road network, movement of abnormal loads on the N20 resulting in delays and the provision of a construction one way haul route on the L1537. Traffic impacts will be short-term and temporary and will be adequately mitigated during construction by the implementation of measures set out in the EIAR, including the final CEMP and Traffic Management Plan.
- **Biodiversity & Ornithology**: Significant local negative impacts on biodiversity and ornithology will occur due to the removal of linear habitats on site, including existing treelines and hedgerows (1,649m). This will be mitigated through the delivery of measures outlined the BEMP including the new hedgerow planting programme (1,620m), additional hedgerow enhancement (1,359m) and re-vitalisation of existing unmanaged hedgerows (4,074m), as well as the planting

of 0.67 ha of native woodland the within the site. I consider the replacement and management of c. 7,000m of hedgerow will offset of the negative impacts.

- A potential significant impact on bats and the potential loss of any bat roosts can be avoided through the omission of turbine T2.
- Development of turbine T1 c. 170m from the Charleville lagoons poses a significant risk to waterbird species using the lagoons. Significant impacts on these waterbird species can be avoided through the omission of turbine T1.
- **Archaeology and Cultural Heritage:** Ground excavation works during the construction phase will have the potential to result in significant effects on any unrecorded sub-surface archaeological features or deposits that may exist within the footprint of development areas. With the implementation of mitigation measures outlined in Chapter 15 of the EIAR the potential for negative effects on unrecorded archaeological sites during excavations, will be reduced.

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

25.5. **Proper Planning and Sustainable Development**

It is considered that, subject to compliance with the conditions set out below, the proposed development would be in accordance with the Climate Action and Low Carbon Development Act 2015 (as amended), the National Biodiversity Action Plan 2023-2030, the National Planning Framework, the Regional Spatial Economic Strategy for the Southern Region 2020-32 (RSES) and the provisions of the Limerick Development Plan 2022 – 2028 (LCDP 2022) and the Cork County Development Plan 2022-2028.

It would comply with European, National, and Regional renewable energy policies and with the provisions of Local policy, would be consistent with the obligations of the Climate Action Plan 2024 and 2025, would not have an unacceptable impact on the character of the landscape and visual amenities of the area, would not have a significant adverse impact on biodiversity, hydrology/hydrogeology, ecology,

ornithology or archaeological and cultural heritage of the area, would be acceptable in terms of traffic safety and would make a positive contribution to Ireland's renewable energy and security of energy supply requirements. The proposed development would therefore be in accordance with the proper planning and sustainable development of the area.

The Coimisiún noted that the Development Management Standards set out in Section 11.7.2.1 of the Limerick County Development Plan 2022 (LCDP 2022) refers to a lower night-time noise limit, which differs to those stated in the Wind Energy Development Guidelines for Planning Authorities 2006 (WEDG 2006). WEDG 2006 recommends a night-time noise not exceeding 43dB(A). The LCDP 2022 has a lower fixed noise limit for night-time noise not exceeding 38dB(A) L90 or 5dB(A) above background noise levels, whichever is greater.

As such, the proposed development can be considered to comprise a material contravention of the County Development Plan given that the predicted operational noise levels of the proposed development will not accord with the development management standards of the LCDP 2022. However, the noise levels will comply with the night-time limit levels of WEDG 2006 which is the appropriate Section 28 ministerial guidelines for windfarm developments.

The Coimisiún noted that under Section 37G(6) of the Planning and Development Act 2000, as amended, it may, in determining an application under that section, decide to grant a permission even if the proposed development contravenes materially the Development Plan.

The specific circumstances where permission may be granted notwithstanding a material contravention are set out in Section 37G(6) which provides that;

> *'(6) The Board may decide to grant a permission for development, or any part of a development, under this section even if the proposed development, or part thereof, contravenes materially the development plan relating to any area in which it is proposed to situate the development.'*

Subject to the provisions of Section 37G(6), the proposed wind farm development complies with these provisions based on the proposed windfarm development being of strategic and national importance, based on the Climate Plans and Policy Objectives, National and Regional Objectives and on achieving European and Irish

legally binding renewable energy targets including the 9 GW onshore wind target and achieving 80% of electricity demand from renewable sources by 2030.

The Coimisiún also noted that Limerick County Development Plan 2022 supports the development of renewable energy in the County, under renewable energy policy CAF P6;

> *'It is a policy of the Council to support renewable energy commitments outlined in national and regional policy, by facilitating the development and exploitation of a range of renewable energy sources at suitable locations throughout Limerick, where such development does not have a negative impact on the surrounding environment landscape, biodiversity, water quality or local amenities, to ensure the long-term sustainable growth of Limerick.'*

On the basis of the above, and noting the conclusions reached in the Inspectors report that the proposed development accords with the proper planning and sustainable development and that environmental effects would be acceptable, the Coimisiún was satisfied that, notwithstanding the material contravention in relation to noise contained in the LCDP 2022 Development Management Standards, Section 11.7.2.1 of LCDP 2022, it is appropriate for the Coimisiún to grant permission, taking into account the guidance contained in the WEDG 2006 in respect of noise limits and the wider support for wind energy set out in the LCDP 2022 as well as national and regional policy support for onshore wind energy, and the obligations placed on the Coimisiún under Section 15 of the Climate Action and Low Carbon Development Act 2015, as amended. In conclusion on this matter, the Coimisiún was satisfied that the proposed development is in accordance with the proper planning and sustainable development for the area.

25.6. **Recommended Conditions**

1.	The development shall be carried out and completed in accordance with the plans and particulars lodged with the application, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior

	to 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.	Turbines referenced as T1 and T2, together with associated hardstands and access tracks, shall be omitted from the development hereby permitted. For clarity, the permitted wind farm shall relate to seven wind turbines only. Revised drawings showing compliance with these requirements shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. **Reason:** In the interest of protection of the Bird and Bat species/habitat.
3.	The following design requirements shall be adhered to: (a) The wind turbines shall be designed as follows, in accordance with the turbine option assessed in the Environmental Impact Assessment Report and Natura Impact Statement, together with application documentation; • Turbine Tip Height – 170m • Hub Height – 95m • Rotor Diameter – 150m (b) The wind turbines, including masts and blades, shall be finished externally in a light grey colour to be agreed in writing with the planning authority prior to commencement of development. (c) Cables within the site shall be laid underground. (d) The wind turbines shall be geared to ensure that the blades rotate in the same direction. (e) Transformers associated with each individual turbine and mast shall be located either within the turbine mast structure or at ground level beside the mast. **Reason:** In the interest of visual amenity.

4.	The period during which the development hereby permitted may be carried out shall be ten years from the date of this Order. **Reason:** Having regard to the nature and extent of the proposed development, the Coimisiún considered it appropriate to specify a period of validity of this permission in excess of five years.
5.	This permission shall not be construed as any form of consent or agreement to a connection to the national grid or to the routing or nature of any such connection. **Reason:** In the interest of clarity.
6.	(a) The permission shall be for a period of 35 years from the date of the first commissioning of the windfarm save for the 110kV Substation and underground cable connecting to the National Grid. All structures, including foundations, shall then be removed and the site reinstated unless, prior to the end of that period, planning permission shall have been granted for their retention for a further period. (b) Prior to the commencement of development, a detailed Site Restoration Plan providing for the removal of the turbines and all ancillary structures, and a timescale for its implementation, shall be submitted to and agreed in writing with the planning authority. (c) On full or partial decommissioning or if the wind farm ceases operation for a period of more than one year the windfarm, the turbines and all ancillary structures shall be dismantled and removed permanently from the site. The site shall be restored in accordance with the agreed Site Restoration Plan and all decommissioned structures shall be removed from the site within 12 months of decommissioning. **Reason:** To enable the planning authority to review the operation of the windfarm over the stated time period, having regard to the circumstances then prevailing, and in the interest of landscape restoration upon cessation of the project.
7.	The mitigation measures contained in the submitted Environmental Impact Assessment Report (EIAR) shall be implemented.

	Reason: To protect the environment.
8.	Prior to commencement of development, the developer shall submit to the planning authority a complete schedule of all mitigation, monitoring and enhancement measures. This shall identify who is responsible for the implementation and monitoring of these measures and timescales for implementation and monitoring (where applicable). The schedule of mitigation measures shall include the following additional requirements for agreement with the planning authority: **Roads** (a) Drawings and supporting information shall be submitted to and agreed in writing with the Planning Authority prior to the commencement of the development as follows; - **Site Entrance no 1 -** The following shall be submitted in plan form and to scale, a drawing demonstrating full sightlines and stopping sight distances of 215m at Site 1 Entrance off the N20. Details of drawings and photographs to be agreed with Planning Authority. - **Site Entrance no 2 -** The following shall be submitted in plan form and to scale, a drawing demonstrating full sightlines, stopping sight distances and forward visibility of 90m at Site 2 Entrance off L1537. Details of drawings to be agreed with Planning Authority. - **Road Safety Audit Stage 1, 2 & 3 –** Road safety audit stage 1,2 & 3 to be submitted and agreed with the Planning Authority for site entrance no 2. - **Condition surveys –** - (a) The developer shall submit a pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works. Details to be with the Planning Authority. - (b) A pre-condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement of the Planning Authority including all bridges. - (c) A post condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement of the Planning Authority including all bridges shall be submitted upon completion. **Bat Carcass Search Protocol** - A site specific bat carcass search schedule and protocol in line with the current NIAE guidelines shall be submitted and agreed with Planning Authority.

	Inland Fisheries Ireland Requirements - In relation to the clear-span bridges proposed, the following measures are required; o Abutments are set back at least 5m from the top of the bank. o Edging is provided on the bridge deck to prevent direct loss of material to the river below. o Bridge drainage is away from the river and passes through a treatment system before returning to the river. o A method statement is agreed in advance of works with IFI. **Barn Owl Boxes** - Barn owl boxes shall be provided onsite and the location and number to be agreed with the Planning Authority. **Reason**: In the interest of road safety and to protect biodiversity, the environment and the integrity of European sites.
9.	Prior to the commencement of any works associated with the development hereby permitted, the developer shall submit a Construction Traffic Management Plan (CTMP) for the construction phase of the development for the written agreement of the planning authority. The TMP shall incorporate details of the road network to be used by construction traffic including oversized loads, detailed proposals for the protection of bridges, culverts and other structures to be traversed, as may be required. The agreed CTMP shall be implemented in full during the course of construction of the development. The plan shall also contain details of how the developer intends to engage with relevant parties (County Councils, PPP companies etc.) and notify the local community in advance of the delivery of oversized loads. Any proposed works to the national road network to facilitate turbine delivery shall comply with the requirements of TII. **Reason:** In the interest of traffic safety and convenience.
10.	The mitigation measures contained in the submitted Natura Impact Statement (NIS) shall be implemented. **Reason:** To protect the integrity of European sites.

11.	The applicant shall appoint a Community Liaison Officer for all stages of the development who shall be the first point of contact for residents and be responsible for monitoring and reporting of complaints, maintaining complaints register, addressing complaints and for discharging information in relation to the development to residents. **Reason:** In the interest of amenity and orderly development.
12.	Noise levels generated by the windfarm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise sensitive location the windfarm following commissioning by itself shall not exceed: • For the daytime period 0700 hours to 2300 hours, in quiet environments, where background noise is less than 30dB(A)L90 T10, a maximum noise level of 40dB(A)L90 T10, • For daytime periods, 0700 hours to 2300 hours, where the background noise level exceeds 30dB(A)L90 T10, the greater of 45dB(A)L90 T10, or 5dB(A) above background levels, • For the nighttime period 2300 hours to 0700 hours, for all noise environments, 43dB(A)L90 T10. Prior to the commissioning of the windfarm, the developer shall submit and agree in writing with the planning authority a Noise Compliance Monitoring Programme (NCMP) for the operational windfarm. The NCMP shall include a detailed methodology for all sound measurements, including frequency of monitoring and recording of results, which shall be made publicly available. The results of the initial noise compliance monitoring to be submitted to and agreed in writing with the planning authority within 12 months of commissioning of the wind farm. The NCMP shall be fully implemented during the operation of the windfarm. Reason: In order to protect the amenities of noise sensitive properties in the vicinity of the development.
13.	(a) Appropriate software shall be employed on each of the turbines to ensure that there will be no shadow flicker at any existing nearby

	dwelling. Turbine shutdown shall be undertaken by the wind energy developer or operator in order to eliminate the potential for shadow flicker. (b) A report shall be prepared by a suitably qualified person in accordance with the requirements of the planning authority indicating compliance with the above shadow flicker requirements at dwellings. Within 12 months of the commissioning of the wind farm, this report shall be prepared and submitted to, and agreed in writing with, the planning authority. The developer shall outline proposed measures to address any recorded non-compliances, controlling turbine rotation if necessary. A similar report may be requested by the planning authority at reasonable intervals thereafter. **Reason:** In the interest of residential amenity
14.	Prior to the commissioning of the windfarm, the developer shall submit for the written agreement of the planning authority details of actions to be taken by the developer in the event of the proposed development causing interference with telecommunication signals or television reception. Such actions shall be completed to minimise interference with telecommunication signals and shall be carried out to the written satisfaction of the planning authority at the developer's expense. **Reason:** In the interest of protecting telecommunication signals and residential amenity.
15.	The construction of the development shall be managed in accordance with a Construction Management Plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall provide details of intended construction practice for the development, including: a) Location of the site and materials compound(s) including area(s) identified for the storage of construction refuse; b) Location of areas for construction site offices and staff facilities;

	c) Details of site security fencing and hoardings; d) Details of on-site car parking facilities for site workers during the course of construction; e) Details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site; f) Measures to obviate queuing of construction traffic on the adjoining road network; g) Measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network; h) Alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath during the course of site development works; i) Details of a local community feedback mechanism, where feedback including complaints are received and acted upon by a designated Community Liaison Officer; j) Details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels; k) Details of all services and utilities along the grid connection route/construction haul route and methodology for crossing/diversions. l) Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater; m) Off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated soil; n) Means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local surface water sewers or drains;

	o) Works to be carried out in accordance with Inland Fisheries Ireland 'Guidelines on protection of fisheries during construction works in and adjacent to waters'; p) A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be available for inspection by the planning authority, with monitoring on a daily basis of all watercourses in or adjacent to works areas; q) Measures to be implemented to minimise the potential for increased soil/peat stability and erosion of soils, with monitoring of the same. **Reason**: In the interest of amenities, public health and safety and environmental protection.
16.	Site development and building works shall be carried out between the hours of 07.00 to 19.00 Mondays to Fridays inclusive, between 08.00 to 14.00 on Saturdays and not at all on Sundays and public holidays. Deviation from these times shall only be allowed in exceptional circumstances where prior written agreement has been received from the planning authority and in accordance with measures outlined in the EIAR. **Reason**: To safeguard the amenity of property in the vicinity.
17.	Drainage arrangements including the attenuation and disposal of surface water shall comply with the requirements of the relevant Section of the Council for such works and services. **Reason**: In the interest of public health and surface water management.
18.	All development shall be carried out in compliance with Uisce Éireann's Standard Details and Codes of Practice. Note that Uisce Éireann does not permit Build Over of its assets. Where the applicant proposes works or build over existing water or wastewater services, the applicant shall have received a written Confirmation of Feasibility (COF) of Diversion(s) from Uisce Éireann prior to any works commencing. **Reason:** To protect the public water and wastewater facilities.

19.	a) Prior to commencement of development and following consultation with the Department of Defence and Irish Aviation Authority, the developer shall submit for written agreement of the planning authority, details of an obstacle warning light scheme which can be visible to night vision equipment. b) The developer shall inform Shannon Airport Authority, IAA and AirNav Ireland of its intention to commence crane operations with a minimum of 30 days prior notification of their erection. c) Prior to commissioning of the turbines, the developer shall inform the planning authority and the Irish Aviation Authority of the co-ordinates of the as constructed positions of the turbines and the highest point of the turbines (to the top of the blade spin). **Reason**: In the interest of air traffic safety.
20.	**Archaeological Requirements:** 1. All mitigation measures in relation to archaeology and cultural heritage as set out in the in Chapter 15 of the EIAR (John Cronin and Associates; dated August 2025) shall be implemented in full, except as may otherwise be required in order to comply with the conditions of this Order. 2. The developer shall engage a suitably qualified licenced eligible archaeologist (licensed under the National Monuments Acts) to carry out pre-development archaeological geophysical survey and pre-development archaeological test excavations in areas of proposed ground disturbance and to submit an archaeological impact assessment report for the written agreement of the planning authority, following consultation with the National Monuments Service, in advance of any site preparation works or groundworks, including site investigation works/topsoil stripping/site clearance and/or construction works. a) The Archaeological Geophysical Survey must be carried out under licence or consent from the National Monuments Service

	and in accordance with an approved method statement. Having completed the work, the archaeologist shall submit a written report to the National Monuments Service and the Planning Authority describing the results of the Archaeological Geophysical Survey. b) The archaeologist shall liaise with the National Monuments Service to establish, based on the results the Archaeological Geophysical Survey, the appropriate scope of the Archaeological Test Excavation to adequately characterise the character and extent of any potential sub-surface archaeological material within the development site. c) The report on the Archaeological Test Excavation shall include an archaeological impact statement and mitigation strategy. Where archaeological material is shown to be present, avoidance, preservation in-situ, preservation by record (archaeological excavation) and/or monitoring may be required. d) Any further archaeological mitigation requirements specified by the planning authority, following consultation with the National Monuments Service, shall be complied with by the developer. e) No site preparation and/or construction works shall be carried out on site until the archaeologist's report has been submitted to and approval to proceed is agreed in writing with the planning authority. 3. In advance of the commencement of any construction works, the developer shall engage a suitably qualified archaeologist to carry out Full Archaeological Excavation (licensed under the National Monuments Acts) of newly identified archaeological sites at the sub-station, T06 and spoil storage at T09. a) The Full Archaeological Excavation shall be carried out to according to Best Archaeological Practice and in accordance with an approved Method Statement that shall incorporate a strategy

	for environmental sampling, finds retrieval and conservation and subsequent publication or other suitable dissemination of results. b) If significant archaeological features are discovered during the course of the Full Archaeological Excavation, work on site shall stop pending a decision of the planning authority, in consultation with the National Monuments Service, regarding appropriate additional mitigation measures, which may include preservation in-situ or full archaeological excavation. Any additional archaeological mitigation requirements specified by the planning authority, following consultation with the National Monuments Service, shall be complied with by the developer. c) No construction works shall be carried out on site until a Preliminary Excavation Report on the Full Archaeological Excavation has been submitted to the National Monuments Service and the Planning Authority and approval to proceed is agreed in writing. d) The developer shall ensure that any necessary Post-Excavation Analysis, as set out in the Preliminary Excavation Report including (but not limited to) specialist analysis of finds and samples, scientific dating and conservation of artefacts is completed. 4. A suitably qualified archaeologist shall be retained to advise on and establish appropriate Exclusion Zones (25m) around the Heritage Assets located within the development site (as identified in Chapter 15 of the EIAR or by any subsequent investigations associated with the project). a) Exclusion Zones shall be fenced off or appropriately demarcated for the duration of construction works in the vicinity of the monuments. The location and extent of each Exclusion Zone and the appropriate methodology for fencing off or demarcating at each location shall be agreed in advance with the National Monuments Service and the planning authority.

	b) No groundworks of any kind (including but not limited to advance geotechnical site investigations) and no machinery, storage of materials or any other activity related to construction will be permitted within Exclusion Zones. 5. The Construction Environment Management Plan (CEMP) shall include the location of any and all archaeological or cultural heritage constraints relevant to the proposed development as set out in Chapter 15 of the EIAR and by any subsequent archaeological investigations associated with the project. The CEMP shall clearly describe all identified likely archaeological impacts, both direct and indirect, and all mitigation measures to be employed to protect the archaeological or cultural heritage environment during all phases of site preparation and construction activity. 6. The applicant shall retain the services of a suitably qualified archaeologist to advise on an archaeological mitigation plan for decommissioning of the development, to include mitigation measures for the removal of the turbines and the protection of any archaeological sites and monuments that are in situ at the site. The Decommissioning Plan shall be updated to include the location of any archaeological or cultural heritage constraints as set out in Chapter 15 of the EIAR and by any subsequent archaeological investigations associated with the project. It shall clearly describe all identified likely impacts from decommissioning, both direct and indirect and all mitigation measures to be employed to protect the archaeological or cultural heritage environment during decommissioning works. 7. The planning authority and the National Monuments Service shall be furnished with a final archaeological report describing the results of all archaeological monitoring and any archaeological investigative work/excavation required, following the completion of all archaeological work on site and any necessary post excavation specialist analysis. All resulting and associated archaeological costs shall be borne by the developer.

	8. Prior to the commencement of development, details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, RPS Reg. No. 6257) shall be submitted to the local authority for agreement. **Reason:** To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest
21.	The Community Benefit scheme shall be adhered to for the life of the windfarm. The scheme shall be administered in accordance with the RESS Community Benefit Fund Good Practice Principles, 2021, prepared by the Department of the Environment, Climate and Communications. In the event that the developer does not utilise the government's Renewable Energy Support Scheme (RESS), prior to the commencement of development, a community gain proposal shall be submitted to the planning authority for written agreement. In default of agreement, the matter shall be referred to An Coimisiún Pleanála for determination. **Reason:** To ensure that the community living in proximity to the wind farm, benefits from it.
22.	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the planning authority to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be referred to An Coimisiún Pleanála for determination. **Reason:** In the interest of traffic safety and the proper planning and sustainable development of the area.
23.	Prior to commencement of development, the developer shall lodge with the relevant Planning Authority a cash deposit, a bond of an insurance company,

	or such other security as may be acceptable to the relevant Planning Authority, to secure the satisfactory reinstatement of the site upon cessation of the project, coupled with an agreement empowering the relevant Planning Authority to apply such security or part thereof to such reinstatement. The form and amount of the security shall be as agreed between the relevant Planning Authority and the developer or, in default of agreement, shall be referred to An Coimisiún Pleanála for determination. **Reason:** To ensure the satisfactory reinstatement of the site
24.	The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under Section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to 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 Coimisiún Pleanála to determine the proper application of the terms of the Scheme. **Reason:** It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under Section 48 of the Act be applied to the permission.

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

Laura Finn
Senior Planning Inspector

7th August 2026

26.0 **Appendix 1 – AA Screening Determination (Stage 1)**

Screening for Appropriate Assessment
Screening Determination

Step 1: Description of the project

I have considered the proposed windfarm comprising of 9 no. wind turbines with a tip height of 170m, a rotor diameter of 150m and a hub height of 95m, a substation and associated infrastructure and works in light of the requirements of S177U of the Planning and Development Act 2000 as amended.

The Windfarm site lies in an agricultural setting c. 2 km north of Charleville, Co. Cork, and just over 2 km south of the village of Bruree in south Co. Limerick just north of the Cork-Limerick border. The site is situated within the townlands of Garrane and Garrose in the north and Ballynagoul and Creggane in the south. The Redline Boundary of the site covers a total area of c. 158.75 ha. The site is accessed via the N20 to the west and the L1537 to the east.

The Rathgoggan North Wastewater Treatment Plant lies immediately to the south of the site. This WwTP discharges treated effluent into the River Maigue, just north of its confluence with the Loobagh River. This facility includes various ponds or lagoons, which are nationally important for waterbirds (known as Charleville Lagoons, Crowe 2005).

The nearest European Protected Sites (7 no. in total) include the following;

Special Areas of Conservation (SAC)

1. Blackwater River (Cork/Waterford) SAC [002170];
2. Ballyhoura Mountains SAC [002036];
3. Tory Hill SAC [000439];
4. Glen Bog SAC [001430];
5. The Lower River Shannon SAC [002165]

Special Protection Areas (SPA)

1. Kilcolman Bog SPA [004095];
2. River Shannon and River Fergus Estuaries SPA [004077].

The application is seeking a ten-year permission and 35-year operational life from the date of commissioning. The proposed development includes for an onsite AIS 110kV electricity substation and underground grid connection cabling. The Grid Connection comprises underground ducting from the on-site 110kV Substation to the lattice end masts with a 'loop in' Grid Connection to the existing 110kV OHL between Charleville substation and Killonan substation.
It is proposed that the turbine nacelles, tower hubs and rotor blades will be landed at the port of Foynes, County Limerick. A TDR option from the Port of Galway was also assessed for the delivery of turbine blades only, which includes temporary accommodation works at 11 no. locations.
There are 2 no. watercourse crossings required to facilitate access to proposed turbines T7 and T3. Water Crossing 1 (WC01) is located on the Maigue River on the access track northwest of T7 and Water Crossing 2 (WC02) is located on the Charleville (Stream) on the access track east of T3. Both crossings will be a clear span bridge type construction.

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

Construction and Decommissioning Impacts

A. Impact on Water Quality - A potential pathway for indirect effect is via deterioration of water quality of SCI supporting habitats as a result of construction activities associated with the proposed development. Such impacts include pollution of ground and surface waters as a result of sedimentation, cementitious materials and hydrocarbons.

- Such pollution events have the potential to result in deterioration of water quality thus affecting water quality and associated aquatic life including SCI species and habitats.

Operational Impacts

- **B. Impact on Water Quality** – Disturbed soil surfaces following the construction works, including from the spoil storage areas could generate suspended solids during wet periods and during minor maintenance works, which could flow in run-off to drains and ultimately local watercourses, potentially impacting on water quality and aquatic life including SCI species and habitats.

Step 3: Examination of European Sites at risk and likely significant effects on the European site(s) 'alone'

With reference to the potential impact mechanisms from the proposal, identify the European site(s) and qualifying features potentially at risk. Examine Site specific conservation objectives and relevant and supporting documents.

Table 1. European Sites at Risk from Impacts of the Proposed Project

1. Blackwater River (Cork/Waterford) SAC [002170]

European Site and qualifying features	**Conservation objectives:**	**Could the conservation objectives be undermined (Y/N)?**	
		Effect A – Impact on Surface Water (Construction & Decommissioning)	**Effect B – Impact on Water Quality (Operation)**
Blackwater River (Cork/Waterford) SAC | National Parks & Wildlife Service – dated 31 July 2012, V1	• To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**		
The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. In times of heavy rainfall the levels can fluctuate widely by more than 12 feet on the gauge at Careysville. The peaty nature of the terrain in the upper reaches and of some of the tributaries gives the water a pronounced dark colour. 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 portions of the Blackwater and its tributaries that fall within this SAC flow through the counties of Kerry, Cork, Limerick, Tipperary and Waterford.			
	1. Estuaries [1130] **(M)**	**N**	**N**

Blackwater River (Cork/Waterford) SAC [002170] Project site located c. 6.4km to the north of SAC. No hydrological link between the SAC and the windfarm site. No ecological link between the SAC and the windfarm site **SCREENED OUT – NO PATHWAY FOR LIKELY SIGNIFICANT EFFECTS IDENTIFIED**	2. Mudflats and sandflats not covered by seawater at low tide [1140]] **(M)**	**N**	**N**
	3. Perennial vegetation of stony banks [1220] **(M)**	**N**	**N**
	4. Salicornia and other annuals colonising mud and sand [1310] **(M)**	**N**	**N**
	5. Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] **(R)**	**N**	**N**
	6. Mediterranean salt meadows (Juncetalia maritimi) [1410] **(M)**	**N**	**N**
	7. Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] **(M)**	**N**	**N**
	8. Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] **(R)**	**N**	**N**
	9. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **(R)**	**N**	**N**
	10. Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] **(R)**	**N**	**N**
	11. Austropotamobius pallipes (White-clawed Crayfish) [1092] **(M)**	**N**	**N**
	12. Petromyzon marinus (Sea Lamprey) [1095] **(R)**	**N**	**N**
	13. Lampetra planeri (Brook Lamprey) [1096] **(M)**	**N**	**N**
	14. Lampetra fluviatilis (River Lamprey) [1099] **(M)**	**N**	**N**
	15. Alosa fallax fallax (Twaite Shad) [1103] **(R)**	**N**	**N**
	16. Salmo salar (Salmon) [1106] **(M)**	**N**	**N**
	17. Lutra lutra (Otter) [1355] **(R)**	**N**	**N**
	18. Vandenboschia speciosa (Killarney Fern) [6985] **(M)**	**N**	**N**

2. Ballyhoura Mountains SAC [002036]			
European Site and qualifying features Ballyhoura Mountains SAC | National Parks & Wildlife Service – dated 18 August 2016, V1	**Conservation objectives:** • To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Could the conservation objectives be undermined (Y/N)?**	
		Effect A – Impact on Surface Water (Construction & Decommissioning)	**Effect B – Impact on Water Quality (Operation)**
The Ballyhoura Mountains straddle the border between counties Limerick and Cork and are situated about 10 km south of Kilmallock. The portion of the site within Co. Cork side is largely afforested with commercial conifer plantations, while there are still extensive areas in Co. Limerick that remain as open heathland and blanket bog. The site includes the summits of Seefin (528 m) and Carron Mountains (approx. 440 m) and descends to lower			

altitudes (270 m) at Glenosheen. The SAC is protected for its Wet Heath, Dry Heath and Blanket Bogs (Active).			
Ballyhoura Mountains SAC [002036] Project site located c. 9km to the northwest of SAC. No hydrological link between the SAC and the windfarm site. No ecological link between the SAC and the windfarm site. **SCREENED OUT – NO PATHWAY FOR LIKELY SIGNIFICANT EFFECTS IDENTIFIED**	1. Northern Atlantic wet heaths with Erica tetralix [4010] **(R)**	**N**	**N**
	2. European dry heaths [4030] **(R)**	**N**	**N**
	3. Blanket bogs (* if active bog) [7130] **(R)**	**N**	**N**

3. Tory Hill SAC [000439]			
European Site and qualifying features Tory Hill SAC | National Parks & Wildlife Service – dated 03 August 2018, V1	**Conservation objectives:** • To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Could the conservation objectives be undermined (Y/N)?**	
		Effect A – Impact on Surface Water (Construction & Decommissioning)	**Effect B – Impact on Water Quality (Operation)**
Tory Hill is an isolated, wooded limestone hill situated about 2 km north-east of Croom, Co. Limerick. It represents an important feature of the surrounding countryside and is a prime example of a limestone hill set amongst a region of volcanic intrusions of differing shape and geology. The hill is of geomorphological interest for the end-moraine, left by retreating ice, on its northern flanks and for ice marks that are clearly visible on the solid rock. The site includes Lough Nagirra and its associated wetland vegetation, located to the north and north-east of Tory Hill. The SAC is protected for its Orchid-rich Calcareous Grassland, Cladium and Alkaline Fens.			
Tory Hill SAC [000439] Project site located c. 11km to the north of SAC. No hydrological link between the SAC and the windfarm site. No ecological link between the SAC and the windfarm site.	1. Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] **(R)**	**N**	**N**
	2. Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210 **(M)**	**N**	**N**
	3. Alkaline Fens [7230] **(R)**	**N**	**N**

SCREENED OUT – NO PATHWAY FOR LIKELY SIGNIFICANT EFFECTS IDENTIFIED			

4. Glen Bog SAC [001430]			
European Site and qualifying features Glen Bog SAC | National Parks & Wildlife Service – dated 28 November 2017, V1	**Conservation objectives:** • To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Could the conservation objectives be undermined (Y/N)?** **Effect A – Impact on Surface Water (Construction & Decommissioning)**	**Effect B – Impact on Water Quality (Operation)**
Glen Bog is situated 3 km north-east of Bruff, Co. Limerick and comprises a wet woodland occupying the site of a former lake, as well as the summit and southern side of Knockderc, a low hill rising to 143 m. Knockderc is composed of an igneous intrusive porphyritic rock while the rest of the site is underlain by Lower Carboniferous limestone. The SAC is protected for its Alluvial Forests.			
Glen Bog SAC [001430] Project site located c. 14.7km southwest of SAC. No hydrological link between the SAC and the windfarm site. No ecological link between the SAC and the windfarm site. **SCREENED OUT – NO PATHWAY FOR LIKELY SIGNIFICANT EFFECTS IDENTIFIED**	1. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **(M)**	**N**	**N**

5. The Lower River Shannon SAC [002165]		
European Site and qualifying features	**Conservation objectives:** • To maintain favourable conservation condition **M**	**Could the conservation objectives be undermined (Y/N)?**

Lower River Shannon SAC | National Parks & Wildlife Service – dated 07 August 2012, V1	• To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Effect A – Impact on Surface Water (Construction & Decommissioning)**	**Effect B – Impact on Water Quality (Operation)**
This very large site stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarriff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.			
The Lower River Shannon SAC [002165] Project site located c. 20km to the south / southeast of the SAC. Hydrological and Ecological link between the SAC and the windfarm site through the River Maigue system. The proposed project drains to the River Maigue, a main tributary of the River Shannon. The SAC extends to the N69 Ferry Bridge where the River Maigue is tidal. **SCREENED IN – PATHWAY FOR LIKELY SIGNIFCANT**	1. Sandbanks which are slightly covered by sea water all the time [1110] **(M)**	**N**	**N**
	2. Estuaries [1130] **(M)**	**Y**	**Y**
	3. Mudflats and sandflats not covered by seawater at low tide [1140] **(M)**	**Y**	**Y**
	4. Coastal lagoons [1150] **(M)**	**Y**	**Y**
	5. Large shallow inlets and bays [1160] **(M)**	**Y**	**Y**
	6. Reefs [1170] **(M)**	**Y**	**Y**
	7. Perennial vegetation of stony banks [1220] **(M)**	**N**	**N**
	8. Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] **(M)**	**N**	**N**
	9. Salicornia and other annuals colonising mud and sand [1310] **(M)**	**N**	**N**
	10. Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] **(M)**	**N**	**N**
	11. Mediterranean salt meadows (Juncetalia maritimi) [1410] **(R)**	**N**	**N**
	12. Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] **(M)**	**N**	**N**
	13. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] **(M)**	**N**	**N**
	14. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **(R)**	**N**	**N**
	15. Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] **(R)**	**Y**	**Y**
	16. Petromyzon marinus (Sea Lamprey) [1095] **(R)**	**Y**	**Y**
	17. Lampetra planeri (Brook Lamprey) [1096] **(R)**	**Y**	**Y**
	18. Lampetra fluviatilis (River Lamprey) [1099] **(R)**	**Y**	**Y**
	19. Salmo salar (Salmon) [1106] **(R)**	**Y**	**Y**

EFFECTS IDENTIFIED	20. Tursiops truncatus (Common Bottlenose Dolphin) [1349] **(M)**	**Y**	**Y**
	21. Lutra lutra (Otter) [1355] **(R)**	**Y**	**Y**

6. Kilcolman Bog SPA [004095]			
European Site and qualifying features Kilcolman Bog SPA | National Parks & Wildlife Service – dated 24 January 2025, V1	**Conservation objectives:** • To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Could the conservation objectives be undermined (Y/N)?**	
		Effect A – Impact on Surface Water (Construction & Decommissioning)	**Effect B – Impact on Water Quality (Operation)**
Kilcolman Bog is situated on the southern foothills of the Ballyhoura Mountains in Co. Cork. The site comprises a quaking fen fed by calcareous groundwater, with areas of reed swamp, freshwater marsh and wet grassland. There is a small permanent lake but in winter a large, flooded area is usual. This site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation for the following species: Whooper Swan, Teal and Shoveler. Kilcolman Bog is an important site for wintering waterfowl. Kilcolman Bog is a privately-owned Nature Reserve and Wildfowl Sanctuary that has been managed for conservation since the 1970s. Management includes control of the water levels and supplementary feeding of the waterfowl during hard weather. The bird populations have been intensively monitored since the 1970s.			
Kilcolman Bog SPA [004095] Project site located c. 14.1km to the north / northwest of the SPA. No ecological link between the SPA and the windfarm site. The distance between the Site and the SPA is beyond the normal foraging distance of less than 5 km for whooper swan (SNH 2016) and also outside the range of the populations of teal and shoveler associated with the SPA thus, it can be concluded with a high degree of certainty that the proposed wind farm site is well outside the range of the population of protected bird species associated with the SPA.	1. Whooper Swan (Cygnus cygnus) [A038] **(R)** 2. Teal (Anas crecca) [A052] **(R)** 3. Shoveler (Spatula clypeata) [A857] **(R)** 4. Wetland and Waterbirds [A999] **(M)**	**N**	**N**

Kilcolman Bog is situated within a different water catchment from the Project area, there is no hydrological connectivity. There is no hydrological link between the SAC and the windfarm site. **SCREENED OUT – NO PATHWAY FOR LIKELY SIGNIFICANT EFFECTS IDENTIFIED**			

7. River Shannon and River Fergus Estuaries SPA [004077]			
European Site and qualifying features River Shannon and River Fergus Estuaries SPA | National Parks & Wildlife Service - dated 17 September 2012, v 1.0	**Conservation objectives:** • To maintain favourable conservation condition **M** • To restore favourable conservation condition **R** • To maintain or restore favourable conservation condition **M R**	**Could the conservation objectives be undermined (Y/N)?**	
		Effect A – Impact on Surface Water (Construction & Decommissioning)	**Effect B – Impact on Water Quality (Operation)**
The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. The site has vast expanses of intertidal flats which contain a diverse macro invertebrate community, e.g. Macoma-Scrobicularia-Nereis, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Whooper Swan, Light bellied Brent Goose, Shelduck, Wigeon, Teal, Pintail, Shoveler, Scaup, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank and Black-headed Gull. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.			
River Shannon and River Fergus Estuaries SPA [004077] Project site located c. 25km to the south / southeast of the SPA. Hydrological and Ecological link	1. Cormorant (Phalacrocorax carbo) [A017] **(M)** 2. Whooper Swan (Cygnus cygnus) [A038] **(M)** 3. Light-bellied Brent Goose (Branta bernicla hrota) [A046] **(M)** 4. Shelduck (Tadorna tadorna) [A048] **(M)** 5. Teal (Anas crecca) [A052] **(M)** 6. Pintail (Anas acuta) [A054] **(M)** 7. Scaup (Aythya marila) [A062] **(M)**	**Y**	**Y**

between the SPA and the windfarm site through the River Maigue system. The project drains to the River Maigue, a main tributary of the River Shannon. The SPA extends to the Ferry Bridge along the N69, where the River Maigue is tidal. Hence, the proposed Project Site is hydrologically linked with the SPA via the River Maigue. **SCREENED IN – PATHWAY FOR LIKELY SIGNIFCANT EFFECTS IDENTIFIED**	8. Ringed Plover (Charadrius hiaticula) [A137] **(M)** 9. Golden Plover (Pluvialis apricaria) [A140] **(M)** 10. Grey Plover (Pluvialis squatarola) [A141] **(M)** 11. Lapwing (Vanellus vanellus) [A142] **(M)** 12. Knot (Calidris canutus) [A143] **(M)** 13. Dunlin (Calidris alpina) [A149] **(M)** 14. Black-tailed Godwit (Limosa limosa) [A156] **(M)** 15. Bar-tailed Godwit (Limosa lapponica)[A157] **(M)** 16. Curlew (Numenius arquata) [A160] **(M)** 17. Redshank (Tringa totanus) [A162] **(M)** 18. Greenshank (Tringa nebularia) [A164] 19. Black-headed Gull (Chroicocephalus ridibundus) [A179] **(M)** 20. Wigeon (Mareca penelope) [A855] **(M)** 21. Shoveler (Spatula clypeata) [A857] **(M)** 22. Wetland and Waterbirds [A999] **(M)**		

Of the 7 no. sites identified and the 2 no. sites which have been screened-in for further examination, I conclude that the proposed development would have a likely significant effect 'alone' on the qualifying interests of the following sites;

1. The Lower River Shannon SAC [002165]
2. River Shannon and River Fergus Estuaries SPA [004077]

There is a hydrological connection via the River Maigue between the Garrane Windfarm Site and the Shannon Estuary system, and hence the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. Construction and decommissioning phase activities, and to a lesser extent operational phase activities, have the potential to cause significant effects to receiving watercourses and associated aquatic life and ultimately relevant qualifying interests (QIs) and Special Conservation Interests (SCIs) of the protected sites.

Potential impacts include the following;

Construction and Decommissioning Impacts

A. Impact on Water Quality - A potential pathway for indirect effect is via deterioration of water quality of SCI supporting habitats as a result of construction activities associated with the proposed development. Such impacts include pollution of ground and surface waters as a result of sedimentation, cementitious materials and hydrocarbons.
Such pollution events have the potential to result in deterioration of water quality thus affecting water quality and associated aquatic life including SCI species and habitats.

Operational Impacts

B. Impact on Water Quality – Disturbed soil surfaces following the construction works, including from the spoil storage areas could generate suspended solids during wet periods and during minor maintenance works, which could flow in run-off to drains and ultimately local

watercourses, potentially impacting on water quality and aquatic life including SCI species and habitats.

An appropriate assessment is required on the basis of the effects of the project 'alone'. Further assessment in-combination with other plans and projects is not required at this time. **Proceed to AA.**

Step 5: Where relevant, likely significant effects on the European site(s) 'in-combination with other plans and projects'

There are no proposals within plans that could act in-combination with the proposed development.

Overall Conclusion- Screening Determination

In accordance with Section 177U(4) of the Planning and Development Act 2000 (as amended) and on the basis of objective information, I conclude that the proposed development is likely to have a significant effect on the aquatic habitat of the following sites 'alone' in respect of effects associated with construction on the following SACs/SPAs;

1. The Lower River Shannon SAC [002165]
2. River Shannon and River Fergus Estuaries SPA [004077]

Having regard to the qualifying interests for which the sites were designated and in the absence of connections to and distance between the application site, the following European sites have been screened out for further consideration;

1. Blackwater River (Cork/Waterford) SAC [002170];
2. Ballyhoura Mountains SAC [002036];
3. Tory Hill SAC [000439];
4. Glen Bog SAC [001430];
5. Kilcolman Bog SPA [004095];

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

This conclusion is based on:

- Objective information presented in the Screening Report,
- Standard pollution controls that would be employed regardless of proximity to a European site and effectiveness of same,
- Distance from European Sites,
- The absence of meaningful pathway to European sites,
- Impacts predicted would not affect the conservation objectives.

No measures intended to avoid or reduce harmful effects on European sites were taken into account in reaching this conclusion.

27.0 Appendix 2 – Appropriate Assessment (Stage 2)

27.1. Introduction (Stage 2 Assessment)

The following is an Appropriate Assessment based on the conclusion of the AA Screening in Appendix 1 of this report, that the proposed development is likely to have a significant effect on 2 no. European Designated sites which contain protected birds, otter and habitats including the Lower River Shannon SAC [002165] and the River Shannon and River Fergus Estuaries SPA [004077] 'alone' in respect of effects associated with construction, decommissioning and operation, specifically the risk of suspended solids and other pollutants being released into the watercourses, which are hydrologically linked to the European Sites.

The following section provides a summary matrix for the 2 no. European Sites identified, providing details of location of the SAC or SPA site in relation to the proposed development site, a description of the European Site from the site synopsis on the NPWS website, identification of the relevant qualifying features that could be impacted from each of the European Sites, the potential impacts on the qualifying interests and whether mitigation measures are required to protect the European Sites.

27.2. Issues Raised by Observers/Prescribed Parties

27.2.1. DAU - Appropriate Assessment

Connectivity – The DAU notes that in assessing ecological connectivity with designated sites, the potential for bird movements through the proposed development site between the Charleville Lagoons and the River Shannon and River Fergus Estuaries SPA has been discounted due to the distance between the sites.

However, this assessment only takes local bird movements into account; the potential for SCI birds on passage to and from the SPA to use the Charleville Lagoons has not been considered. For example, Shoveler numbers at the Charleville Lagoons (for which species numbers in the lagoons are of national importance) peak in October and early spring indicating that there is some use of the lagoons by birds on passage; whereas Shoveler numbers at the Shannon and Fergus Estuaries SPA peak in winter. This aspect of ecological connectivity between the Charleville Lagoons and the Shannon and Fergus Estuaries SPA needs to be explored more fully.

27.2.2. Applicants Response to DAU

The applicant has responded to the DAU concerns in Section 5. (Association with designated sites) of their response to submissions. The applicant highlights the association between the study area and a flightline linkage between Charleville Lagoons and Shannon and Fergus Estuaries Special Protection Area (SPA) was dismissed in the impact assessment (EIAR Chapter 8: Ornithology) and in the Natura Impact Statement due to the distance between the designated site and the lagoons being greater than 20km, and therefore outside of the core foraging ranges for the qualifying species for which the SPA is of importance (SNH, 2016).

The applicant states that although some birds may migrate from the SPA, it is highly unlikely, given the distance, that those birds would do so on a frequent and regular basis and in sufficiently large/significant numbers for a functional linkage between the estuary and the site to exist. As described in the NIS, "It is concluded that the Site is not utilized by any of the SCIs of the SPA" and conversely no adverse effect on the conservation objectives of the SPA could result from the proposed project. The applicant contends that this conclusion is supported by the findings of the bird surveys, undertaken over four years, which show many of the species of birds that are included as qualifying features of the Shannon/Fergus Estuaries SPA were typically recorded only in low numbers as detailed in EIAR Section 8.13 and EIAR Appendix 8.1. For example, Shoveler (as referred to in the NPWS observation), It is noted that during the 24 months of baseline activity surveys, only five flightlines of shoveler involved between flocks of two to six birds all below the swept height of the turbines were recorded over the site as detailed in EIAR Section 8.4.5. Furthermore, as the Site does not provide suitable habitat to support on a regular basis any of the SCIs of the SPA, it was concluded that significant effects on the SPA due to the proposed project can be ruled out.

27.2.3. **Limerick City and County Council - NIS**

NIS conclusions considered acceptable and mitigation sufficient. Some questions to be clarified by applicant.

- **Spoil Management** - Spoil behind substation to be stored permanently - PA suggested it should be covered or planted to prevent run off.
- **Migratory Fish** - Works on/near at least 2 no. rivers with bridges. Potential to impact directly on migratory fish. May be outside the SAC but they form part of

the SAC population so direct impacts to a SAC QI species on an ex-situ basis cannot be ruled out. Records from the aquatic chapter of the EIA show that salmon and lamprey species are present in the catchment area - Request ACP to seek FI.

- **Otters** - EIAR states that otter was recorded along the Charleville Stream within the site boundary. The EIAR stated it was unlikely these animals would commute to the Lower River Shannon SAC due to the distance of c.25km. PA considers there is likely interaction between the SAC population on those found on the site in the form of gene flow and population dynamics. Also, any negative impact on prey species through water quality deterioration may have knock on effects downstream closer to or within the SAC. Clarification may be required on this.

27.2.4. **Applicants Response to DAU**

Spoil Management - The management of spoil on site is detailed in the Spoil Management Plan – Management Plan 4 of the Construction Management Plan (EIAR Appendix 2.1). The Spoil Management Plan – Section 1.6 - Control Measures details the control that will be implemented on site to prevent sediment runoff. Some of the measure include – regular inspection of spoil areas, silt fencing and once disposal is complete the deposition areas will be re-vegetated with the existing upper vegetated layer removed at the commencement of disposal operations.

The applicant states that the statement in Section 3.1 of the NIS as follows;

> "*On the basis of geographical separation, there is no potential for direct effects, such as disturbance of habitats and/or species, on these European sites during any of the phases of the proposed Project*"

was given in the context of the actual boundaries of the designated sites, *i.e.* no potential for direct effects from works on habitats/species within the boundaries of the designated sites.

It is accepted that some qualifying Annex II species of the SAC, notably Atlantic salmon and otter (see Section 3.3 of NIS), occur in the watercourses between the SAC and the windfarm site. However, the applicant confirms that with the strict mitigation measures proposed to contain water pollution (as detailed in NIS Section

3.2, EIAR Chapter 10: Hydrology and Hydrogeology and Appendix 2.1 Construction and Environmental Plan (CEMP)), the applicant is confident that there is no significant risk to these species as a result of water pollution associated with any phase of the proposed project and as such there will be no adverse effect on the integrity of the SAC. It is also noted that the two required bridge crossings will utilise clear span bridges and will not involve instream works.

Otters & Atlantic Salmon – The applicant notes that in extreme cases otter territories may extend to up to 20 km of river habitat (probably mainly in low productivity river systems), though in most cases the territories would be far less (as discussed in Section 3.3 of the NIS).

The applicant accepts the concept that in any catchment the otter population is of the same gene pool. However, the applicant is confident that there is no significant risk from water quality deterioration to the prey species of the local otter population due to the stringent suite of mitigation measures (all of which follow current best practice) which will be implemented throughout all phases of the project to protect water quality both within and downstream of the site.

The applicant concludes that having regard to the value of the qualifying interests and the negligible magnitude of any residual change in water quality once standard mitigation is implemented, the potential effect on otter and Atlantic salmon is not significant and does not adversely affect site integrity

27.2.5. **Third Party Observers**

Summary of concerns raised by observers as follows;

- **Biodiversity Impact on European Sites** - The environmental reports submitted by the developer contain a number of statements which themselves completely undermine the requirements to ensure that no reasonable scientific doubt remains that the proposed development will not have an adverse effect upon a European site or upon species or habitats protected under the Habitats Directive, the Birds Directive, the Environmental Impact Assessment Directive. For example, the dismissive references to common frogs which are present throughout the site which has many streams and drains, completely ignores the protection afforded to *Rana temporaria*, the common frog, under Annex V of the

Habitats Directive, as a species which requires conservation measures. The references to habitat loss and hedgerow loss misleadingly suggest that the fact the hedgerows have not been subject to human intervention and management means they have a decreased value. This completely ignores the ecological value of these hedgerows and habitats. Even more telling is the reference to bat mortality in the EIAR. There appears to be a complete disconnect from what the environmental assessments should be seeking to accomplish and a disconnect from the precautionary principle, which makes the EIAR and the NIS unreliable. All bat species are subject to strict protection under Article 12 of the Habitats Directive, and it is not permissible to kill, injure or disturb their roosting or resting places. Section 6.3.5.1 of Chapter 6 of the EIAR on Biodiversity, states that the site does not lie within a lesser horseshoe bat range, with the closest records for this species lying 18km to the northwest at Grange. This is in conflict with the bat survey undertaken for the developer where Lesser Horseshoe Bat was recorded onsite on one occasion.

- **European Sites -** Inadequacy of AA Screening Statement and NIS which don't take into account environmental sensitivity of the site, for amphibians, lamprey, salmon, European eel, otter white clawed crayfish, the direct hydrological links including groundwater links and proximity to the River Blackwater SAC, the hydrological links to the Lower River Shannon SAC or the River Shannon and River Fergus SPA. The importance of the site to bats, otters and other species in the context of their Annex IV special protection status has been totally disregarded. There has been no proper assessment of the importance of the site as an ecological corridor. There has been no meaningful or adequate assessment of the habitat types which make up the site and these have been dismissed without proper assessment or reasoning.
- There are a number of European Protected sites within the Zone of Influence of the proposed development, with a large number of Qualifying Interests. Only 2 no. of the 7 no. European sites identified were progressed to Stage 2 NIS, the remaining European Sites were ruled out for further consideration of the AA Screening Stage on the basis of inadequate information and reports and on taking mitigation into account; the precautionary principle was not adhered to.

- The nearest European site to the proposed site is the Blackwater River (Cork/Waterford) SAC, which is at a distance of c. 6.4 km to the south. Other sites are at distances of between 9 km (Ballyhoura Mountains SAC) and 14.7km (Glen Bog SAC), Blackwater River (Cork/Waterford) SAC (code: 002170), Ballyhoura Mountains SAC (code: 002036), Tory Hill SAC (code: 000439), Glen Bog SAC (code: 001430), Kilcolman Bog SPA (code: 004095). The Lower River Shannon SAC (code: 002165) (c. 20 km distance from the Site) and the River Shannon and River Fergus Estuaries SPA (code: 004077) (c. 25 km distance from the Site), were considered in the developer's assessment as they have hydrological connectivity with the site via the River Maigue.
- **Improperly Screened Out** - Most of these European sites were improperly ruled out from further assessment at AA Screening stage. The precautionary principle was not adhered to. The River Blackwater SAC which contains a number of qualifying interests including Crayfish, Killarney fern and Otter was not brought forward to Stage 2 assessment. There are a number of streams on site, the bedrock geology contains fault lines, there is an aquifer underneath the site and there is groundwater connectivity to the Blackwater River SAC.

  The hydrology map shows several streams on the site and surrounding it and some of the bedrock contains karst. Therefore, groundwater flow direction must be inferred as including connectivity to the Blackwater SAC. Further, the routes of the plethora of streams and from the site have not been identified or assessed thoroughly. Clearly, therefore a data lacuna exists and the Blackwater SAC was improperly screened out and not brought forward to Stage 2. In addition, no compensatory measures for the impacts on this European site or upon the other European sites affected have been presented.
- Likewise, Kilcolman Bog SAC, Tory Hill SAC, Glen Bog SAC and Ballyhoura Mountains SAC were screened out from Stage 2 Assessment on the basis of inadequate information and assessment. These sites should have been brought forward for further analysis.

27.2.6. **Applicants Response to Third Party Submissions**

The applicant notes that the purpose of the AA screening process is to determine whether the proposed project, either individually or in combination with other plans

and projects, is likely to have a significant effect on European sites in view of best and objective scientific knowledge and of those sites' conservation objectives. The applicant states that the Charleville Lagoons, while of importance to birds, are not designated as a European site. It is noted further that the detailed baseline ornithological survey data did not identify a regular movement over the windfarm site of any of the Special Conservation Interests of the two SPAs referred to (whether such originated from Charleville Lagoons or elsewhere) (also, see 'Ornithology Responses' (Section 5. Association with designated sites) of the applicants response to submission.

The applicant points out that, 2 no. of the species mentioned including white-clawed crayfish and European eel, are not qualifying interests of the Lower River Shannon SAC (as stated in submission). Ecological and hydrological connectivity between the proposed wind farm site and the Lower River Shannon SAC is fully acknowledged in the AA Screening Report, as is the risk of effects on the qualifying species in the absence of appropriate mitigation. For this reason, an NIS has been prepared which will assist An Coimisiún Pleanála in carrying out Appropriate Assessment for this European site. The NIS, and also Chapter 10 of the EIAR: Hydrology and Hydrogeology, includes full details of the various mitigation measures which will be implemented throughout all stages of the proposed project to ensure that there are no significant adverse effects on local water quality and on the integrity of the Lower River Shannon SAC. Refer to Section on Potential Effects on Designated Sites in applicants response to submissions for further detailed response.

In summary, the applicant states the NIS submitted with the application clearly demonstrates the Project will not have a significant negative effect on the environment, nor will it adversely affect the integrity of any European Sites alone or in combination with other plans or projects, in light of their conservation objectives.

Summary Matrix for European Sites (Stage 2)

1. AA Summary Matrix for Lower River Shannon SAC [002165]

Lower River Shannon SAC [NPWS Site Code - 002165] – The SAC is located c. 20km to the south / southeast of the SAC.
Lower River Shannon SAC | National Parks & Wildlife Service

Description of Site: According to the Site Synopsis for this SAC, in summary, this very large site stretches along the Shannon valley from Killaloe in Co. Clare to Loop Head/ Kerry Head, a distance of some 120 km.
This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitats lagoon and alluvial woodland, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.
The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. Both the Fergus and inner Shannon Estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate. Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus estuary and at Ringmoylan Quay. Saltmarsh vegetation also occurs around a number of lagoons within the site, two of which have been surveyed as part of a National Inventory of Lagoons.
Most of the site west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs. The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action.
The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Other coastal habitats that occur within the site include stony beaches and bedrock shores, shingle beaches, sandbanks which are slightly covered by sea water at all times and sand dunes
Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon is broad, generally slow flowing and naturally eutrophic; the Fergus is smaller and alkaline; while the narrow, fast flowing Cloon is acid in nature.
Floating river vegetation characterised by species of water-crowfoot (Ranunculus spp.), pondweeds (Potamogeton spp.) and the moss Fontinalius antipyretica are present throughout the major river systems within the site.
Alluvial woodland occurs on the banks of the Shannon and on islands in the vicinity of the University of Limerick. The woodland is up to 50 m wide on the banks and somewhat wider on the largest island.
There is a small area of actively regenerating cut-away raised bog at Ballyrorheen. It is situated c. 5 km north-west of Cappamore in Co. Limerick.

A number of plant species that are listed in the Irish Red Data Book occur within the site, and several of these are protected under the Flora (Protection) Order, 1999.
Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar tailed Godwit (476; 1995/96). In the past, three separate flocks of Greenland White fronted Goose were regularly found, but none were seen in 1993/94.
This is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank. A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4,010 individuals at Loop Head, 1987).
There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary. This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. The population is estimated (in 2006) to be 140 ± 12 individuals. Otter, a species also listed on Annex II of this Directive, is commonly found on the site.
Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (Petromyzon marinus), Brook Lamprey (Lampetra planeri), River Lamprey (Lampetra fluviatilis), Twaite Shad (Allosa fallax fallax) and Salmon (Salmo salar). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon, while the Mulkear catchment excels as a grilse fishery, though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of lamprey.
Two additional fish species of note, listed in the Irish Red Data Book, also occur, namely Smelt (Osmerus eperlanus) and Pollan (Coregonus autumnalis pollan). Only the former has been observed spawning in the Shannon. Freshwater Pearl Mussel (Margaritifera margaritifera), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River.
Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory, except in the upper estuary where it reflects the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences of industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats.

Summary of Appropriate Assessment

Conservation Objectives, Attributes & Targets (Summary)

Conservation Objectives:
To restore **(R)** or maintain **(M)** the favourable conservation condition of;
1. Sandbanks which are slightly covered by sea water all the time [1110] **(M)**
2. Estuaries [1130] **(M)**
3. Mudflats and sandflats not covered by seawater at low tide [1140] **(M)**
4. Coastal lagoons [1150] **(M)**
5. Large shallow inlets and bays [1160] **(M)**
6. Reefs [1170] **(M)**
7. Perennial vegetation of stony banks [1220] **(M)**
8. Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] **(M)**
9. Salicornia and other annuals colonising mud and sand [1310] **(M)**

10. Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] **(M)**
11. Mediterranean salt meadows (Juncetalia maritimi) [1410] **(R)**
12. Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] **(M)**
13. Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] **(M)**
14. Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **(R)**
15. Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] **(R)**
16. Petromyzon marinus (Sea Lamprey) [1095] **(R)**
17. Lampetra planeri (Brook Lamprey) [1096] **(R)**
18. Lampetra fluviatilis (River Lamprey) [1099] **(R)**
19. Salmo salar (Salmon) [1106] **(R)**
20. Tursiops truncatus (Common Bottlenose Dolphin) [1349] **(M)**
21. Lutra lutra (Otter) [1355] **(R)**

Conservation Objectives:
To maintain the favourable conservation status of Sandbanks slightly covered by sea water at low tide, Mudflats and sandflats not covered by seawater at low tide. Large shallow inlets and bays, reefs, perennial vegetation of stony banks, Vegetated Sea cliffs of Atlantic and Baltic Coasts, Salicornia and annuals colonizing mud & sand, Atlantic salt meadows, Water courses of plain to montane levels, Molinia meadows on calcareous, peaty or clayey silt laden soil, Alluvial forests, Brook Lamprey, River Lamprey, Bottlenose Dolphin and Estuaries. **(M**)

To restore the favourable conservation status of Coastal Lagoons, Freshwater Pearl Mussel, Sea Lamprey Atlantic Salmon and Otter. **(R)**

Summary of Appropriate Assessment	
Qualifying Interest Feature	**Attribute/Targets (Summary)**
Estuaries [1130]	**Habitat Area** – Stable or increasing, subject to natural process **Distribution** – Conserve the following community types in a natural condition; 1.Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; 2.Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; 3.Subtidal sand to mixed sediment with Nucula nucleus community complex 4.Subtidal sand to mixed sediment with Nephtys spp. community complex; 5. Fucoid-dominated intertidal reef community complex; 6. Faunal turf-dominated subtidal reef community; 7. Anemone-dominated subtidal reef community.
Mudflats and sandflats not covered by seawater at low tide [1140]	**Habitat Area** – Stable or increasing, subject to natural process **Distribution** – Conserve the following community types in a natural condition; 1.Intertidal sand with Scolelepis squamata and Pontocrates spp. community 2. Estuarine subtidal muddy sand to mixedsediment with gammarids community complex; 3. Intertidal sand to mixed sediment with polychaetes, molluscs and crust aceans community complex

Coastal Lagoons [1150]	**Habitat** – Area stable or increasing, subject to natural processes; **Distribution** – No decline, subject to natural processes; **Salinity Regime** - Median annual salinity and temporal variation within natural ranges; **Hydrological Regime** - Annual water level fluctuations and minima within natural ranges; **Barrier** - Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management; **Water Quality** – 1. Annual median chlorophyll a within natural ranges and less than 5µg/L; 2. Annual median MRP within natural ranges and less than 0.1mg/L; 3. Annual median DIN within natural ranges and less than 0.15mg/L; **Depth of Macrophyte Colonisation** – Macrophyte colonisation to maximum depth of lagoons; **Typical Plant Species** – Maintain number and extent of listed lagoonal specialists, subject to natural variation; **Typical Animal Species** – Maintain listed lagoon specialists, subject to natural variation; **Negative Indicator Species** - Negative indicator species absent or under Control;
Large shallow inlets and bays [1160]	**Habitat** - The permanent habitat area is stable or increasing, subject to natural processes. **Distribution** - Conserve the following community types in a natural condition: 1.Intertidal sand with Scolelepis squamata & Pontocrates spp. community; 2.Intertidal sand to mixed sediment with polychaetes, molluscs and crustacean community complex; 3.Subtidal sand to mixed sediment with Nucula nucleus community complex 4. Subtidal sand to mixed sediment with Nephtys spp. community complex 5. Fucoid-dominated intertidal reef community complex; 6. Mixed subtidal reef community complex; 7. Faunal turf-dominated subtidal reef community; 8. Anemone dominated subtidal reef community; and 9. Laminaria dominated community complex.
Reefs [1170]	**Distribution** – Reefs stable, subject to natural processes. **Area** – Permanent habitat area is stable, subject to natural processes. **Community Distribution** -Conserve the following reef community types in a natural condition: 1. Fucoid-dominated intertidal reef community complex; 2. Mixed subtidal reef community complex; 3. Faunal turf-dominated subtidal reef community; 4. Anemone dominated subtidal reef community; and 5. Laminaria dominated community complex
Sea Lamprey Petromyzon marinus (1095) R	**Distribution** – Greater than 75% of main stem length of rivers accessible from estuary **Population** – At least three age/size groups present **Juvenile Density** – at least 1/m2 **Extent of Distribution s spawning habitat** – No decline in extent and distribution of spawning beds **Availability of Juvenile Habitat** – More than 50% of sample sites positive

Brook Lamprey Lampetra planeri (1096) M	**Distribution** – Access to all water courses down to first order streams, **Population** – At least three age/size groups of river/brook lamprey present **Juvenile Density** - Mean catchment juvenile density of river/brook lamprey at least 2/m2, **Extent** – No decline in extent and distribution of spawning beds **Availability of Juvenile Habitat** – More than 50% of sample sites positive
River Lamprey Lampetra fluviatilis (1099) M	**Distribution** – Access to all water courses down to first order streams **Population** – At least three age/size groups of river/brook lamprey present **Juvenile Density in Fine Sediment** - Mean catchment juvenile density of river/brook lamprey at least 2/m2 **Extent** – No decline in extent and distribution of spawning beds **Availability of Juvenile Habitat** – More than 50% of sample sites positive
Atlantic Salmon (fresh water) Salmo salar (1106) R	**Distribution** – 100% of river channels down to second order accessible from estuary **Adult spawning fish number** – Conservation Limit for each system consistently exceeded **Salmon fry abundance** – Maintain or exceed 0+ fry mean catchment -wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling **Out-migrating smolt abundance** – No significant decline **Number and distribution of redds** – No decline in number **Water Quality** – At least Q4
Bottlenose Dolphin Tursiops truncatus (1349) M	**Access to suitable habitat** – Species range within the site should be restricted by artificial barriers **Habitat use** – Critical areas should be maintained in a natural condition **Disturbance** – Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site
Otter Lutra lutra (1355) R	**Distribution** – No significant decline **Extent of terrestrial** - No significant decline **Extent of marine** - No significant decline Extent of freshwater (river) habitat - No significant decline Extent of freshwater (lake/lagoon) habitat - No significant decline **Couching sites and holts** - No significant decline **Fish biomass available** - No significant decline **Barriers to connectivity** – No significant increase

Potential for Impact / Mitigation Measures

- **Direct Impacts** – Based on the hydrological flow-path distance of c. 25km from the to the proposed windfarm to the SAC, I consider there is no potential for direct effects, such as disturbance of habitats and/or species, on the European sites as any phase of development.

Indirect Impacts – Water Quality

- **Construction and Decommissioning Impacts - Impact on Water Quality** - A potential pathway for indirect effect is via deterioration of water quality of SCI supporting habitats as a result of construction activities associated with the proposed development. Such impacts include pollution of ground and surface waters as a result of sedimentation, cementitious materials and hydrocarbons. Such pollution events have the potential to result in deterioration of water quality thus affecting water quality and associated aquatic life including SCI species and habitats. Refer to Applicants EIAR, Chapter 10, Section 10.5.2 for details of potential construction phase effects.
- **Operational Impacts - Impact on Water Quality** – During the operational phase, the potential for silt-laden runoff is much reduced compared to the construction phase. Disturbed soil surfaces following construction, including from the spoil storage areas could generate suspended solids during wet periods and during minor maintenance works, which could flow in run-off to drains and ultimately local watercourses,

potentially impacting on water quality and aquatic life including SCI species and habitats.

- The windfarm has been designed to minimise the potential effects of the operation of the wind farm within the flood zone. All spoil storage areas are located above the 1 in 1,000-year flood level. Refer to Chapter 10, Section 10.6.2.1 of applicants EIAR for full details.
- It is noted that spoil waste stored in the spoil deposition areas will continue to be monitored for stability on a regular basis during the operational phase to check for early indications of movement. Refer to Chapter 9, Section 9.5.29 of applicants EIAR for full details. Where identified, the applicant notes that remediatory actions will be undertaken to repair any failure and restore the integrity of the deposition area.
- **Decommissioning** – Potential effects will be similar to those associated with construction but of a much-reduced magnitude due to the reduced scale of the proposed works in comparison to construction phase.
- Turbine foundations will remain in situ and will be covered with earth and allowed to revegetate. Site roads will continue to be used as farm tracks and will therefore not be removed. The underground cables will be cut and tied and the ducting will be left in place. The Substation will also be permanently left in situ.
- Excavation and removal of this infrastructure could result in considerable disturbance to the local environment in terms of disturbance to underlying soils and an increased sedimentation and an increased possibility of contamination of local groundwater. Prior to the decommissioning work, a comprehensive plan will be drawn up that takes account of the findings of this EIAR and the contemporary best practice at that time, to manage and control the component removal and ground reinstatement. No significant effects on the hydrological and hydrogeological environment, and hence on the SAC are envisaged during the decommissioning phase of the project.

Qualifying Interest (QI) Feature	**Potential for Adverse Effects and Requirement for Mitigation (Summary)**
Qualifying Interests (QI): Habitats 1. Estuaries [1130] **(M)** 2. Mudflats and sandflats not covered by seawater at low tide [1140] **(M)** 3. Coastal lagoons [1150] **(M)** 4. Large shallow inlets and bays [1160] **(M)** 5. Reefs [1170] **(M)** **Qualifying Interests (QI): Species** 6. Petromyzon marinus (Sea Lamprey) [1095] **(R)** 7. Lampetra planeri (Brook Lamprey) [1096] **(R)** 8. Lampetra fluviatilis (River Lamprey) [1099] **(R)** 9. Salmo salar (Salmon) [1106] **(R)** 10. Tursiops truncatus (Common Bottlenose Dolphin) [1349] **(M)** 11. Lutra lutra (Otter) [1355] **(R)**	**Construction, operational and decommissioning phase activities have the potential to cause adverse effects to receiving watercourses and associated aquatic life and ultimately the relevant qualifying interests (QIs) and Special Conservation Interests (SCIs) of the SPA.** **<u>Mitigation Required</u>**

2. AA Summary Matrix for River Shannon and River Fergus Estuaries SPA (004077)

River Shannon and River Fergus Estuaries SPA [NPWS Site Code - 004077] – The SPA is located c. 25km to the south / southeast of the Proposed Windfarm Site.

River Shannon and River Fergus Estuaries SPA | National Parks & Wildlife Service

Description of Site: The estuaries of the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site comprises the entire estuarine habitat from Limerick City westwards as far as Doonaha in Co. Clare and Dooneen Point in Co. Kerry. The site has vast expanses of intertidal flats which contain a diverse macro-invertebrate community, e.g. Macoma-Scrobicularia-Nereis, which provides a rich food resource for the wintering birds. Salt marsh vegetation frequently fringes the mudflats and this provides important high tide roost areas for the wintering birds. Elsewhere in the site the shoreline comprises stony or shingle beaches. The site is the most important coastal wetland site in the country and regularly supports in excess of 50,000 wintering waterfowl (57,133 - five year mean for the period 1995/96 to 1999/2000), a concentration easily of international importance.
The development site is surrounded by the SPA, and the northern and eastern boundaries of the Site are contiguous with River Shannon and River Fergus Estuaries SPA. The SPA is designated for 21 bird species, and wetland habitats which support these species.

Conservation Objectives:
To maintain the favourable conservation condition of Cormorant (A017), Whooper Swan (A038), Light-bellied Brent Goose (A046), Shelduck (A048), Wigeon (A050), Teal (A052), Pintail (A054), Shoveler (A056, Scaup (A062), Ringed Plover (A137), Golden Plover (A140), Grey Plover Pluvialis (A141), Lapwing (A142), Knot (A143), Dunlin (A149), Black-tailed Godwit (A156), Bar-tailed Godwit (A157), Curlew (A160), Redshank (A162), Greenshank (A164), Black-headed Gull (A179), Wetland and Waterbirds (A999) **(M)**

Summary of Appropriate Assessment	
Qualifying Interest Feature	**Conservation Objectives, Attributes & Targets (Summary)**
1. Cormorant *Phalacrocorax carbo* (A017) (**M)** 2. Whopper Swan *Cygnus cygnus* (A038) (**M)** 3.Light-bellied Brent Goose *Branta bernicla hrota* (A046) (**M)** 4. Shelduck *Tadorna Tadorna* (A048) **(M)** 5. Wigeon *Anas Penelope* (A050) (**M**) 6. Teal *Anas crecca* (A052) (**M)** 7. Pintail *Anas acuta* (A054) (**M)** 8. Shoveler *Anas clypeata* (A056) (**M)** 9. Scaup *Aythya marila* (A062) (**M)** 10. Ringed Plover *Charadrius hiaticula* (A137) (**M)** 11. Golden Plover *Pluvialis apricaria* (A140) (**M)** 12. Grey Plover Pluvialis squatarola (A141) **(M)** 13. Lapwing *Vanellus vanellus* (A142) (**M)** 14. Knot Calidris canutus (A143) (**M)** 15. Dunlin *Calidris alpina* (A149) (**M)** 16. Black-tailed Godwit *Limosa limosa* (A156) (**M)** 17. Bar-tailed Godwit *Limosa lapponica* (A157) (**M)** 18. Curlew *Numenius arquata* (A160) (**M)** 19. Redshank *Tringa totanus* (A162) (**M**) 20. Greenshank *Tringa nebularia* (A164) (**M)** 21. Black-headed Gull *Chroicocephalus ridibundus* (A179) (**M)** 22. Wetland and Waterbirds [A999] (**M)**	**Conservation Objective** - Maintain the favourable conservation condition: Area stable or increasing. **Targets -** No significant decline in breeding population abundance (apparently occupied nests), no significant decline in productivity rate, no significant decline in distribution of breeding colonies, no significant decline in prey biomass available. No significant increase in barriers to connectivity. **Disturbance at the breeding site** - Human activities should occur at levels that do not adversely affect the breeding populations. **Population trend** – Long-term population trend stable or increasing. **Distribution** - No significant decrease in the range, timing or intensity of use of areas by individual species (other than that occurring from natural patterns or variation) The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of

	32,261ha, other than that occurring from natural patterns of variation.

Potential for Impact / Mitigation Measures

- **Direct Impacts** – Based on the hydrological flow-path distance of c. 34km from the to the proposed windfarm to the SPA, I consider there is no potential for direct effects, such as disturbance of habitats and/or species, on the European sites as any phase of development.

Indirect Impacts – Impact on Water Quality

- **Construction and Decommissioning Impacts** - A potential pathway for indirect effect is via deterioration of water quality of SCI supporting habitats as a result of construction activities associated with the proposed development. Such impacts include pollution of ground and surface waters as a result of sedimentation, cementitious materials and hydrocarbons. Such pollution events have the potential to result in deterioration of water quality thus affecting water quality and associated aquatic life including SCI species and habitats. Refer to Applicants EIAR, Chapter 10, Section 10.5.2 for details of potential construction phase effects.
- **Operational Impacts** - During the operational phase, the potential for silt-laden runoff is much reduced compared to the construction phase. Disturbed soil surfaces following construction, including from the spoil storage areas could generate suspended solids during wet periods and during minor maintenance works, which could flow in run-off to drains and ultimately local watercourses, potentially impacting on water quality and aquatic life including SCI species and habitats. It is noted that spoil waste stored in the spoil deposition areas will continue to be monitored for stability on a regular basis during the operational phase to check for early indications of movement. Refer to Chapter 9, Section 9.5.29 of applicants EIAR.
- The windfarm has been designed to minimise the potential effects of the operation of the wind farm within the flood zone. All spoil storage areas are located above the 1 in 1,000-year flood level. Refer to Chapter 10, Section 10.6.2.1 of applicants EIAR for full details.
- for full details. Where identified, the applicant notes that remediatory actions will be undertaken to repair any failure and restore the integrity of the deposition area.
- **Decommissioning** – Potential effects will be similar to those associated with construction but of a much-reduced magnitude due to the reduced scale of the proposed works in comparison to construction phase.
- Turbine foundations will remain in situ and will be covered with earth and allowed to revegetate. Site roads will continue to be used as farm tracks and will therefore not be removed. The underground cables will be cut and tied and the ducting will be left in place. The Substation will also be permanently left in situ.
- Excavation and removal of this infrastructure could result in considerable disturbance to the local environment in terms of disturbance to underlying soils and an increased sedimentation and an increased possibility of contamination of local groundwater. Prior to the decommissioning work, a comprehensive plan will be drawn up that takes account of the findings of this EIAR and the contemporary best practice at that time, to manage and control the component removal and ground reinstatement. No significant effects on the hydrological and hydrogeological environment, and hence on the SAC are envisaged during the decommissioning phase of the project.

Qualifying Interest (QI) Feature	**Potential for Adverse Effects and Requirement for Mitigation (Summary)**
Qualifying Interests (QI): Habitats 1. Wetland and Waterbirds [A999] (**M)**	**Construction, operational and decommissioning**

Qualifying Interests (QI): Species 1. Cormorant *Phalacrocorax carbo* (A017) (**M)** 2. Whopper Swan *Cygnus cygnus* (A038) (**M)** 3.Light-bellied Brent Goose *Branta bernicla hrota* (A046) (**M)** 4. Shelduck *Tadorna Tadorna* (A048) **(M)** 5. Wigeon *Anas Penelope* (A050) (**M**) 6. Teal *Anas crecca* (A052) (**M)** 7. Pintail *Anas acuta* (A054) (**M)** 8. Shoveler *Anas clypeata* (A056) (**M)** 9. Scaup *Aythya marila* (A062) (**M)** 10. Ringed Plover *Charadrius hiaticula* (A137) (**M)** 11. Golden Plover *Pluvialis apricaria* (A140) (**M)** 12. Grey Plover Pluvialis squatarola (A141) **(M)** 13. Lapwing *Vanellus vanellus* (A142) (**M)** 14. Knot Calidris canutus (A143) (**M)** 15. Dunlin *Calidris alpina* (A149) (**M)** 16. Black-tailed Godwit *Limosa limosa* (A156) (**M)** 17. Bar-tailed Godwit *Limosa lapponica* (A157) (**M)** 18. Curlew *Numenius arquata* (A160) (**M)** 19. Redshank *Tringa totanus* (A162) (**M**) 20. Greenshank *Tringa nebularia* (A164) (**M)** 21. Black-headed Gull *Chroicocephalus*	**phase activities have the potential to cause adverse effects to receiving watercourses and associated aquatic life and ultimately the relevant qualifying interests (QIs) and Special Conservation Interests (SCIs) of the SPA.** **<u>Mitigation Required</u>**

27.3. **Potential Impacts**

In this section, I will consider the potential impacts and schedule of mitigation, which are contained in Section 3.1 – 3.3 (Effects) and Section 3.4 (Mitigation) (of the Applicants NIS.

The applicant notes that the proposed development is located at considerable distances (hydrological flow-paths of c. 25 km for SAC & c. 34.5 km for SPA) from the two identified European sites associated with the River Shannon estuary system and the proposed windfarm site.

I note that the Maigue River which connects the proposed site to the SAC, only becomes designated (as SAC) near Adare, where the river becomes tidal. Estuarine waters are considered less susceptible to potential effects than freshwaters due to the saline nature of these waters and the large volume of water. The Construction Phase has the highest potential of causing impacts on water quality, with lesser impacts during decommissioning and operational phases.

I note that Landslide Susceptibility within the site is LOW risk. Within the application site, ground slopes are either flat or of a very low angle and, consequently, potential

for natural soil movement is also considered to be low. Peat Landslide Hazard has been screened out for the application site.

The applicant notes that should contaminated water enter the local watercourses during the construction, operational and/or decommissioning phases, the significance of a subsequent effect on the qualifying interests/special conservation interests within the two European sites would vary depending on the type of pollutant, as well as the magnitude and duration of the event. As the conservation objectives of identified European sites could potentially be affected adversely, measures are required to avoid or reduce harmful effects of the proposed Project (*i.e*. mitigation measures).

Aquatic invertebrate communities and aquatic macrophytes can be affected by sediment loading which reduces both the biotic diversity and the food resource for fish populations through direct toxicity to fish and invertebrates, and also indirectly affecting top predators such as otter and carnivorous bird species through a reduction in prey availability. Suspended solids often hold nutrients such as phosphorus that can result in eutrophication and reduced oxygen levels, which can affect aquatic communities.

I note the concerns of the DAU in relation to connectivity of Charleville Lagoons and the SPA and potential impacts for SCI birds on passage to and from the SPA from the Lagoons. I also note the concerns of the Limerick City and County Council and third-party observers outlined earlier in this section of the report.

I refer the Coimisiún to Section 5.0 of the specialist report contained in Appendix 5 of this report in relation to the adequateness of information for purpose of Appropriate Assessment and Environmental Impact Assessment: Ornithology, which I will not repeat here. In summary, the report concludes in relation to NIS as follows;

> *'I consider that the applicant has provided this information for SCI bird species assessed in the NIS and that there will be no adverse effects on SCI bird species for these European sites as a result of the proposed project.'*

I am of the opinion that a thorough screening of nearby European Sites has been carried out and that based on the predicted impacts and the Qualifying Interests and Conservation Objectives of the Sites, no adverse impacts have been identified.

Overall, I consider a robust assessment of the potential impacts has been undertaken and am satisfied that no significant adverse impacts are identified for any European species.

27.3.1. **Water Quality Impacts (Construction Phase)**

The proposed development site is located hydrologically connected to the following European Sites; the Lower River Shannon SAC [002165] and the River Shannon and River Fergus Estuaries SPA [004077].

There is potential for the construction activity to result in the run-off of silt, nutrients and other pollutants such as hydrocarbons and cementitious material into these watercourses. These effects have the potential to affect the water quality and fish stocks of downstream water bodies. This represents a potential for indirect adverse effect on downstream European Sites via water quality deterioration. In addition, potential effects on all watercourses downstream of the proposed tree felling areas could be adverse if not mitigated.

Otter is a widespread species along the River Maigue system and throughout the Shannon estuary. The home range or territory of an otter pair depends to a large extent on food supply. Hayden & Harrington (2000) note that in good habitats along lakeshore there may be one otter per 4 km of shoreline, while on the coast there may be one otter per kilometre. The applicant notes that otter was recorded along the Charleville Stream within the proposed project site during surveys (see applicants EIAR Chapter 6, Section 6.3.4). It is unlikely that these animals would commute to the Lower River Shannon SAC due to the channel distance of c. 25 km. The applicant carried out an assessment of potential effects on otter which noted that while two watercourse crossings are required for the project (over the Maigue River and Charleville Stream) these will be clear span bridges and will not affect the passage of otter along these watercourses. Refer to EIAR Chapter 6, Section 6.4.5.3 for further detail.

27.3.2. **Water Quality Impacts (Operational Phase)**

During operation of the windfarm, the potential for silt-laden runoff is much reduced compared to the construction phase. At this stage, all permanent drainage controls will be in place and the disturbance of ground and excavation works will be complete.

However, disturbed soil surfaces from the construction works could generate suspended solids during wet periods, which could flow in run-off to drains and ultimately local watercourses. It is noted that spoil waste stored in the spoil deposition areas will continue to be monitored for stability on a regular basis during the operational phase.

27.3.3. **Decommissioning Phase**

The applicant notes that decommissioning of the proposed wind farm Project will be scheduled to take place after the proposed 35-year operational life of the project. Potential effects on European sites from the decommissioning phase of the proposed Project are likely to be broadly similar to construction phase effects but of a reduced magnitude due to the reduced scale of the proposed works in comparison to the construction phase works. The implementation of all mitigation measures relevant to the protection of ground and surface waters within the site as detailed for the construction phase will be adopted in full (as relevant) during the decommissioning phase to ensure all such effects are avoided.

27.4. **Recommended Mitigation Measures**

27.4.1. **Otters**

The applicant notes that while the construction phase of the project has potential to give rise to temporary disturbance of otter, this is not likely to interfere with their foraging activity along the watercourses, for the following reasons:

- A key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by application of suitable buffer zones, i.e. 50 m to main watercourses, and 10m to main drains (see EIAR Chapter 10: Section 10.6.2.1). The only infrastructure elements located within the 50m watercourse buffers are the river crossings over the River Maigue and the Charleville Stream. With a buffer of 50m in place for the duration of the works, semi-aquatic species such as otter are likely to commute along the river corridors other than when the above-mentioned bridge works are being undertaken.
- Otter are primarily nocturnal and are mainly active after dusk and just before dawn. However, animals may be more active by day during cold weather (Hayden & Harrington 2000). Given construction phase works will be undertaken largely in

daytime hours, the construction works are unlikely to have a significant effect on the foraging activities of the local otter population and especially from spring to autumn when the species is mostly likely to breed.

However, the applicant notes that the local otter population within the watercourses associated with the site, as well as downstream, could be affected adversely if contaminants generated during the construction phase were to enter the watercourses and affect the prey items (fish etc.) of the otter.

In the absence of mitigation, the effect on the local otter population could be significant. Mitigation to maintain water quality in the associated watercourses, and ultimately the Shannon estuary, during the construction phase of the project will minimise or eliminate the risk to the otter population.

27.4.2. **Water Quality Protection (Construction Phase)**

Mitigation measures to protect designated European Sites from deterioration of water quality during the construction phase are detailed in the applicants accompanying EIAR in Chapter 7, Aquatic Ecology and Chapter 10, Hydrology & Hydrogeology. The applicant notes that the Construction Environmental Management Plan (CEMP) including a Surface Water Management Plan (SWMP), a Water Quality Management Plan and a Waste Management Plan (WMP) contained in Appendix 2.1 of the EIAR will be a key construction contract document to ensure all mitigation measures to protect the environment are implemented.

Mitigation measures are also detailed in Section 3.4 of the applicants NIS and include standard and site-specific measures. Prior to commencement of construction works, the applicant notes that a contractor will identify a core Environmental Management Group, comprising of specific project personnel and an Ecological Clerk of Works (ECoW), who will be responsible for implementing the CEMP.

Measures proposed include mitigation by avoidance, mitigation by design and mitigation against the release of suspended solids including Silt Fences, Site Bags, Settlement Ponds, Level Spreaders and Vegetation Filters, Water Treatment Train, Weather Warnings and Additional Measures for Works within Buffer Zones. The NIS details measures in relation to use of cement-based products, mitigation for use of hydrocarbons and mitigation for watercourse crossings.

Management of Runoff from Spoil Storage Areas, is described in the applicants EIAR, Chapter 2, Section 2.5.16. It is proposed that excavated excess soil and subsoil will be stored in 6 no. temporary spoil deposition areas within the site. There is 1 no. permanent spoil storage area (berm) next to the Substation that can hold 8,100m3 of spoil. During the initial placement of subsoil, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the deposition areas. Drainage from these areas will ultimately be routed to an oversized swale and a number of stilling ponds and a 'Siltbuster' with appropriate storage and settlement designed for a 1 in 10 year return period before being discharged to the onsite watercourses.

Soil/subsoil reinstatement areas will be sealed with a digger bucket and vegetated as soon as possible to reduce sediment entrainment in runoff. Once re-vegetated and stabilised, soil/subsoil reinstatement areas will no longer be a potential source of silt laden runoff. A Soil Management Plan (EIAR, Appendix 2.1) will guide the management of soil during construction.

Mitigation for the Turbine Delivery Route (TDR) works are described in the applicants NIS and in the applicants EIAR, Chapter 10, Section 10.6.2.11.

I consider that following implementation of the mitigation measures described in the applicants NIS (Section 3.4) and the applicants EIAR, no likely significant effects on water quality from construction works are expected, which would impact on the 2 no. designated European Sites which are hydrologically linked to the proposed site.

27.4.3. **Water Quality Protection (Operational Phase)**

Proposed mitigation measures by design are described in Section 3.4.2 of the applicants NIS. As part of the wind farm drainage design, it is proposed that runoff from the infrastructure will be collected locally in new proposed silt traps, settlement ponds and vegetated buffer areas prior to release into the existing site drainage network. The new proposed drainage measures will then create significant additional attenuation to what is already present. The operational phase drainage system will be installed and constructed in conjunction with the existing site drainage network and will include Interceptor drains, collector drains, transverse drains, check dams and settlement ponds. All surface water runoff will have to pass through the proposed settlement ponds prior to release into the existing site drainage network.

In addition, the site compound / office will house all potential pollutants within a secure bunded COSSH store for the operational phase of the project and all on-site wastewater treatment facilities will function in full compliance with current water quality requirements (Building Regulations 2010 as amended S.R. 66:2015) to prevent nutrient loading entering aquatic environments. Mitigation measures for the use of hydrocarbons on site will be the same as those outlined for the construction phase.

I consider that following implementation of the measures described in the applicants NIS, no likely significant effects on water quality during the operational phase will occur, which would impact on the 2 no. designated European Sites which are hydrologically linked to the proposed windfarm site.

27.4.4. **Water Quality Protection (Decommissioning Phase)**

The NIS notes that the same mitigation to prevent adverse effects on water quality during construction will be applicable to the decommissioning phase. I consider that following the implementation of mitigation measures as described in the applicants NIS, there is no potential for the decommissioning of the windfarm to result in residual adverse effects on European Sites.

27.5. **Cumulative Impacts**

A review of planning applications in proximity to the site was completed as described in Table 6 of the applicants NIS. 10 no. operational, consented and proposed wind farms have been identified within a 20km radius of the site. The nearest is the Rathnacally Wind Farm (2 no. turbines) located c. 5.9km to the south and Ballinlee Wind Farm (17 no. turbines) is located c. 7.7km to the northeast.

The NIS notes that apart from the operational Slievaragh Wind Farm (2 no. turbines) located c. 19.3km to the east, all the other wind farms are located in separate hydrological catchments and have no potential for in-combination effects on the Maigue River system when considered with the proposed project (see details in EIAR Chapter 10: section 10.7.4.4, Table 10.21).

The applicant notes that an IE licence including emissions to water exists to the south of the site. This licence (P0386-04) associated with the Rathgoggan North WwTP is held by Kerry Ingredients (Ireland) Ltd and includes discharge of treated effluent to the River Maigue (discharge was formerly to the Charleville Stream but the treated effluent

is now piped across the site and is discharged to the River Maigue just downstream of its confluence with the Loobagh River).

However, the licence sets out strict ELVs for several hydrochemical parameters including BOD (20mg/l), COD (75mg/l), suspended solids (35mg/l), Total Nitrogen (15mg/l), Ammonia as N (3mg/l) and Orthophosphate as P (0.5mg/l). Discharge volume limits are also detailed in the IE licence (maximum of 5,000m3/day). A review of the 2024 AER shows that this facility is operating in accordance with its IE licence. Based on mitigation measures proposed for all phases of the project to ensure the protection of downstream surface water quality and quantity, it is considered that there will not be a significant in-combination effect on the Maigue River system associated with the existing IE discharge to the River Maigue.

The NIS notes that following the detailed assessment provided in the NIS, it is concluded that, the proposed development will not result in any residual adverse effects on any of the European Sites, their integrity or their conservation objectives when considered on its own.

There is therefore no potential for the proposed development to contribute to any cumulative adverse effects on any European Site when considered in-combination with other plans and projects.

I have reviewed the details of these projects, plans and policies which were identified in Chapter 3.5 of the Applicants NIS.

I consider that no cumulative impacts are likely to occur due to the mitigation included in those projects, the operational status of the various projects and distance of other projects/plans from the development site.

27.6. **Residual Effects**

Taking account of the mitigation measures outlined above, I consider that there is no potential for residual adverse effects on the Qualifying Interests of the Screened-in European Sites, as a result of the proposed wind farm development.

This conclusion has been based on a complete assessment of all implications of the project alone and in combination with other plans and projects.

27.7. **Appropriate Assessment Conclusion**

I consider the Applicant has provided a detailed description of the likely potential effects of the proposed development at all phases of development, which focuses on the impacts on Qualifying Features of European Sites which were screened in for all phases of development.

I am satisfied that the proposed development individually or in combination with other plans or projects would not adversely affect the integrity of any European sites in light of their conservation objectives (subject to the implementation of mitigation measures outlined above).

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the proposed development will not adversely affect the Qualifying Interests/Special Conservation Interests associated with the following European Sites:

- The Lower River Shannon SAC [002165]
- The River Shannon and River Fergus Estuaries SPA [004077]

28.0 **Appendix 3 – Public Observations**

1. Cllr Aileen Browne	21. Des Fitzgerald	41. John and Marie O Brien
2. Allan Mee	22. Dessie Fitzgerald	42. John O'Donoghue
3. Andrew and Breeda Cussen	23. Dolores Scannell.	43. Julianne Stokes
4. Andy OMahony	24. Dr.Maiken Hemme Bro-Jorgensen	44. Kevin & Kay Cagney
5. Anita Toner	25. Eco Advocacy	45. Maigue Rivers Trust
6. Anne Walsh & Family	26. Elizabeth Casey Chrystomou	46. Mairead Costello
7. Brendan & Mary McKiernan	27. Environmental Trust Ireland	47. Marie-Clare Power & John Richmond
8. Brendan Hogan	28. Eugene & Mary O'Shea	48. Maurice O Connor
9. Brian Morrissey	29. Frank Finn and Others	49. Michael Costello
10. Brigid Teefy	30. Frank Kelly	50. Michael Lyons & Others
11. Bruff Dromin Athlacca Ballinlee Community Action Group	31. Friends of the Irish Environment	51. Michael Ryan
12. Bruree-Charleville-Effin Wind Farm Action Group	32. Geraldine Fitzgerald	52. Morgan Lyons & Colette Hawe
13. Catherine and Kieron Selley	33. Gerard Cussen	53. Niamh Costello
14. Catherine Lynch	34. Helen & Olivier Lefebvre	54. Niamh Kelleher
15. Conor Fitzgerald	35. Helen Daly	55. Owen Culhane
16. Darragh Walsh	36. Ian Doyle	56. Pat McEnery & family
17. Darren Maloney	37. Jacqueline and Kieran O Rourke	57. Richard O Donoghue
18. Deirdre Costello	38. James Collins	58. Senator Joanne Collins and Cllr Pj Carey
19. Denis J Morrissey & Brid Egan	39. Joe & Sheila Morrissey	59. Shannon Airport Group
20. Denis O'Gorman and others	40. Joe Foley	60. Siobhan & Mike Sexton

29.0 **Appendix 4 – Specialist Report to Inspector (Bats)**

Specialist Report to Inspector (Appendix to main report)

R323635-25_App1

Development	9 no. wind turbines, grid connection and all associated site works: Garrane Green Energy Project
Location	Garrane, Ballynagoul, Creggane and Charleville, Co. Limerick.
Applicant(s)	Greensource
Type of Application	SID RED III
Inspector	Peadar McQuaid, Laura Finn
Ecologist	Donncha Madden
Topic	Ecology: Bats
Report No	R323635-25_App1
Date	8th June 2026

Contents

1.0 Introduction 340

2.0 Documentation 340

3.0 Issues examined and suggestions for consideration by the Commission 341

4.0 Conclusion 346

1.0 Introduction

1.1. Background

1.1.1. The proposed development is for a windfarm comprising nine turbines and associated infrastructure just to the north of Charleville town in Co Limerick. This is a REDIII case.

1.2. Scope of the Specialist Ecology report to the Inspector

1.2.1. The specific matters arising are as follows:

- Consideration of the potential roost assessment for bats included in the EIAR (Ground Level Tree Assessment) and potential implications in respect of the need for a derogation license from the NPWS.
- Concerns in respect of lesser horseshoe bat expressed in the Department of Housing, Local Government and Heritage submission.

1.2.2. Other ecological matters are addressed within the main Inspector's assessment and I do not consider further here.

2.0 Documentation

2.1. Overview

2.1.1. I have reviewed the documentation on file relating to the case, including:

- Bat Survey Report prepared by Eire Ecology (Appendix 6.1 of the EIAR, June 2025)
- Submission On the Observations on Planning Application Ref: ACP-323635-25 (Garrane Green Energy Limited, January 2026)
- Chapter 6 Biodiversity of the EIAR for the project.

2.1.2. I visited the site on 30th June 2026. Weather conditions were dry and bright.

2.1.3. I have had regard to the following relevant guidance and publications in my review of the proposed development:

- SNH. (2021). Bats and onshore wind turbines - survey, assessment, and mitigation. NatureScot (Scottish Natural Heritage), Natural England, Natural

Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (BCT)

- Bat Conservation Trust 'Good Practice Guidelines, 4th edition (Collins, 2023)[6]
- NIEA, N. E. (2021). *Guidance on bat surveys, assessment and mitigation for onshore wind turbine developments in Northern Ireland.* Belfast: Department of Agriculture, Environment and Rural Affairs (Northern Ireland)
- National Parks and Wildlife Service Bat Mitigation Guidelines for Ireland – V2 (Marnell, 2022)[7]
- Applications for Regulation 54 Derogations for Annex IV species Guidance for Applicants. Version 2.0 Department of Housing, Local Government and Heritage (June 2026)[8]
- Guidelines for Ecological Impact Assessment in the UK and Ireland, Guidelines CIEEM (2018)[9]

3.0 Issues examined and suggestions for consideration by the Commission

3.1. Tree Assessment for Bat Roost

3.1.1. Eire Ecology ecologists carried out bat surveys on behalf of the applicant. I consider that Eire Ecology ecologists have sufficient qualifications and experience to carry out survey and assessment for bats (Bat Survey Report prepared by Eire Ecology - Appendix 6.1 of the EIAR, June 2025).

3.1.2. Eire Ecology ecologists carried out Ground Level Tree Assessment (GLTA) for all trees within 275 m of each turbine, along access routes and substation, following guidelines set out in the Bat Conservation Trust Guidelines for Professional Ecologists, 4th ed. In total, 20 potential roost feature (PRF) trees were recorded, with 13 additional trees

[6] Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. Bat Conservation Trust, London.
[7] Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland
[8] https://www.npws.ie/sites/default/files/files/Applications-for-Regulation-54-Derogations-for-Annex-IV-species-Guidance-for-Applicants-V2.pdf
[9] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

requiring further assessment; the majority of these were found to the south of the Site, where the substation is proposed. Ten PRF trees were found within a 275 m buffer of the proposed turbine locations. The locations of surveyed trees are shown on plate 20 and detailed in Appendix 1.2 of the Bat Survey Report (Appendix 6.1 of the EIAR).

3.1.3. The Department, in its submission, considers that the issue of potential tree roosts has not been adequately addressed in the EIAR bat survey report.

3.1.4. The applicant, in their response to submissions dated Jan 2026, has clarified that after an examination of the proposed road network, turbine locations and bat buffers, only one tree with a potential roost feature is set for removal, i.e. tree no 50 located close to T2. The applicant states that the tree species is a poplar, with one deep cavity due to branch loss. However, in the applicant's response, no proposal has been included as to how this matter is to be addressed, either through further survey, mitigation or tree removal methods, and there is no reference from the applicant regarding how a Regulation 54 derogation licence might be considered for this tree.

3.1.5. Trees by the substation site are not going to be impacted, with a route plotted between ash trees that will impact hedge species only. These hedge species have no roosting potential.

3.1.6. It should be noted that the Bat Survey Report prepared by Eire Ecology (Appendix 6.1, page 52) states that "All trees registered as PRF or requiring further assessment will require at-height surveys to be conducted by a suitably qualified ecologist with roost disturbance and inspection camera licences should they be required to be felled."

3.1.7. I visited the site on 30th June 2026. I inspected the specific poplar tree in question (tree no. 50) and identified three potential roost features. These were cavities at approximately 1.5m, 3m and 5m. I consider that each of these features has the potential to hold roosting bats, and therefore, an at-height survey should have been conducted to determine whether bats are roosting or have roosted in the past in any of these roost features.

3.1.8. The applicant states that all bat surveys were undertaken in accordance with SNH (2021) guidance and also took account of aspects of NIEA (2021) and BCT/Collins (2023) guidance. I note that both the SNH/NatureScot and NIEA documents are primarily focused on survey methodologies for wind farm developments, including bat activity surveys, static detector deployment, survey effort, and turbine risk assessment.

However, neither document provides detailed guidance on the classification of trees containing Potential Roost Features (PRFs), nor do they establish survey requirements for individual trees proposed for felling where PRFs have been identified.

3.1.9. In circumstances where a tree proposed for removal contains potential bat roost features, the relevant professional guidance is the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists Guidelines, which provides the recognised framework for assessing tree roost suitability, categorising trees according to their bat roost potential and determining the level of further survey effort required. I therefore consider it appropriate that the adequacy of the assessment of Tree 50 should be examined primarily in the context of the BCT guidance.

3.1.10. The Bat Conservation Trust (BCT) guidelines require that trees proposed for removal are categorised according to their suitability for roosting bats based on the presence and nature of Potential Roost Features (PRFs). The guidance indicates that trees containing multiple PRFs, including cavities, splits, rot holes and other features capable of providing sheltered roost conditions, should generally be regarded as being of at least moderate suitability where those features are accessible and appear capable of supporting bats. For trees of moderate suitability, the guidance advises that further assessment may be required where removal is proposed, including aerial inspection, endoscope inspection and/or activity surveys, as appropriate. The guidance further recognises that the absence of recorded bat activity does not in itself demonstrate the absence of roost use and that survey effort should be directed towards reducing uncertainty to an acceptable level prior to impacts occurring.

3.1.11. During my site inspection of Tree 50, I identified three Potential Roost Features, including a substantial trunk cavity with an apparent internal void and additional fissure/cavity features higher in the stem. Having regard to the number, form and apparent condition of the features present, I consider that the tree is of at least moderate suitability for roosting bats. While the submitted assessment identifies the tree as containing a PRF, no evidence has been provided that the tree was subject to a detailed inspection, such as an aerial inspection, endoscope inspection or other targeted assessment, to determine whether the identified features are being used by bats. Consequently, the level of information available does not appear to be consistent with that generally expected for a moderate suitability tree proposed for removal.

3.1.12. The NPWS Bat Mitigation Guidelines emphasise that all bat species and their roosts receive strict protection under Irish and European legislation. The guidelines adopt a mitigation hierarchy based on avoidance, mitigation and compensation, with avoidance representing the preferred approach wherever practicable. A fundamental requirement of the guidance is that adequate survey information is available to allow the nature and extent of potential impacts on bats and their roosts to be properly assessed before development consent is granted.

3.1.13. The submitted bat report identifies Tree 50 as the only tree containing a PRF that will be removed as part of the proposed development. However, the information submitted does not demonstrate that the identified features have been assessed in sufficient detail to establish whether they are being utilised by bats. Given the presence of multiple PRFs and the apparent suitability of the tree for roosting bats, uncertainty remains regarding whether the tree functions as a bat resting place. In the absence of further survey information, the possibility of impacts on a bat roost or resting place cannot be excluded. Consequently, it is difficult to conclude that the mitigation hierarchy outlined in the NPWS Bat Mitigation Guidelines has been fully met.

3.1.14. The NPWS Guidance on Applications for Regulation 54 Derogations emphasises both the precautionary principle and the requirement for robust scientific evidence. The guidance notes that where uncertainty exists regarding impacts on strictly protected species, sufficient and up-to-date ecological information should be available to enable the competent authority to determine whether an offence under Regulation 51 may arise. It further provides that the precautionary principle should be applied where scientific uncertainty remains. In this regard, the relevant consideration is not whether Tree 50 contains Potential Roost Features, as this is already accepted within the submitted documentation, but whether the available evidence is sufficient to conclude that removal of the tree would not damage or destroy a bat breeding site or resting place in the absence of a derogation. The submitted information does not demonstrate that the identified cavities and fissures have been subject to detailed inspection and therefore does not establish that bat use can be confidently excluded. The mitigation proposed does not align with Department guidance.

3.1.15. Having regard to the foregoing, I consider that uncertainty remains regarding the status of Tree 50 and the potential for the proposed works to affect a bat roost or resting place. I note the applicant's commitment that any tree containing a PRF or requiring

further assessment would be subject to detailed at-height inspection prior to felling and that a Regulation 54 derogation would be sought should a bat roost be identified. While this approach may reduce uncertainty and provide an appropriate mechanism for addressing any roost identified at a later stage, the roost status of Tree 50 has not been established on the basis of the information before the Commission. Consequently, I am not satisfied that sufficient information has been provided to fully assess the potential implications of the proposed removal of Tree 50 or to determine whether a Regulation 54 derogation may be required.

3.2. Concerns in respect of lesser horseshoe bat

3.2.1. The DAU has also raised a concern in relation to the lesser horseshoe bat recording (Oct 2022) at detector 12 and the potential of a winter roost, transitional Lesser Horseshoe roost, or a night roost and should have triggered a targeted survey of Lesser Horseshoe usage of the site. The applicant's response to the DAU submission (appendix 1, pg. 2&3) considers that the recording of a single passing bat at this time is not indicative of a nearby roost within a total of 8,000 hours of static detectors' survey time. The record represented approximately 0.0007% of all bat calls recorded on site.

3.2.2. It is stated that multiple emergence surveys have been conducted at Structure 2, including visual assessments using night vision equipment and bat detectors, complying with relevant guidance, with no sightings of Lesser Horseshoe bats recorded.

3.2.3. NPWS have correctly highlighted that any Lesser Horseshoe record is significant because the species is an Annex II species and the locality lies outside the currently recognised core range. NPWS also noted that static detectors can under-record Lesser Horseshoe bats and suggested that the possibility of a transitional or night roost could not be completely excluded.

3.2.4. However, when the evidence is examined as a whole, several factors weigh against the conclusion that a significant Lesser Horseshoe population is associated with the site:

- Only a single record was obtained despite a very substantial survey effort.
- The record occurred in October, during the period when Lesser Horseshoe bats may be undertaking autumn movements between summer and winter sites.

- The bat was recorded approximately three hours after sunset rather than at a time suggestive of immediate roost emergence.
- Repeated emergence surveys of nearby structures failed to identify Lesser Horseshoe bats.
- No suitable Lesser Horseshoe roost was identified within structures proposed to be impacted by the development.
- The site lies outside the recognised Lesser Horseshoe region, and no known roosts are identified in the immediate vicinity.

3.2.5. The precautionary principle does not require decision-makers to assume the worst-case scenario in the absence of evidence. Rather, it requires that reasonable scientific doubt be resolved before consent is given.

3.2.6. In my view, the available evidence supports the applicant's conclusion that the record could reasonably represent a transient or dispersing individual rather than evidence of a resident population.

4.0 **Conclusion**

4.1. Having regard to the BCT Bat Survey Guidelines, the NPWS Bat Mitigation Guidelines for Ireland and the NPWS Guidance on Applications for Regulation 54 Derogations, I consider that Tree 50 should be regarded as a tree of at least moderate suitability for roosting bats due to the presence of multiple Potential Roost Features. The information submitted does not demonstrate that these features have been subject to detailed internal inspection or equivalent follow-up survey in line with the guidance documents referenced above. Consequently, I consider that the possibility that the tree provides a bat resting place cannot currently be excluded. I note that the applicant proposes that all trees identified as containing Potential Roost Features (PRFs) or requiring Further Assessment (FAR) would be subject to detailed at-height inspection by a suitably qualified ecologist prior to felling, including the use of inspection cameras and endoscopes where appropriate, and that a Regulation 54 derogation would be sought from NPWS should a bat roost be identified. While this approach provides a mechanism for further assessment and licensing, the results of any such assessment are not before the Commission. Applying the precautionary principle, I consider that

insufficient information is currently available to establish the roost status of Tree 50, to assess the implications of its removal fully, or to determine whether a Regulation 54 derogation may be required.

4.2. Should the Commission be minded to grant permission for the proposed development, including Turbine 2, consideration could be given to seeking clarification from the applicant regarding the status of Tree 50, including the results of any additional surveys undertaken subsequent to submission of the application. If the outcome of such surveys indicates that the tree supports, or may support, a bat breeding site or resting place, the requirement for a Regulation 54 derogation should be fully addressed prior to any works affecting the tree. While it may be possible to impose a condition requiring further assessment and the implementation of any necessary licensing requirements, such an approach carries a degree of risk as it would seek to address an identified information deficit after consent rather than avoid the potential impact altogether. In this regard, retaining Tree 50 by omitting Turbine 2 remains the more precautionary approach.

4.3. While the recording of a single Lesser Horseshoe bat is of ecological interest and demonstrates that the species may occasionally occur within the wider area, the survey evidence does not indicate the presence of a roost, a regularly used commuting route or an important foraging resource for the species within the application site. Having regard to the extensive survey effort undertaken and the absence of corroborating records, the Lesser Horseshoe bat issue, in isolation, would not constitute a basis for refusal. However, a separate and more substantive concern arises in relation to Tree 50, a tree proposed for removal containing multiple Potential Roost Features, in respect of which I consider that insufficient information has been provided to exclude impacts on a bat roost or resting place.



Donncha Madden

Senior Ecologist
9th July 2026

I confirm that this report represents my professional ecological assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence me, directly or indirectly, following my professional assessment and recommendation set out in my report in an improper or inappropriate way

30.0 Appendix 5 – Specialist Report to Inspector: Adequateness of Information for the purpose of Appropriate Assessment and Environmental Impact Assessment: Ornithology

Report to Inspector on
Garrane Wind Farm, Co. Limerick
ACP Ref: 323635-25 – July 2026

CORK ECOLOGY

Long Strand, Castlefreke, Clonakilty, County Cork

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Development	9 no. wind turbines, grid connection and all associated site works in the townlands of Garrane, Ballynagoul, Creggane and Charleville, Co. Limerick.
Type of Application	Private Development - REDIII Application
Topic	Adequateness of information for purpose of Appropriate Assessment and Environmental Impact Assessment: Ornithology
Ornithologist	Colin Barton
Date:	July 2026

1 Introduction

1. This report to the Inspector and available to the Commission is a written record of my review and examination of the submitted information for the planning application for Garrane Wind Farm regarding issues raised related to ornithology and the requirements for Appropriate Assessment (including screening).
2. As External Ornithologist, ACP requested technical expertise in Ornithology to support the EIA and AA having regard to relevant legislation and best practice guidance.
3. I hold a B.Sc. (Hons.) in Biology (Ecology) (2.1) from the University of Aberdeen, graduating in 1992. I have been running an independent environmental consultancy specialising in birds since 2001. I have worked on many terrestrial wind farm projects in Ireland, as well as several offshore wind farm projects in Irish and in UK waters, with key outputs including baseline surveys and impact assessment chapters for EIAR, as well as input into NIS documents.
4. Based on the above, I have the relevant expertise to provide a professional opinion as to the adequacy of the information for the Inspector and the Commission to undertake Appropriate Assessment (AA) and Environmental Impact Assessment (EIA) of the proposed project.

1.1 Scope of Report

5. Table 1 presents a summary of the scope of this report.

Table 1 Summary of Report Scope

Item	Task
1	Examination and analysis of the information presented by the applicant relating to Ornithology namely: • Ornithology chapter in the EIAR and associated appendices; • AA Screening Report and NIS; Further information received (including submissions and responses to submissions).
2	Provide an independent professional appraisal of the information provided by the applicant in view of current best practice taking account of observations made by the Department of Housing, Local Government and Heritage (DHLGH) in particular, and any other relevant prescribed body/public submissions.
3	This assessment should be proportional to the development proposed with a focus on key species including those bird species listed on Annex I of the Birds Directive and in particular, issues raised in further information requests.
4	The examination and assessment should consider the following and highlight any departures from best practice: (for EIAR Ornithology and associated documents): • Approach and methodology • Field survey results and evaluation of conservation importance • Likely significant effects on target species including potential habitat loss, disturbance, displacement and collision risk from the proposed wind farm alone and in-combination effects with other windfarms • Interpretation of collision risk model (CRM) • Likely effectiveness of mitigation measures, residual impacts
5	Provide an independent appraisal of the assessment presented in the AA Screening report and NIS (and updated documents part of the Further Information submitted) of the implications of the proposed development on SPA sites in view of the conservation objectives of special conservation interest bird species.
6	Advise on any additional measures that could be conditioned as part of a planning permission (if necessary).

6. In the review of the biodiversity aspects of the Environmental Impact Assessment Report (EIAR), I focussed my examination on key issues raised in submissions including collision and disturbance impacts on birds.

7. In my review of the Natura Impact Statement, I focussed the examination on key issues raised in submissions and the requirements for screening for Appropriate Assessment and for Appropriate Assessment in view of the conservation objectives of relevant European Sites.

8. I have reviewed the scope of the proposed development as described in the EIAR and NIS and all aspects of the proposed development which consists of the construction of a 9-turbine wind farm, grid connections and associated infrastructure including a substation and ancillary works.

9. I undertook a site visit to the proposed wind farm development site with a Planning Inspector on 9th April 2026.

10. I have reviewed and examined the following documents including relevant appendices and figures (plans and particulars):

    - Natura Impact Statement including AA Screening Report
    - EIAR with particular focus on Chapter 8 Ornithology and associated appendices
    - Submission from Limerick County Council
    - Submissions from Prescribed Bodies
    - Submissions from third parties
    - Applicant Response to Submissions

11. The documents have been reviewed with respect to the following current best practice guidance:

    - CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
    - CIEEM (2019) Ecological Impact Assessment Checklist (as relevant to Irish legislation
    - EPA (2022) Guidelines on the information to be contained in environmental impact assessment reports.
    - EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC
    - EC (2021) Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EC
    - EC (2020) Guidance document on wind energy development and EU nature legislation

2 Submissions and Observations

12. I have reviewed the submissions and observations related to ornithology within the EIAR and NIS and summarise key issues raised below. I have also considered the response document prepared by the Applicant (January 2026) addressing third party submissions and observations.

2.1 Statutory Submissions

Department of Housing, Local Government and Heritage (via DAU):

13. Regarding the EIAR and ornithology, it is considered that due to the extreme proximity of the proposed development to the Charleville Lagoons, their ornithological importance in a national context, and the observed levels and direction of flight activity over the site, the level of nocturnal flight activity over the site needs to be established to enable robust collision risk assessment to be undertaken.

14. The contribution of the turbine layout and density to collision risk; particularly for flocks, species observed to have strong north-south movement patterns through the site, and species observed to be spending considerable periods of time over the site, is likely to be significant and has not been discussed in the risk assessment.

15. Examples of particular concern are:

- the Red Listed Kestrel, recorded as using the site extensively, often at rotor height, and breeding either on or in close proximity to the site, with a peak count of up to four birds including a juvenile;
- the identified strong north – south movement of Cormorant and Heron over the site;
- frequent records of Red Listed Golden Plover, Lapwing and Snipe, and Amber-listed Lesser Black-backed and Black-headed Gulls (all including flocks) flying at rotor height over the site.

16. The observed relative significance of any bird movement over the site needs to be qualified by the fact that only diurnal movements have been considered.

17. Barn Owls (Red Listed) were observed two to three times including flying at height. While no evidence of breeding was found, it is noted that the field sightings were outside of the breeding season, therefore non-breeding use of the buildings on site cannot be ruled out, especially given the historic records of Barn Owl usage of the area and the availability of suitable roost structures on site. A more comprehensive survey of Barn Owl usage of these buildings throughout the year (including as winter roosts) is recommended, in order to better inform a collision risk assessment.

18. The proposed frequency of carcass monitoring post-construction (monthly) is not considered to be adequate due to the potential for carcasses to be scavenged and, in the

case of smaller birds, removed completely by scavengers. Full details of the carcass monitoring protocol, including systematic coverage of the search plot, are needed.

19. Regarding Appropriate Assessment, submitted observations related to assessing ecological connectivity with designated sites. The potential for bird movements through the proposed development site between the Charleville Lagoons and the River Shannon and River Fergus Estuaries SPA has been discounted due to the distance between the sites. However, this assessment only takes local bird movements into account.

20. The potential for SCI birds on passage to and from the SPA to use the Charleville Lagoons has not been considered. For example, Shoveler numbers at the Charleville Lagoons (for which species numbers at the lagoons are of national importance) peak in October and early spring indicating that there is some use of the lagoons by birds on passage; whereas Shoveler numbers at the Shannon and Fergus Estuaries SPA peak in winter. This aspect of ecological connectivity between the Charleville Lagoons and the Shannon and Fergus Estuaries SPA needs to be explored more fully.

Limerick County Council

21. Limerick County Council (LCC) commented that the bird chapter of the EIAR concludes that the habitats available on site are not currently used by high numbers of species of higher concern than local value. This is considered likely to be a fair assessment. However, the flightline maps do indicate that use of the site by low numbers of individuals of species of conservation concern is still relatively high. LCC stated that the commission will evaluate the collision risk modelling in this regard and will come to a decision on whether further consideration is required.

22. LCC also made recommendations regarding potential conditions to be attached if planning permission is granted for the proposed development.

23. Regarding Appropriate Assessment, overall, the NIS conclusions were considered acceptable, and the mitigation measures described were considered generally sufficient. No specific points were made re birds.

An Taisce

24. The majority of comments from An Taisce related to the close proximity of the artificially constructed wetland complex to the south of the proposed turbine locations, “Charleville Lagoons”. The comments highlighted that this site contains nine bird species (Curlew, Dunlin, Shoveler, Mallard, Teal, Tufted Duck, Lapwing, Wigeon, Golden Plover), four of which are red-listed species of high conservation concern and three of which are amber-listed as species of medium conservation concern.

25. Given the close proximity of the wetland complex, the potential for high bird diversity and the potential exclusion of important resident bird species in the collision risk modelling methodology employed by the applicant, it was highlighted that the impact determination for operational effects of the project as “negligible”, “not significant” requires clarification

as a preliminary matter. In the absence of this, collision risk and potential impact for bird species may be higher than anticipated.

The Heritage Council

26. The submission from the Heritage Council considered the mosaic of wet grassland within the proposed site to be a Key Ecological Receptor (KER) that needs to be considered fully as part of this application. 8.05 hectares (Table 8.21) of neutral and wet grassland is noted has being lost resulting in a slight adverse effect.
27. In addition, it was considered that the assessment has not clearly illustrated or demonstrated where the most important area of this habitat exists, or how the turbines have been arranged to avoid the most species rich area of habitat, and the area most conducive to common frog/ snipe habitat.
28. The most important area of this habitat should be mapped and identified, and a demonstration of how this informed the layout and location of specific turbines is needed and should be requested by further information. This area should be then catered for in the Biodiversity Enhancement Plan.
29. The conclusions on the impacts on wading birds have been considered not significant, as suitable habitat loss for these species will be minimal, and/or small in the case of snipe. More specifically the EIAR noted that limited extents of improved, neutral and wet grassland area habitats will be lost. However, 8.04 hectares of this habitat will be lost (Table 8.21), which is neither small nor limited.
30. While the ornithological chapter specifically states that "ecological information was utilised to avoid impacting potentially important ornithological features where possible" as part of embedded mitigation, while those of greater importance to avian features (e.g., waterbodies, mature trees and hedgerows) will be retained. The wet grassland/ marsh mosaic, which was identified as important for snipe, has not been noted in this context and should be.
31. Whilst we agree with the EIAR that embedded mitigation should include avoidance of sensitive sites, how this was done in relation to the most important areas of wet grassland/marsh habitat has not been demonstrated fully.
32. We recommend that further information be requested for the specific identification of the wetland grassland/marsh habitat which is considered of local importance higher value and how this has informed the arrangement and layout of the turbines.

2.2 Public Submissions

33. General concerns regarding impacts on ornithology were raised including:
    - Proximity of proposed development to Charleville Lagoons and potential for disturbance and collision impacts on birds in the vicinity;
    - Potential disturbance to Barn Owls and other bird species as a result of the proposed development;

- Collision impacts and disturbance to Whooper Swans in winter;
- Collision impacts and disturbance to Shoveler and other duck species throughout the year;
- Survey effort for birds, particularly in relation to coverage at Charleville Lagoons.

3 Expertise and technical content of ecological reports

34. The biodiversity chapters of the EIAR, the NIS and associated reports provide statement of authority and detail the personnel involved, their qualifications, experience and specific role in the various ecological assessments. The Ornithology chapter of the EIAR and associated appendices were prepared by Nick Henson CEnv MCIEEM, Associate Director at RSK Biocensus, assisted by Consultant Ecologist Ellis Perry ACIEEM and Senior Ecologist George Wilkinson ACIEEM.

35. As stated in Chapter 8 and in Appendix 8.1 (Ornithology Baseline Report), field surveys were conducted by ornithologists from Malachy Walsh and Partners (MWP) and the Irish Ornithological Survey Group (IOSG). Although the names of surveyors were not presented, the text in both documents states that "surveyors were all experienced ornithologists competent in bird identification and survey methods for onshore wind farm developments".

36. Dr Brian Madden (BioSphere Environmental Services) prepared the NIS, with support from other specialist ecologists. Based on the information presented in the Ornithology EIAR chapter and the NIS, I am satisfied that all ecologists and surveyors have the necessary competencies and experience to carry out the work undertaken.

4 Review of Ornithology Chapter of EIAR

37. Effects on ornithology (birds) are considered in Chapter 8 of the EIAR and associated appendices. Chapter 8 describes and assesses direct and indirect effects of the proposed development on ornithology with particular attention to species protected under the Birds Directive and species of conservation concern in Ireland (Gilbert et al., 2021).

38. EIAR Chapter 8 examines impacts on ornithology, supported by survey methods and results described in Appendix 8.1 (Ornithology Baseline Report). For each of the key species highlighted in Chapter 8, I reviewed the survey methods applied and the survey results used to inform the assessment. I also considered the assessments with regard to submissions from prescribed bodies, public submissions, the developer response to these submissions and best practice guidance, as well as relevant published evidence from other projects and studies.

39. As part of this review, I have provided summary tables which set out the key findings of the relevant assessments and address key points of the submissions, the applicants approach and my evaluation of the adequacy of the response based on the evidence

provided and professional opinion for the purpose of the EIA to be undertaken by the Commission.

4.1 Survey methods and approaches used

40. I reviewed Section 8.10 of the Ornithology EIAR chapter and Section 2 of Appendix 8.1 (Ornithology Baseline Report) with regard to the methods and approaches used to undertake the desk study and baseline bird surveys for the proposed project.

4.2 Desk Study

41. I reviewed Section 8.10 of the Ornithology EIAR chapter which outlines the approach used for the ornithology desk study. For the desk study, a Zone of Influence (ZoI) was set at a 20km radius around the site, based on relevant guidance (SNH, 2016), and conservation sites for birds with a statutory designation were initially identified within a 20km radius of the proposed site, whilst conservation sites with a non-statutory designation were initially identified within a 2km radius of the proposed site.

42. Information on statutory and non-statutory designated conservation sites were made via NPWS online site information. In addition, supporting data on specially protected and notable bird species were requested from NPWS in November 2021, October, 2022 and May 2023. No information was received for an additional information request sent in 2024.

43. Relevant information for bird species in the wider area was taken from the Bird Atlas 2007-11 (Balmer *et al.,* 2013) and the BWI Bird Sensitivity Mapping Tool for wind energy development. Relevant Irish Wetland Bird Surveys (I-WeBS) data between 2011 – 2024 were also reviewed where possible for sites of ornithological interest within 20km.

44. The Desk Study information is presented in Section 8.13 of Chapter 8. Overall, I was satisfied with the data sources used to inform the Desk Study.

4.3 Survey Methods

45. I reviewed the survey methods used to conduct bird surveys in and around the proposed site outlined in Chapter 8 and Appendix 8.1. These are summarised in Table 2 below.

Table 2 Summary of survey methods used to inform EIAR

Survey Type	Coverage	Comment
VP surveys between Oct 2022 and Sep 2024 (6 VP locations)	Two 3-hr watches per month at each of 6 VPs between Oct 2022 and Sep 2024 inclusive.	Adequate survey coverage (meets NatureScot guidance). Not all VP watches conducted in suitable weather conditions
Transect surveys (4 transects walked)	May 2023 Jul 2023 Sep 2023 Dec 2023 Feb 2024 Apr 2024 May 2024 Jul 2024	Methods based on Countryside Bird Survey (CBS), which conducts two surveys in the breeding season (April-Mid-May; Mid-May to end June). Survey coverage considered adequate.
Hinterland surveys (consistent road transect, with target species recorded from suitable viewing points along the route out to 5km from site)	Oct 2022 Feb 2023 Nov 2023 Jan 2024 Apr 2024	(Appendix 8.1 – Figure 5a). This type of survey not specified in NatureScot (2025), which has no mention of surveys in the wider area of a site in the non-breeding season. (April is breeding season though).
Raptor surveys (Record breeding raptor activity in suitable habitat. Buzzard, kestrel and peregrine listed as target species). Section 8.10.6 of Chapter 8 states "within 5km of the site", while Section 2.5 of Appendix 8.1 states "within 2km of the site".	May 2023 Jun 2023 Jul 2023 May 2024	NatureScot (2025) guidance states Peregrine surveys should extend out to 2km from the site, no distance given for Kestrel or Buzzard. Dates are adequate for breeding surveys, per NatureScot (2025).
Barn Owl surveys (search of all potentially suitable buildings for evidence of use within the Site and 1km buffer)	30/4/2023 – 7 site inspections 25/5/2023 – 4 dusk surveys 20/9/2023 – site inspection & dusk survey April 2025 – 3 site inspections	Surveys were based on BWI 2017 & 2021 survey methods papers which are suitable for surveying barn owl nest locations. Methods for dusk visits did not specifically follow BWI methods.

Breeding wader surveys (supplementary information on breeding wader activity in the wider area. Survey transects were undertaken in suitable habitat to a maximum distance of 500m from the Site)	Apr 2023 May 2023 June 2023	(Appendix 8.1 – Figure 5d) Survey methods used for searching for breeding snipe did not comply well with the recommended dates, times and weather conditions in Gilbert et al., (1998).
Waterbird surveys (Charleville lagoons) (All target species encountered were recorded, with habitats surveyed including all suitable foraging and roosting areas for waterbird within the survey area.)	Mar 2023 Apr 2023 May 2023 Aug 2023 Sep 2023 Dec 2023 Jan 2024 Feb 2024 Mar 2024	No reasons given for not conducting surveys in June, July, October or November 2023.
Whooper Swan surveys (Site & 5km buffer [A]; Also 2 known wintering sites covered – Churchtown & Kilcolman Wildfowl Reserve [B])	27/10/23 (A&B) 16/11/23 (B) 29/11/23 (B) 15/12/23 (B) 19/12/23 (A&B) 15/1/24 (A) 31/1/24 (B) 13/2/24 (A&B) 27/2/24 (B) 4/3/24 (B) 13/3/24 (A&B)	NatureScot guidance (2025) requires surveys out to 5km from SPAs.

30.1. **Vantage Point Surveys**

46. I reviewed the amount of survey effort for the Vantage Point VP surveys. Effort at VP surveys is presented in Table 8.1 of Chapter 8. Initially, four VPs were covered between October 2020 to March 2023, with four additional VPs covered between October 2022 and September 2024 inclusive. Two of the original VPs were also covered over this period, giving 24 months of continuous survey effort from six VPs over the proposed site between October 2022 and September 2024 inclusive. This complies with current NatureScot guidance (NatureScot, 2025).

47. Survey dates and weather conditions during VP surveys between October 2022 and September 2024 are presented in Tables 39 to 42 of Appendix 8.1 (Ornithology Baseline Report). Typically, VP surveys were conducted at several VP locations on the same day over the survey period, using several observers. I reviewed weather conditions recorded during VP surveys (Tables 39 to 42, Appendix 8.1) and on seven days during the survey period, heavy or continuous rain was recorded throughout VP watches at between one and three VP locations.

48. Relevant guidance from NatureScot states that "Watches should be taken under conditions of good ground visibility (>2km) and can be undertaken on showery days providing showers are not too frequent or prolonged. Some bird species will fly in poorer weather conditions (e.g. persistent rain/mist, very strong winds (Beaufort Force 7 or above)) but useful observation in such conditions is often difficult and is not recommended." As such, although the majority of VP surveys were conducted in accordance with the weather limitations presented in the relevant guidance (SNH, 2017; NatureScot, 2025), some surveys did not comply with this guidance, potentially meaning that observations of key species were under-recorded on these occasions due to weather conditions.

49. The main purpose of the VP surveys is to provide data for the CRM, which predicts bird mortalities from collision with turbines (NatureScot, 2025). Overall, I am satisfied that the VP surveys undertaken for this project were sufficient.

Transect Surveys

50. I reviewed methods used for the transect surveys, which as stated in Section 8.10.4 of Chapter 8 were undertaken to record supplementary information on bird populations within and beyond 500m of the proposed site, and were designed to maximise coverage of the proposed site where access permitted, whilst enabling detailed observation of habitats assessed as likely to be of value to bird populations, particularly for target species.

51. Four transect routes were selected within and adjacent to the proposed site (Appendix 8.1 – Figure 4). Dates are summarised in Table 1, and recording methods were based on the Countryside Bird Survey (CBS) (BWI, 2021a), which conducts two surveys in the breeding season (April-Mid-May; Mid-May to end June). I considered the timings and extent of the transect survey coverage to be adequate.

Hinterland Surveys

52. As stated in Section 8.10.5 of Chapter 8, hinterland transect surveys were conducted twice during the 2022/23 non-breeding season and three times during the 2023/24 non-breeding season out to a maximum distance of 5km from the proposed site, in order to provide supplementary information on target species in the wider area. A consistent road transect was driven on all surveys, with all target species encountered recorded from suitable viewing points along the route. This method of survey is not specifically outlined in the relevant guidance (NatureScot, 2025), which has no mention of surveys in the wider area of a proposed site in the non-breeding season. The last survey was conducted in April 2024, which is in the breeding season. Overall, I am satisfied that the hinterland transect surveys provided some additional information on target species in the wider area around the proposed site.

Breeding Raptor Surveys

53. As outlined in Section 8.10.6 of Chapter 8, in addition to VP surveys, surveys for breeding raptors (e.g. Buzzard, Kestrel and Peregrine), following best practice guidance (Hardey, *et al., 2013*) were undertaken in suitable habitat around the proposed site between May and July 2023 and in May 2024.

54. The extent of these surveys from the proposed site is not clear, with Section 8.10.6 of Chapter 8 stating "within 5km of the site", while Section 2.5 of Appendix 8.1 states "within 2km of the site". The figure presented in Appendix 8.1 (Figure 5b), shows the survey area as extending 2km around the proposed site, so I assumed that this was correct. NatureScot (2025) guidance states Peregrine surveys should extend out to 2km from the site but does not specify a distance for Kestrel or Buzzard. On this basis, I considered that the methods used were adequate. The dates used are also adequate for breeding surveys, per NatureScot (2025).

Barn Owl Surveys

55. Section 8.10.7 of Chapter 8 states that a detailed search of all potentially suitable buildings for evidence of use by Barn Owls was undertaken within the Site and 1km buffer, in accordance with best practice survey methods (BWI, 2021b). This BWI report is still available online from the Transport Infrastructure Ireland website but has "Withdrawn" stamped throughout the document. An older version of the survey methods (BWI, 2017) is available from the Birdwatch Ireland website. Links are provided in the references section of this report. The survey methods presented in the two versions are broadly similar, although the survey period in the 2021 version is defined as "typically mid-March to mid-July", compared to "April to July" in the 2017 version.

56. The 2021 report states that "At many sites, the presence or absence of Barn Owls can be determined by a visual inspection during the day to search for signs of occupancy which include pellets, white-wash and moulted feathers. Confirmation of signs indicates that a site has been used by Barn Owls, however it is necessary to conduct a nocturnal survey to establish current occupancy and breeding status to inform road planning." For nocturnal surveys, the method involves "observing a potentially suitable or active Barn Owl site from a selected vantage point during the period when the birds are active in order to establish occupancy and breeding status based on observations, vocalisations and/or behaviour of birds associated with the site. Nocturnal surveys must be conducted during the breeding period mid-March to mid-July and should be carried out from a discrete vantage point to avoid disturbance to breeding birds." (BWI, 2021b). The BWI methods outlined in the 2017 and 2021 TII reports were also used in the 2024 barn owl surveys in County Cork paper (McCarthy *et al.,*2024) that is quoted in Table 8.20 of Chapter 8 of the EIAR.

57. The submission from Bruree-Charleville-Effin (BCE) Wind Farm Action Group contained several observations regarding Barn Owls and the survey methods as described Chapter 8, as follows:

    - The survey fails to identify active nesting sites within the affected townlands (Garrane, Ballynagoul, and Creggane);
    - doesn't adhere to recommended survey protocols for nocturnal species, particularly owls;
    - Per NatureScot (2025), breeding surveys for owls should extend up to 1km beyond the proposed site boundary.

- Per NatureScot (2025), late evening surveys between May and July are essential to detect calling juveniles and signs of successful breeding pairs;
- Per NatureScot (2025), surveys should also include evidence such as moulted feathers and pellets;
- Table 46 of the report, however, reveals that Barn Owl survey efforts for the EIAR were very limited in scope and duration;
- Only one dusk visit during the critical breeding season (May–July). And on this critical visit only four of the seven sites were visited;
- No surveys were conducted in June or July, which are essential months for detecting juvenile calling and confirming successful breeding pairs;
- I have confirmed evidence of Barn Owl roosting and nesting sites in the townlands that will be affected by the proposed windfarm. I have geo-tagged photographs of these sites and can provide this evidence to An Coimisiún Pleanála upon request;
- It is also inappropriate that the Barn Owl has been omitted from the EIAR's Collision Risk Modelling (Appendix 8.2).

58. I have reviewed the NatureScot (2025) guidance and the BWI survey methods papers discussed above (BWI, 2021b; BWI, 2017). The NatureScot guidance is more generic, and does not specifically apply just to Barn Owl, unlike the survey methods produced by BWI. The NatureScot guidance states that "late evening survey for calling juveniles in May-July can also be useful in detecting successful pairs. Adults may also be active during this time", however, it does not state that visits at this time are "essential" as stated in the Action Group submission. The NatureScot guidance states that a breeding survey for owls should extend to 1km from the proposed site, which appears to have been followed based on Figure 5c (Appendix 8.1). Overall, I conclude that the BWI survey methods papers are suitable for surveying barn owl nest locations, and consider them to be more detailed and species-specific than the more general NatureScot guidance.

59. Section 8.10.7 of Chapter 8 states that "a detailed search of all potentially suitable buildings for evidence of use by barn owl was undertaken within the Site and 1km buffer" and that "of the 12 buildings assessed, an initial review identified seven buildings suitable for use by barn owl within the Site and the 1km survey buffer". This implies that the five other buildings (of the initial 12) were not suitable, but I could not find details in Chapter 8 stating if these other five buildings were surveyed or assessed or why they were ruled out. In contrast, Section 6.3 of Appendix 8.1 states "Of the seven sites identified with potential, three (sites 1, 3 and 4) were considered suitable for nesting barn owl across two survey visits", with no mention of 12 buildings being assessed.

60. Figure 5c (Appendix 8.1) shows the location of the seven buildings identified as being suitable for use by barn owl within the Site and the 1km survey buffer. Of these, one building is within the proposed site (site 3), with six buildings in the surrounding 1km buffer (Sites 1, 2, 4, 9, 11 and 12). Based on information presented in Table 46 (Appendix 8.1), searches of these seven buildings for "moulted feathers, pellets, feeding remains and whitewash (faeces)" were conducted during the day on 30/4/2023, over a 3.5 hr period from 10.50 am. Results for three buildings (Sites 1, 3 and 4) are presented in Table 28

(Appendix 8.1). The same table is also presented as Table 8.9 in Section 8.13.3.3, although both tables are incorrectly labelled as a summary of barn owl suitability and activity "within 5km of the site", as opposed to within 1km, as was actually surveyed.

61. Based on Table 28 (and Table 8.9), it appears that at the three buildings "considered suitable for nesting barn owl" on the April 2023 site inspections, there was no sign of "moulted feathers, pellets, feeding remains and whitewash (faeces)" but these three buildings (Sites 1, 3 and 4) did provide "potential nesting sites" for barn owl.

62. Based on Table 46 (Appendix 8.1), a dusk visit was conducted on 25/5/2023 at sites 1, 3, 6 and 7 to look for barn owl activity. Surveys commenced at 21.50 and lasted for 2 hours and 35 minutes. It is not clear how much time was spent at each location. Confusingly, sites 6 and 7 do not feature in Figure 5c (Appendix 8.1) and these two sites are not listed in Tables 28 or 8.9. Section 4 of Appendix 2 of the Developer's response to submissions document (January 2026) summarises barn owl survey findings as follows "only three of the seven locations identified within the 1 km study area were considered to have been suitable for nesting barn owl."

63. The BWI (2021b) survey method states that "Nocturnal surveys should be conducted in calm and dry conditions, commencing 30 minutes prior to sunset." Sunset time in Charleville on 25/5/2023 was at 20.50 (www.timeanddate.com), therefore the nocturnal survey should have commenced at approximately 20.20, per the BWI (2021b) guidance. The BWI (2021b) survey method does not give a duration for the nocturnal survey, stating that "Watches must be undertaken until the status of the specific site is effectively determined. Multiple watches may be necessary to effectively establish occupancy and breeding status."

64. Section 8.10.7 of Chapter 8 states that "Dusk activity surveys were conducted if barn owl activity was suspected during calm, dry conditions with good visibility, commencing 0-30 minutes before sunset and concluding when the status of the site regarding barn owl use had been established."

65. Based on the information presented in Table 46 (Appendix 8.1), I conclude that covering four potential breeding sites over a 2 hour, 35 minute period does not follow the BWI (2021) survey method. I consider that in order for the BWI (2021b) survey method to be applied correctly, each site should have been visited on a different dusk visit, in suitable weather conditions, with each survey continuing until "the status of the site regarding barn owl use had been established".

66. Overall, although the BWI (2021b) survey methods were not fully followed for the barn owl breeding surveys, I agree with the EIAR findings that "three buildings (Sites 1, 3 and 4) did provide "potential nesting sites" for barn owl", however, as there was "no sign of "moulted feathers, pellets, feeding remains and whitewash (faeces)" at these three locations during the daytime visit, it is reasonable to conclude that these "potential nest sites" were not actively being used.

67. Overall, the EIAR text regarding barn owl surveys is not well presented, both in terms of survey effort and results of the surveys. Based on the information presented, and the submission from the BCE Wind Farm Action Group, namely "confirmed evidence of Barn Owl roosting and nesting sites in the townlands that will be affected by the proposed windfarm" I conclude that there are breeding barn owls in the vicinity of the proposed site. However, based on Table 28 (and Table 8.9), there was no evidence that barn owls were breeding in the building within the proposed site boundary (site 3). In addition, barn owls were recorded flying outside the proposed site on VP watches in January and September 2024 (Table 50, Appendix 8.1). Based on this and the habitats present within the proposed site, I consider it likely that barn owls use the proposed site for foraging purposes.

68. I reviewed how key bird species were identified in the EIAR assessment process. In Section 8.11.4 of Chapter 8, the text states that "Within this chapter, a Key Ornithological Feature (KOF) is defined as a species occurring within the Zone of Influence of the Project upon which likely significant effects are anticipated and assessed. In accordance with NRA (2009) guidelines and the guidance provided in Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018), a KOF is an important feature which is "both of sufficient value to be material in decision making and likely to be affected significantly". Identification of the KOFs for this project is summarised in Table 8.20 of Chapter 8.

69. For barn owl, Table 8.20 states the following:

    - Regarded as a species of high conservation concern in Ireland due to its inclusion on the BoCCI Red List and afforded additional legal protection due to its inclusion on Annex 1 of the Birds Directive.
    - Barn owls were only recorded twice during the VP and transect surveys. Targeted nesting barn owl surveys did not identify any breeding activity within 2km of the Site.
    - Despite the species being BoCCI Red Listed, due to the low numbers recorded during the surveys, locally increasing conservation status of the species in the county (McCarthy et al., 2023) and low susceptibility to collision related impacts from wind farms in lowland habitat comparable to Ireland's natural environment the population of barn owl is considered to be of Local (Lower value) importance.
    - No further assessment is therefore required, although general recommendations regarding mitigation and enhancement for birds that would be adopted would also potentially benefit barn owl (Section 8.16).

70. It should be noted that in the first bullet, the text states that this species is listed on Annex I of the Birds Directive, which is incorrect – barn owl is not an Annex I species.

71. In the second bullet, the text states that "Targeted nesting barn owl surveys did not identify any breeding activity within 2km of the Site." This is incorrect, and should read within 1km of the site, based on information presented in Chapter 8 and Appendix 8.1.

72. In the third bullet, the paper quoted as demonstrating "locally increasing conservation status of the species in the county" (McCarthy *et al.,* 2023) specifically only covers barn owls in County Cork, whereas the proposed site is in County Limerick. However, it is likely that increases in the barn owl population in County Cork will also have occurred in this area of County Limerick, given the closeness of the border.

73. The key information source listed in Table 8.20 is information on wind turbines and barn owls presented by the Barn Owl Trust in the UK (https://www.barnowltrust.org.uk/hazards-solutions/barn-owls-wind-turbines/). I have reviewed the information presented on this website and summarise the key points below:

    - Barn Owls hunt at low levels (in order to hear their prey) – typically less than 3 metres above the ground;
    - Most wind turbine blades have a ground clearance well above 3 metres.
    - There have been few confirmed cases of a Barn Owl being killed by wind turbines in Britain and these are usually associated with small domestic turbines, rather than tall commercial ones;
    - Overall there is no evidence that wind turbines have a significant impact on the UK Barn Owl population.

74. Based on the above information, I agree with the conclusion presented in Table 8.20 that barn owl does not constitute a key Ornithological Receptor for this project, and that further assessment for this species was not required. Although barn owls do breed in the vicinity of the proposed site, I do not consider that there is a significant risk of collision or displacement of barn owls from the proposed project, based on the evidence presented on the UK Barn Owl Trust website.

Breeding Wader Surveys

75. Section 8.10.8 of Chapter 8 states that "to provide supplementary information on breeding wader activity in the wider area, wading bird surveys were conducted on three occasions between April and June 2023." Survey areas and transects (Appendix 8.1 – Figure 5d) were undertaken following best practice (Gilbert *et al.,* 1998), in suitable habitat to a maximum distance of 500m from the Site. A survey area within suitable wet grassland habitat was walked in April and June 2023. Additionally, as part of the assessment two transects within wet grassland with and adjacent to the site were also surveyed in May 2023.

76. Section 8.13.3.4 of Chapter 8 states that "A total of two species (golden plover and snipe) were observed during the breeding wader bird surveys conducted within the Site between April and May 2023. No breeding activity was recorded within the Site."

77. Gilbert *et al.,* (1998) describes golden plover as an upland breeding species, typically nesting on heather moorland 300-610m above sea-level. As there is no breeding habitat for this species in the proposed site, I consider it reasonable to exclude this species as a potential breeding species within the site.

78. Gilbert *et al.,* (1998) recommends that the O'Brien and Smith (1992) method for censusing lowland breeding wader populations is followed for snipe. This method involves three visits, at least one week apart between 15th April and 19th June, with surveys undertaken during the first three hours after dawn or during the three hours before dusk, avoiding cold, wet and windy conditions, not above Beaufort force 3). Gilbert *et al.,* (1998) specifically states that "it is very important that counts of snipe are not continued more than three hours after dawn".

79. Survey times and weather conditions during the breeding wader surveys are presented in Table 47 of Appendix 8.1. Surveys were undertaken on 11th April between 8.00am and 12.30, on 11th May between 7.05am and 12.03 and on 15th June, between 7.50am and 11.15am.

80. The survey date of 11th April was outside the recommended survey period (15th April start). In addition, based on dawn times available from www.timeanddate.com, dawn on 11/4/24 was at 6.09am, meaning that the suitable morning survey period ran from 6.09 to 9.09am. However, Table 47 states that surveys started at 8.00am and continued until 12.30pm. On the May survey, dawn on 11/5/24 was at 5.03am, meaning that the suitable morning survey period ran from 5.03 to 8.03am. However, Table 47 states that surveys started at 7.05am and continued until 12.03pm. On the June survey, dawn on 15/6/24 was at 4.22am, meaning that the suitable morning survey period ran from 4.22 to 7.22am. However, Table 47 states that surveys started at 7.50am and continued until 11.15am. In addition, the recorded wind speed on 11th May was Beaufort force 4, which exceeded the recommended Beaufort force 3 limit).

81. Overall, I consider that the survey methods used for searching for breeding snipe did not comply well with the recommended dates, times and weather conditions from Gilbert *et al.,* (1998). This potentially reduces the efficacy of these breeding wader surveys, however, even if no breeding displays were seen or heard, I consider it very likely that walkover surveys in the wet grassland habitat would have flushed snipe if they were present within the site in May and June, while it is also likely that snipe would have been recorded occasionally on VP surveys overlooking the areas of wet grassland in the summer months, if birds were present at that time of year.

82. Based on information presented in Table 77 (Appendix 8.1), snipe were only recorded on VP surveys between September and February, with VP survey effort being consistent every month between October 2022 and September 2024 inclusive. Similarly, Table 86 (Appendix 8.1) snipe were only recorded on transect surveys in the 2023/2024 non-breeding season. Table 88 summarises results from the breeding wader surveys outlined above, with a total of nine snipe flushed on 11/4/2024 – of these five birds were flushed from an area of immature forestry, three birds were flushed from wet grassland and one bird was flushed with no habitat details. In comparison, on the April 2026 site visit with the ACP Inspector, we flushed four snipe from wet grassland within the proposed site. There were no snipe sightings on the May and June 2024 breeding wader surveys (Table 88).

83. Based on available evidence presented in Chapter 8 and Appendix 8.1, I consider that snipe are unlikely to breed within the proposed site, as it appears that the species is typically not present within the proposed site between May and August inclusive. Although survey methods for breeding snipe did not comply very well with the recommended methods in Gilbert *et al.,* (1998), the absence of any records of snipe from any site surveys between May and August indicates that the species is not present within the proposed site in the summer months, and therefore does not breed.

84. I then reviewed how key bird species such as snipe were identified in the EIAR assessment process in terms of KOFs. Identification of the KOFs for this project is summarised in Table 8.20 of Chapter 8. For snipe, Table 8.20 concludes that based on "the activity and conservation status the snipe population is considered to be of Local (Higher value) importance. Therefore, the potential for significant effects through habitat loss, disturbance/displacement and collision-related mortality cannot be excluded and so further assessment of potential effects is required." I agree with this conclusion, although I consider that based on the lack of any sightings between May and August, snipe are not likely to breed within the proposed site.

Whooper Swan Surveys

85. Section 8.10.10 of Chapter 8 states that "detailed surveys for whooper swan were conducted during the 2023/24 non-breeding season. The aims of these surveys were to locate any whooper swan feeding and roosting sites within the study area (if present, recording the number of whooper swans using these sites), and to determine whether any whooper swan flightlines extended through the study area.

86. The study area for these surveys included the proposed site and a 5km buffer, within which whooper swan surveys were undertaken on six occasions between October 2023 and March 2024. Surveys comprised dawn and dusk watches, during which all whooper swan observations were recorded (i.e., the number of birds and their behaviour), along with observations of other target species.

87. In addition, two known whooper swan wintering sites were surveyed to provide context on whooper swan use of the wider landscape and to identify any potential connectivity: Churchtown (located c.13.5km south-west of the proposed site) and Kilcolman Wildfowl Reserve (located c.15.0km south of the proposed site). These locations were surveyed on 11 occasions between October 2023 and March 2024 inclusive.

88. I reviewed survey dates and times presented in Table 49 (Appendix 8.1) and they comply with NatureScot guidance (2025).

89. Results of the winter swan surveys are presented in Section 8.13.4.4 and Table 8.17 of Chapter 8. There were two whooper swan observations recorded within 5km of the proposed site. A group of 10 whooper swans were seen flying north-east, 1.1km north-east of the proposed site on 27/10/2023. The second observation involved "one whooper swan on Charleville Lagoons with Mute Swans on 29-30/11/23, before it flew off east towards Bruff".

90. However, Section 7 of Appendix 8.1 contains a slightly different summary of observations of whooper swans, stating that "Whooper swan observations were mostly outside of the Site comprising three records of 11 birds flying north of the Site, an incidental record of a whooper swan present at Charleville Lagoon and two individuals flying towards Charleville Lagoons from the south-west of the Site in November 2022. Throughout the survey period only one individual whooper swan was recorded foraging on grassland within the Site in March 2023. No records of whooper swan were recorded during the waterbird surveys at Charleville Lagoons."

91. In order to get a wider context of whooper swan movements, I reviewed the whooper swan species account in the Birds of Cork (Smiddy *et al.,*2022). October is typically the arrival month for whooper swans from their Icelandic breeding grounds, and whooper swans may visit freshwater sites across the county during the autumn arrival period, with most staying only a short time before moving on to one of the main wintering areas (Smiddy *et al.,*2022). Based on this information, I consider that whooper swans would be most likely to occur at Charleville Lagoons in small family groups in October, soon after arrival from Iceland, with birds moving on then to the regular wintering locations such as Kilcolman Nature Reserve. Submissions from Dr Mee and the Bruree-Charleville-Effin Wind Farm Action Group both highlight that a family party of six whooper swans were present at Charleville Lagoons on 26/10/2025, which would fit in with this pattern.

92. In relation to the last point in Paragraph 73 above, I note that waterbird surveys at Charleville Lagoons were not undertaken in either October or November 2023, thus the likely main arrival time of whooper swans at the lagoons was not covered by the project waterbird surveys at the lagoons.

93. I then reviewed how whooper swan had been considered in the EIAR assessment process in terms of KOFs. Identification of the KOFs for this project is summarised in Table 8.20 of Chapter 8. For whooper swan, Table 8.20 concludes that "Only one individual was recorded foraging within the Site on a single occasion throughout the course of the surveys. In consideration with the distance from the SPA and unlikely functional linkage, limited activity within the Site and habitat availability within the wider area the whooper swan population in the context of the Project is considered to be of Negligible importance. No further assessment is therefore required, although general recommendations regarding mitigation and enhancement for birds that would be adopted would also potentially benefit whooper swan (Section 8.16)."

94. Section 2 of Appendix 2 of the Developer's response to submissions document (January 2026) concluded that "No regularly occurring notable populations of whooper swan were identified within the zone of influence of the Proposed Project, with habitats dominated by widely available low-quality pasture grassland. Presence of this species throughout the study period was extremely infrequent, limited to one individual foraging within the Site on one occasion, a peak count of two birds at Charleville Lagoons, and flight activity consisting of an individual bird in flight well beyond the turbine area across four years of surveys."

95. Even allowing for the discrepancies in reporting between Chapter 8 and Appendix 8.1, I conclude that based on the baseline survey data that the proposed site does not regularly support significant numbers of whooper swans in winter months. There was no evidence from the VP survey data of regular flightlines through or close to the proposed site.

96. Overall, based on the information presented in Chapter 8, Appendix 8.1 and the Developer's response to submissions document (January 2026), I agree with the conclusion presented in Table 8.20 that whooper swan does not constitute a Key Ornithological Receptor for this project, and that further assessment for this species in the EIAR was not required.

Waterbird Surveys

97. A number of submissions raised issues in relation to survey effort for birds particularly in relation to the adjacent Charleville Lagoons. Section 8.10.9 of Chapter 8 states that "To provide supplementary information on target species in the wider area, waterbird surveys were conducted on ten occasions at Charleville Lagoons, located 0.1km south of the Site, between the 2022/23 and 2023/24 non-breeding seasons. The survey method adopted was based on the I-WeBS methodology (Bibby et al., 2000). All target species encountered were recorded, with habitats surveyed including all suitable foraging and roosting areas for waterbird within the survey area."

98. Based on information presented in Table 48 of Appendix 8.1, one survey was conducted in March 2023, with two surveys in April 2023 and single surveys in May 2023, August 2023, September 2023, and between December 2023 and March 2024. It is not clear why surveys in June, July, October or November were not conducted, as additional information on breeding species in June and July could have been obtained, while surveys in October and November would have provided additional information on the non-breeding season.

99. Section 8.13.2 of Chapter 8 summarised I-WeBS data for Charleville Lagoons. The relevant text states that "Charleville Lagoons is located at land adjacent to the Site and was most recently assessed in 2018/19 with further data between 2011 – 2014." The I-Webs average peak counts for this survey period for shoveler was presented as 40 birds, although the hyperlink to the reference count data provided in the EIAR text did not work.

100. A similar I-Webs dataset was used to prepare a review of the waterbird status and distribution between 2009/10 and 2015/16 for the NPWS Irish Wildlife Manuals series (Lewis *et al.,* 2019). This report was not referenced in the EIAR and does not appear to have been used in the assessment. This report presents I-WeBS data for Charleville Lagoons for shoveler and other species between 2009/10 and 2015/16, with mean and peak numbers over the period 2011-2015, which is a similar dataset to that used for the EIAR assessment. From this report, the 5-year mean (2011-15) for shoveler at Charleville Lagoons was 45 birds, while the 5-year peak count (2011-15) for shoveler was 52 birds (Lewis *et al.,* 2019). Unfortunately, the more recent similar publication summarising I-WeBS data for the period 2016/17 – 2022/23 does not include counts for Charleville Lagoons for shoveler (Burke *et al.,* 2025).

101. Comparing these counts, I consider that the monthly totals of shoveler recorded on the waterbird surveys at Charleville Lagoons for the EIAR in 2023 are representative and comparable with previous counts recorded on I-WeBS surveys, and that nationally important numbers still regularly occur at the Lagoons.

102. I reviewed the monthly species survey counts from Charleville lagoons presented in Table 8.15 (Chapter 8) and Table 89 (Appendix 8.1). Nationally important numbers were noted for three species – shoveler (four counts), teal (one count) and little grebe (two counts) (Table 3). Of these species, shoveler is currently on the BoCCI4 Red list for both breeding and wintering numbers, as prepared by Birdwatch Ireland (Gilbert *et al.,* 2021) and highlighted in Table 8.20 of Chapter 8.

103. A site is considered to support numbers of national importance if it regularly supports 1% or more of the All-Ireland population estimate of a species (Burke et al., 2025). On this basis, Charleville Lagoons can be considered to support nationally important numbers of shoveler in the non-breeding season, while numbers of little grebes and teal occasionally exceed the 1% threshold of nationally importance at the Lagoons.

Table 3 Nationally important counts of waterfowl at Charleville Lagoons (based on Table 8.15, Chapter 8 and Table 89, Appendix 8.1)

Species & 1% Nationally Important threshold (from Burke *et al.,* 2025)	Count (No. of birds)	Month
Little Grebe (30 birds)	100	August 2023
	76	September 2023
Shoveler (35 birds)	38	March 2023
	45	September 2023
	58	December 2023
	63	January 2024
Teal (440 birds)	543	January 2024

104. I could not find any published evidence of shoveler breeding at Charleville Lagoons, although several submissions quote Balmer *et al*., (2013) as evidence of breeding. However, this publication presents breeding information in 10km grid squares, rather than by individual sites, so does not specifically state that shoveler breed at this site. Confusingly, Table 8.11 of Chapter 8 includes the count of 45 shoveler at the Lagoons in September 2023 as being in the breeding season, and this has also been quoted in a few of the submissions. However, as highlighted in Section 8.12 of Chapter 8, "surveys undertaken in October to March inclusive have been broadly categorised as 'non-breeding' surveys, whilst surveys undertaken in April to September inclusive have been broadly categorised as 'breeding' surveys. It is recognised that species are likely to differ in their

patterns of seasonal use of the Site, with some species likely to exhibit breeding behaviour outside of April to September inclusive, whilst species present during April to September were not necessarily breeding on the Site."

105. I found evidence that the shoveler breeding season in northern Europe would typically start in mid-April, with the incubation and fledging periods taking in the region of 68 days (Snow and Perrins, 1998), which would be up until the end of June. Similarly, in Scotland, egg-laying typically starts in early May, with incubation and fledging taking up to 89 days, up to early August (Forrester *et al*., 2007). Peak autumn migration occurs in Scotland in September and October (Forrester *et al*., 2007), and based on this information, I consider that the counts of shoveler at Charleville Lagoons in September 2023 involved migrating birds, while the lack of shoveler records at the Lagoons on April and May 2023 surveys (Table 89, Appendix 8.1) indicate that the species does not breed at this location. On the April 2026 site visit with the ACP Inspector, we did not record any shoveler on the Charleville Lagoons.

106. It was concluded in Table 8.20 of Chapter 8 that shoveler was not a KOF for the project on the basis that the species was "recorded in low numbers and/or infrequently". As such, the proposed site was considered to be "of low value" to this species. Table 8.20 concluded that "whilst some flight activity was recorded, the majority of observations recorded were either not within the potential collision risk zone of the Project or infrequent within the Site".

107. While I agree that shoveler were only recorded in low numbers and infrequently within the proposed site, it is clear from the EIAR count data for Charleville Lagoons that nationally important numbers of shoveler, which is a BWI Red-listed species for both breeding and wintering numbers (Gilbert *et al.,* 2021), are regularly present in the non-breeding season. In addition, as highlighted in the DAU submission, "due to the extreme proximity of the proposed development to the Charleville Lagoons, their ornithological importance in a national context, and the observed levels and direction of flight activity over the site, the level of nocturnal flight activity over the site needs to be established to enable robust collision risk assessment to be undertaken."

108. Section 8.11.4 of Chapter 8 states that "For this assessment KOFs have been identified as receptors with a value of local importance (higher value) or greater, which may be subject to significant effects from the Project, either directly or indirectly."

109. As nationally important numbers of shoveler are regularly recorded at the adjacent Charleville Lagoons, I conclude that shoveler should have been considered as a KOF for the project and therefore taken forward for further assessment in the EIAR.

4.4 Assessments

110. I reviewed the assessment section of Chapter 8 of the EIAR.

Impacts on Designated Sites

111. Section 8.15.2 of Chapter 8 considers potential impacts from the proposed project on three identified designated conservation sites with ornithological interest (Blackwater River (Cork/Waterford) SAC, Ballyhoura Mountains SAC and IBA and Kilcolman Bog SPA). These sites are also considered further in the NIS (see my conclusions in Section 5.0 of this report).

Impacts on Birds

112. I reviewed the impact assessment section of Chapter 8. Table 4 summarises the key aspects of this assessment. My consideration of these key aspects is summarised in Table 5 below and subsequent text.

Table 4 Summary of impacts on birds, based on information presented in the EIAR

Key species	Ecological significance	Impacts considered	Impact significance as presented in EIAR
Cormorant Local (Higher value)	High levels of flight activity within the site all year	Habitat loss, Disturbance/displacement Collision	Not significant
Golden Plover, Lapwing, Snipe Local (Higher value)	All three species occur in non-breeding season. No evidence of breeding)	Habitat loss, Disturbance/displacement Collision	Not significant
Lesser black-backed Gull, Black-headed Gull Local (Higher value)	LBB Gull Flying over (all year). Black-headed Gull Flying over (non-breeding season). Both occasionally roost in site	Habitat loss Disturbance/displacement Collision	Not significant
Kestrel Peregrine Local (Higher value)	High levels of kestrel flight activity were recorded all year. Peregrine recorded multiple times (greater activity in	Habitat loss, Disturbance/displacement Collision	Not significant

	non-breeding season)		
Non-target passerines Local (Higher value)	Meadow pipit, starling (All year) swallow (breeding season), redwing (non-breeding season)	Habitat loss	Long-term, Slight Negative Effect (significant at a Local level) during construction Not significant during operational phase
		Disturbance/displacement	Short-term, Slight Negative Effect (significant at a Local level) during construction Not significant during operational phase
Mitigation measures	Retainment of areas of more important habitat as much as possible within the development design (e.g., waterbodies and hedgerows); Minimisation of the extent of habitat loss during construction as much as possible within the development design; Selection of delivery routes which use existing built infrastructure wherever possible, with laying of cables underground on the public roadway; and Presence of an ECoW on site to oversee any ornithological issues during construction.		
Habitat enhancement	Following the proposed loss of 1,649m of hedgerow and tree lines associated with the Project, there will be replacement planting of 1,359m of new hedgerow and enhancement of 4,074m of existing unmanaged hedgerows. Planting will use native plant species of local provenance and of known value to wildlife, whilst rotational management regimes will be adopted to newly planted and existing hedgerows to create varying age structures which would be favoured by different species and at different times of the year. Establishment of an area of 0.67 ha of native woodland 15 nest boxes suitable for a range of non-target farmland species. Two kestrel nest boxes: to be installed on suitable trees or buildings near suitable grassland foraging habitat, at least 500m from any turbines; and		

	One barn owl nest box: to be installed on a suitable tree or building near suitable grassland foraging habitat, at least 500m from any turbines.
Monitoring	Avian fatality monitoring programme will be implemented within the operational wind farm using specially trained dogs Monitoring will involve 36 monthly searches of carcasses within first three years of operation and subsequently in years 5,7,10,15,20, 25, and 30, to ensure non-breeding and breeding species of birds are accounted for. All feather spots and bird carcasses will be photographed and logged in an annual fatality search report, which will be submitted to relevant stakeholders and the planning authority for consultation.
Residual effects	No significant residual effects are anticipated.

Table 5 Consideration of key ornithological issues

Key aspects	**How addressed in EIAR**	**Consideration**
Bird survey effort and methods	VP watches surveys Transect surveys Hinterland surveys Breeding raptor surveys Barn Owl surveys Breeding wader surveys Whooper Swan surveys Waterbird surveys at adjacent Charleville Lagoons	Overall, most survey methods and effort complied with recommended guidance. Some VP surveys undertaken in persistent rain. Barn Owl dusk visits did not comply fully with guidance although daytime site visits did not suggest active sites e.g. no pellets or droppings recorded. Breeding wader surveys did not specifically survey for snipe, but species not recorded on site between May and August. Waterbird surveys at adjacent Charleville Lagoons were limited in monthly coverage.
Habitat loss assessment	No impacts for most key ornithological receptors; Long-term slight negative effect for non-target passerine species. Mitigation measures and habitat enhancement measures will reduce any habitat loss impacts to no significant residual effects.	Agree with findings of habitat loss assessment. Mitigation and habitat enhancement measures should be stipulated as planning conditions.

Disturbance/displacement assessment	No impacts for key ornithological receptors using the proposed site.	Agree with findings of disturbance/displacement assessment within proposed site. However, potential for displacement of sensitive wildfowl species using adjacent Charleville Lagoons has not been adequately assessed. Based on the information presented within the EIAR, it is not possible to conclude that the proposed development will not result in significant impacts on nationally important numbers of bird species regularly using Charleville Lagoons in the non-breeding season (e.g. shoveler), as well as other regularly occurring wildfowl species such as teal, tufted duck and wigeon. Removal of T1 from application should be considered to reduce the potential for significant displacement effects on shoveler and other waterbird species that regularly use Charleville Lagoons.
Collision risk assessment	No impacts for key ornithological receptors using the proposed site and a 100m buffer around proposed turbines.	Agree with findings of CRM assessment for key species within proposed site. However, the CRM assessment should have included flight path data out to 500m from the proposed turbines, as opposed to the 100m buffer that was applied In addition, the potential for nocturnal collision impacts on nationally important numbers of species e.g. shoveler and other regularly occurring wildfowl species such as teal and wigeon have not been considered in the EIAR. Removal of T1 from application should be considered to reduce the potential for significant nocturnal turbine collision effects on shoveler and other waterbird species that regularly use Charleville Lagoons.

Cumulative Effects Assessment	No cumulative effects predicted for key ornithological receptors using the proposed site.	Agree with conclusions of Cumulative Effects Assessment.

30.2. **Collision impacts**

113. I reviewed the Ornithology Collision Risk Modelling Report (Appendix 8.2 of Chapter 8). The methods used are outlined in Section 3 and are based on industry standard guidance produced by NatureScot (SNH, 2017), [although this guidance was updated in 2025, subsequent to the submission of the Garrane Wind Farm planning application]. The CRM assessment was based on flight path data recorded on VP surveys between October 2020 and September 2024.

114. Section 2.1 of the CRM Report (Appendix 8.2) states that "For the purposes of collision risk modelling, the Wind Farm Area (WFA) has been defined as the maximum area covered by the turbine bases, allowing for a 174 m radius around each turbine base for the turbine layout. This radius accounts for the span of the turbine blades plus a 100 m buffer to allow for any inaccuracies when mapping bird flight lines during VP surveys." A similar statement is included in Section 3.6 Limitations and Assumptions, where the text states "to account for potential errors when recording the precise locations of birds in flight during VP surveys, a 100 m buffer was adopted around turbine bases (in addition to the turbine blade span) when generating the WFA."

115. However, in Section 3.8.3 of the 2017 NatureScot guidance, it is stated that strategic vantage points "should cover the defined survey area encompassing the proposed turbine envelope if known, or the maximum extent of potential turbine layouts. This should extend to 500m beyond the outermost proposed turbines to deal with inaccuracies of position for flight line observations. This will also reduce the risk of failing to record birds that use the wind farm area only occasionally."

116. I reviewed similar examples of CRM reports for other recent wind farm applications that were based on the NatureScot 2017 guidance and found four instances dated both before and since the submission of the Garrane wind farm EIAR, where flight paths out to 500m from proposed turbines had been included in the CRM assessment (Table 6). I consider that this, together with the above statement from the 2017 NatureScot guidance indicates that including flight paths out to 500m from proposed turbines is standard best practice for CRM assessments. On this basis, I consider that the approach taken for the Garrane Wind Farm CRM assessment did not fully follow the 2017 NatureScot guidance.

Table 6 Comparison of application of buffers around turbines for CRM in some recent wind farm applications

Wind Farm Project	Publication date and planning reference number	Extent of buffer around turbines applied in CRM
Garrane Wind Farm (RSK Biocensus, 2024)	October 2024 ACP Ref: 323635-25	"For the purposes of collision risk modelling, the Wind Farm Area (WFA) has been defined as the maximum area covered by the turbine bases, allowing for a 174 m radius around each turbine base for the turbine layout. This radius accounts for the span of the turbine blades plus a 100 m buffer to allow for any inaccuracies when mapping bird flight lines during VP surveys."
Dyrick Hill Wind Farm (Fehily Timoney, 2023)	May 2023 ACP Ref: PA93.317265	"For the purposes of collision risk modelling, a 500 m radius buffer was drawn around each of the proposed turbine locations. This buffer was used as the flight activity survey area, following SNH (2017a) guidance.
Seskin Wind Farm (MKO, 2024a)	May 2024 ACP Ref: PL01.320354	"A "risk window" is identified: a 2-dimensional line the width of a wind farm to a 500m buffer of the turbines, multiplied by the rotor diameter. All commuting flights which pass through this risk window within the rotor swept height (potential collision height; PCH) are included in collision risk modelling. Any regular flights more than 500m from the turbine layout can be excluded from analysis."
Knockshanvo Wind Farm (MKO, 2024b)	August 2024 ACP Ref: PA03.320705	"A "risk window" is identified: a 2-dimensional line the width of the wind farm to a 500m buffer of the turbines, multiplied by the rotor diameter. All commuting flights which pass through this risk window within the rotor swept height (potential collision height; PCH) are included in collision risk modelling."

Gortloughra Wind Farm (Fehily Timoney, 2025)	March 2025 ACP Ref: PL88.322743	"For the purposes of collision risk modelling, a 500 m radius buffer was drawn around each of the proposed turbine locations. This buffer was used as the flight activity survey area, following SNH (2017) guidance."

117. It is not clear why only a 100m buffer was used in the Garrane CRM, particularly given the adjacent Charleville Lagoons within 200m of the nearest proposed turbine. If a 500m buffer from the southernmost turbine (Turbine 1) had been applied, then this would have resulted in the majority of Charleville Lagoons being included in the CRM assessment. This would mean the inclusion of flight height data for shoveler within the rotor-swept zone presented in Table 76 of the EIAR Baseline Technical Report (Appendix 8.1), which was highlighted in the submission from BCE Wind Farm Action Group.

118. Overall, I consider that the CRM assessment for Garrane Wind Farm should have included flight path data out to 500m from the proposed turbines, as recommended in the 2017 NatureScot guidance, as opposed to the 100m buffer that was applied. This would have allowed the CRM assessment to include flight path data for species recorded within the adjacent Charleville Lagoons, which would have meant that a more complete assessment would have been conducted.

119. Table 5 of Appendix 8.2 presents a list of 11 target species for particular consideration in the CRM assessment. These species were selected based on several factors including level of legal protection, relevance to nearby designated sites, assessed level of importance of the proposed site for each species and the level of flight activity recorded on VP surveys. Table 5 includes all eight species listed as Key Ornithological Features in Table 8.20 of Chapter 8 are listed, along with an additional three species (buzzard, mallard and wigeon).

120. Several submissions (e.g. An Taisce) highlighted that some species e.g. barn owl were not included in the CRM assessment. However, the CRM assessment states on Page 10 that "An additional 24 target species recorded during the VP surveys would potentially merit inclusion in collision risk modelling on account of their conservation status, relevance to nearby designated sites and/or potential sensitivity to the Project." However, the text goes on to highlight that for these species, flight activity recorded on VP surveys was either at a "very low level in the context of their population statuses" and/ or were "outside of the flight risk volume", i.e. above or below or outside the rotor-swept area.

121. This issue was further addressed in Section 3 of Appendix 2 of the Developer's response to submissions document (January 2026), where the text states "Species excluded from further modelling included those with only low levels of flight seconds at potential collision height, species that have low conservation status, and/or are of limited importance due to low habitat availability or lack of association with designated sites within the study area. Such species that were excluded due to low flight seconds at collision height within the turbine area included mute swan (382 flight seconds), shoveler (0 flight seconds), gadwall (0 flight seconds) and teal (75 flight seconds). As flight activity is typically directly

proportionate to the collision risk estimates, it can be inferred that even under precautionary assumptions the flight activity for these species would equate to negligible collision risk (e.g. <1 bird over 35 years) and so additional modelling would provide no material difference to the impact assessment conclusions provided in the EIAR."

122. From this, I conclude that these 24 species were considered but were not taken forward for CRM modelling because the levels of recorded flight activity were so low that the results would have been negligible. However, as highlighted above, the Garrane Wind Farm CRM was conducted using flight path data out to 100m from the proposed turbines, rather than out to 500m, which has been used for several other CRM assessments from both before and after the Garrane application submission (Table 6). It is not clear how many additional flight paths for species recorded between 100m and 500m from the proposed turbines would have been included, if a 500m buffer had been applied.

123. I consider that ideally that CRM should have been run for all species where flight activity within the rotor-swept zone was recorded, regardless of how little flight activity was recorded. This would have clearly demonstrated the predicted negligible collision effect for these species.

124. Section 3 of the CRM Report (Appendix 8.2) outlines the approach used in the CRM, together with flight speeds and avoidance rates for the key species, and I consider that this was largely adequate. In Section 3.4, the text outlines that two models are available, the "Airspace" model for birds recorded within the Wind Farm Area (WFA) "airspace" and the "Fly through" model, where birds are typically using regular commuting routes through the WFA. The Airspace model was selected as most appropriate as observations of 10 of the key species were "typically of birds hunting, circling, soaring and perching within the WFA, or birds circling or flying over the Site." The "Fly through" model was also used for black-headed gull in the assessment, but not for cormorant.

125. A query in the DAU submission highlighted the "identified strong north – south movement of Cormorant over the site", and I would question why the "Fly through" model was not also applied for this species. Section 3 of the Developer's response to submissions document (January 2026) addresses submission queries on CRM, but the DAU query regarding north-south movements of cormorants was not addressed in that section. It is worth noting that on the April 2026 site visit with the ACP Inspector, a flock of four cormorants were seen flying south towards Charleville Lagoons at turbine height through the proposed site. I consider that results from the "Fly through" model for cormorant should also have been presented in the Developer's response to submissions document (January 2026).

126. I checked the species summary tables and accompanying text in Appendix 8.2 presenting the estimated collision fatalities per year and over the 35-year lifespan of the project and agreed with the numbers presented within those tables. I am satisfied that the results presented for the 11 species considered for CRM are correct.

127. CRM results for the eight species that had previously been identified as Key Ornithological Features were assessed in Section 8.15.3.2 (Operational Effects) of Chapter 8. For all eight

species, the number of estimated annual collision fatalities was very slightly different in the tables in Section 8.15.3.2 compared to the numbers presented in Appendix 8.2, although I could not find an explanation for these slight differences. For example, for cormorant, Table 8.23 states that the "mean estimated collision fatalities per year was 0.244 birds per year compared to Table 12 of Appendix 8.2 which states an estimated 0.249 collision fatalities per year. None of these differences were significant but I could not determine why there were any differences.

128. The CRM assessment (Section 8.15.3.2) concluded that for all eight key ornithological features, the estimated annual mortality from collisions was less than one bird. Although no numerical comparison was made comparing the estimated annual mortality to e.g. a regional population, in all cases it was concluded that collision impacts were considered to be not significant. Overall, I agree with this conclusion, based on the low estimated annual mortality (less than one bird) for all key species considered. I would however disagree with some of the text regarding population status presented in this section, for example the text on page 84 states that "kestrel is considered locally widespread and common", whereas it is actually a BoCCI Red-listed breeding species that has undergone a decline of over 50% in the breeding population over 25 years (Gilbert *et al.,* 2021).

129. The submission from BCE Wind Farm Action Group raised an issue about turbine height in relation to turbines within the flood plain being sited on plinths, which would increase their height above the 170m used as the upper blade tip height, and that this additional height had not been factored into the CRM assessment.

130. The developer responded to this submission in Section 3 of the Developer's response to submissions document (January 2026). The relevant text states "As provided in Appendix 8.2 of the EIAR, the turbine specifications are accurate to those stated in Chapter 1: Introduction and, as recommended in best practice guidance, they represent the overall layout of the proposed wind farm. Any variation due to plinths of less than 2m above existing ground level would be a negligible alteration to the swept range considered in the assessment. It should also be noted that this additional height would make no material difference to the collision risk modelling outputs presented in the EIAR, since bird flight heights were recorded in height bands during the VP surveys, with the upper band extending between 100 m up to 180 m (10 m higher than the upper tip height). This therefore includes data recorded at the heights that would be influenced by the inclusion of the plinths."

131. I reviewed the methods used for the VP surveys (Section 8.10.3 of Chapter 8), where it outlines that flight heights were recorded in metres, with the following flight height categories used: "0-20m, 20-50m, 50-100m, 100-180m, >180m". This information was also presented in Section 3.2 of the CRM Report (Appendix 8.2), where the text also states "flight records included within collision risk modelling (i.e., flights at 'collision risk height' and therefore included within the 'flight risk volume' where they extended through the WFA) were those recorded in the 20-50 m, 50-100 m and 100-180 m flight height categories."

132. Based on this information, I agree with the explanation presented in the Developer's response to submissions document (January 2026) that data was considered to be at flight height up to 180m, which is higher than turbine tip height including turbines on plinths.

133. In addition to the assessment of collision impacts for species recorded flying through the wind farm on vantage point surveys, several public submissions raised concerns over potential collision impacts on the nationally important numbers of shoveler that occur on the adjacent Charleville Lagoons.

134. In Table 8.20 of Chapter 8, the text states that "A collision risk assessment is therefore not necessary" for shoveler, with the population being assessed as being "of Negligible importance in the context of the Project "and therefore not taken forward for further assessment. However, as outlined above in the Developers response to submissions (January 2026), this is based on the very low levels of shoveler observations within the proposed wind farm site from the VP surveys. Movements of shoveler to and from the adjacent Charleville Lagoons have not been considered. As highlighted above, if a 500m buffer around proposed turbine locations had been applied instead of a 100m buffer, then additional flight height data for shoveler within the rotor-swept zone presented in Table 76 of the EIAR Baseline Technical Report (Appendix 8.1) would have been included in the CRM assessment.

135. As reported earlier, the DAU submission states that "it is considered that due to the extreme proximity of the proposed development to the Charleville Lagoons, their ornithological importance in a national context, and the observed levels and direction of flight activity over the site, the level of nocturnal flight activity over the site needs to be established to enable robust collision risk assessment to be undertaken."

136. Similarly, comments from the An Taisce submission also relate to the close proximity of Charleville Lagoons, and potential issues with the collision risk modelling. The submission states that "given the close proximity of the wetland complex, the potential for high bird diversity and the potential exclusion of important resident bird species in the collision risk modelling methodology employed by the applicant, it is submitted that the impact determination for operational effects of the project as "negligible", "not significant" requires clarification as a preliminary matter. In the absence of this, collision risk and potential impact for bird species may be higher than anticipated." When these comments are considered in the context of a 100m buffer being applied for the CRM assessment rather than a 500m buffer, which would have included flight paths recorded in the majority of the Charleville Lagoons, then it is reasonable to conclude that outputs from the CRM assessment may have been higher had a 500m buffer been applied.

137. In addition, collision impacts on nocturnal movements of nationally important species such as shoveler, as highlighted in the DAU submission and submissions from other parties, have not been considered in the EIAR. Although not specifically covered in the NatureScot 2017 guidance, Section 4 of the 2017 guidance states that "For some species it may be possible to estimate levels of nocturnal activity based on studies on these species." I found one example listed in Table 6 where this advice was applied, where 25% nocturnal activity

for snipe was applied to the CRM assessment for Knockshanvo Wind Farm (MKO, 2024b). This CRM assessment was submitted in August 2024, prior to the Garrane Wind Farm application in October 2024, and was based on the NatureScot 2017 guidance, demonstrating that some degree of accounting for nocturnal activity could have been incorporated into the Garrane Wind Farm CRM.

138. In the Developer's response to submissions document (January 2026), text in Section 3 states that "Limitations associated with the feasibility of undertaking nocturnal bird flight activity surveys are a recognised constraint within the collision risk modelling process and was recognised within Section 8.3.4 of the ornithology EIAR chapter." However, I searched Chapter 8 for this section and it does not appear to exist. Section 8.12 of Chapter 8 presents text regarding limitations and assumptions within the EIAR, and it is stated in that section that "Limitations associated with collision risk modelling are discussed within Appendix 8.2 – Ornithology Collision Risk Modelling Report." Again, there is no mention of consideration of nocturnal activity within the text of Appendix 8.2.

139. In the Developer's response to submissions document (January 2026), the text in Section 3 goes on to state that "This limitation [regarding nocturnal bird flight activity] has since been addressed within an updated collision risk modelling approach from NatureScot (Band, 2024), which provides a feature within the modelling to include a nocturnal activity factor. This is intended to accommodate any nocturnal bird flight activity that may be underrepresented within the VP survey data set. This modelling is currently ongoing and can be made available to An Coimisiún Pleanála at request." However, it is my understanding that it was not possible for An Coimisiún Pleanála to request this information due to the requirement for additional information to go out to consultation, and the limited time available for the response. Therefore, this additional modelling was not requested from the Developer and has not been reviewed or considered in this report.
In order for this additional information to be considered it would have needed to have been included as part of the Developer's response to submissions document (January 2026).

140. The concluding text of Section 3 of the Developer's response to submissions document (January 2026) states that "Furthermore, limited habitat of likely significant importance for use by waders, waterfowl or other nocturnal birds is present within the Site. Additional nocturnal surveys were therefore considered unnecessary to inform the baseline conditions."

141. I consider that this statement fails to take into account the potential collision risk for nocturnally active wildfowl species such as shoveler, teal and wigeon passing through the wind farm on flights in and out of the adjacent Charleville Lagoons.

142. Overall, taking into account concerns raised by the DAU and other parties about potential nocturnal collisions, and the potential for outputs from the CRM assessment to have been higher had a 500m buffer and additional percentages taking account of nocturnal activity been applied, I recommend that consideration is given to the removal of Turbine 01 as numbered in Figure 1 of Appendix 8.1 from the proposal, in order to reduce the potential

for significant nocturnal turbine collision effects on shoveler and other waterbird species that regularly use Charleville Lagoons.

Displacement impacts

143. In addition to collision impacts, several public submissions raised the potential issue of displacement of sensitive wildfowl species from the lagoons due to the presence of Turbine 1, which would be located within 200m of the Lagoons at the nearest point, based on the Turbine Location map (Figure 1, Appendix 8.1).

144. I conducted an online literature review for evidence of displacement effects on shoveler and other dabbling duck species from terrestrial wind turbines. Studies are quite limited, however, one study in Belgium reported that most wintering duck species held a clear distance of 150 to 300 meters to the turbines, with large groups staying at greater distances than individual birds (Everaert, 2004).

145. A review of 127 separate wind farm studies from ten countries, generally observed higher avoidance distances from wind farms outside the breeding season. Birds of open habitats, e.g. geese, ducks and waders, generally avoided turbines by several hundred meters. Information specifically for shoveler was very limited, however for mallard, a similar species of dabbling duck, based on nine studies in the non-breeding season, the median distance from turbines was 200m, while the mean distance from turbines was 161m (Hotker *et al.,*2006).

146. Lastly, studies at Urk, The Netherlands found decreases within the wind farm area in winter, which extended to 300m away from the wind farm, for mallard, tufted duck, common pochard and common goldeneye (Winkelman, 1989).

147. Based on these studies, I consider that there is potential for displacement of sensitive wildfowl species such as shoveler, teal, tufted duck and wigeon that use Charleville Lagoons in the non-breeding season. These species were also highlighted as being at risk of potential displacement effects as a result of the project in the submission from the BCE Wind Farm Action Group.

148. Overall, I consider that potential displacement impacts on the nationally important population of shoveler and other wildfowl species at the adjacent Charleville Lagoons have not been adequately assessed in the EIAR, associated appendices or in the Developer's response to submissions document (January 2026).

149. On this basis, and following the precautionary principle, I recommend that consideration is given to the removal of Turbine 01 as numbered in Figure 1 of Appendix 8.1 from the proposal, in order to reduce the potential for significant displacement effects on shoveler and other waterbird species that regularly use Charleville Lagoons.

Cumulative Effects

150. I reviewed Section 8.15.4 Cumulative Effects of Chapter 8. The cumulative assessment considered upgrade works to the N/M20 Cork to Limerick Improvement Scheme and seven operational wind farms within 20km of the proposed site.

151. The public submission from BDAB Community Action Group raised the issue that the proposed Ballinlee Wind Farm was not included in the cumulative effects assessment, in relation to potential cumulative impacts on whooper swan. The Ballinlee Wind Farm application was submitted in September 2025, compared to the submission date of the Garrane Wind Farm application in August 2025. Both wind farm applications were submitted by subsidiaries of Greensource Sustainable Development Limited.

152. The cumulative effects assessment section concluded that "Following consideration of the impact assessment, it is noted that the Project on its own, would not result in any significant effects upon any of the identified KOFs that would be sensitive to impacts from developments in other areas. No additive, antagonistic, or synergistic effects have been identified with regard to habitat loss, displacement, and collision mortality and no potentially significant cumulative effects are likely."

153. I agree with the conclusions of the cumulative effect assessment regarding no likely significant cumulative impacts arising between the proposed development and operational wind farms within 20km.

4.5 Post-construction Monitoring

Monitoring of collision fatalities

154. Section 8.16.3.1 of EIAR Chapter 8 presents an overview of a proposed avian fatality monitoring programme that will be implemented when the proposed wind farm becomes operational. It is proposed that specially trained cadaver dogs and handlers will conduct monthly searches for bird carcasses for the first three years of operation, and subsequently in years 5,7,10,15,20, 25, and 30. All feather spots and bird carcasses will be photographed and logged in an annual fatality search report, which will be submitted to relevant stakeholders and the planning authority for consultation.

155. The DAU submission stated that "The proposed frequency of carcass monitoring post-construction (monthly) is not considered to be adequate due to the potential for carcasses to be scavenged and, in the case of smaller birds, removed completely by scavengers. Full details of the carcass monitoring protocol, including systematic coverage of the search plot, are needed."

156. The submission from Limerick County Council states that the post-construction carcass searches should also include bats.

157. I consider that the methods used and timescales for post-construction carcass monitoring for bird and bat fatalities should follow best practice (e.g. Duffy and Steward, 2008, SNH, 2009,) and should also include trials to determine carcass removal rates by scavengers, as well as searcher efficiency trials. The fatality monitoring programme should be agreed with NPWS as part of the planning conditions, if this project is consented.

Post-construction bird monitoring

158. There does not appear to be any details provided within EIAR Chapter 8 regarding post-construction vantage point surveys. However, SNH (now NatureScot) have produced recommendations regarding post-construction bird monitoring (SNH, 2009), and I consider that this guidance should be used as a basis for drawing up a detailed post-construction monitoring programme for birds which should be agreed with NPWS as part of the planning conditions, if this project is consented.

159. As recommended by SNH (2009), the monitoring programme should detail walkover breeding bird surveys as well as monthly vantage point surveys, while monitoring should occur in years 1, 2, 3, 5, 10 and 15 after the wind farm becomes operational.

Overall conclusions on EIAR

160. The Commission needs to be satisfied that that significant effects at National and regional population levels will be avoided. I consider that the applicant has largely provided this information for bird species assessed in the EIAR and in the application of mitigation and monitoring measures where effects were identified. However, as highlighted above, it is reasonable to conclude that outputs from the CRM assessment may have been higher had a 500m buffer been applied rather than the 100m buffer used in the CRM assessment.

161. In addition, while I agree with the majority of the key ornithological receptors assessed as part of the EIAR, I consider that shoveler should also have been included as a key receptor, on the basis that the adjacent Charleville Lagoons regularly holds nationally important numbers of this species in the non-breeding season.

162. I also consider that the EIAR fails to take into account the potential collision risk for nocturnally active species such as shoveler and other wildfowl passing through the wind farm on flights in and out of the adjacent Charleville Lagoons. If percentages taking account of nocturnal activity for these species had been applied, then this could also have increased outputs from the CRM assessment.

163. In addition, I consider that potential displacement impacts on the nationally important population of shoveler and other waterfowl species at the adjacent Charleville Lagoons have not been adequately assessed in the EIAR, associated appendices or in the Developer's response to submissions document (January 2026).

164. On this basis, and following the precautionary principle, I recommend that consideration is given to the removal of Turbine 01 as numbered in Figure 1 of Appendix 8.1 from the proposal, in order to reduce the potential for significant collision and displacement effects on shoveler and other waterbird species that regularly use Charleville Lagoons.

165. I also recommend that a post-construction monitoring programme including bird and bat fatality monitoring, breeding bird surveys and vantage point surveys should be agreed with NPWS as part of the planning conditions, if this project is consented.

166. In addition. all mitigation and habitat enhancement measures laid out in EIAR Chapter 8 should be stipulated as planning conditions.

5 Consideration of the Likely Significant Effects on a European Site

167. I reviewed the approach outlined in the Screening Report for Appropriate Assessment. This report was prepared by Dr Brian Madden of BioSphere Environmental Services.

168. The regulatory context was laid out prior to the screening exercise, along with a statement of authority.

169. I am satisfied that the scope, structure and content of the NIS has been prepared in accordance with good practice guidance as cited in the relevant documents. I am also satisfied that the ecologist team involved in the preparation of the NIS has the necessary (demonstrated) competencies and experience to carry out the work undertaken.

170. I am satisfied that the description of the project site as outlined in the NIS is accurate and sufficiently detailed.

171. I am satisfied that the methods used to identify relevant European sites that could potentially be affected by the proposed Project all European Sites were identified using a Source-Pathway-Receptor conceptual model for environmental management risk assessment. As well as designated SAC and SPA sites, candidate and/or proposed SAC and SPA sites were considered. Catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed Project and any European Sites.

172. The NIS states that "In the absence of any specific European or Irish guidance in relation to SPA's, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between the proposed Project and Special Protection Areas. The guidance takes into consideration the core and maximum distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects." I am satisfied that this guidance document is appropriate for informing the approach for the screening assessment.

173. In screening the need for Appropriate Assessment (AA), seven conservation sites were identified:

- Blackwater River (Cork/Waterford) SAC (code: 002170)
- Ballyhoura Mountains SAC (code: 002036)
- Tory Hill SAC (code: 000439)
- Glen Bog SAC (code: 001430)
- Kilcolman Bog SPA (code: 004095)
- Lower River Shannon SAC (code: 002165)
- River Shannon and River Fergus Estuaries SPA (code: 004077)

174. For four of these identified conservation sites (Blackwater River (Cork/Waterford) SAC, Tory Hill SAC, Glen Bog SAC and Ballyhoura Mountains SAC), review of the hydrological catchment mapping found no evidence of hydrological or ecological connectivity. I am satisfied with the conclusion presented in Table 6.3 of the NIS that there was no ecological or hydrological connectivity between the proposed project and these four conservation sites.

175. For Kilcolman Bog SPA, Table 6.3 states that "While the improved grassland could potentially support feeding whooper swans, the bird surveys (Chapter 8) recorded only a single whooper swan feeding within the Site on one date (March 2023), one record of a flying bird over the south-west sector of Site (November 2022) and two other records of whooper swans flying off-site. The study concluded that the habitat within the Site is not considered to be of value for whooper swan or any other waterbird species." Additional discussion is also presented below Table 6.3. The study also concluded that there was no evidence of connectivity between the Kilcolman Bog SPA and the Site." In addition, the review of hydrological catchment mapping found no evidence of hydrological connectivity between the proposed project and Kilcolman Bog SPA.

176. I reviewed the Conservation Objectives for Kilcolman Bog SPA (NPWS, 2025). There are four Special Conservation Interests (SCI) listed: whooper swan, teal, shoveler and wetlands. Under the category "Barriers to connectivity and site use" the defined target for the Conservation Objectives for whooper swan states that "Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA". Based on the low number of observations of whooper swans within the proposed site and adjacent Charleville Lagoons as presented in Chapter 8 and Appendix 8.1, I am satisfied that neither the proposed site or Charleville Lagoons qualify as ecologically important sites for whooper swan and that there was no evidence of regular connectivity between the proposed site and the Kilcolman Bog SPA.

177. Advice from NatureScot on foraging distances for whooper swans from their roost sites quoted in the Conservation Objectives for Kilcolman Bog SPA states that "In general, the foraging distance of wintering Whooper Swan from night roosts is estimated to be less than 5km (Scottish Natural Heritage, 2016), although this will vary depending on site and landscape." Kilcolman Bog SPA is approximately 15km south of the proposed site, based on information presented in Chapter 8.

178. Based on this distance, and the lack of regular connectivity between the proposed site and the Kilcolman Bog SPA from VP baseline data, I agree with the overall concluding statement presented in the NIS that "there is no potential for impacts and significant effects on this site in view of the conservation objectives of the Kilcolman Bog SPA. It follows that the proposed Project cannot contribute to any in-combination effects on this site when considered with other plans and projects. It is concluded that no further assessment is required for this site and that it can be 'screened-out'."

179. For the two remaining conservation sites, Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA (which extend over a similar geographical area), the AA

screening concluded that "Hydrological connectivity exists via the River Maigue between the Garrane Green Energy Project area and the Shannon Estuary system, and hence the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA" and that "Further assessment of these two sites is therefore required and it follows that there may be potential for the proposed Project to result in in-combination effects." I agree with the conclusion that these two sites should be carried forward to the NIS.

180. Section 3 of the NIS presents a series of assessments of whether the proposed Project will adversely affect these two conservation sites. Section 3.1 concludes that "on the basis of geographical separation, there is no potential for direct effects, such as disturbance of habitats and/or species, on these European sites during any of the phases of the proposed Project."

181. The submission from the DAU on the NIS states that "In assessing ecological connectivity with designated sites, the potential for bird movements through the proposed development site between the Charleville Lagoons and the River Shannon and River Fergus Estuaries SPA has been discounted due to the distance between the sites. However, this assessment only takes local bird movements into account. The potential for SCI birds on passage to and from the SPA to use the Charleville Lagoons has not been considered. For example, Shoveler numbers at the Charleville Lagoons (for which species numbers at the lagoons are of national importance) peak in October and early spring indicating that there is some use of the lagoons by birds on passage; whereas Shoveler numbers at the Shannon and Fergus Estuaries SPA peak in winter. This aspect of ecological connectivity between the Charleville Lagoons and the Shannon and Fergus Estuaries SPA needs to be explored more fully."

182. I considered the statement about shoveler numbers at Charleville Lagoons and the Shannon and Fergus Estuaries SPA. Table 2 of this report shows that waterbird surveys at the Lagoons undertaken for the EIAR recorded 45 shoveler in September 2023, with this number increasing in December 2023 (58 birds) to a peak of 63 birds in January 2024. Although based on a small number of counts, this is a similar pattern to the NPWS stated pattern for shoveler numbers at the Shannon and Fergus Estuaries SPA to peak in winter. I conclude from this that the shoveler at Charleville Lagoons are a different population to shoveler using the Shannon and Fergus Estuaries SPA, and that regular movement of birds between the two sites is not likely, given the distance between the SPA and the proposed site (approximately 27km at the nearest point).

183. On this basis, I agree with the conclusion from the NIS that there is no potential for direct effects on birds to arise from the proposed project, such as disturbance of habitats and/or species, on these European sites during any of the phases of the proposed project on the basis of geographical separation.

184. In-combination effects of the proposed project with other projects are presented in Section 3.5 of the NIS. A total of 10 operational, consented and proposed wind farms within a 20 km radius of the site of the Proposed Wind Farm Project were identified in Chapter 2 of the EIAR. The NIS considered that nine of these projects were located in

separate hydrological catchments and have no potential for in-combination effects on the Maigue River system when considered with the Proposed Project. For the remaining operational site, (Slievaragh Wind Farm), the NIS considered that as this wind farm drains to the Loobagh River and is located at the eastern boundary of the hydrological cumulative study area, there is limited potential for cumulative effects. Nevertheless, the mitigation measures which will be implemented will ensure that the Proposed Project does not have the potential to result in significant effects on the hydrological/hydrogeological environment.

185. I agree with the NIS conclusion that the proposed Garrane Project will not contribute to a significant effect on designated sites associated with the Shannon system when considered in-combination with other wind energy projects.

5.1 Overall conclusions on NIS

186. Overall, the Commission needs to be satisfied that adverse effects on the integrity of SPA sites can be excluded. I consider that the applicant has provided this information for SCI bird species assessed in the NIS and that there will be no adverse effects on SCI bird species for these European sites as a result of the proposed project.

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