Inspector's Report ACP-323780-25

Development	10 year planning permission for Ballinlee Wind Farm consisting of 17 no. wind turbines, a permanent 110kV substation and ancillary development.
Location	Ballincurra, Ballingayrour, Ballinlee North & South, Ballinrea, Ballyreesode, Camas North & South, Carrigeen, Knockuregare, Ballybane and other townlands in County Limerick.
Planning Authority	Limerick City and County Council
Applicant(s)	Ballinlee Green Energy Limited.
Type of Application	Application for approval Permission under 37E of the Planning and Development Act 2000, as amended.
Prescribed Bodies	National Parks and Wildlife Service Department of Defence Health Service Executive Uisce Éireann Irish Aviation Authority Transport Infrastructure Ireland

	Office of Public Works Health and Safety Authority Gas Networks Ireland
Observer(s)	Please refer to Appendix A.
Date of Site Inspection	25th March 2026.
Inspectors	Lead Inspector: Paul Kelly Second Inspector: Ian Boyle.

Contents

1.0 Introduction 5

2.0 Site Location and Description 5

3.0 Proposed Development 7

4.0 Consultations 12

Chief Executives Report 12

Prescribed Bodies 21

Public Submissions 31

Applicants Response 66

5.0 Planning History 66

6.0 Policy Context 67

European Policy 67

Relevant National Legislation, Policy and Guidelines 68

Wind Energy Guidelines 72

Regional Policy 75

Other Relevant Guidance 75

Limerick City and County Development Plan 2022-2028 as varied 76

7.0 Natural Heritage Designations 80

8.0 Planning Assessment 81

Introduction 81

Principle of Development 82

9.0 Environmental Impact Assessment (“EIA”) 102

Statutory Provisions 102

EIA Structure 103

Issues Raised in Respect of EIA 104

Compliance with Requirements of Article 94 and Schedule 6 of the Planning & Development Regulations, 2001 105
Assessment of Likely Significant Effects 110
10.0 Population & Human Health 111
11.0 Noise & Vibration 131
12.0 Shadow Flicker 156
13.0 Biodiversity 163
14.0 Ornithology 202
15.0 Water 227
16.0 Land and Soils 250
17.0 Landscape & Visual 271
18.0 Archaeology & Cultural Heritage 297
19.0 Material Assets - Traffic & Transportation and Built Services/Utilities 328
20.0 Air Quality 345
21.0 Climate 351
22.0 Major Accidents and Emergencies 359
23.0 Environmental Topic – Interaction of Effects 363
24.0 Reasoned Conclusions 364
25.0 Appropriate Assessment 367
Screening Determination 367
Appropriate Assessment Conclusion: Integrity Test 367
26.0 Recommendation 368
DRAFT ORDER 369
27.0 Conditions 378

1.0 Introduction

1.1. This case concerns an application for strategic infrastructure under Section 37E of the Planning and Development Act, 2000. It 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 29th 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 4th November 2025.

1.2. The application is made on foot of pre-application discussions with the Commission under ABP-320745-24 for the construction of a wind farm comprising 17no. wind turbines, associated infrastructure and grid connection with potential output of 75 to 95MW, where the Commission decided that the development would fall within the scope of section 37A of the Act and would be strategic infrastructure. Issues raised during the pre-application process related to: visual and landscape impacts, human health, residential amenities, biodiversity including Whooper Swan, transport and traffic, water, cultural heritage including recorded sites, soils and geology, material assets including gas infrastructure and community engagement.

1.3. The proposed development is commonly referred to as 'Ballinlee Wind Farm' and the local authority for the area is Limerick City & County Council (LCCC). The site of the proposed development is located in an area designated as being a 'preferred area' for wind energy developments in the Limerick City and County Development Plan, 2022-2028 (LDP).

2.0 Site Location and Description

2.1. The site is in a rural area in east County Limerick. It is roughly 18km south of Limerick City and 3km southwest of Bruff. The overall site falls within the townlands of Ballincurra, Ballingayrour, Ballinlee North & South, Ballinrea, Ballyreesode, Camas North & South, Carrigeen, Knockuregare, Ballybane, amongst others.

2.2. The site comprises privately-owned property, the majority of which is currently used for farming purposes. The land is managed for agriculture at varying levels of intensity, with hedgerows and drainage ditches throughout. There are some tracts of commercial forestry within the red line boundary of the site and on adjacent and nearby land parcels. There is a sporadic presence of one-off houses in the wider vicinity whereby the settlement pattern is largely characterised by dwellings and farm buildings on spacious plots, situated along the public road network, and down and along private lanes.

2.3. Settlement patterns in the immediate surrounding area range from small to medium sized local settlements and relatively isolated farmsteads. Charleville, approximately 12km to the southwest, is the largest town within the vicinity of the site. It has a population of 3,970 (recorded in 2022) and provides services and employment to the area as well as transport connections via the N20 and Charleville train station. Smaller towns in the area include Bruff, Croom and Kilmallock.

2.4. The site includes a proposed grid connection route (27.7km approx.) which runs in a general south to north direction. It connects the wider application site with the existing Killonan 220/110kV Substation, which is situated on the N24 (National Route), to the southeast of Limerick City Centre. The N24 is also referred to as the Tipperary Road. The grid connection route (GCR) travels along regional and local roads. [See Drwg. No. 22635-MWP-00-00-DR-C-5003 for further details.]

2.5. The proposed turbine delivery route is from the Port of Foynes, Co. Limerick via the N69, M20, N20 to Croom town and then via the R516 to the proposed development site. [See Drwg. No. 22635-MWP-00-00-DR-C-5071 for further details.]

2.6. Lough Gur is the nearest nationally designated site approximately 4.6km to the northeast. It is a proposed National Heritage Area (pNHA) (Site Code: 000437) and has an ecological connection with the site through a local population of Whooper Swan and their feeding areas within the northern section of the proposed development site. Lough Gur is a horseshoe lake near Bruff and is part of the Wild Atlantic Way and Ireland's Hidden Heartlands tourism

experiences. The significance of the lake stems from significant archaeological records situated both at and around the area.

2.7. The nearest European Sites include Glen Bog SAC (Site Code: 001430), which is approx. 5km to the northeast of the site, and Tory Hill SAC (Site Code: 000439)), which is approx.9km to the northwest.

2.8. The topography of the site is generally flat at 53mm OD (meters above Ordnance Datum). There is a slight rise 1km to the west of 75m. Elevations of the site range between approximately 49 - 79m AOD in the areas where infrastructure is to be developed. No peat is mapped on the GSI maps for the site. However, a small area of peaty type soil was noted in the northeastern corner of the site during site investigations.

2.9. The subject lands contain an extensive drainage network which directs and channels surface runoff into a series of slow moving, low-gradient streams. These streams ultimately discharge into the Morningstar River, which flows east to west across the northern section of the site. The system forms part of the wider interconnected River Maigue network which drains into the Maigue sub-estuary, north of Adare, approximately 24km downstream.

2.10. The subject site has an overall stated area of approximately 255ha.

3.0 **Proposed Development**

3.1. The applicant is seeking a 10-year planning permission and an operational period of no less than 35-years from the date of overall commissioning of the entire wind farm. The proposed development is expected to provide an expected Maximum Export Capacity (MEC) in excess of 76 Megawatts (MW) of renewable electricity for the National Grid. This application is accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS). The details of the proposed development are set out in the relevant public notices, which accompanied the planning application.

3.2. The development will comprise:

- 17 no. turbines (with a turbine tip height of 160m and 150m (T6 only), hub height of 92m and 82m (T6 only) and a rotor diameter of 136m) with associated foundations and crane hardstand areas.

- Permanent meteorological mas (92m height) and associated foundation, hardstand area and ancillary main crane hardstand area.
- Electrical Substation (110kV) including EirGrid compound, IPP, maintenance compounds, ancillary building, security fencing and all associated works.
- Nine site entrances.
- New and upgraded internal site service tracks (approx. 10.8km of new internal access tracks to be constructed).
- New clear span bridge over the Morningstar River.
- Underground electrical collector cable systems between turbines within the wind farm site.
- Underground electrical cabling systems between the wind farm site and connection point at the existing Killonan 220/110kV substation.
- New temporary access track via R516 to facilitate turbine delivery route located in the townland of Tullovin.
- Three temporary construction site compounds (one approximately 95m x 50m and two approximately 55m x 25m).
- Two borrow pits to be used as a source of stone material during construction and for storage of excess excavated materials.
- Nine permanent and two (2) temporary deposition areas.
- Associated surface water management systems. Tree felling required for wind farm infrastructure.
- Whooper Swan Management Area works, Habitat Enhancement Areas works Landscaping, fencing and all associated works.

Table 1 Site Specific Description of Windfarm Infrastructure

Turbine	Townland	Habitat Type	Peat Depth	Nearest Recorded Monument.	Flood Zone
T1	Crean	GA1 (*Improved Agricultural grassland*)	0.25m-0.80m.	In midst of four barrow sites LI031-151001 – li031-151004). Ditch barrow LI031-151005 to the SW <200m.	Flood Zone C
T2	Crean	GA1 (*Improved Agricultural grassland*)	0.25m-0.80m.	As above.	Flood Zone A & B
T3	Carrigeen / Crean	GA1 (*Improved Agricultural grassland*)	n/a	As above. Standing stone LI031-151006 also c. 100m to the S.	Flood Zone A & B
T4	Camas South	GA1 (*Improved Agricultural grassland*), WS2 (*immature*	0.25m-0.80m.	None in immediate vicinity. See T5.	Flood Zone A & B

		woodland), WD4 (*Conifer plantation*)			
T5	Bruff	WD4 (*Conifer plantation*), GA1 (*Improved Agricultural grassland*)	n/a	Enclosures LI031-195, LI031-116 & li031-084 are located c 200m N	Flood Zone C
T6	Athlacca	GS4 (*wet grassland*), GA1(*Improved Agricultural grassland*)	n/a	Enclosure LI039-032 c.190m SW	Flood Zone A & B
T7	Ballincurra, Dromin	GA1 (*Improved Agricultural grassland*)	n/a	None in immediate vicinity.	Flood Zone C
T8	Balinlee South, Dromin	GA1 (*Improved Agricultural grassland*), FW4 (*drainage ditches*)	n/a	LI039-034 (earthwork) c. 100m N.	Flood Zone C
T9	Dromin	GA1 (*Improved Agricultural grassland*)	n/a	None in immediate vicinity.	Flood Zone C
T10	Ballingayrour, Dromin	GA1 (*Improved Agricultural grassland*), FW4 (*drainage ditches*), WL1 (*hedgerows*)	n/a	LI039-134 (enclosure) c. 190m SE.	Flood Zone C
T11	Ballingayrour, Dromin	GA1 (*Improved Agricultural grassland*), FW4 (*drainage ditches*)	n/a	LI039-134 (enclosure) c. 130m N of T11.	Flood Zone C
T12	Ballingayrour, Dromin	GA1 (*Improved Agricultural grassland*)	n/a	See T11.	Flood Zone C
T13	Bruff	GA1 (*Improved Agricultural grassland*), WL1 (*hedgerows*)	n/a	None in immediate vicinity. Large cremation pit (excavated) c. 150m S.	Flood Zone C
T14	Balinlee North	GA1(*Improved Agricultural grassland*), FW4 (*drainage ditches*)	n/a	LI039-120 (enclosure) c. 50m SW. LI039-121 (earthwork) c.100m NE.	Flood Zone C
T15	Bruff	GA1 (*Improved Agricultural grassland*)	n/a	LI039-121 (earthwork) c.120m W.	Flood Zone C
T16	Knockuregare, Dromin	GA1 (*Improved Agricultural grassland*), FW4 (*drainage ditches*)	n/a	LI039-037 (ringfort) c. 60m E.	Flood Zone C
T17	Knockuregare, Dromin	GA1(*Improved Agricultural grassland*), FW4 (*drainage ditches*)	n/a	LI039-037 (ringfort) c. 260m W.	Flood Zone C
Borrow Pit 1	Crean	GA1(*Improved Agricultural grassland*), WL2 (*treeline*), WS1 (*Scrub*)	n/a	LI031-127 (ring-barrow) abuts PDS to the east.	Not identified

Borrow Pit 2	Dromin	GA1(*Improved Agricultural grassland*), WL2 (*treeline*), FW4 (*drainage ditches*)	n/a	LI039-037 (earthwork) located to the S, outside PDS but with ZON extending inside.	Not identified
Substation	Crean	WD4(*Conifer plantation*)	n/a	LI039-149 (earthwork) in proximity. LI039-33 (Barrow) c. 100m NW of associated temporary compound No.3	Flood Zone C
MetMast	Dromin	GA1(*Improved Agricultural grassland*)	n/a	See Borrow Pit No.2	Not identified

3.3. The proposed 17no. turbines will have a blade tip height of 160m, except for T6 which will have a blade tip height of 150m. All turbines have a rotor diameter of 136m. The final choice of turbine model us unknown. The application does not propose 'Design Flexibility'.

3.4. The duration of the construction phase is predicted to last approximately 18 months followed by a 6-month commissioning period.

3.5. The Applicant confirms that normal construction activities would be undertaken between 7am – 7pm, Monday to Saturday inclusive. However, occasionally longer working days may be required for concrete pours for turbine bases and for other turbine installation works depending on wind and weather condition. A permit for moving abnormal loads will be sought from An Garda Síochána for the delivery of oversized wind turbine components (i.e. blades, nacelles and towers). No works will take place on Sundays or bank holidays unless agreed in advance with the Local Authority.

3.6. The construction phase includes three temporary construction compounds used as secure storage areas for construction material and contain temporary site cabins / welfare facilities. Two onsite borrow pits have been identified to provide fill material for internal tracks, passing bays, hardstands, foundations, and temporary compounds. The Applicant estimates that these will provide c. 99,852 m3 (61%) of the aggregate material required for the development.

3.7. A site drainage system will be constructed to attenuate run-off, guard against soil erosion, and safeguard downstream water quality.

3.8. A grid connection is included as a part of the application (as described at Section 2.4 above) and assessed in the EIAR and NIS.

3.9. The application to the Commission includes:

- Completed Application Form
- Landowner consent letters
- Schedule of planning application drawings
- Planning application drawings
- Newspaper Notices
- Copy of site Notice
- Copy of ACP Meeting Minutes and Schedule of Public Consultation
- Copy of ABP SID Determination
- Schedule of Prescribed bodies to whom notification of the application has been sent
- Copy of the notification to the prescribed bodies
- Statutory Undertaker Letter
- Copy of the confirmation notice to the EIA Portal
- Confirmation of Drawing Scales
- Environmental Impact Assessment Report (EIAR)
    - Volume I: Non-Technical Summary
    - Volume II: Environmental Impact Assessment
    - Volume III: Appendices
    - Volume IV: Photomontages
- Natura Impact Statement (NIS)
- Planning Report
- 2 no. hard copies of application documents
- 8 no. memory sticks with a copy of application documents
- Shapefile
- Confirmation of payment of Application fee of €100,000

3.10. In February 2026 the applicant submitted a response to the submissions and observers on file as requested by the Commission. This included:

- A Response to Observations Document (February 2026).

3.11. In June 2026 the applicant submitted a response to the additional submissions and observers on file (Gas Networks Ireland, Office of Public Works, Health & Safety Authority and Uisce Éireann) as requested by the Commission. This included:

- A Response to Additional Observations Document (June 2026)

3.12. The applicant has created a standalone website for the development, https://ballinleegreenenergyplanning.ie.

3.13. Appendix 1B of the EIAR is a document entitled 'Stakeholder Consultation and Responses'. Appendix 1C is a 'Community Engagement Report' which sets out the method by which the Applicant initiated and carried out community consultation and engagement in the area surrounding the subject site. It also sets out the project background, community team members, envisaged community benefits, the engagement process, as well as other information.

4.0 Consultations

Chief Executives Report ("LA Report")

4.1. A submission was received from Limerick City & County Council dated 5th December 2025 in accordance with Section 37E (4) & (5) of the Planning and Development Act, 2000 (as amended). It includes a Director General's Report, Recommended Conditions (Appendix 1), Internal Reports (Appendix 2), Turbine Delivery Route (Appendix 3), Meeting Administrators Record (Appendix 4) and Views of the Elected Members (Appendix 5).

4.2. The LA report notes the development particulars, planning history and the legislative and policy context, before setting out views on specific aspects of the proposed development. In terms of the overall policy position, it is noted that the majority of the site is located on lands which are designated as 'Preferred Areas' for Wind Energy in the Limerick Development Plan 2022-2028 (LDP). Whilst the report notes that a small section of the grid connection is located within lands deemed 'unsuitable for new wind energy development', the report is satisfied that this does not preclude electricity transmission development and considers the position acceptable. The report notes that the proposed

development would contribute towards the renewable energy targets set out in the development plan in accordance with Objective CAF O30, complies with the WEDG 2006 and has had due regard to the dWEDG 2019.

4.3. The LA report then lists details of the internal reports received from the Council's Roads Department (10/11/2025), Ecologist (20/11/2025), Flood Section (18/11/2025), Archaeologist (10/11/2025), Conservation Officer (29/10/2025), Environment Section (Environment & Climate Action) (24/10/2025), Environment Section (Air, Dangerous Structures, Noise, Public Health and Water Pollution) (21/10/2025), Fire Service (21/10/2025). The content of these reports is addressed in the planning and environmental assessment of the LA report and therefore it is not repeated here. The reports are appended in full as Appendix 2 of the DG Report.

4.4. The DG report proceeds to set out its response under a range of environmental headings which are summarised hereunder.

Visual Amenity

4.5. The report notes that the subject site is located within the Landscape Character Area (LCA) 01 'Agricultural Lowlands – Farming Landscape', where relevant objectives encourage the regular arrangement of turbines with equal spacing taking field boundaries into account. Other LCA's within the study area are noted at distances of 3.5km to 14.5km with LCA 05 'Lough Gur' being the next nearest. The report notes that there are no immediate views and prospects directly towards the site, with the closest being the Lough Gur view approx. 4.6km northeast of the site. The applicants Landscape Impact Assessment is noted and attention is drawn in particular to VP10 (Dromin Graveyard) and VP11 (Local Road at Dromin North) where a substantial-moderate/negative/long-term visual impact is predicted. Overall, it is noted that the overall landscape sensitivity of both the central (within 5km) and wider study area (greater than 5km) of the site, is assessed as Medium-Low. Notwithstanding, the report expresses visual amenity concerns as a result of the height and scale of the turbines proposed, particularly on VP10 and VP11 and considers that they are not representative of the range of turbines identified in WEDG 2006.

4.6. The report expresses concerns in relation to the potential visual impact(s) on the form and setting of a number of archaeological sites, protected structures and architectural conservation areas. The large footprint of the proposed development site, together with its development characteristics is noted in the context of its location within an area of 'high archaeological density'. The report questions whether the potential destruction, disturbance and other impacts on the archaeological landscape is balanced by the (renewable) gains from the development or whether it should be relocated to a less sensitive environment. In terms of architectural and cultural heritage the report identifies a list of 33 no. protected structures1 which appear to be omitted from the EIAR and recommends that if they are within 3km of the development site, that they should be added and assessed. The report also notes that EIAR Chapter 14 refers to the 'DEHLG Historic Gardens and Designed Landscapes (NIAH Garden Survey)' but does not identify any of the sites included in the DEHLG survey within the study area. The report notes that the proposed development site appears to be partly located within a designed landscape (Summer Ville – Reg. No. 1561) and identifies 13 no. further NIAH Garden Survey Sites2 within the study area. It is recommended that the potential visual impact on these designed landscapes is assessed.

4.7. The report does not consider that architectural heritage assets, particularly historic bridges, have been adequately assessed in the EIAR in respect of the proposed grid connection (GC) and turbine delivery route (TDR). It is noted that both the GC and TDR cross Ferry Bridge (RPS Reg. No. 257) and Sixmile Bridge (RPS Reg. No. 455) and it is considered that details of the mitigation measures to protect these bridges should be submitted.

Residential Amenity

Shadow Flicker

4.8. The report notes the applicants shadow flicker analysis, that there are no proposed or operational wind farms within an 8km range which could cause cumulative effects and considers the study area to be acceptable. It is noted that no details of the Met Éireann observatory weather station used in identifying the real-world scenario have been submitted and it is considered that this should be

queried. The report notes the predicted shadow flicker results and the proposal that a control system is used to mitigate adverse effects at any sensitive receptor in accordance with WEDG 2006 (30mins per day/30 hours per year max). The report queries whether this is based on mitigating a worst-case scenario or real-world scenario, opining that the latter may not protect sensitive receptors in worst-case conditions. In conclusion the report recommends elimination of shadow flicker effects in accordance with dWEDG 2019 and that a condition is attached to this effect.

Noise

4.9. The report notes WEDG 2006 states that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property exceeds 500m. In this regard the report notes EIAR Chapter 13 and the 519 no. noise sensitive receptors within the study area, but opines that it is not clear whether the study area includes the 500m prescribed in WEDG. The report identifies a number of concerns in relation to noise3, which can be summarised as follows:

- There is a mapping error in respect of T09, and potentially other turbines, in Fig. 13-1 of EIAR Chapter 13. This error may compromise the accuracy of calculations at noise sensitive locations and the noise contour plot in Appendix 13E.
- Background noise levels at NML4 are probably higher than representative for typical low levels in the vicinity of dwellings in the southeast of the study area for higher wind speeds. Therefore, background noise from NML4 should not be used to determine specific noise levels for assessment of operational compliance. A new noise monitoring survey should be undertaken or nominal background criteria used.
- It is recommended that a fourth order polynominal is applied to the night-time background noise regression curves.
- It is submitted that the criteria for “areas of low background noise” in NG4 is flawed because it provides that for a background noise level which is 10dB above the “low noise environment” criteria in WEDG 2006. It is submitted that the approach in ETSU-R-97 should be used to derive the day-time lower noise fixed limit between 35 and 40 dB(A) L90 but should not be 5 dB above background noise.

- A conflict is identified between the proposed night-time noise limits and the lower limits set out in the LDP, 2022-2028. Compliance with the LDP noise limits is recommended.
- It is recommended that mitigation measures are identified to comply with any new day and nighttime noise limits (determined in accordance with the abovesaid recommendations).
- In terms of special audible characteristics (amplitude modulation (AM), low frequency noise (LFN) and infrasound) it is considered that there is no consideration of tones and that the discussion regarding infrasound and LFN is ambiguous. A condition is recommended that requires investigation if a complaint is received, including engagement of a suitably qualified acoustic engineer.
- In terms of construction noise it is recommended that a lower limit of 55 dB $L_{Aeq,1hr}$ should be adopted based on BS 5228-1:2009 + A1:2014 and civil works which are more akin to 'surface mineral extraction' than 'conventional construction activity', if the construction period will last more than 6 months.
- It is recommended that the method used to convert the hub height sound power levels to 10m standardised height is clarified.
- It is recommended that the technical specification of the final selected turbines is agreed before construction, with details of the potential for audible tones and that the sound power does not exceed the candidate turbines. In the event of a noise complaint, it is recommended that the PA has access to windfarm operational data.

Traffic & Transport

4.10. The report notes EIAR Chapter 15, the turbine delivery route (TDR) and the haulage route(s) (Appendix 2), together with the enabling works and the Traffic Management Plan (Appendix 16A). In assessing the aforesaid, further Information is recommended in respect of:

- Traffic management and delivery routes, road structure and condition, road and site drainage (non-specific),
- Detailed locations of the proposed site entrances (which are not detailed in the EIAR), together with scaled details of sightlines, stopping sight distances, forward visibility and legal interest requirements,
- A stage 1/2 Road Safety Audit. A Stage 3 RSA is recommended as a condition.

- Site specific drawings for all joint chambers, communication chambers, link chambers and all elements within public road corridors (existing and proposed) including sections and plan views.
- Site specific details for all culvert/river crossings with construction methodologies.

Natural Heritage

4.11. The report notes the applicants NIS, Chapter 6 (Biodiversity) and Chapter 7 (Ornithology). It considers that the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA are the primary European Sites with potential to be affected based on the source-pathway-receptor model and a hydrological link via the River Maigue.

NIS

4.12. The report notes that, although mentioned in passing in the earlier content of the NIS, there is no specific mention of the Whooper Swan Management Works in the mitigation measures of the NIS. It is considered that this omission is notable and should be addressed. It is also noted that it is dealt with more substantively in the EIAR. Otherwise, it is recommended that the mitigation measures in S6.3 should be included as a condition of permission, and that pre-construction surveys for otters and Amphibians is essential.

EIAR Chapter 6 (Biodiversity)

4.13. The reports considered that habitat surveys took place at an optimal time and are consistent with good practice and welcomes the hedgerow assessment using the Hedgerow Appraisal System. It is also noted that Badger surveys were updated in July 2025. The proposed construction of artificial setts is welcomed. It is noted that bat surveys were carried out in 2023. Given the mobile nature of bats and that lowland windfarm developments pose a greater risk to the species, it is considered that a more up to date survey is required. The inclusion of a carcass survey and post construction monitoring is welcomed but it is considered that this does not compensate for the gap in surveys. It is also noted that amphibian surveys took place on 2nd February 2023, and it is considered that they should also have been updated. The creation of new water features is noted (Fig 6-32) and it is submitted that they would be better distributed throughout the site as opposed to concentrated in Area 3. It is recommended that all mitigation

measures detailed in Section 6.8 should be implemented together with more specific detail on the two borrow pits and their operational phase and the employment of an EcOW.

EIAR Chapter 7 (Ornithology)

4.14. The report considers that bird surveys were comprehensive and up to date. It is noted that Whooper Swan roosting in Lough Gur are within foraging range of the site and were singled out. The report opines that other wild fowl species might use the site. A concentration of Whooper Swan activity close to T03 during nighttime (midnight to 1m, Dec. 2023) is noted and it is considered that this increases the collision risk. It is noted that 4 no. of the 17 no. proposed turbines lie within Flood Zones A and B and that flooding often attracts wildfowl which may pose a displacement or collision risk. It is considered that this merits further examination.

4.15. The report submits that it is unclear how the Whooper Swan management area (Section 7.7, Table 7-13 and Fig. 7-8) will work. It is accepted that valuable habitat will be provided, but given its location close to the development and the species tendency for night flight, it is considered that this may well increase the collision risk for the species and other wildfowl who may use it. It is considered that this requires further examination.

4.16. It is recommended that all mitigation measures outlined in Section 7.7. should be implemented in full. Post consent monitoring is considered essential as changed conditions on site post development may increase the attractiveness of the area for a wider variety of bird species. It is recommended that monitoring is broadened to include all wildfowl species.

Drainage

4.17. The report notes the hierarchy of riverbodies in relation to the proposed development site and the proposed river crossings, including those associated with the GCR. The proposed surface water mitigation measures have been reviewed, and the report recommends conditions in relation to surface water management.

Flooding

4.18. The report notes that a site-specific flood risk assessment (SSFRA) has been submitted and that 4 no. turbines (of the 17 no. proposed) are located within flood zone A and B, with the balance within flood zone C. The justification test has been applied and additional mitigation measures are proposed to include elevation of critical components within flood zone A and B. It is recommended that no temporary storage of materials should be stockpiled within flood zone A & B, that development within these areas should be constructed with flood resilient materials and proposed access roads should be constructed close to ground levels to ensure no adverse flow routes or impact to flood storage. It is noted that the SSFRA finds that the proposed development will not result in an appreciable increase in flood risk either upstream or downstream. It is recommended that sizing of proposed culverts includes allowance for blockage at detailed design stage. It is noted that watercourse crossing may be subject to a separate S.50 process.

Conclusion

4.19. The report accepts that the proposed development is broadly supported by the LDP, 2022-2028 and that the majority of the site is located within a 'Preferred Area' for wind. However, as detailed above, there are concerns in relation to:

- Archaeology
- Visual impact
- Architectural and cultural heritage assets
- Shadow Flicker
- Noise
- Traffic & Transport
- Biodiversity
- Ornithology
- NIS

Conditions:

4.20. In the event that planning permission is granted, conditions are recommended in relation to noise, shadow flicker, construction management and oversight, road network, water quality, archaeology and built heritage, bond conditions and relevant community gain conditions. These are set out in Appendix 1 to the

Report and their inclusion or exclusion in the Schedule of Conditions is set out in Appendix B of this report.

Appendix 4

4.21. The LA report was considered at a Special Meeting of Limerick City and County Council on 27th November 2025. Appendix 4 sets out the Administrators minutes of this meeting which includes the views of the Elected Members. The Members made comments in relation to landuse, community impact, residential amenity and visual amenity, water and flooding, road safety and construction, and archaeology which broadly address topics already covered in the DG report. The members raised additional concerns in relation to the potential restrictive consequences for future rural housing applications and new entrances along the GCR together with potential impacts on the Golden Vale's tourism, equine and farming assets. The Members were also concerned that the proposed development would introduce a risk of construction and post-construction incidents requiring specialist fire and emergency services training and that meaningful public consultation had not taken place.

4.22. The Members highlighted mapping errors in the submitted documentation, including the omission of towns and villages, considered that important sites such as Lough Gur and Knock Áine were not adequately considered and did not agree with the LA report that the proposed development is broadly supported by the LDP, 2022-208. The Members stated that they were not in favour of the application and recommended refusal. It was agreed that the views of the Members would be appended to the DG report.

Appendix 5

4.23. The records included in Appendix 5 include the written views of certain Elected Members. These records largely raise issues already set out in the aforesaid. Of note is a submission by Cllr. John O'Donoghue which submits that there is an insufficient wind resource at the site to support a wind energy development and the proposed renewable energy credentials. This submission also contends that in an effort to exceed 50MW of capacity the applicant has located turbines too close together such that they will "wake" each other. It is submitted that this will have implications for wind capture, noise,

visual impact and shadow flicker and is not in accordance with WEDG 2006 in relation to proximity to adjoining properties and safe waking distance separation. Cllr. O'Donoghue and Cllr. Brigid Teefy also raise concerns that the proposed development relies heavily on a mapping designation in the LDP, 2022-2028 which LCCC state requires revision5. Both Members are of the view that the proposed development is not consistent with the written policy of the LDP, 2022-2028 in respect of the material issues set out in the LA report and that written policy takes precedence where there is a conflict.

Prescribed Bodies

4.24. The details of the application to the Commission were circulated to the following prescribed bodies:

- Minister for Housing, Local Government and Heritage.
- Minister for the Environment, Climate and Communications.
- Department of Defence
- Inland Fisheries Ireland (IFI).
- Transport Infrastructure Ireland (TII).
- The Heritage Council.
- An Taisce.
- An Chomhairle Ealaíon (The Arts Council).
- Failte Ireland.
- HSE
- Irish Aviation Authority
- Southern Regional Assembly
- Limerick City & County Council
- Tipperary County Council
- Commission for Regulation of Utilities
- Irish Water
- Gas Networks Ireland
- Office of Public Works
- Health & Safety Authority

Submissions were received from the following bodies, the contents of which are summarised as follows:

Irish Aviation Authority (IAA)

4.25. A submission dated 13th October 2025 was received from IAA. This submission states that applicant should be required to engage with Shannon Airport Authority (SAA) and AirNav Ireland (ANI) to confirm that the proposed windfarm infrastructure and any associated cranes utilised during construction, will have no impact on Instrument Flight Procedures, Communications, Navigation and Surveillance equipment of the safety of flight operations at Shannon Airport. In the event that planning permission is granted a number of conditions are recommended regarding obstacle warning lights, as-constructed co-ordinates together with ground and tip height elevations at each turbine location, and advance notification of intention to commence crane operations.

Department of Defence ("DoD") *Property Management Planning*

4.26. A submission dated 22nd October 2025 was received from DoD. It provides observations following consultations with Air Corps colleagues at Casement Aerodrome which concern controls on obstacle lighting and the requirement for the windfarm (owner) to engage with the DoD to provide suitable mitigations in the event of negative impacts on future military radar systems.

4.27. It otherwise advises that Irish Air Corps (IAC) requirements are separate to the Irish Aviation Authority (IAA).

Department of Housing, Local Government & Heritage ("DHLGH") *Development Applications Unit (DAU)*

4.28. A submission dated 31st October 2025 was received from DHLGH. It does not include comments on Nature Conservation. Detailed comments are provided on Archaeology which are summarised as follows:

Archaeology

4.29. The DHLGH notes that: (i) the proposed development is situated within a dense distribution of known and identifiable archaeological sites, with elements of the proposed infrastructure in proximity to a number of Recorded Monuments, both within and without the redline boundary of the development site, and (ii) that

there are a number of recently identified non-Statutory Sites and Monuments Record (SMR) sites located in proximity to the site. Specifically, the following is noted:

- T01 is located within the midst of a cluster of five barrow sites (LI031-151001, LI031-151002, LI031-151003, LI031-151004, and (LI031-151005), suggesting the turbine is in the middle of a barrow cemetery which could include further barrow sites and other burial or ritual features,
- The Deposition Area to the north of Borrow Pit 1 may partially incorporate the footprint of ring-barrow LI031-127 and the location of barrow LI031-152 to the north and mound LI031-126 suggest this deposition area is located in the middle of a barrow cemetery,
- The substation may incorporate (in whole or part) Earthwork site LI039-149. The EIAR supposes that it is non-extant.
- It is considered that this strongly suggests that the site encompasses a prehistoric (most likely Bronze Age) ritual landscape and that further such assets or other types of archaeological features reflecting a more extensive ritual and burial activity may be present in the vicinity of such cemetery clusters. The large number of new archaeological sites discovered within and immediately adjacent to the development site during investigations in advance of Bord Gáis Éireann's Gas Pipeline to the West project lends weight to this view. The relatively narrow corridor (30m wide) of this scheme which passes through the proposed development site uncovered eight new archaeological sites with examples of Bronze Age settlement, ritual and industrial sites.
- The DHLGH notes that the Archaeological Impact Assessment (AIA) is desk based and includes no advance archaeological investigations other than a walkover survey. It is considered that there is insufficient information available to adequately define the baseline archaeological environment and assess the likely scale and significance of potential impacts to archaeological heritage.
- The DHLGH does not accept that mitigation by design is adequate. It is considered that many features have no surface expression and in the absence of the survey and test excavation it is unclear if these sites can be fully preserved in situ as proposed in the mitigation strategy. (The separation distance from the proposed infrastructure (protective exclusion zone) must be measured from the outermost extent of a relevant site requiring an exact definition in the characterisation of the baseline environment).
- The DHLGH considers that there is extremely high potential that the proposed development will have direct negative effects on previously unknown sub-surface archaeological sites and that exclusion zones may be necessary at

construction and decommissioning phase to ensure the safe preservation in situ of vulnerable heritage assets. It may be the case that elements of the proposed development need to be substantively redesigned or omitted to protect archaeological heritage.

- The DHLGH is also concerned that archaeological sites have been treated as individual isolated receptors, with no substantive regard for their landscape context and potential inter-relationships.
- The DHLGH considers that the only way to confidently assess the extent of such a prehistoric landscape and ensure preservation in situ and avoidance of direct impacts is through direct prospection using advance targeted Geophysical Survey and test excavation. Deferment to a post -consent stage as proposed in the EIAR is not considered appropriate. Best practice would be to seek the advance targeted Geophysical Survey and Test Excavation by further information.
- However, if the Commission is minded to grant permission, six conditions are recommended which align with Sample Conditions C3, C5 and C6 of the OPR Practice Note PN03: Planning Conditions (October 2022) including site specific adaptations.

Transport Infrastructure Ireland ("TII")

4.30. A submission dated 13th November 2025 was received from TII. This submission raised observations in relation to a number of topics which can be summarised as follows:

Official Policy

4.31. The Commission is reminded that official policy concerning access to national roads is outlined in Section 28 Ministerial Guidelines 'Spatial Planning and National Roads Guidelines for Planning Authorities' (DoECLG, 2012). The TII acknowledges that direct access to the national road network is not proposed.

Proposed Turbine Component Delivery Route

4.32. The national road network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contracts (MmaRC) and Local Authorities. The applicant should liaise with the aforesaid in relation to haul routes (including delivery vehicle and turbine delivery routes) to ascertain any operational requirements such as delivery timetabling to ensure the strategic function of the national road network is maintained.

- Any proposals agreed should be referred to TII. Mitigation measures should be included as conditions in any grant of permission. Where temporary works are required within an MMaRC boundary to facilitate abnormal loads, thirdpartyworks@tii.ie should be contacted in advance as a works specific Deed of Indemnity will be needed.
- Any proposed works to the national road network should be subject to road safety audit and comply with TII Publications. Any necessary licenses, approvals or agreements shall be in place prior to commencement of development.
- All national road assets shall be subject to proper undamaged reinstatement and certification.
- Damage caused to the pavement of the national road network as a result of the movement of abnormal 'length' loads shall be rectified in accordance with TII Pavement Standards and details as agreed with the Road Authority prior to commencement.

Structures

4.33. It is unclear if the application includes abnormal weight loads (abnormal length, height and width loads are assessed).

- A permit for the movement of a vehicle or load whose weight falls outside the limits allowed by the Road Traffic (Construction Equipment & Use of Vehicles) Regulations 2003, SI 5 of 2003, must be obtained from each Local Authority concerned.
- All National Road structures should be checked and confirmed by the applicant as fit to accommodate the proposed loading associated with delivery of development components.
- Loads above 180 tonnes represent an 'Exceptional Abnormal Load' (EAL) and any structures crossed will need a full structural assessment in accordance with TII Publications AM-STR-06048 to verify that they can sustain the load safely without damage.

- Full details of abnormal and exceptional abnormal loads should be agreed with planning and road authorities prior to the commencement of development.

Grid Connection Routing

4.34. TII requests the Commission to assess the proposed Grid Connection Routing, including alternatives to the public road, to determine that the optimal solution exists.

- TII refers the Commission to Department of Transport Circular RW 07 of 2025 and the 'Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets)'.
- As the proposed grid connection is 110kV and indicated as being taken in charge by Eirgird, TII considers that the 'Electricity Transmission Infrastructure Development – Roads Sector Engagement Framework', as included in the aforesaid Circular, also applies.
- TII considers that the statement included in Section 2.2.1 of Appendix 2D of the EIAR is misleading in suggesting that TII previously refused permission for high voltage cables within their motorway and national primary roadways. TII states that it is not a planning authority with decision making powers and responds to proposals in the context of giving effect to NSO No.2 of the NPF (Enhanced Regional Accessibility) as well as Section 12.4.1.1. of the Climate Action Plan 2024 (Accelerate Renewable Electricity Generation). In the absence of this context, TII considers that the statement requires clarification.
- In assessing whether or not the optimal solution for connection to the grid has been proposed, TII states that it is unclear why a 'loop in' connection to the overhead line in proximity to the site is not proposed, nor co-ordination with the Garrane Green Energy Project.
- Where an 'optimal solution' does impact the national road network, TII advises that:
    - Cable routing should avoid impacts to existing TII infrastructure. Any works to such infrastructure should only be undertaken in consultation with TII, with costs borne by applicant. Separate approvals may be required.

- Where electricity cables 10kV or greater are required to cross a road structure they shall pass below the structure at sufficient depth to remove potential for impacts on the structure during operation.

Greenways

4.35. Consultation with Limerick City and County Council in relation to Greenway or Active Travel proposals in the vicinity of proposed works is recommended.

Health Service Executive ("HSE") *National Environmental Health Service (NEHS)*

4.36. A submission dated 8th December 2025 was received from NEHS. This submission raised observations in relation to a number of topics which can be summarised as follows:

Criteria for Consideration of Likely Significant Effects on Public Health

- The NEHS considers likely significant effects on Public and Environmental Health as per the EPA National Guidance: Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022, and particularly Section 3 thereof.
- Its assessment is based on a 'population health approach' and not individual specific sensitivity of a human receptor.
- It is recommended that the Commission considers established land development and use, service provision and activities within communities and not individual members of communities.

Project Specific Guidance for Wind Energy Development

- NEHS state that they are aware of the High Court decision in Webster/Rollo v Meenaclogher (Wind) Limited (2024 IEHC 136) 8th March 2024 in relation to the judgement that noise from a windfarm was a private nuisance. NEHS advise that if the Commission considers that they are under a duty to incorporate the likelihood of a private nuisance into their decision making, then they should consider this judgement.
- Otherwise, the status of WEDG 2006 is noted, with an opinion that there has been significant changes in wind energy development and an increase in the body of knowledge around significant effects on population health since their publication.

Chapter 5 Population and Human Health

- NEHS advises that the main considerations for protection of population and human health are: any likely significant exposure to noise during construction

and operation, likely exposure to shadow flicker during operation, likely significant reduction in air quality during construction (particularly dust), protection of ground and surface waters during construction.

- NEHS states that these areas have been identified for assessment and are reported on in the EIAR.
- Otherwise, the NEHS states that the 'HSE Position Paper on wind turbines and public health' has been withdrawn by the HSE and is under review.

Likely Significant Impact on Ground and Surface Water Chapter 9 of EIAR

- NEHS concurs with the conclusions of this chapter that there is adequate protection of surface and ground water during construction and operation if all the identified mitigation measures are identified in full.

Consideration of Shadow Flicker – Chapter 15

- It is recommended that a condition in accordance with the 2019 dWEDG is imposed in respect of shadow flicker.

Likely Significant Effects from Noise and Vibration (Chapter 13 of EIAR)

- The criteria set out in WEDG 2006 on how to derive noise limits is noted.
- NEHS opines that the most appropriate criteria for assessing significance of predicted noise is 'Environmental Noise Guidelines for the European Region', 2018.
- In the opinion of NEHS use of WEDG 2006 is resulting in a significant volume of complaints from wind turbines post development and suggests that absolute noise exposure limits set in WEDG 2006 do not protect public health in specific development situations as supported by the abovementioned High Court Judgement.
- NEHS opines that there is no requirement for additional noise mitigation measures during construction provided the measures identified in the EIAR are implemented in full.
- NEHS recommends that hours of construction are limited to:

  Monday to Friday 08.00 to 19.00

  Saturday 09.00 to 14.00

  No work on Sunday or Bank Holidays

  Limited exceptions with permission of Planning Authority.

Mitigation and Monitoring & Construction and Environmental Management Plan (CEMP)

- NEHS is of the opinion that if the mitigation and monitoring measures detailed in EIAR Chapter 19 are implemented in full, then there is adequate protection of Public and Environmental Health during construction.
- NEHS is of the opinion that if the mitigation measures detailed in the CEMP are implemented in full, then there is adequate protection of Public and Environmental Health.

Additional Considerations

- Conditions are recommended in relation to drinking water, wastewater, site drainage and dust monitoring.
- NEHS has no additional observations on the proposed mitigation measures and considers that there will be adequate protection of Public and Environmental Health during construction if all identified mitigation measures are implemented in full.

Health & Safety Authority ("HSA")

4.37. A submission was received from the HSA dated 9th March 2026, which stated that the proposed development was outside the scope of the Regulations and the Authority had no observations to make.

Gas Networks Ireland ("GNI")

4.38. A submission was received from GNI dated 6th March 2026, which advised that GNI had no comment or objection to the proposed development but recommended a condition in the event that planning permission was to be granted. This condition required advance liaison with GNI prior to site works and required that works be carried out in full compliance with the GNI Code of Practice for Working in the Vicinity of the Transmission Network and the HSA Code of Practice for Avoiding Danger from Underground Services.

Office of Public Works ("OPW")
South West Drainage Maintenance & Construction

4.39. A submission was received from the OPW dated 19th May 2026 in relation to its duty to maintain the Drainage Scheme under the Arterial Drainage Act. It includes advices in relation to the need to require consent under Section 9 of the Arterial Drainage Amendment Act, 1995 respect of alterations or modification of

drainage channels, and Section 50 of the Arterial Drainage Act 1945 in respect of any new culverts or bridges. A condition in relation to maintenance access is also recommended. The report also recommends that a Flood Risk Assessment (FRA) should be carried out, but does not provide comment on the FRA which was submitted by the applicant as a part of the application particulars.

Heritage Services

4.40. A submission was received from the OPW dated 20th May 2026 in relation to its Heritage Services portfolio. This submission raises a number of concerns which can be summarised as follows:

- The OPW does not consider that an adequate or verifiable basis exists for the LVIA conclusion that the cultural visual effect on the Lough Gur Complex is 'slight'. It is recommended that a photomontage be produced from the same position as VP21 submitted as part of the proposed Garrane Wind Farm (ACP-323635-25) both alone and as a cumulative impact assessment. The OPW also questions why the GCR passes through the Lough Gur zone with high probability of archaeological finds and disruption.
- The OPW notes the recently published research by Dr. Patrick Gleeson in relation to landscape of kingship which identifies 'Knockainey' as one of the most archaeologically rich cultural landscape locations in Ireland. It is suggested that ACP refer to this research for further information, and it is recommended that a visual and/or cultural impact assessment is undertaken from appropriate vantage points on Knockainey Hill, that a description of the cultural landscape should be provided, as part of the impact assessment.
- The OPW recommends verifiable photomontages and visual impact assessment of the impacts on four National Monuments in Kilamallock (NMs No. 212, 408, 173 and 680), Monasternenagh Cistercian Abbey (MNs No. 171) and Disert Oenghusa (NMs No. 83).
- The OPW otherwise expresses concern in relation to the applicants reliance on screening (by trees), as the screening effect is outside the applicants control (storm damage, ash dieback, seasonal foliage, ownership).

Uisce Éireann ("UE")

4.41. A report was received from UE[1] which notes that the Maigue_080 waterbody, which is c. 10.3km downstream of the PDS is designated as a DWPA[2] but the potential impact has not been assessed, quantified or document. Noting the good mitigation measures in the EIAR the risk is considered likely to be low. The UE report recommends a number of conditions in the event that planning permission is to be granted. These conditions are in relation to: downstream drinking water, surface water monitoring, notification and communication.

Public Submissions

4.42. There are a considerable number of submissions (309) on the file from observers. They have raised numerous issues across a number of topics. A complete list of parties who made submissions to the file can be found in Appendix A for reference. For the purposes of this report, the submissions have been summarised thematically below in Table 2 due to the overlapping issues raised by the parties.

[1] Undated. Acknowledged on 26th May 2026.
[2] Drinking Water Protected Area

Table 2 – Themes & Concerns raised in the public submissions received.

1.	**Topic: Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations, 2001 (and associated):**
	Key Issues Raised: Insufficient wind resource at Ballinlee to justify a wind park (no proper measurement information to justify the site selection, site selection is based solely on the availability of land contracts and an incorrect designation of the area in the CDP. In the absence of actual wind measurements the developer has stated a wind speed based on consultation with the wind energy atlas, which the LCCC was told to ignore in the development of the renewable energy development area, when the atlas (or any similar reference atlas) is consulted it is immediately apparent that the wind regime at Ballinlee is weak. Alternatives • EIAR (Chapter 3) does not provide a detailed comparative assessment of turbine configurations or layouts that might reduce unit numbers or visual impact, nor does it quantify the implications of alternative grid connection routes. • Absence of a robust alternatives analysis and 'least-impact solution' undermines the validity of the EIAR. • Golden Vale consists of 250ha+ of prime high value agricultural land. This is a low-lying area and a flood plain with a poor wind resource. Have alternatives really been considered. • Analysis of alternative is superficial and primarily desk based. Site selection relies on SEAI wind speed data without on-site verification. Eight alternative sites were rejected on vague qualitative grounds (residential density/landscape designations) without quantified data. This is a clear example of developer using EIA to justify their design choice rather than EIA being basis for design. • The longest GCR (27.6km) was chosen over a shorter alternative (25km) with no justification. • Key project parameters, including site selection, scale, and grid routing were fixed and did not allow for the meaningful investigation of alternatives - contravenes the intent of Article 5(1)(d) and Annex IV(2) of the EIA Directive, ACP Pre-Planning Report specifically references assessment required for the grid and turbine delivery alternatives. Competency • Project website claims project team has over 20 years development and operational experience. Yet research suggests that Ballinlee Green Energy Ltd was incorporated in August 2024 and is a subsidiary of Greensource Sustainable Developments Ltd which has 13 subsidiaries with no publicly available info showing that this group of companies has completed or commissioned a windfarm development in Ireland, with sister companies having applications at planning or approval stage. Additional research shows the ultimate parent company to be Temporis Limited, domiciled in Malta whose largest shareholders are TMF International Pensions Ltd. Concerns with respect to motivation for development and claimed experience/testimonials should be examined. • The green credentials of the applicant are questioned. It is submitted that the project beneficiaries are not disclosed and that it is in the public interest to know about ownership and financing.

	• Informed health professionals have not inputted to the EIAR. Consultation • Lack of any meaningful engagement, there was no public meeting and no consultation outside of 1km. • Inadequate consultation in breach of Aarhaus Convention which requires early, meaningful, accessible and informed engagement. No evidence of tailored inclusive practice or compliance with Public Sector Equality and Human Rights Duty (Irish Human Rights and Equality Commission Act, 2014). • Vulnerable groups including those experiencing literacy, disability, digital exclusion or social disadvantage not supported falling short of the standards outlined in the National Participation Framework for Local Government (2017), inconsistent with Sláintecare's emphasis on partnership-based community involvement. It also falls short of the Assisted Decision-Making Capacity Act 2015 (April 2023) which mandates all organisation under Irish Law to engage those with capacity issues – in this area there is Scoil Dean Cussen ASD units, Care Bright Dementia Centre, St. Josephs Disability Day Service and dedicated Ukrainian accommodation. Cumulative Effects & other • Cumulative Effects - Not properly assessed. EIAR does not adequately assess cumulative impacts on Nat. 2000 sites or species protection under Habitats Directive. • No evidence of EIA or SEA having been carried out. • EIAR demonstrates a 'design-before-evidence' approach (developer selected the most financially advantageous design and then uses the EIA to justify that design) • EIAR is heavily based on desktop data, defers essential site-specific investigations (or deems them non-essential),
2.	**Environmental Topic: Population and Human Health**
	Key Issues Raised: General • ***Article 3 of the EIA Directive 2014/52/EU*** *requires that effects on "population and human health" be described and evaluated, this clearly has not been done as there is a clear breach in noise and shadow flicker will cause us harm and health impacts.* • Grid Connection route impact (very lengthy and will require enormous amount of resources and time to complete the work, HDD drilling to bypass bridges (Camogue River Bridge) and also there will be a requirement to install approx. 32 x Cable Joint Bays along the public road, impact on farms, animal crossings, repair works, emergency services delayed, road closures required to accommodate joint bays, impact on Grange Stone Circle). • Public Health (Non-compliant / Failure to engage with HSE. • Concerns are raised in relation to impacts on amenity, recreation and exercise including: air Safety - flying enthusiasts ranging from light aircraft to motorized para-gliders and hot-air ballooning; impact on hiking routes, walks and tourism, walking, cycling, playing sports.

	• It is submitted that the Sentiment Analysis data in the EIAR raises questions. Of the 179 households identified within 1km of the site, 61 were met, approximately 34%. Of that 34%, 23% were positive, 22% negative while 55% were neutral). Mental Health and Wellbeing • Concerns are raised in relation to potential impacts on a range of health and wellbeing issues. This includes impacts causing or exacerbating sleep disturbance, migraines, stress, tinnitus, depression, anxiety, grief and stress. Specific concerns are raised in relation to: reduced quality of life, particularly for people who stay at home (e.g. elderly) or work nightshifts; noise and shadow flicker effects on those with anxiety or depression who may take refuge at home or rest in private amenity spaces or walk quiet local road; increased dust/emissions/air pollution for health generally but specifically asthma sufferers; psychological effects or sleep disturbance including sleep apnoea with concerns that disruption to power supply and Wi-Fi may affect C-pap machine performance; and, ability to go for a walk and reduce anxiety through exercise will be removed. • Personal concerns are raised in relation to Autism, Misophonia and Social Phobia. It is submitted that these conditions depend on the stability and predictability of the home environment, where minor domestic noises can trigger intense emotional and physical responses. Home is a refuge and there is concern that noise, shadow flicker and other disturbance effects could have profound and disproportionate effects on personal health. • Personal concerns are raised in relation to epilepsy and the risk that shadow flicker may potentially trigger seizures. Concerns are also raised in relation to potential adverse effects of noise and infrasound and road closures on the R512 which may impede emergency services. • Personal concerns are also raised in relation to complex health conditions including cerebral palsy, scoliosis, learning difficulties, sensory processing disorders and physical disabilities and that noise and shadow flicker impacts together with changes in routine, traffic disruption, attendance at day services, stress of duration of Planning Permission and length of construction works may adversely impact children's physiological wellbeing. • There are concerns that the area is too densely population to absorb this type of development (179 homes within 1km site boundary and 279 homes within 1.5km boundary), with disproportionate community wide health and wellbeing impacts. • Concerns are raised in relation to microplastic shedding from turbine blades in the context of human health and land contamination impacts. • There are concerns that the EIAR treats human health as physical exposure and omits psychological wellbeing. The EIAR should include a detailed, independent health impact study given the residential nature of parts of the Bruff-Dromin-Athlacca area. • Families are entitled to legal protections under Irish Planning Law, WHO and the Aarhaus Convention in respect of residential amenity which includes peace and quiet and enjoyment of home, protection form nuisance and of the character of the area. Huge emotional stress with campaigning, communities damaged. • 10-year duration of PP means community have to live with uncertainty for an excessive period – adds to stress, anxiety, Construction phasing is not clear over this period. • EIA is not a substitute for Health Impact Assessment (HIA) (WHO 2014). Failure to complete a HIA is inconsistent with a precautionary public health approach when so many people in the community will be impacted. Children, Childcare Facilities & Schools

	• Concerns are raised that Preschool; childcare and afterschool facilities have not been seriously considered by the EIAR (Human Health section). • Concerns are raised in relation to impacts on Children with Additional Needs including those with autism, sensory processing challenges, additional educational needs, and anxiety conditions. It is submitted that noise, vibration, shadow flicker, and visual dominance affect these children disproportionately. • The WHO Noise Guidelines (2018) emphasise that children, especially those with sensory vulnerabilities, are more sensitive to environmental noise and require special protection. The EIAR does not identify this group, does not assess their vulnerability, and does not evaluate the risk to their learning environment. • Submission from Athlacca NS: Future enrolments may be affected, noise, visual impacts may affect children with autism / ASD classroom / sensory issues. • Submission from Scoil Dean Cussen NS. School has 9 mainstream classes and 2 special classes catering for children with autism and complex needs. It is 1.5km from closest turbine. Concerns are raised about the welfare of children, their home and educational environment in context of WEDG 2006 and their aged nature. Concerns are raised about noise, vibration and shadow flicker effects on learning needs; changes to peaceful environment and character; impacts on future enrolment (depopulation); and construction traffic impacts leading to busier roads and more air pollution. • Bruff NS lies between the proposed site and Garranne WF. Cumulative traffic impacts are queried. Sports Clubs, Community Infrastructure • It is submitted that the area is incorrectly characterised in the EIAR as a remote site when it is a densely populated parish (Contains a National School with hundreds of pupils, has a high concentration of homes within 1–2km of proposed turbines, includes farms, sporting clubs, childcare facilities, and community infrastructure, has grown in population strongly across the 2016–2022 Census cycle). • Concerns are raised in relation to impacts on the future viability of clubs and organisations (due to planning permission for new homes being restricted/rural de-population concerns), • Concerns are raised that the developer/applicant took pictures within GAA grounds without consent and used them in the application. Noise - see noise topic below. Shadow Flicker – see shadow flicker topic below. Property Values and Community Wellbeing • Property Devaluation. It is submitted that some studies show that residential properties within 2 to 3km of wind farms can experience reduced sales prices of c. 25%. University of Galway study cited (no specific reference) that homes within 1km can lose 14.7% of their value. • Property Values – It is queried whether a formal socioeconomic assessment undertaken? It is submitted that a decision of Clare County Council (25/60257) sets precedent for link between visual impact, residential amenity and property values. Decisions by Cork (20.107229) and Tipperary (21/577) support this as a material consideration.

- Property values – It is submitted that a working paper from the respected University of Galway's Centre for Economic Research on inclusivity and sustainability (CERIS) provides quantitative validation of negative effect. Gillespie and McHale (2023) employing a hedonic pricing model, conclude that 'proximity to wind turbines has a significant negative impact on house prices' in an Irish setting.
- There are general concerns that planning permission may be refused for family members in the future (as a result of proximity to turbines) with a precedent objection cited (Orsted WF - Rossestown, Thurles, Co. Tipp,) and that rural housing will be restricted leading to: long-term uncertainty; rural depopulation; isolation of the elderly; adverse impacts on sports clubs, community life, schools and local businesses.
- There are concerns that broadband and/or tv signal / network reception will be affected and that working from home will become impossible.

Local Economy and Employment

- There are concerns that no local jobs will be created and that there will be very little community benefit.
- It is submitted that there is no consideration of existing SME's in the EIAR.
- There are concerns that the traffic disruption during construction and the visual, noise and SF disruption during operation will negatively affect existing businesses including: visitors to Terra Nova Garden which is a tourist attraction for the area; custom to local business generally such as Bulfin Hurleys, Toco Welding. Concerns are raised in relation to safety, viability and sustainability business reputation, client relationships and future investment.
- It is submitted that Ballyhoura Development CLG was set up to support individual, community and business development including artisan companies offering authentic products and experiences. Concerns are raised that the proposed development will affect the locality's sense of place and branding.

Agriculture and Animal Welfare Concerns

- Concerns are raised in relation to impacts on farm animals and livestock including stress as a result of sensitivity to noise, vibration and shadow flicker. There are fears that this could disturb livestock with impacts on reduced milk yield, agitation, increased injury in the herd, difficulties calving or calf rejection. Concerns are also raised that there are risks associated with the safe movement of cattle on roads.
- Concerns are raised that the wind farm development will restrict farming operations and expansion in an area of prime agricultural land. That impacts will result in farm income loss and reduced productivity in livestock which undermines livelihoods. This will discourage younger generations and impact succession planning.
- Concerns are raised that microplastic shedding contaminates soil & pasture, entering food chain and harming farm ecosystems.
- Concerns are raised in relation to the potential spread of disease in farm animals with the movement of people, machinery and wildlife from farm to farm.
- It is submitted that there is insufficient clarity re: the proposed grid connection route, method (underground/overhead), and potential impacts of the grid connection infrastructure (cable will pass through farming land).

Equine Industry

- There are concerns that the construction and operational impacts of the proposed development could potentially lead to a loss of business and/or public liability insurance for local Equine Industry (Stud Farms) resulting in staff redundancies and impacts on indirect

	employers (transport companies, local shops, fuel companies). Concerns are raised that clients will take boarding mares elsewhere, with a negative knock-on impact on business, staff levels and the local economy. • Concerns are raised in relation to impacts on horses (bloodstock, thoroughbreds) including stress as a result of sensitivity to noise, vibration and shadow flicker. There are fears that this could disturb horses with long term effects on food intake, growth and production. Concerns are also raised that there are safety implications for horse handlers and riders (Camas House, Rathmore Stud, Manister Stud). • Concerns are raised that the wind farm development will restrict equine industry operations and expansion in an area of prime agricultural land. That impacts will result in income loss and reduced productivity in bloodstock which undermines livelihoods. This will discourage younger generations and impact succession planning. Tourism & Culture • Concerns are generally raised in relation to adverse impacts on the Tourism sector. It is generally submitted that the EIAR fails to identify the Morningstar River and Golden Vale as recreational amenities and that the Golden Vale must be identified and assessed as a tourism receptor. • It is submitted that the EIAR discusses tourists visiting Black Castle in Bruff, but that there is no 'Black Castle' open to visit in the town. The Thomas Fitzgerald Centre (25,000 visitors in 2024 and 800,000 online interactions) hosts the RFK Autumn School is largely ignored. • It is submitted that the proposed development has potential to significantly impact the Ryder Cup gold tournament as the Junior Ryder Cup in Ballyneety is located along the route of the GCR. • Hurling has UNESCO Intangible Cultural Heritage status and the Government has a responsibility to protect local hurling clubs. It is submitted that the proposed development will undermine clubs and they may be forced to close due to people leaving the area.
3.	**Environmental Topic: 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)**
	Key Issues Raised:
	Decline of Biodiversity, Loss of Hedgerows, NHA's • Impact on wildlife including hedgehogs, foxes, bats, mink, badgers, field vole, Irish Brown Hare, otter, stoats, red squirrel, pine marten, frogs • Loss of habitat, breeding and foraging. Removal of hedgerows, loss of habitat for wildlife generally. Loss of Hedgerow (9km) not justified and effects under played. This includes two high significance hedgerows. Fireblight disease, a national crises and notifiable disease is not considered. Response is over reliant on post-destruction compensation and not preventation. Contrary to NBAP and LDP. • EIAR says some wildlife species will be affected, some fatally, yet no meaningful mitigation is proposed. • Ecological Surveys and Assessments are too limited in scope (general comment). • Impact to natural habitat of Lough Gur and Grange Stone Circle • Several invasive species present (not specified). No Site-specific Invasive Species Management and Monitoring Plan submitted. • The application does not provide a detailed quantitative assessment of biodiversity impacts and gains such as biodiversity metric or habitat quality index. The EIAR fails to demonstrate a quantifiable biodiversity outcome or long-term monitoring plan with legally secured compensatory/offset habitat measures.

- Identification of badger outlier sett (No.2) 3m from access tracks indicates ecological constraints did not inform design. EIAR fails to protect Badgers, admits sett closure is proposed under licence from NPWS and relies on pre-construction surveys and best-practice measures to reach its conclusions. Displacement of badgers - spread of bovine tuberculosis, also impact on insects, birds and microorganisms, migratory birds that use the wetlands in the "Corcass" in Camas near Ballinlee.
- Otter –inadequate ecological assessment of Morningstar River. Once again relies on surveys and Best Practice for conclusions.
- The development is incompatible with the National Biodiversity Action Plan (2025-2030) which commits Ireland to halt and reverse biodiversity loss.

Key Issues Raised: ***Bats***

- There is a diverse bat population in the rural area, turbine have a massive effect on this species and the failure to assess these effects is contrary to European Law and Habitats Directive.
- Lesser Horseshoe Bat are recorded as being present in Lough Gur, Grange and Fedamore. An assessment of this species needs to be undertaken
- The EIAR does not provide reliable or scientifically defensible data to demonstrate no adverse effects will occur. Critical mitigation is deferred to post-consent design stages (prohibited under European Law). The proposal entails the felling of over 30% of identified potential roost trees, extensive removal of mature hedgerows and introduction of artificial lighting near known foraging habitats. Failures breach Habitats Directive, Birds and Natural Habitats Regulations, Wildlife Acts, LDP and Limerick Biodiversity Action Plan.
- **Individuals undertaking and signing off** on bat survey lack demonstrable qualifications or professional accreditation in bat ecology. No surveyor listed as holding certification under CIEEM Professional Competency Framework or Bat Conservation Training Trust Standards (Collins, 2023) or verifiable Irish Bat experience/training equivalents. Chapter 6 and Appendix 6E show only general environmental or unrelated qualifications.
- **Desk Study** – completed after field deployments began. Contrary to best practice which requires desk study inform design (NatureScot,2021, BCI, 2012, Marnell et al, 2022). No results of desk study provided other than BCI roost list of radius of 10km from centre of site (as opposed to site boundary and all related infrastructure). Application states nearest LHB roost is 7.5km from development, based on BCI roost list, but no details of BCI local surveys, recorded sightings, not informed by local volunteer groups, Vincent Wildlife Trust, LCC biodiversity Officer or NPWS Wildlife Ranger. As a result omission of multiple known roost sites within 10km buffer as corroborated by MPWS datasets which identify roosts at Lough Gur (4.6km), Glen Bog (5km), Adare Woodlands, Tory Hill (7km), Skool Hill (7.4km) all within effective foraging and migratory range of the LHB species. LHB also known within the Bruff area, confirmed by static detectors (Appendix 6E & I).
- **Static Detectors –** no clear rationale or methodology which informed static detector locations. Sometimes proxy locations used. Deployed for only three short periods in 2023 (spring, summer, autumn) each lasting 10 days. Spring survey commenced mid-may and missed the April activity period crucial for early-season foraging and migration. No swarming survey completed in Autumn despite BP indicating need for this. Collins 2023 and EUROBATS Publication No.8 advise full active season (April-October) monitoring over multiple years to capture temporal variability, accurate activity levels and detect migratory or swarming behaviour.
- **Equipment and Calibration Failures** – Use of multiple detector models contravenes BP which warns that using mixed hardware introduces significant bias in detection sensitivity and frequency response. Four static detectors failed to record data during survey periods meaning survey gaps, especially in the south of the site. Failed data was used in survey results to determine activity, risk assessments and formulate mitigation. LHB detected at D2 in Autumn 2023 yet received no further investigation (Annex II species). Other Bat species detected (Common

	Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Leisler's Bat, Brown long eared Bat and Myotis Species – yet detector surveys not repeated to determine accurate results. No calibration logs, service records, maintenance verification provided and no rationale why malfunctions not noticed or rectified. • **Detector Positioning** – 10 out of 14 detectors incorrectly placed within dense vegetation impacting accuracy in recording species type and activity. No detectors placed above canopy level in wooded areas, reducing accurate data collection for bat species with short or lower echolocation calls (LHB, Brown long eared bat, Natterer's Bat, Whiskered Bat) • **Invalid Data Analysis** – two different data analysis software systems used, BP suggests this creates significant flaws and bias in survey results. Consultants claim to have developed an 'in-house analysis script' or 'internal comparative analysis' to measure geographical and temporal context for activity levels' but this methodology is unverified, unpublished and lacks any peer-reviewed scientific basis, it introduces significant developer funded bias and fails to reflect BP. • **Roost Assessments** – A site wide assessment was not carried out as required by BP, with a focus only for less than 300m of each turbine location. 50 potential roosts identified, only 10 confirmed (this seems low) in Table 8 yet contradicted as 5 in Table 9 of Appendix 6. Insufficient methodology of effort level, timelines do not evidence robust tree and building surveys, proposed areas for felling remain unsurveyed, hedgerow, tree, habitat removal info is inconsistent and contradictory, vague dates given for preliminary roost assessments and GCR, TDR potential roosts. An excessive number of trees (50 listed for further assessment, no bat survey for temporary access tracks as part of TDR. • **Transect Walks** – Only covers 300m of some turbines. No walks completed for T6 to T12 in the south. • **Emergence and re-entry survey** – Re-entry surveys no longer considered BP due to high unreliability of data. Need to be discounted from survey results. Limited emergence surveys completed within 300m of each turbine with inadequate season coverage. BP is multiple emergence surveys for each potential roost from multiple emergence points over full active bat season. Inadequate to none emergence surveys for potential tree roosts. No bat studies of any kind for felling areas. • **Habitat Loss and Fragmentation** – specific amounts are vague and contradictory within the application. Table 6-42 states the proposed levels of habitat removal, but this is inconsistent throughout the application. Hedgerow removal varies from 1.5 to 1.9km, height reductions range from 230m to 1,280m and vary from 0.8m to 0.89m, treeline removal ranges from 922m to 8.8km within the reports, broad-leafed and conifer removal ranges from 2.6ha to 2.9ha. These habitats provide essential roosting habitat and commuting and foraging corridors for multiple bat species. • **Land boundary issues** – how can the developer commit to hedgerow reduction/removal when boundaries are shared with non-participating landowners. This has implications for enforceable effective bat buffer features. Bat buffer distances are contradictory in Table 6-43. A bat buffer of 25m form forestry is suggested (3.5.1.3) but NatureScot (2021) advises 50m and EuroBat 2018 strongly advises a min 200m. The removal of linear habitat will fragment connectivity across the site contrary to Obj. EN0 17 & 18 of the LDP and newly planted hedgerow and woodland cannot replace aged hedgerow and woodland. • **Cumulative Effects** – not seriously assessed. The growing cluster of wind and solar projects within a single ecological region and the fragmentation of foraging grounds and increased mortality across multiple projects could lead to regional population decline of Annex II species. Cumulative construction impacts insufficiently addressed and minimised (noise, lighting, dust, pesticides, etc) and mitigation unenforceable – use of silencers, slow speeds etc. • **Mitigation Measures –** appropriate mitigation cannot be designed and implemented when the baseline is deeply flawed, surveys falls short of BP and vast areas remain unsurveyed. The mitigation relies on post-consent surveys and developer led monitoring and EU Law makes it clear that such deferred or uncertain measures cannot be used to justify a finding of no effect.

	• **Artificial Light –** turbine infrastructure, substation security systems and night-time construction poses sever risks to all bat species. Mitigation proposed (LED luminaries and directional lighting) are non-committal and unenforceable. The proposal is contrary to LDP Obj. EH O13 and the LHB Action Plan 2022-2026 which mandates protection of nocturnal species and dark-sky environments. • **Operational Phase Mortality** – risk assessment for the operational phase based on inaccurate and flawed survey findings. The combination of high-risk turbine siting adjacent to/within linear features/woodland setting, boundary issues, roost proximity, inadequate curtailment thresholds (based on peak bat activity at wind speeds of 3 m/s), means high certainty of collision and barotrauma fatalities. Fails to consider bat species tolerant to wind speeds of 8 m/s or species with higher light patterns (Leisler's and Nathusius' bat). Voight et al, 2015, Rydell et al, 2020 shows curtailment thresholds must exceed 5.5 m/s to effectively reduce mortality. • **Legal and Procedural Implications** – given the above, the survey does not meet evidential threshold of 'complete, precise and definitive findings' required under Article 6(3) of the Habitats Directive. The application is based on deficient and misleading ecological evidence, making any grant of permission unsound. Ireland is obligated to prevent further deterioration of habitats crucial to Annex II species.
4.	**Environmental Topic: Ornithology**
a.	Key Issue Raised: **Survey Effort**
• The EIAR omits winter surveys, proper bird surveys and fails to address flight path issues at night. • Trespass - there have been **unknown persons in the area** trying to herd the whooper swans away from their natural resting spots (meaning surveys are inaccurate). • P.38, Appendix 7B of the EIAR confirms that some infrastructure locations were not surveyed in all seasons. • Vantage Point (VP) surveys were not carried out in accordance with NatureScot (2024) guidance with only 30hrs in Year 1 and the dataset commenced outside the optimum/recommended season. • Nocturnal Whopper Swan flights in Year 2 under-detected on the basis of recorders operating 6hrs per day, as opposed to 24/7 in Year 3 which then shows a 369% increase. As a result, the baseline understanding of collision risk is based on non-comparable datasets. • The ornithology baseline must demonstrate adequate seasonal coverage including migration periods, peak raptor activity and multi-year data for robust CRM. Hours per VP were uneven across the years, no nocturnal VP coverage or thermal/night observations and nocturnal activity was estimated from diurnal data, CRM used only Year 2 and 3 data omitting one full season (Oct 21 – Sept 22). The treatment of collision risk and displacement in Chap 7 and Appendix 7E of the EIAR therefore fails to demonstrate full representativeness and cumulative completeness. The potential collision risk to Whooper Swan, Curlew and other species is under-represented. • Best-practice guidance (NatureScot 2021, TII 2023) requires three full winters of dawn, dusk, and nocturnal observation for high-sensitivity migratory species. No thermal or infrared visual surveys were undertaken, meaning night-time flight height and direction—critical for collision modelling—remain unknown. Despite this, the EIAR applies a Band Model collision risk formula using "inferred flight data," producing estimates of 0.22–0.55 Whooper Swan collisions per year without presenting confidence intervals. • The dataset is extremely small with reliance on "inferred flights" introducing model instability. There is no error analysis or confidence intervals and uncertainty is unquantified. Results are treated as definitive despite high variability. • Chapter 7.3.2.4.1 of the EIAR - no barn owls recorded. This is considered surprising as barn owls have been sighted in the area. Red listed species. • Red-listed curlew – conclusion reached on low numbers recorded and relying on suitable alternative habitat - Feels speculative. • A full Avian Impact Assessment, specifically Whooper Swan flight paths and habitats, must be completed.	

b.	*Key Issue Raised: **Collision Risk***

- CRM predicted 0.22 collisions per year for Whooper Swan but this was supplemented with an increased estimate of 0.55 collisions per year. This behaviourally adjusted model suggests standard methodology may have underestimated true risk particularly for nocturnal movements and not fully captured in VP surveys, but this is then dismissed as 'a precautionary upper bound' as opposed to a core prediction.
- The CRM conclusions are built on data with significant inherent uncertainty, which the report itself quantifies having a margin of error of ±30%. This uncertainty arises from imprecise flight height estimations, the extrapolation of "relatively short survey period" data across an entire year, and the use of an admitted assumption on nocturnal activity levels where no actual nocturnal surveys were conducted. The model also applies generic avoidance rates, as high as 99.5% which dramatically reduce final collision estimates. These figures are sourced from Nature Scot, 2019 but include no site-specific validation. Marques et al (2014) cautions that avoidance behaviour can be highly variable. For a development comprising 17 turbines, the blanket application of high, non-site-specific avoidance rates appears to be a tool for minimising predicted impact rather than a robust, evidence-based prediction. The legitimacy of risk modelling in this instance is compromised by dependence on unverified assumptions for nocturnal activity, the application of generic and potentially optimistic avoidance rates, and the dismissal of low-level risks for sensitive species.
- CRM is a prime example of EIAR reliance on guidance masking significant scientific uncertainty. The model is reliant on an 'avoidance rate' which is predicted at 98-99.5% based on NatureScot guidance (2024) but this can be challenged by other relevant peer-reviewed meta-analyses. (Marques et al 2014, Thaxter et al 2017). Work by Crowe et al 'Bird Sensitivity Mapping for Wind Energy Development and Associated Infrastructure in the ROI' (2015) should have been used and the blanket application of British Thresholds may not be sufficiently protective.
- The under-reporting of risk (in the CRM) further extends to protected raptors: Buzzard, Sparrowhawk, Barn Owl, Hen Harrier, Peregrine Falcon.

c.	*Key Issue Raised: **Mitigation (generally) and Whooper Swan Management Plan (WSMP)***

- **A**ppendix 7D Whooper Swan Management Plan details the flight path of Whooper Swans between Lough Gur and areas to the southwest of the proposed site boundary. Appendix A of this report catalogues the locations where Whooper swans have been recorded foraging from 2020-2025. The majority of the locations detailed require Whooper Swans to cross the proposed development to travel between Lough Gur and the foraging areas. Report does not detail what will happen if the WSMP is not effective, the WSMP confirms that the project would have a severe negative impact on the Whooper Swan population and suggests a mitigation plan that may or may not work. Limerick City & County Development Plan Policies EH P8, LCA 05 Lough Gur, Lough Gur Specific Objective d) seek to safeguard the existence of Natural Heritage Areas and the Wildfowl sanctuary when assessing applications for development in the area.
- The WSMP assessment of displacement risk is optimistic and misapplies established guidance. It proposes a '300 metre buffer distance" for assessment, claiming this falls 'within the lower end of NatureScot's recommended 200 600m range for human related disturbance." This is a misrepresentation. The WSMP's own literature review contradicts its confidence, citing a meta-analysis that found 78% of studies on swans indicated displacement effects, with reported avoidance distances ranging up to 560m.
- The WSMP admits that "in the first instance, whether decoys, baiting and the use of audio lures are required to initiate field use" will need monitoring. This admission reveals the central mitigation measure is entirely experimental.
- The WSMP assumes Whooper Swan will immediately and reliably adopt these areas, an assumption not grounded in scientific literature on compensation ecology. Zu Ermgassen etc all (2019).
- The proposed foraging field will be reseeded to a uniform perennial ryegrass sward maintained at 5-10cm height, closed to grazing from mid-October to end-March. This monoculture grass sward significantly reduces the quality, diversity and nutritional range of available forage, creating a degraded feeding habitat relative to the baseline mosaic. Best practice requires multi-sward feeding plots, rotational plots, wet-feature zones and adaptive re-seeding. The

WSMP offers none of this, the narrow zone of lush ryegrass within 350m of turbines may attract birds repeatedly into a high-risk space and an ecological trap. This constitutes functional habitat deterioration and not an enhancement measure or mitigation.

- The 'Whooper Swan Management Plan' shows structures T1 to T5 are in their direct flight path of the whooper swans and does not show any concern towards these species in their natural habitat.
- BirdWatch Ireland (2019) survey documented disturbance and flushing at 40dB levels around Lough Gur. Peak construction noise levels are estimated at up to 75dB and prolonged exposure to construction noise above 60-65dB can lead to foraging avoidance or site abandonment in swan species, within 500m of active works. The WSMP and core foraging fields lie within 400-500m of turbines and haul roads and could exceed tolerance thresholds for swans.
- Mitigation report overstates certainty about swan behaviour and fails to integrate other species and site uses/users.
- Mitigation, including the adaptive curtailment of T1-T4 is temporary, long-term strategy relies on swans habituating to turbines which is based on hope.
- The applicant proposes to fully curtail turbines T-T4 during the first operational winter only (15 October to 31 March) with the turbines operating normally thereafter with "adaptive" curtailment only introduced if Whooper Swan mortality or activity exceeds a trigger of 0.05 collisions per year. This is flawed as the mitigation is temporary and discretionary with reliance on unproven monitoring. There is no detection methodology, response time or verification process. It conflicts with the applicant's own data which predicts 0.22-0.55 WS collisions per year which is 4-10 x times the mitigation trigger threshold.
- The EIAR did not weigh studies that document long-term displacement, for example Clausager 2004, which documented displacement of Whooper Swan from a wetland area challenging the reports optimistic habituation narrative.
- The WSMP claims construction will be "minimised" during the overwintering period, but this is not a full moratorium with the EIAR stating that cable laying, delivery without lifting and minor civil works continuing subject to monitoring by ECoW. This introduces significant ambiguity.

d.	Key Issue Raised: **Wetland Function**

- There is no hydrological contour mapping or ground waterflow analysis undertaken. There is no reference to EPA GSI Subsoil Permeability Data or CFRAM flood maps and there is no quantitative assessment of surface water runoff changes, wetland drainage effects , or sediment transport resulting from turbine foundations, access roads, or cut-fill areas. These omissions are critical. Construction on alluvial flood plan soils inevitably alters filtration rates and storage volume, leading to reduced surface wetness and shallower winter flooding. This undermines the wet-grassland mosaic that provides feeding habitat for WS.
- The EIAR provides no sediment or runoff modelling, no water-quality monitoring plan and no assessment of how altered flooding patterns will affect vegetation or feeding availability.
- The EIAR assessment that access tracks and turbine bases will reduce surface water logging, directly conflicts with the ecological function of the habitat. This is effectively a form of habitat degradation, converting a naturally wet, food-rich floodplain into drier pasture.
- Two borrow pits and several haul routes are proposed within the floodplain (flood zone A&B) of the site, adjacent to turbine locations T1-T3 and within close proximity of the proposed WS foraging field (Appendix 7D, Map A3). Excavation and and infilling in these areas will permanently alter local hydrology.
- Reducing drainage and soil saturation, combined with construction noise and movement, will render existing foraging fields unsuitable for WS. Fox et al. (2006) and Keskpaik et al. (2020) confirm large waterfowl abandon feeding fields within 400-600m of turbines, particularly where hydrological or vegetation changes occur simultaneously.
- By dismissing floodplain wetlands as 'agricultural grasslands" and by promoting drainage and access infrastructure that reduces soil wetness, the applicant underestimates both direct and indirect impacts on protected species.

e.	Key Issue Raised: **Whooper Swan** *(Generally)*

- T1-T4 are too close to the Camas South feeding grounds (within 400-600m) breaching NatureScot (2021) buffer guidance.
- T5-T7 are positioned across the Lough Gur to Camas South flight corridor. Guidelines advise keeping turbines off regular roost-forage corridors (NatureScot 2021)
- T8-T10 overlap with secondary foraging fields with feeding recorded within 300m. Large swans require alternative fields for rotation and sward recovery and disturbance reduces foraging range and increases energy expenditure.
- NatureScot (2021) recommends >1km turbine free space between roost and foraging zones. The plan provides no such corridor.
- The flight path of swans and geese will be disrupted between Lough Gur and the bogland in Crean.
- Whooper Swan visits the Corcass from October, 5 turbines in the northern cluster are proposed in a foraging area, mapped floodplain and wetland.
- Whooper Swans (listed as a Special Protection Interest under the EU Natura 2000 network): the Bruff-Dromin-Athlacca area is part of the migratory path and wintering grounds for Whooper Swans, swans are highly sensitive to disturbance and habitat alteration.
- Wind turbines have been shown to disrupt swan flight paths, increase risk of collision mortality, and cause long-term habitat displacement.
- The proposed development is close to wetlands and agricultural fields commonly used by Whooper Swans for feeding and roosting.
- The whooper swan is a Special Conservation Interest of the River Shannon and Fergus Estuaries SPA. The report confirms that the "Lough Gur flock," which roosts within this SPA, regularly forages within the "northern section of the 500 m buffer." The dedicated flight speed surveys provide irrefutable evidence of 'regular and energy-efficient commuting behaviour' between the SPA roost and the development zone. This creates a direct and legally significant pathway for impact, which the report's overarching "low sensitivity" characterisation seems to have underestimated severely.
- The plan notes the local Lough Gur flock has declined by "approximately 30% from an average of 102 swans at the turn of the century," with a reduction in county and national share. While it states, correctly, the national population has increased, this does not nullify the conservation importance of local populations. The loss or further degradation of a traditional wintering site for this already declining local flock could have disproportionate consequences, potentially even acting as a "sink" population. The mitigation plan, therefore, risks being an experiment conducted on a vulnerable sub-population, a scenario which planning authorities have previously found unacceptable.
- The EIAR did not weigh studies that document long-term displacement, for example Clausager 2004, which documented displacement of Whooper Swan from a wetland area challenging the reports optimistic habituation narrative.
- The NPWS and BirdWatch Ireland (2019) emphasise the need for at least 600m separation distance between turbines and feeding fields. The applicant has declined to implement these recommendations, fixing turbines within 340-600m of active feeding areas.

f.	*Key Issue Raised: C**urlew***

- EIAR Chapter 7: ‘Ornithology’ completely underestimates the site's value for the critically endangered Curlew and fails to meet the stringent legal requirements of both Irish and European Union nature conservation law. Regarding observation and monitoring, it states that "curlew were occasionally present at the site but no breeding behaviour (displaying, territorial calling or nesting) was observed”, and that their use of the site was 'opportunistic or low intensity' (Section 7.3.2.2.9, pg 41). Table 7-10 (pg 85) concludes "no breeding recorded." These assertions are fundamentally flawed and are directly contradicted by verified field evidence. Time and location stamped recordings of Curlew calling from within the development site on 24 May 2024 and 09 July 2024, archived with the Cornell Lab of Ornithology's Macaulay Library (assets 643277412 and 643279489), provide proof of breeding season activity. Territorial or persistent calling in summer months is recognised by the National Parks and Wildlife Service (NPWS) and Birdwatch Ireland as reliable evidence of breeding activity or attempted nesting.
- The EIAR categorises the impact on curlew as a 'minor adverse effect at the local scale' during both construction and operational phases (Table 7-10, pg. 85). This conclusion is predicated on a flawed presumption that breeding does not occur, and that site use is only intermittent. The construction phase

assessment acknowledges that disturbance could displace flocks of up to 24 birds, but dismisses this as affecting only 0.06% of the national non-breeding population, stating that 'any displacement is expected to be short-term and reversible' (Section 7.6.1.2.3.1, pg 69).For a species like the Curlew, where every breeding pair is absolutely critical given their catastrophic decline, the loss of even a single territory represents a significant conservation setback.

- The EIAR's focus on wintering flocks overlooks the paramount importance of protecting potential breeding habitat, which is an obligation under the Birds Directive. At operational stage the EIAR suggests that disturbance from moving turbines will be minor and that 'most potential foraging habitat lies outside the immediate turbine envelope' (Section 7.6.2.3.1.1, p. ·11). Peer-reviewed studies, however, such as those by Pearce-Higgins et al. {2012), demonstrate that waders like curlew can exhibit avoidance behaviour at distances of up to 500 metres from turbines. The EIAR itself cites guidance noting 'displacement effects can occur up to 250-500 m from active works' (Section 7.3.2.2.9, page 41). If the development footprint and its zone of influence effectively render a potential breeding territory unusable through disturbance and fragmentation, this constitutes a significant effect, regardless of whether the habitat is physically lost.

g.	*Key Issue Raised:* ***EIAR (generally), Cumulative Effects and other***

- The EIAR fails to include quantitative noise modelling for waterbirds, treating construction and operational noise as “non-significant” based on generic turbine specifications rather than measured propagation over wetland terrain.
- Concerns raised in relation to impacts on other bird species which it is submitted are under-reported or not assessed in the EIAR. This includes birds of prey, heron, owls, kestrels, hawks, owls, kites, buzzards, herring gull, barn owl, short-eared owl, Little Egret, common crane, curlew, plovers, corncrake, White-tailed Eagle.
- Historic rookery at V35 YD62 (not assessed).
- Hen Harrier are not simply passing through but are present in the study area.
- Overall conclusions suit developer and do not seem to apply precautionary principle as required by environmental law.
- Cumulative assessment too narrow, ignoring agriculture and other multiple infrastructure projects. The Cumulative assessment omits nearby operational and permitted wind farms.
- The under-reporting of risk (in the CRM) further extends to protected raptors: Buzzard, Sparrowhawk, Barn Owl, Hen Harrier, Peregrine Falcon.
- The EIAR places all implementation responsibility with the developer’s own ecological consultants with no independent oversight, funding security or long-term compliance mechanism proposed. This is voluntary commitment and not mitigation.
- The EIAR (and NIS) limit their assessment to the immediate site boundary and project envelope asserting “no other wind farms lie within the functional range of the subject species”. At least nine windfarm developments are currently operating, permitted or at application stage within the Irish midlands-southwest migratory corridor used by WS including Garrane, Annagh, Ballinla, Derrynadarragh, Drehid and Derryadd. Failure toaluate the cumulative impact of these projects in terms of collision mortality and displacement is a breach of best practice requirements.
- Cumulative assessment is absent and population-level risk is understated.
- Cumulative effects from multiple projects acting on the same national wintering population must be assessed beyond site-level “functional link” tests consistent with CIA guidance and best practice.
- The Limerick-Cork border region is experiencing a steady conversion toward drained, turbine-accessible land. This incremental transformation erodes the ecological network upon which the Lough Gur and Morning Star WS flocks depend. The cumulative effects must be explicitly assessed.

h.	*Key Issue Raised:* ***Appropriate Assessment***

- Under EU law, the Appropriate Assessment (AA) must be a discrete, standalone process that relies on the best available scientific evidence and tests the conclusions of the EIAR independently. However, in this case, all documents were prepared by the same consultancy using identical datasets, identical

	maps, and near-verbatim language. The NIS repeatedly cites the EIAR as the source of its conclusions and "relies upon the findings of the EIAR Ornithology Chapter (Ch.7)" rather than undertaking its own evaluation. This approach contravenes the principle outlined in People Over Wind and Sweetman (C-323/17) and Kelly v An Bord Pleanála [2019] IEHC 84, where the Court held that screening and assessment processes must be independent and free from circular reasoning. • Mitigation that depends on post-consent monitoring (Curtailment of T1-T4) cannot satisfy the precautionary principle under Article 6(3) of the Habitats Directive. • Because the project's core mitigation depends on discretionary, time-limited, or post-consent measures, it fails to meet the legal threshold of "no reasonable scientific doubt" required by Article 6(3). The lack of enforceability and the contradiction between the applicant's predicted collision rate and its mitigation trigger mean that the competent authority cannot reasonably conclude that significant effects on Whooper Swans will be avoided. In practical terms, this invalidates the conclusions of both the NIS and AA, which are predicated on the assumption that these mitigation measures will succeed.
5.	**Environmental Topic: Land & Soils**
	Key Issues Raised*:* • General concerns are raised in relation to pollutants and contaminants including: microplastic shedding from turbine blades; pollutant runoff from concrete pours, hydrocarbon use, and construction impacts and emissions including vibration, ground disturbance, dust. Concerns are connected to removal of nutrients from soil / land degradation and effects on fertile farming land. • Application should include a Construction and Demolition Waste Management Plan setting out details of how potential contamination will be identified tested, classified and tracked (a defined contaminated land management procedure). • 9no. Separate soil storage heaps is not justified and likely to be visually intrusive and ecologically sterile without specific restoration and long-term management proposals. Risks altered runoff and sediment transport. • No Peat and Spoil Management Plan submitted. Insufficient peat probing coverage and sampling density undertaken. Peat instability, slope failure, drainage alteration. References Derrybrien WF and landslide. • Declaring a zero risk without a screening level Peat Landslide Hazard and Risk Assessment is not supported by guidance. • Soil Compaction (the construction phase will have a severe impact on the clay soils typical of this area. These soils are highly vulnerable to structural damage). • Borrow Pits will not limit HGV movements necessarily as the data provided contradicts their claims of aggregate availability, the trial pit exploration method, using a small mini digger (Yanmar Universal Vio 50), is not useful for deep exploration to bedrock and is incapable of taking bedrock samples or going past the bedrock, there is a shallow topsoil, followed by heavy brown clay and silt mixed with cobbles. This is very unlikely to be the type of aggregate the developer requires, no evidence that it is a suitable load-bearing material because they didn't get it tested. • Vegetation Removal - increasing erosion risk, loss of plant cover affects soil nutrient cycles. Impacts on Soil and Ecology (Construction Disturbance, building turbines requires clearing land, digging foundations, and creating access roads. This can lead to soil compaction, erosion, and disruption of local flora and fauna. • If there isn't a suitable onsite aggregate via the on-site quarries they propose to create during the development phase, thousands of additional truck movements will occur, invalidating key sections of the EIAR's alternatives and traffic analysis. • EIA assumes availability of on-site aggregate to justify reduced HGV movements. There is no site investigation to verify this. The developer claims two-large (proposed) quarry sites will supply 61% of the aggregate required amounting to 99,852m2 but this is based on limited trial pit data with no rock core drilling and no assessment of quality. An extract from Appendix 8B is referenced to support this observation which it

	says shows ground water evident at 50% of sites investigated, with water seepage at 1m to 2.3m below ground level and the character of soils showing topsoil, silt and heavy clay and nothing to support the position that the material is fit for purpose. • If the estimates of volumes of aggregate available via on-site quarries is unreliable, then so is the estimate of traffic impacts and movements. If material requires to be imported it could result in nearly 10,000 additional HGV movements. In addition the quarries would not then be available for spoil deposition resulting in transport off site and further traffic movements.
6.	**Environmental Topic: Water**
	Key Issues Raised: Drinking Water • Multiple concerns are raised in relation to potential impacts on ground water and private drinking wells. EIAR does not address private water supplies, and no well mapping has been included in the report. No contingency plans if private water is contaminated. • Private Water Supply - disturbance of groundwater, borrow pits, aquifer contamination, dewatering may be required, but there is no specific hydrological survey or baseline water-quality monitoring provided for private wells within 1km of the site. • Groundwater source for Boherard GWSS is 50m deep and 1.25km from nearest turbine – will excavations affect the quality and volume of water? Also, there is 3.5km of water network in the soft margin of the R516 and R511 – what will the impact of HGV's be and who is responsible for repair? • Pipelines from local GWSS run below proposed access roads, risk of damage from transport and construction traffic. No consultation with GWSS. The scheme well and pumphouse are located at junction of R516, R511 and L1415 with pipelines on R511, R512 on the TDR. Concern HGVs will cause extensive damage. Flooding • Multiple concerns are raised in relation to increased Flood Risk and private residential properties. • Flood Risk (flooding of the corcass area of Carrigeen and Camas will become much worse). Photos supplied of recent flooding at development site – impact of developing in a flood plain questioned, where will flood waters go when existing drainage is altered? • Interference with natural floodplain of the Morning Star River. Proposed area of T1, 2 and 3 frequently floods. • Inadequate FRA – Turbines proposed in Flood Zones A and B without sequential or justification test. Incomplete and unverified flood-risk data used which omits calibration, validation and sensitivity analysis. Small tributaries (<5km) modelled using methods the report itself identifies as unsuitable, potentially creating large flow-estimation errors. Pluvial and groundwater flooding dismissed without quantitative assessment and borrow pit and deposition areas not evaluated for impacts on flood storage or conveyance capacity. No freeboard or finished level data provided for turbines, transformers or access roads. • Applicant states Morning Star River flows west to NE. This is incorrect, it flows west – subsequent hydrological modelling based on erroneous assumption and calls into question FRA. Pollution

	• Pollutant Runoff from Concrete Pours. • Waste, pouring of large quantities of concrete and oil needed in the construction phase will lead to largescale pollution of local waterways, in particular, the Morning Star. This river is a major tributary of the River Maigue, which is already battling against pollution and declining aquatic life. • Concerns of contaminated run off entering Camoge or Maigue River affecting downstream catchment and Fresh Water Pearl Mussell. • Waste, pouring of large quantities of concrete and oil needed in the construction phase will lead to largescale pollution of local waterways, in particular, the Morningstar River. • Resilience of settlement ponds not demonstrated. • The cumulative assessment of aquatic impacts is localised, focused on direct effects like siltation, dismissing wider impacts and failing to assess how the project's impacts will combine with existing agricultural pressures in the catchment. The potential for increased sediment and nutrient loads to affect sensitive species in the SAC (FWPM) is not rigorously evaluated. • Sediment-laden runoff, contamination from borrow pits and construction areas, alteration of natural drainage pathways, adverse impacts along the grid connection route. Groundwater Flows • *Excavation for turbines foundations and the 110kV cable may alter groundwater flow, affecting wells and field drainage.* • **Impact on Water, Ground, and Soil Conditions** (Wind turbine foundations require extensive excavation, concrete installation, and heavy construction traffic, this presents risks to soil stability, groundwater systems, and local watercourses, especially in rural areas. Potential for contamination or long-term hydrological disruption). • Inadequate consideration of water table and seasonal variations • Construction stage impacts on wetlands, ecosystems, riparian environments and the Morning Star River • **Groundwater and Soil Risk** (trial pit data in Appendices 8A and 8B confirm groundwater was encountered at depths from 1m in August 2024 and February 2025, proving that a high-water table is not just a seasonal variable. Yet large-scale excavation is proposed for turbine bases and two on-site quarries (or what the EIAR refers to as borrow pits), concerns about hydrological stability, run-off, and surface water management, a fragile local water balance that has not been assessed, Developer confirmed at Pre-Planning they would not be interacting with the water table (Section highlighted). Morning Star River • Morning Star River flows through the Corcass wetlands. Birds, rabbits and Hares are becoming less frequent / negatively affected. • Morning Star is already classified as having 'poor water quality'. Largescale excavations and concrete foundations within wetland areas present a significant risk of further contamination to the river, its tributaries, local groundwater, and private wells. • Waste, pouring of large quantities of concrete and oil needed in the construction phase will lead to largescale pollution of local waterways, in particular, the Morningstar River. • The Morningstar River and its basin represent an environmentally sensitive and internationally recognised habitat for native brown trout and salmon, the topographical nature of the river in this area features a long, slow-moving section, where the flow characteristics significantly increase the river's vulnerability to disturbance. Any sediment run-off, pollution event, or landslide impact in such a section would linger for

	an extended period, causing long-lasting and potentially devastating ecological damage that could take many years to recover–if recovery is possible at all, a more comprehensive environmental impact study is required) Other • If ACP grants permission, it should require the developer to submit further information addressing hydrological impacts due to changing nature of the soils and land, quarry ("borrow-pit") feasibility.
7.	**Environmental Topic: Air Quality**
a	Key Issues Raised: • Air Quality (dust, soil and materials movement), may affect child with asthma (also due to stress) • Traffic - Release of emissions, PM from trucks, diesel fumes, air pollution in general, • Effective dust suppression strategies should be tailored to prevailing hydrology to avoid secondary impacts. • Agriculture produces excellent quality food with minimal emissions and no air miles. Dust, fumes and pollution from construction traffic and concrete works would harm air quality, threaten crops and damage the natural advantages that make this area so productive and sustainable)
8.	**Environmental Topic: Climate**
a	Key Issues Raised: • Carbon footprint will increase due to transporting concrete to the site and the clearance of vegetation • Poor wind resource at site. Renewable credentials questionable. • *Development does not support the 'principal of just transition' - CAP 2024 to 'ensure that Ireland achieves its climate objectives in a way that is fair and equitable and protects vulnerable people and communities'.* • Carbon Footprint, Social and Economic Factors (scale of construction, transport, concrete use, and long-term maintenance). • Carbon calculation EIAR Chapter 11, App 11A – based on loose assumptions only. • Carbon Accounting - The carbon footprint / ton is very significant. The use of such a vast quantity of concrete would give rise to an unacceptably high carbon footprint.
9.	**Environmental Topic: Landscape & Visual**
	Key Issues Raised: • General landscape and visual concerns are raised including that: the turbines at 160m are excessive in scale and height; the WF would permanently alter the rural landscape of the area and skyline, and would destroy the character of the Golden Vale; Protected Views would be negatively affected (Lough Gur, Knockfierna, Ballyhoura Hills / Mountains, Galtee Mountains); Area is known for scenic quality and pastoral

heritage, with historic sites such as Lough Gur, Kilmallock and Bruff, with many graveyards; The development will destroy the scenic qualities and tranquillity of the area.

Residential Amenity

- Concerns are generally expressed that the turbines are too close to residential properties (in breach of separation distances in many instances) and will be visually dominant as a result of excessive height and scale.

LVIA & Viewpoints

- Concerns are raised that the LVIA is inadequate, lacking and/or misleading including: that it is an academic piece of work using selective criteria reaching ridiculous medium –low impact conclusions that minimises impact on local residents which is implausible when inserting 160m high structures into a community; there is no adequate LVIA of central study area and no complete ZTV presented to establish geographic extent of theoretical visibility across Bruff and its environs (Incomplete, particularly for the NW sector); there is a lack of clear residential visual amenity assessment; leaf on/leaf off montages should be provided; micro-siting should be tested to reduce skyline effects; the irregular spacing is incompatible with landscape character.
- Concerns are raised in relation to the selection of viewpoints including: Photographs have been selective; no verified photomontages to LI TGN 06/19 standards from agreed viewpoints; not representative of residential streets, community facilities, recreational areas, roads or scenic routes; criteria for sensitivity/magnitude not defined; no significance matrix; Photomontages do not include key viewpoints where multiple turbine clusters would be seen together such as Brackvoan, Athlacca, and the ridge above; failure to consider community scale receptors in Bruff (including NS); Tip height ZTV provided, no hub height ZTV and no disclosure of focal length, sensor size, field of view, print calibration contrary to GLVIA3.
- Impact on Dark Sky and night-time environment, light pollution from safety beacons a concern.
- No nighttime photomontages. No nighttime (aviation) lighting assessment.
- It is generally submitted that the LVIA is not compliant with the European Landscape Convention of the Council of Europe (ETS No.176) (Florence Convention) for the abovesaid reasons.

Lough Gur (specifically)

- The statement in Appendix 12A re: VP19 that there will be '*some degree of visual ambiguity relating to scale and distance as well as actual landscape context of the turbines relative to that of the foreground enclosed Lough*' is not expanded upon or clarified and therefore the LVIA conclusion is not substantiated and baseless. VP19 is not representative. Lough Gur ACA and the views in and out are protected in the LDP. It is an area of special development control owing to its landscape of rolling hills and the complex, significant archaeological features. The development will contravene the special development control and visual amenity protections of the LDP. (LCA 05, ACA 20)
- Significant visual intrusion into the scenic and heritage-rich landscape surrounding Lough Gur**,** Lough Gur has been designated as a Protected View in the Limerick Development Plan 2022-2028, but the Applicant has demonstrated disregard of the impacts of the proposed development on Lough Gur and its environs throughout the application (see Photomontage VP19 provided.) The photograph has been taken from a secluded location within Lakeshore Park where the local topography and vegetation has blocked most of the impact on the view. This is

	extremely disingenuous. Includes photographs to support argument. The applicant has not provided photomontages from representative locations within the Protected View for the public and planning authority to be afforded the opportunity to understand the implications. The EIA has not correctly considered the visual impact of the proposal in its assessment if it is based on the photomontages submitted with this application Cumulative Impacts • The cumulative analysis appears to be partial in scope or not fully transparent in how other developments were selected. • Cumulative Impact from other nearby WF's, including Garrane (323635) Green Energy Windfarm 8km SW should have been considered. • Fixed 20km study area applied without justification.
10.	**Environmental Topic: Noise & Vibration**
	Key Issues Raised: Human Health • The EIAR treats human health mainly as physical exposure and omits psychological wellbeing, despite WHO 2018 guidance linking environmental noise to sleep disturbance. • Concerns are generally raised in relation to: annoyance, reduced quality of life, long-term mental health impacts. • The applicant's reference to 2014 Health Canada and 2015 Australian National Health & Medical Research literature, is considered to be outdated and non-comparable. Fails to have regard to more recent and applicable peer reviewed science including WiTNES project (Smith 2020), Nissenbaum 2021 and Libeich/Godono 2020-2023. • The Commission is urged to note major new longitudinal study published in Environmental Health Perspectives May 2024, Danish study "Long-Term exposure to Wind Turbine Noise and Risk of Myocardial Infarction and Stroke" suggests for every 10dB increase in outdoor wind turbine noise there was a 9% increased risk of stroke with 16% increased risk for indoor low-frequency noise. EIAR should have engaged with this. • WHO 2018 Standards Not Met - The WHO Environmental Noise Guidelines for Europe (2018) set strong recommendations for wind turbine noise: ≤45 dB Lden and recognise that adverse health effects (sleep disturbance, annoyance, cognitive impacts) occur even at lower levels. WHO Guidelines recognise children as ahigh-sensitivity group and that effects are stronger in rural communities, where background noise is lower. • Failure to Protect Health from Noise (EU EIA Directive & WHO Guidelines), inadequate mitigation regarding cumulative, low-frequency noise, Irish planning noise limits (often 43 dB at night) are too high, noise levels should be below this limit—particularly with amplitude modulation to avoid causing stress, sleep disturbance, and fatigue. • Noise - The NSL 130 assessment indicates that a noise level increase of 7 dB at the location of the preschool and childcare facility. This increase is significant and exceeds the threshold recommended by the World Health Organization (WHO) 2018 Environmental Noise Guidelines, which advise a maximum outdoor noise level of 35 dB LAeq for educational facilities during teaching hours - disruption of learning, health risks, stress, sleep disturbance.

Construction

- Structural damage to homes, noise from machinery, traffic management plan proposal is inadequate, pest and rat control measures inadequate (displaced due to noise and vibration).
- CEMP must include strict limits for piling, compaction and heavy plant. No Borrow Pit Management Plan submitted, no method statements, blasting procedures of vibration limits noted. Blasting not assessed in EIAR.
- Construction noise at 75dB is a very significant effect at nearest NSL, exceeds the 65dB limit. Mitigation (hoarding) is inconsistently effective at achieving a possible noise reduction of 3dB to 10dB. This together with uncertainty of working hours and 142 HGV movements per day will result in intolerable impacts on residential amenity.
- Vibration, Construction Methods Chapter 2 refers to borrow pit including excavation and/or blasting, which is contradicted by Chapter 13, S. 13.5.2.10 which states that no blasting works will take place at borrow pits. Borrow pit is 130m from V35 W672. The same chapter states that at a distance of less than 200m (from borrow pit) there is potential for vibration criteria to be exceeded. Both the site characterisation for this dwelling (18/194) and the trial hole logs submitted for the applicant show a subsurface of clay dominant soil with high water retention capacity known to transmit vibrational energy over greater distances than stable bedrock, amplifying potential for cosmetic and structural damage to homes. A credible assessment would model the propagation of shockwaves through the clay substrate and evaluate the resonance risk for typical residential foundations.
- Rock Blasting (no assessment of impacts from associated noise or blast impact has been completed or provided, impact on livestock due to noise, vibration, and construction disturbance, especially during calving and housing periods, the EIAR must address the impact of rock blasting for turbine foundations and access roads.)

Operational (AM & Infrasound)

- Concerns are raised in relation to infrasound, ultrasound, amplitude modulation (am) and low frequency noise and residential receptors including that infrasound can travel 10-15km[6] and may cause sleep disturbance (including shift workers), affects hearing aid users and may have health effects/impacts particularly on those with Autism, ASD or neuro-divergent conditions.
- There are concerns that the noise impact assessment (NIA) fails to address low frequency noise (LFN), infrasound and amplitude modulation in conflict with the WHO Guidelines. It is submitted there is well established evidence that LFN exceedances are experienced by homes near wind farms together with perceptible infrasound (no references).
- The NIA does not address the impact which could be caused cumulatively by multiple turbines, grid-works traffic, trenching operations, or baseline low background noise conditions at night in rural Limerick. Rural homes in the project area enjoy low ambient noise levels (night-time < 35 dB or lower). The addition of turbine hum, blade swish/thump, and HGV traffic may raise the effective noise floor significantly for those residents .
- It is submitted that there is a limited analysis of sensitive receptors and an inadequate reactive approach to AM and tonal noise with no operational monitoring or curtailment protocol.
- Continuous humming including from substation is raised as a nuisance concern.

Methodology

	• EIAR does not provide receptor specific noise assessments or consider the WHO Environmental noise guidelines. • Noise Impact Assessment fails to include night-time background measurements. • Baseline noise monitoring does not identify period, seasonality and location representativeness. May not be representative. • Noise modelling methodology unreliable. Parameters configured to minimise predicted noise levels artificially, with other effects such as propagation not included. Schedule of Noise Sensitive Locations does not include childcare facilities. • Baseline survey conducted by a junior consultant with minimal post-grad experience and sound calibrator used nearly a year after certification. • The EIAR attempts to frame noise levels as acceptable, but use outdated standards, fails to apply WHO 2018 thresholds, does not meaningfully assess low-frequency noise or amplitude modulation, does not consider night-time sleep disturbance, does not evaluate cumulative noise from multiple turbines, haul roads, borrow pits, and blasting. • Noise Modelling misleading, does not fully consider worst case scenario conditions, amplitude modulation or low-frequency noise, will cause sleep disturbance, reduced amenity, and cumulative noise impacts arising from both turbines and associated substation infrastructure • The EIAR addresses noise via dB(A) and typical sound modelling but does not include any specific modelling or measurements of low - frequency noise. • Chapter 13.5.3.11 notes that daytime noise limits are exceeded at 3 no. NSLs (not involved), but these dwellings or their location is not identified. (NSL065, 370 and 422). A higher limit at involved properties introduces inequity in protection for neighbouring dwellings. • A consistent limit should be applied to all NSLs. • Noise analysis relies on smaller turbine models. Must be calibrated to actual turbine and local receptor configuration. • It is submitted that a peer review of noise assessment by Les Huson finds “the impact of the proposed development when operational will cause a ‘Very Substantial Effect’ according to IEMA Guidelines and ‘Very Significant’ and ‘Profound’ effect according to ‘Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ (EPA, 2022). Accordingly, the development application presents an unacceptable impact and should be refused.” (*Note: Comment by Eco Advocacy, however, no peer review of NIA is enclosed with observation.*) Equine Industry • Noise and Infrasound: ambient noise level of approximately 30-45 decibels. Turbines within 1,000 metres can increase this to 50-70 decibels, however with severe effects on sensitive racehorses. • Thoroughbred horses have substantial financial value. Stud fees for thoroughbred mares are high, involving major investment by owners. If progeny is injured, sale value can be reduced to zero or severely diminished, directly affecting the viability of farming operations.
11.	**Environmental Topic: Archaeology & Cultural Heritage**
	Key Issues Raised: Archaeology (General)

	• Concerns are raised in relation to the volume of recorded monuments within the study area. The EIAR states that there are over 2,000 monuments within 5km radius, the site is in the middle of a cluster of archaeological features. Concerns raised include: the area is unsuitable for a SID; there is significant potential for impact to unrecorded archaeology; the application does not include an underwater archaeological assessment as requested by DHLGH, Impacts on Lough Gur, Grange Stone Cricle, prevalence of NIAH features, ringforts, tombs, forts, castles, L1039-046002- : Graveyard KNOCKUREGARE LIC; 39-046001: Church: KNOCKUREGARE; L1039-048: Ritual site - St. Margaret's Holy Well : KNOCKUREGARE. • It is submitted that the proposed development is not compliant with the National Monuments Acts 1930-2014 and Limerick County Development Plan Policies CH 01-02 and Obj. EH 031, 038, 039 and 050 in relation to archaeology and architectural heritage. Cultural Heritage (General) • Concerns are raised in relation to adverse impacts on Ballygrennan Castle, its character and setting (medieval heritage), Croker House, Grange, Dromin Graveyard, and Knock Two Hill Fort (900m from T17). • The applicant's conclusions in relation to visual impacts on RPS and NIAH structures is challenged. Particularly VP11a. • It is submitted that the LVIA and HIA does not quantity setting effects, cumulative visual intrusion and non-physical impacts such as change to appreciation and experience of Lough Gur ACA by visitors. • It is submitted that an observer's farm at Knockuregare is linked with an important historical figure, Commandant Sean Wall, and witness statements confirm that a dug-out used during the War of Independence existed on our property when it was owned by the Purcell family - letter on file from Archaeologist. • Underground and overground cables negative impacts on traditional stone walls and hedgerows. Lough Gur (specific) • Lough Gur has been inhabited for over 5000 years and contains over 130 listed sites (28 of which are national monuments in State care) ranging in date from late Neolithic / early Bronze Age through to post Medieval times (including megalithic tombs (Giant's Grave), artefacts found here (Lough Gur Shield)). In the 2009 Lough Gur Environmental Management Study it was stated that 'In recognition of these unique characteristics, it is proposed that Lough Gur could be nominated for inclusion on the World Heritage List'. • Adverse impacts and intrusion on Lough Gur and its landscape, one of Irelands most important archaeological and mythological landscapes with thousands of visitors annually. Grange Stone Circle (Specific) • The application acknowledges the significance of Grange Stone circle and the proximity of the proposed trenching and duct installation to the site. It is the largest stone circle in Ireland and has been dated to 2850-2950BC. Numerous sub surface features have been found in this area on either side of the R512. However, proper mitigation measures are not proposed to excavate a trench on the R512. Grange stone circle is not mentioned in Chapter 19 Schedule of Mitigations nor specifically in the mitigation measures of Chapter 14. It is important that the mitigation

	measures including geophysical survey, test excavation, monitoring, recording and preservation be applied to the entire development including the cable route that passes Grange Stone circle. • Grange stone circle, historical areas of Rockbarton and Cahirguillamore are rich in archaeological features and will be affected by works such as trenching, heavy machinery). Protected Structures (General) • Potential damage to protected structures and national monuments (on Bridge Street, Croom) and national monuments (NIAH Reg 21828003 Col Croom, and NIAH Reg 21828021 St Mary's School, two Mill Buildings also abutt the road. Croom Bridge dating from 1780, NIAH Reg No 21828008, the Catholic Church NIAH Reg 21828002) and cottages on Church Street, Croom House) & Col Mausoleums, through Bridge Street (Bank Building, NIAH 2128019) and Station Road (the Station Building NIAH Reg No 2182023). Methodology & Mitigation • Reliance on desk-based study. This approach seeks permission on basis of incomplete data. The conclusion of 'no direct physical effect' during construction is illogical without comprehensive sub-surface testing, particularly where turbine foundations or deposition areas are placed within ZONs. • Given the extent of archaeological records, particularly in the vicinity of Lough Gur, a detailed and formal mitigation strategy should have been agreed with NMS rather than the proposed post-consent liaison with the local authority. • The report's heavy reliance on aerial photography and cartographic analysis, while standard, is presented as sufficient without a full acknowledgement of its limitations, particularly in wooded or improved pastureland. Gaffney & Gater (2003) in Revealing the Buried Past: Geophysics for Archaeologists, demonstrates that subsurface features can be entirely invisible from surface inspection or aerial survey. • The report's confidence in stating "no surface remains visible" as an indicator of low impact potential is academically unsound. • The report's handling of the standing stone discovered near Turbine T3 demonstrates a failure to apply basic principles of archaeological science, for which no amount of cited literature can compensate. The dismissal of its potential significance based on unverified local anecdote, rather than morphological analysis or comparative study, is a practice wholly at odds with the scientific principles mandated by the Valletta Convention. • The reports treatment of the cluster of barrows near T1 as isolated features rather than potential integral components of a structure prehistoric landscape reflects an outdated, site-specific approach that ignores prevailing scholarly consensus (Carlin 2017 'Transforming our understanding of Neolithic and Chalcolithic Society 4000-2200 BC). • The assessment of visual impacts on cultural heritage receptors, a cornerstone of the operational impact assessment, lacks a robust theoretical or methodological foundation in the literature referenced.
12.	**Environmental Topic: Shadow Flicker**
	Key Issues Raised: General

	• Entire communities, not just scattered houses, are within the worst-case flicker zone including sensitive receptors such as schools, churches and community facilities and the entire communities at Bruff and Athlacca. • Scoil Dean Cussen National School in Bruff as well as Athlacca NS face disruption of concentration, especially children sensitive to intermittent visual patterns. Places of worship & Community facilities face intrusion diminishing spiritual and social value, sporting & recreational facilities face visual distraction, risk of accidents. Road safety concerns arise on local and regional roads around Bruff and Athlacca. • Given proximity to homes, Shadow flicker effects will be a breach of quality of life and Article 8 of the European Convention on Human Rights (private and family life). • There are concerns that some residential properties are not included in the shadow flicker study area (V35 X995) and that shadow flicker will exceed WEDG 2006 thresholds at residential properties (H I8, H 174). • It is submitted that predicted levels of shadow flicker are contrary to LCDP policies EH021 – EH023. Human Health • Concerns are generally raised across the submissions that effects of shadow flicker on individuals who are autistic, have ADHD or are neurodivergent, especially children, will be negatively impacted or exacerbated. There are also concerns that existing family illnesses or health conditions including stroke and heart conditions, will also be exacerbated. • Concerns are raised in relation to strobing effect – and potential for headaches, dizziness, stress, nausea and anxiety particularly in children. Guidelines • It is submitted that the thresholds set out in WEDG 2006 are outdated. Observers note that 99 no. dwellings beach the 30hrs per year threshold, 126 no. houses breach the 30mins per day threshold and when a 29% sunshine factor is applied 8 no. dwellings still breach thresholds with 167 still exposed to effects. • It is submitted that compliance with the dWEDG 2019 and zero shadow flicker should be required. Methodology & Competency • It is submitted that the scale of the turbines renders the 1.5km study area obsolete and that the geographical extent of risk is far greater than is typically considered acceptable under Irish and European Planning Standards. A third-party observer analysis is submitted which contends that the SF Envelope extends to 4.8km from the highest turbine (Turbine ID 33). • A third-party technical report is also submitted which includes modelling conducted using flat-ground and terrain adjusted scenarios with Digital Terrain models prepared in Autodesk Civil 3D and QGIS and ground elevations imported from Google Earth, SRTM and ASTER GDEM V3 datasets . This report also challenges the extent of the study area and the conclusions of the SF analysis. • It is submitted that numerous recently built houses (in 2024) were omitted from Shadow Flicker and Noise assessments indicating that the applicant's assessments were carried out in or before 2023, are out of date and cannot be relied upon.

	• Chapter 5 identifies 279 dwellings within the 1.5km study area. Chapter 11 states 228 dwellings within 1.6km were assessed for SF. This disparity is questionable. • Secondary receptors were not addressed – places of work, schools, childcare facilities, public buildings, Bruff temporary accommodation centre. Bruff NS not assessed for shadow flicker. • The competency of the 'assessor' is questioned, including whether qualifications in CAD and GIS sufficient? It is submitted that no details of specialist software or data analysis qualifications are provided. • It is submitted that Shadow Flicker has not been assessed for gardens and private outdoor areas (only houses) and that modelling ignores real-world conditions. Mitigation • Concerns are raised in relation to delays and re-start timing associated with turbine shut down mitigation measures. It is submitted that the technical feasibility and verified maximum stopping time for blades under normal operating conditions for shadow flicker mitigation should be confirmed. Concerns are raised that automatic shut-down fails in practice and that with time delays (5-10 minutes) common and exposing residents to effects beyond limits. It is submitted that there is evidence of premature restart disputes and Irish Precedent of enforcement problems in the absence of monitoring (PL17.237187, Co. Meath, 2011). • Applicant fails to demonstrate in detail proposed mitigation measures. Mitigation is reliant on prediction of SF occurrence which is guess work and in planning terms this means the development cannot meet the recognised thresholds for protecting amenity and that mitigation measures such as turbine shut down would be unenforceable across such a broad footprint meaning permission should be refused. • There is no monitoring/enforcement plan, no cumulative pass/fail list– how many houses would exceed 30 h/yr if a neighbouring scheme was granted. • The applicant's Shadow Flicker chapter relies on the WEDG 2006 threshold of 30 hours per year / 30 minutes per day and assumes that turbine shutdown will prevent exceedances. However, the assessment does not provide a receptor-by-receptor mitigation schedule.) • Physical screening is ineffective as mitigation and blinds, shutters etc have been rejected by ACP inspectors. Mitigation might be possible for a single dwelling; it is impossible for an entire population centre.
13.	**Environmental Topic: Material Assets – Traffic and Transportation**
	Key Issues Raised: General • Concerns are raised in relation to the duration of the construction period (18-24mts) and unacceptable impacts on Bruff form noise, vibration, dust and safety risks every day. • Concerns are raised in relation to the extent and duration of vehicle movements totalling: 17,819 heavy-vehicle loads, with up to 142 HGVs per day and 16 per hour as per EIAR Table 16-9, Figure 4-12. There are concerns that this represents a level of industrial traffic entirely unsuited to the road network.

- It is submitted that the traffic and transport impacts of the proposed development conflict with LCDP Policy Objectives CAF P6, CAF O29, SE O10, SE O17 and BR O6.
- It is submitted that there are no plans submitted for maintenance or restoration of road condition.

Amenity

A number of observers identify amenity concerns relating to individual private property, this includes:

- proposed road improvements at private property (V35 FK03) include opening up a wide margin in front of the house to allow for a vehicle to turn safely. This margin is for private use and Ballinlee wind-farm developers do not have consent or legal interest to avail of this margin, or any aspect of the property, for the purpose of managing traffic flow during the construction phase.
- EIAR App. 2C TDR report, designates the private driveway serving a private dwelling (V35 W672) as Pinch Point No.18. The application boundary extends over the private driveway to this property and the remedial proposal to widen access and remove a screen hedgerow impacts the amenity of the private dwelling exposing the property to construction impacts including light nuisance from elevated constructed vehicle lights.
- The development proposed will restrict access to the private property at V35 K294.
- It is submitted that ACP must consider the proposed dual entrances on the L1414, identified as No.4 & No.5 on the application which are 175m and 160mtrs from private dwelling (V35 X674) and where 100s of HGVs will traverse for an extended period of time.
- Concerns are raised in relation to the proposed development access on R516 between a cluster of (10 no.) homes. It is submitted that these homes will be exposed to years of construction related traffic, noise and safety hazards and disruption to daily life with the developer not ruling out late working hours or on Sundays/Bank Holidays. It is submitted that an alternative exists a few hundred metres away on Croom side.
- Private property concerned about dust, vibration, vehicle movements, wheelwash and surface water management, construction hours, abnormal loads at night and emergency access. It is submitted that a failure to quantify and assess these impacts in EIAR together with unenforceable mitigation results in clear potential for significant adverse effects on home which in absence of credible, empirically sound and academically grounded assessments is a severe infringement on family's fundamental rights to safety, rest and privacy. (V35 W672).
- Otherwise, residential amenity concerns are raised in relation to noise impacts associated with nighttime deliveries and property devaluation, which it is submitted is not assessed in the EIAR.

GCR

- Concerns are raised in relation to traffic safety and disruption impacts associated with the proposed GCR in addition to concerns relating to the adequacy of information contained in the EIAR. This includes:
- Concerns that the disruption of GCR works over 12km on the R512 (bus route) will cause disproportionate disruption to work/school commuters;
- Concerns that GCR works generally on regional and local roads will require extensive trenching, temporary road closures, movement of heavy goods vehicles (HGVs) etc which will disrupt farming, school and commuter traffic and endanger cyclists and walkers;
- Concerns in relation to other services, including mains water supply and continuity of services;

	• Concerns that the GCR passes over two Protected Structures (inc. Six Mile Bridge) but that no HDD methodologies are provided; • Concerns that there is inadequate assessment of archaeology within 120m buffer zone. EIAR states that this was carried out but there is no supporting evidence, report or results; • Concern that alternatives were not considered; • Concern that the level of design is to a preliminary standard, with detailed design outstanding; and • No evidence of landowner consent along the route. Methodology • Concerns are raised that there is an inadequate assessment of traffic and construction phase impacts, lack of detailed CTMP or a robust cumulative assessment. It is submitted that the EIAR fails to present baseline traffic counts and verifiable data, peak traffic flow projections including schools, GAA and local farm use and that there is an absence of proper mitigation to ensure safe two-way passing and of road condition surveys. • Concerns are raised in relation to the proposal to win material from on site borrow pits. It is submitted that site investigations have not verified the suitability of the underlying geology and therefore, a significant contingency risk exists if material is unsuitable which would materially alter the construction profile of the project. It is further submitted that if there isn't a suitable onsite aggregate thousands of additional truck movements will occur, invalidating key sections of the EIAR's alternatives and traffic analysis. HGV traffic, dust, vibration, noise, road safety issues, farming, school runs, emergency services, would all be significantly affected. This risk is not covered in the EIAR or by a separate report. • If the estimates of volumes of aggregate available via on-site quarries is unreliable, then so is the estimate of traffic impacts and movements. If material requires to be imported it could result in nearly 10,000 additional HGV movements. In addition, the quarries would not then be available for spoil deposition resulting in transport off site and further traffic movements • Otherwise, it is submitted that: - The EIAR is not in compliance with TII Guidelines to avoid major construction works near schools. - There is an incomplete swept path analysis and inadequate detail at pinch points, leaving uncertainty as to safe transportation of components. - There is no Traffic Impact Assessment or plan for road closures, diversions and traffic management strategies. - The EIAR does not provide fully engineered drawings, structural assessments for bridges or reinstatement/biodiversity compensation commitments for TDR. CTMP • The EIAR, CEMP and TMP does not contain any fire tender access route drawings, swept-path analysis to confirm emergency vehicles can reach turbines, substation or development areas. No evidence that tracks and hardstands are suitable for emergency and fire-tender access. • There is no Fire Tender Access Plan. • TMP is not fully developed with proof that local roads and bridges can carry abnormal loads. Absence of other statutory approvals, lack of evidence of co-ordination with other services/residents re: road closures.

	Local Roads • The Ballinlee Road is too narrow (3m), will cause access problems for emergency services. • Access proposed on a bend on L1414 – dangerous location – risks for farmers moving machinery and animals everyday, cyclists and road users. Regional Roads • Concerns are raised in relation to construction work damage to regional road R516 and R512, traffic congestion and in relation to driver distraction and risk to accidents associated with the movement of animals and slow moving farm vehicles. • Concerns are raised that the R516 suffers from subsidence adjacent to T1, 2 and 3 (with recent repair works carried out) and that it is not suitable for HGV traffic. • Concerns are raised that the R516 is known to flood and is not suitable for HGV traffic. • Concerns are expressed that diversions from the N/M20 (in the event of accident or other) are currently onto R516 which then struggles with the volume of traffic – this presents additional safety and capacity concerns with project traffic. Public Safety • A range of public safety concerns are raised across the submissions which includes: the safety of children riding on horseback on local roads; narrow roads and conflict with farming machinery, tractors and school transport; construction traffic impact on Bruff NS, including bus drop-off; Impact on walkers and ability to exercise on local roads; safety of cyclists, vulnerable road users; impacts on businesses, schools, GAA clubs and churches, • A specific concern was raised in relation to the safety of the junction between R512 and R516 (via Thomas Fitzgerald Centre, Bruff town centre) in the context of use by VRU's, and in relation to an 'accident blackspot' at the junction of R512 and L1550 in the context of T13, 14, 15 and 17 constituting a distraction to motorists.
14.	**Environmental Topic: Material Assets – Built Services**
	Key Issues Raised: • Potential impact on broadband and mobile services not addressed. Construction and operational impacts (loss or disruption) can affect those home working. • Property, Land Use & Amenity (Grid Wayleave) (The EIAR (Chapter 17 – Material Assets; Appendix 2D) confirms a new 110 kV grid connection (-27.6 km) but does not identify affected land parcels, wayleave widths, or long-term no-build restrictions. High-voltage cables create permanent exclusion strips and operator access rights, affecting family plans to build and reducing land value. Impacts on material assets and land use must be assessed under the EIA Directive. • General Telecommunications and Aviation Safety Concerns.

15.	**Environmental Topic: Major Accidents**
a	Key Issues Raised: • Concerns are raised in relation to operational and mechanical risks including those associated with malfunction, blade throw, fires, and oil leakage which are described as concerning in an area with homes, farms, a primary school, and public roads nearby. • COMAH – it is questioned whether or not the application been referred to the HSA as required under legislation for high pressure GNI pipeline? It is submitted that the quantity of aggressive civil construction works in proximity to a high-pressure pipeline creates an unacceptable risk to residents. • It is submitted that the area is known for lightning strikes and concerns are raised in relation to fire, accidents, electrocution, spark fires, and arc flashes, • Concerns are raised that the Fire Mitigation Plan is vague and that the substation is proposed in forestry with no water source in the event of a fire. • Concerns are raised that turbines can hold up to 1,500 ltrs of lubricant and that contamination risks are not assessed with no mitigation plan other than for maintenance. • An Emergency Response Plan is not provided and is deferred to the Contractor which is contrary to the requirement that spill response, contact lists and statutory notification triggers be defined at application stage. Concerns are raised in relation to the proposed CEMP including that: • Monitoring programmes for water, noise, dust, vibration and ecology are incomplete. Roles and responsibilities are not fixed, with no named Environmental Manager, independent auditor or reporting hierarchy. • The borrow pit blasting methodology is not provided (CEMP acknowledges potential for blasting). • The Traffic Management Plan, Habitat and Species Management Plan and Whooper Swan Management Plan are merely referenced but not fully incorporated or bound in the CEMP.
16.	**Environmental Topic: Cumulative Effects**
a	Key Issues Raised: General It is generally submitted that the EIAR fails to adequately assess cumulative impacts, with other relevant projects within 15-20km not considered including:

	• The 9 turbines proposed nearby Bruree/Garrane area (323635 - lodged 10/09/25) and 6 turbines in the Coolcappa/Rathkeale area (lodged 2/10/25). • Three wind farms proposed in the area together with a biomethane plant. • Existing wind farms at Tournafulla, Dromada, Rathcahill, Knockastanna and Grouselodge, and Annagh. • Proposed wind farms at Coolcappa, Grange, Creeves, Ballingarry and Knockaderry. • Solar and Battery not factored. • Application Refs. 323448 and 319139. Environmental Topic (specific) • Cumulative impacts on Lower Shannon SAC from the Ballinlee SID application and the Garrane SID applications (323635). Both situated on known floodplains. Mitigation will not eliminate the risk. • No Cumulative assessment of noise/SF effects – project modelling in isolation ignoring other projects within 15-20km. No cumulative noise contour maps. • Viewpoints fail to include key viewpoints where multiple turbine clusters will be visible such as Brackvoan, Athlacca and the ridge above Bruff Hill. Visual impacts have been softened, and several images appear artificially screened by vegetation that does not reflect openness of land. • EIAR fails to show how construction traffic from Ballinlee would interact with other regional projects or ordinary road use, co cumulative analysis, no timeline for overlapping works and no safety plan for walking or cycling. • Cumulative effects on wildlife have been brushed over. Whooper Swan considered in isolation with no mapping of migration routes, no winter bird surveys beyond a single season and no assessment of how multiple developments may fragment habitats across South Limerick. • Cultural heritage is ignored in cumulative terms. • The applicant did not submit a comprehensive cumulative impact chapter that quantifies combined effects for ecology, visual amenity, noise and transport/TDR interactions. Study area was limited to 20km and omitted WF's.
17.	**Other Matters**
a.	Key Issues Raised: EIAR Generally • Where there is scientific uncertainty regarding potential adverse effects on the environment, the precautionary principle embedded in Article 191 of the Treaty on the Functioning of the European Union (TEFU) requires the decision authority to err on the side of environmental protection. • Project Splitting (cites Garrane Green Energy Limited 323635 and 2561003) - same company Greensource Sustainable Development Limited • Procedural and ecological deficiencies exist - High Court Judgements, Coolglass, Nagle View, O'Gorman, referenced; also Byrne & Moorhead involved HC directing a WF to be shutdown. • Community Fund is nothing more than an elaborate bribe that is out of sync with the profits expected by the developer. • Finding of 'no significance' in Chapter 6 is dependent on measures such as the HSMP which is not fully detailed in the assessment and relies on future actions. This introduces uncertainty which is not permissible.

	• CEMP is incomplete. It refers to an outline CEMP with many details to be finalised or confirmed by the contractor. This does not satisfy the requirement for all environmental mitigation and control measures to be clearly defined, fixed and capable of assessment prior to decision. • No clear decommissioning proposal. • Decommissioning - large concrete bases to support the turbines left in situ, wind turbine blades cannot be easily disposed of impact on the environment must be assessed, • SEA Directive - Project is not compliant as no overall plan or programme was developed by the Applicant. • Grid Connection (no detailed construction methodology for grid connection, no traffic management plan for grid connection works, no noise assessment at properties along the cable route, no dust suppression measures outlined, no compensation mechanism for residents affected by prolonged construction, no phasing methodology, exact route is not defined in the application.)
b.	Appropriate Assessment • Proximity to Lough Gur • No AA of 27.6km GCR carried out despite proximity to SAC's and ecological connectivity with Morning Star River and tributary systems. • There is a risk to the Lower River Shannon SAC via a hydrological link and a pollution event. The classification of this link as weak and the risk as low is flawed. • Natural Floodplain (interference with habitats and floodplain), hydrological impact on downstream locations, including SPAs, • Traffic movements will lead to Impact on Atlantic Salmon, Bats, proximity to European Sites, including River Boyne and Blackwater c.SAC [002299] and River Boyne and River Blackwater SPA (004232).
c.	Guidelines • WEDG 2006 are out of date and not fit for purpose. Guidelines that are 20 years old are insufficient to protect communities, numerous court cases as a result of nuisance are clear evidence of this. 2025 scale turbines assessed using 2006 criteria is neither fair nor sustainable. • P.34 WEDG 2006 states to ensure optimal performance and to account for turbulence and wake effects the minimum distances between turbines will generally be 7 x rotor diameter in the prevailing downwind direction, dWEDG 2019 states same. T14-T15, T4-T5, T8-T10, T13-T14, T2-T3, T1-T2, T16-T17, T9-T11, T11-T16, T12-T16, T9-T12, T14-T16, T10-T13, T13-T15, T15-T17, T1-T3, T11-T13, T8-T16, T12-T17, T11-T17, T9-T16 and T15-T16 do not comply. dWEDG 2019 states a visual amenity set back distance of 4 times the tip height between a turbine and the curtilage of any residential property. House at ITM X 559480 Y 633385, X 560627 Y 632880 and V35 HH70 is less than the minimum distance.
d.	Policy Local

	• The GCR is located within an area deemed unsuitable for wind energy development. The courts have ruled that a windfarm and GC must be assessed as a single project and therefore the project is within an exclusion zone and must be refused. • Scale of Turbines is incompatible with LDP Obj EN O1 and Policy EN P2 which seeks to enhance landscape and protect scenic views. • Failure of EIAR to assess regional saturation breaches Obj EN 05 of the LDP which seeks to avoid adverse cumulative impacts. • NIS mitigation does not guarantee compliance with Policy EN P9 of LDP which requires compliance with Habitats and Birds Directive. • The Bruff Area Plan is integrated within the wider Limerick County Development Plan. The proposed industrial-scale development directly contravenes objectives such as BR 03, which seeks "Tourism Development," and BR 06, which aims to "Safeguard the lands along the Morningstar River." • Otherwise, it is generally submitted that the proposed development is contrary to a range of policies and objectives in the LDP 2022-2028 including: – - Policy EH P1 (natural heritage and biodiversity), - Obj. EH 048 (archaeology), - Policy EH P4 (Heritage Plan, ecology and environment), - Policy EH P8 (Landscape character Areas), - Obj. EH 011 (invasive species), - Obj EH O15 (ground water, surface water and RBMP), - Obj. EH O18 (riparian buffers), - LCA Lough Gur, - Policy EH P7 (environmental noise), - Obj. EH 032 (historical landscapes), - Obj. EH 032 (views and prospects), - Obj. IN 01 (Climate Action), - Policy CAF P6, (Renewable Energy) - Obj. CAF O29, (Wind Energy) National • Contrary to the NPF, NPO 23, 27, 60 & 62 which requires renewable energy development in accordance with proper planning and sustainable development, supports healthy and liveable communities and protects landscape character, natural and cultural heritage. • Conflicts with CAP 2024 and Principle of Just Transition – which requires Renewable Energy to be delivered in balance with social equity, community benefit and environmental protection and aims to ensure rural communities are not disproportionately burdened by energy infrastructure. • Conflicts with National Biodiversity Action Plan (2023-2030) - proposal involves development on peat soils posing risks to hydrology, soil stability and downstream habitats. Mitigation strategy is not robust and lacks commitment to habitat restoration and long-term ecological monitoring. • Conflicts with National Waste Management Plan for a Circular Economy (NWMPCE, 2022-2018) - no detail how excavated soils, turbine foundation materials or peat waste will be reused or recovered. This is not proper waste management.

	• Eirgrids Policy on wind turbine clearance to OHL's requires a minimum of 3.5 times the rotor diameter. T1 and T2 are less than the required distance from 110kV OHL.
e.	Key Issues Raised: Procedural & Consultation • Community consultation inadequate, leaflet drop insufficient, limited info provided re: nature and scale of the proposed WF. Applicant refused to arrange a public meeting offered digital only comms. • Tipperary County Council were consulted at 11km, but Cork County Council at 9km were not consulted notwithstanding that their administrative area is closer. They should also have been consulted as a prescribed body. • The presentation of empirical data presented in the report further illustrates the failure of the strategy to achieve meaningful engagement. The door-to-door campaign, a cited best practice, achieved a notably low participation rate. Of the 179 dwellings visited, only 61 households, or 34%, engaged with the applicant's representatives (p. 24). The 'Ballinlee Green Energy Project Survey' received only 'nine responses throughout the engagement process' (p. 15). This sample size is wholly inadequate from a statistical perspective. A conservative estimate, based on 179 households and the 2022 Census average for Co. Limerick, suggests an affected population of approximately 483 individuals within the 1km radius. Legislation • Section 37G(6) allows ACP to override LDP for SID where over riding public interest has been demonstrated. This threshold has not been demonstrated. • Climate Action and Low Carbon Development Act 2015 (as amended) requires ACP to perform functions in a manner consistent with climate plans in so far as practicable, but this does not override environmental law or human rights protections. A balanced assessment is required. • RED III accelerates consent process but does not negate obligations under EIA or Habitats Directive. • Breach of RED III Requirements - Mapping (Directive required Ireland to have completed by 21 May 2025 a mapping project to identify areas suitable for renewable energy development and to adopt by 21 February 2026 plans within these areas designating renewables acceleration areas.
f.	Key Issues Raised: Legal Interest • Application should not have passed the 'Completeness Check' as legal consent is missing (documents incorrect and incomplete - not all landowner letters have been provided, no consent for verge works for a temporary access track Item 15). • Landowner Consent and Legal Entitlement to make application (no reference to land folios 51699F and 1539F the consent letter is signed per procurationem (PP) however there is no legal documentation provided within the application to confirm the legal standing. In reference to land folio LK6260 landowner consent letter and the sightlines agreement letter, there is a discrepancy on signatures between both letters. • Consent letters for Folio LK3157F and LK10398 are not signed by the person beneficially entitled to be owner. • Consent letter for Folio LK51699F and 1539F is signed by a third party on behalf of the landowner. • Consent letters for a turbine which is less than two rotor blades from a property boundary have not been submitted from the relevant landowners.

	• GCR traverses or adjoins lands in private ownership including road verges and boundary areas (property owners also presumed to own to centre of road unless expressly stated otherwise in deeds). Proposed GCR encompasses third party lands including verges and boundary strips. No consent details submitted for any disturbance, excavation or access works. GCR constitutes unauthorised encroachment. • The application does not address wayleaves, easements or rights of way that exist (no specifics given). • Folio 51699F and 1539F – signature queried.
g.	Key Issue Raised: Enforcement • Unenforceable conditions and proposed mitigation measures - Company only existed since 2024, and so is not experienced. Not in the public interest. Community engagement lacking - – see Darragh and Sandra Maloney. • Planning Enforcement Ineffective - Conditions for Wind Farms often not complied with, self-policing by Applicant does not work, • The Applicant company has been set up to 'limit liability' for potential future mitigation failures or non-compliance.

Applicants Response

4.43. The Chief Executives report, the submissions from prescribed bodies and public submissions have been circulated to the applicant for comment. The applicants parent response to the submissions received is contained in the 'Response to Observations' document dated February 2026. The applicants response to the submissions received from Gas Networks Ireland, Health and Safety Authority, Office of Public Works and Uisce Éireann is contained in the 'Response to Additional Observations' document dated June 2026. The applicant relies on the content of the EIAR and NIS in its response to the submissions received and these responses are set out in the assessment which follows where relevant in respect of each planning consideration and environmental topic.

5.0 Planning History

5.1. A review of the LCCC and ACP planning portals was undertaken to inform this section of the report. The websites were accessed between February and August 2026. The Applicant's Planning Statement and LCCC Director General's Report under Sections 2.2 and 4, respectively, state that there have not been any planning applications made to date within the planning application boundary. This remains the case.

5.2. I note that there are several planning applications in the wider environment of the site for various residential and small to medium commercial/agricultural developments. This is to be expected in a rural setting such as this, where sporadic one-off housing and agriculture contribute to the character of the area. Examples of such applications include agricultural sheds, shed extensions, livestock facilities, extensions to houses, domestic wastewater treatment systems (DWWTS's), property entrances and access points, roads, garages, sheds, demolition works, amongst others.

5.3. There are also existing and permitted wind farms in the wider area, the nearest of which is an operational wind farm at Glenbrohane (c.15 km from the application site). A further wind farm for nine wind turbines, grid connection,

and associated site works, was lodged with ACP in September 2025 (ACP-323635-25). At the time of writing, a decision remains pending for this application. The Applicant in this case is 'Garrane Green Energy Limited'.

6.0 Policy Context

European Policy

RED III (European Renewable Energy Directive (EU/2023/2413))

6.1. This Directive was transposed into Irish Legislation by SI No. 274 of 2025 dated the 6th August 2025. It lays down a minimum binding target of 42.5% share of renewables by 2030 with an aspiration to reach 45% and requires a scale-up of renewable projects, driving demand for, inter alia, wind energy.

European Wind Power Action Plan

6.2. This Plan details the EU target of at least 42.5% of renewable energy generation by 2030 requiring the installed capacity to grow from 204GW in 2022 to more than 500GW in 2030. Globally, this requires annual wind capacity additions to reach at least 329GW per year until 2030 in order to achieve net-zero emissions by 2050, which requires more than a quadrupling of today's deployment levels of 75GW.

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

6.3. 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.

European Green Deal 2020

6.4. The European Green Deal seeks to transform the EU into a modern, resource-efficient and competitive economy. It aims to cut emissions by at least 50% by 2030, rising towards 55%, while legally binding the 2050 neutrality goal through the European Climate Law.

Relevant National Legislation, Policy and Guidelines

National policy documents are relevant in respect of the proposed development and include, inter alia:

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

6.5. 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 principle 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

Climate Action Plan (CAP) 2024 ("CAP24") and 2025 ("CAP25")

6.6. 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.

6.7. 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.

6.8. 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 onshore wind targets of 6GWs by 2025 and 9 GWs by 2030.

6.9. I understand that the publication of CAP 2026 is currently delayed by the Department of Climate, Energy and the Environment as officials await finalised carbon budgets and post-2030 targets. I note that a public consultation has been launched to inform the preparation of the next update to Irelands CAP which closed on 17th August 2026. The Commission may therefore wish to satisfy themselves in respect of the status of CAP26 before deciding the subject application.

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

6.10. 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

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

6.11. 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. 13 sectoral Plans were prepared in 2025 including a Electricity and Gas Sectoral Plan.

National Energy Security Framework (April, 2022)

6.12. 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 soil 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 fossils fuel supplies.

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

6.13. 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.

6.14. 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 Southern Regional Area is an additional 978MW, for onshore wind or 40% 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. Relevant National Policy Objectives 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 75 – Local Authorities shall plan for the delivery of Target Power Capacity (MW) allocations consistent with the RSES through their City and County Development Plans.

National Biodiversity Plan 2023-2030

6.15. 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.

Wind Energy Guidelines

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

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

Noise

6.17. Section 5.6 - noise impacts should be assessed by reference to the nature and character of noise sensitive locations. In terms of noise, a lower fixed rate limit of 45 dB(A) or a maximum increase at 5 dB(A) above background noise at nearby noise sensitive locations is considered to be appropriate to provide protection to wind energy neighbours. However, in very quiet areas the use of a margin of 5dB(A) above the background noise level at nearby noise sensitive properties may unduly restrict wind energy developments which have wider national and global benefits.

6.18. In low noise environments where the background noise is less than 30dB(A) it is recommended that the daytime level of LA90, 10min of the Wind Energy Development Noise be limited to an absolute level with the range of 35 to 40 dB(A). Separate noise limits should apply for daytime and for night-time. A fixed limit of 43dB(A) will protect sleep inside properties during the night.

6.19. In general, noise is unlikely to be a significant problem where the distance from the nearest noise sensitive property is more than 500m.

Shadow Flicker

6.20. Section 5.12 - careful site selection, design and planning and good use of relevant software can help to reduce the possibility of shadow flicker in the first instance. Shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day. The potential for

shadow flicker is very low at distances greater than 10 rotor diameters from a turbine.

Landscape

6.21. Chapter 6 - aesthetic considerations in siting and design. Regard should be had to profile, numbers, spacing, visual impact and the landscape character. Account should be taken of inter-visibility of sites and the cumulative impact of developments.

Draft Wind Energy Development Guidelines 2019

6.22. 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.

6.23. 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:

Noise

6.24. 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.

Shadow Flicker

6.25. 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.

Community Investment

6.26. 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.

Visual Impact

6.27. Section 6.4 - Siting of wind energy projects.

Set back

6.28. 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.

6.29. 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.

Grid connections

6.30. Underground to be the standard approach.

Regional Policy

6.31. In 2020 the Southern Regional Assembly (SWRA) published the Regional Spatial and Economic Strategy for the Southern Region 2020 – 2032 (RSES). The following regional policy objectives are noted.

Table 3: Policies and Objective of the RSES	
Regional Policy Objective	**Detail**
RPO 50 Diversification	It is an objective to further develop a diverse base of smart economic specialisms across our rural Region, including innovation and diversification in agriculture (agri-Tech, food and beverage), the marine (ports, fisheries and the wider blue economy potential), forestry, peatlands, renewable energy, tourism (leverage the opportunities from the Wild Atlantic Way, Ireland's Ancient East and Ireland's Hidden Heartlands brands), social enterprise, circular economy, knowledge economy, global business services, fin-tech, specialised engineering, heritage, arts and culture, design and craft industries as dynamic divers for our rural economy.
RPO 87 Low Carbon Energy Future	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 99 Renewable Wind Energy	Renewable Wind Energy - It is an objective to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines.
RPO 100 Indigenous Renewable Energy Production and Grid Injection	Indigenous Renewable Energy Production and Grid Injection - It is an objective to support the integration of indigenous renewable energy production and grid injection.
RPO 221 a Renewable Energy Generation and Transmission Network	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;

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 (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)

Limerick Development Plan 2022-2028 as varied

6.32. The Limerick Development Plan, 2022-2028 ("LDP") was adopted on 17th June 2022 and came into effect on 29th July 2022. It includes Variation No.1[3] and No.2[4] thereto. I note proposed Variation No.3 which remained on public consultation until 24th August 2026[5] and which is not germane to the consideration of this case[6]. The LDP sets out the overall strategy for the planning and sustainable development within County Limerick. It has an overarching role in progressing a sustainable energy future for the County by recognising the central role of land use planning to promote a low carbon society and mitigate the impacts of climate change.

Zoning Objective

6.33. There is no specific land-use zoning objective for this site.

Chapter 6: Environment, Heritage, Landscape and Green Infrastructure

6.34. This Chapter of the LDP presents various objectives for Environment, Heritage, Landscape and Green Infrastructure. Section 6.4 relates to Landscape and Visual Amenity. It recognises that Limerick possesses a varied landscape which is important not just for its intrinsic value and beauty, but also because it provides for local residents and visitors, both in terms of a place to live and for recreational and tourism purposes. It includes landscape character areas, incorporating designated scenic views and prospects as shown in Map 6.1. The proposed development is located within LCA 01 'Agricultural Lowlands' which is

[3] Adopted by the Elected Members on 22nd May 2023.
[4] Adopted by the Elected Members on 30th March 2026.
[5] In respect of proposed Material Alterations to Proposed Variation No.3
[6] Variation No.3 concerns national policy changes regarding housing targets and standards.

recognised in the Plan as the largest of the Landscape Character Areas in Limerick and comprising almost the entire central plain. It is described is a farming landscape defined by a series of regular field boundaries and well-developed hedgerow system as one of its main characteristics. In terms of topography, the landscape is generally rather flat with some locally prominent hills and ridges. The pastoral nature of the landscape is reinforced by the presence of farmyards. Specific objectives provide that wind turbines should display a regular arrangement with equal spacing which takes field boundaries into account.

6.35. Section 6.5 relates to Archaeology and Built Heritage and Section 6.5.2 refers to areas of Special Development Control to preserve and enhance the setting of archaeological landscapes and sites, which includes Lough Gur to the northeast of the site as designated in Map 6.3.

Specific Objectives in respect of Environment, Heritage and Landscape

6.36. There are a range of specific objectives in the LDP in respect of environment, heritage and landscape which are relevant to the consideration and assessment of the proposed development. These include:

Objective EH O1 Designated Sites and Habitats Directive	It is an objective of the Council to ensure that projects/plans likely to have significant effects on European Sites (either individually or in combination with other plans or projects) are subject to an appropriate assessment and will not be permitted under the Plan unless they comply with Article 6 of the Habitats Directive. The Council, will through the planning enforcement process where applicable, seek to restore the ecological functions of designated sites, where they have been damaged through inappropriate development.
Objective EH O31 Views and Prospects	It is an objective of the Council to: a) Preserve, protect and encourage the enjoyment of views and prospects of special amenity value or special interests and to prevent development, which would block or otherwise interfere with views and/or prospects. b) In areas where scenic views and prospects are listed in the Plan, there will be a presumption against development, except that required to facilitate farming and appropriate tourism and related activities. The development must be appropriately designed so that it can be integrated into the landscape.
Objective EH O34 Special Control Areas	It is an objective of the Council to protect and maintain the integrity of the Special Control Areas. Continue to zone important archaeological areas as appropriate as Special Control Areas where no development is permitted, other than possibly sensitively designed access.
Objective EH O36 Preservation of the Archaeological Heritage	It is an objective of the Council to seek the preservation of all known sites and features of historical and archaeological interest. This is to include all the sites listed in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act 1994. The preferred option is preservation in situ, or at a minimum preservation by record.

Objective EH O37 Preservation of unrecorded/newly discovered Archaeological Heritage	It is an objective of the Council to protect and preserve the preservation in situ (or at a minimum by record) of all sites and features of historical and archaeological interest, discovered subsequent to the publication of the Record of Monuments and Places.
Objective EH O39 Protection of the setting of Archaeological Monuments	It is an objective of the Council to ensure that no development shall have a negative impact on the character or setting of an archaeological monument.
Objective EH O44 Lough Gur	It is an objective of the Council to protect the unique archaeological landscape at Lough Gur and to support the archaeological objectives in the Lough Gur Environment and Management Study 2009.

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

6.37. Chapter 9, Section 9.4 of the LDP relates to 'Renewable Energy'. In relation to wind energy the LDP recognises the importance of onshore and offshore wind energy as a renewable energy source and its national energy targets and the significant contribution that wind energy can make as 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 LDP states that the Council will continue to support and encourage the principle of wind energy development in accordance with Government policy and having regard to the Wind Energy Development Guidelines for Planning Authorities, or any update made thereto during the lifetime of the Plan, subject to the location and siting of such infrastructure and having regard to the extensive designations throughout Limerick in terms of Natura 2000 sites.

6.38. Map 9.1 of Chapter 9 of the LDP sets out the areas designated in the Plan as 'Preferred', 'Open for Consideration' or 'Unsuitable' for wind energy development. The proposed development (wind farm infrastructure) is located in an area designated as 'preferred' for wind energy development in the LDP.

Specific Objectives in respect of Wind Energy

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'."
Objective CAF O34 Wind Energy Development	"It is an objective of the Council to ensure that wind energy developments on sensitive or sloping sites, or any significant alterations to them, are accompanied by adequate assessment of the effects of the development on soil stability."

Other LDP Objectives

6.39. Other objectives which are related to the proposed development and its impacts are noted including:

EH O2	Lesser Horseshoe Bat
EH O3	Ecological Impact Assessment
EH O4	Creation of New Habitats
EH O5	New Infrastructure Projects
EH O7	All Ireland Pollinator Plan and NBDAP
EH O8	Roosting Habitats
EH O10	Trees & Hedgerows
EH O11	Invasive Species
EH O15	Ground Water, Surface Water Protection and River Basin Management
EH O17	Water Quality
EH O18	Riparian Buffers
EH O21	Noise and Vibration during Construction and at Open Sites
EH O40	Proper (archaeological/heritage) procedures during the planning process
CAF O11	Nature Based Solutions
CAF O20	Flood Risk Assessments
EH P9	Historic Gardens, designed landscapes and parklands.

6.40. The Development Management Standards set out in Section 11 of the LDP are also noted, particularly as regards: Climate Action, Transport and Infrastructure, Environmental Infrastructure and Environment & Heritage. Of particular note is the general guidelines set out for the assessment of an application for a wind farm[7] and which includes the following specific guidance:

- *"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"*

[7] Commencing p.358

- *"In relation to archaeological sites, it is recommended that turbines are located three times the turbine height away to prevent visual domination. In the case of particularly sensitive sites, the applicant may be requested to relocate the turbine."*

7.0 Natural Heritage Designations

7.1. The nearest designated National and European sites to the proposed development are summarised in Table 4 below.

Table 4: European and National Designated Sites

Site Code	Site Name	Proximity to PDS (Windfarm)	Proximity to GCR
Special Area of Conservation (SAC)			
001430	Glen Bog	5km to the E	2.3km to the E
000439	Tory Hill	7.6km to the NW	8km to the NW
002036	Ballyhoura Mountains	13.7km to the S	18.1km to the S
02170	Blackwater River (Cork/Waterford)	15km to the S	19km to the S
002165	Lower River Shannon	24.2rkm[8] (NW)	5.3rkm (NW)
Special Protection Area (SPA)			
004077	River Shannon and River Fergus Estuaries	36.9rkm (NW)	12.6rkm (NW)
004165	Slievefelim to Silvermines Mountains	24km to NE	10km to the E
004161	Stack's to Mullaghareik Mountains, West Limerick Hills and Mount Eagle	32km to the W	33.5km to the W
004095	Kilcolman Bog	21km to the S	26km to the S
National Heritage Areas/Proposed National Heritage Areas (NHA/pNHA)			
000437	Lough Gur (pNHA)	5km to the NE	300m to the E
001430	Glen Bog (pNHA)	5km to the E	2.3km to the E
001996	Skoolhill (pNHA)	7.5km to the N	900m to the W
000439	Tory Hill (pNHA)	7.6km to the NW	8km to the NW
000436	Herbertstown Fen (pNHA)	8.8km to the NE	5.1km to the E
000435	Inner Shannon Estuary – South Shore	36.9rkm (NW)	12.6rkm (NW)

[8] River Kilometres (Hydrological distance).

8.0 **Planning Assessment**

Introduction

8.1. Having regard to the requirements of the PDA, 2000 (as amended) the wider assessment of the proposed scheme is divided into three main parts: Planning Assessment, EIA and AA. Matters arising in respect of EIA are addressed in section 9.0 of this report. Matters arising in respect of appropriate assessment are addressed in section 25 and Appendix 1 and 2 of this report.

8.2. In each assessment, where necessary, reference is made to issues raised by all parties. There is an inevitable overlap between the assessments, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In the interest of brevity, matters are not repeated but such overlaps are indicated in subsequent sections of the report. All three sections of this report (Planning Assessment, EIAR Assessment and the Appropriate Assessment) should therefore be read in conjunction.

8.3. Having examined the application details and all other documentation on file, including all of the submissions received in relation to the application, and inspected the site, I consider that the main issues in the planning assessment relate to the following matters:

- Principle of development & GCR
- Material Contravention of the Development Plan
- Other Development Plan Considerations
- RED III Directive
- SEA Directive
- Wind Energy Development Guidelines, Guidelines for Planning Authorities (DoEHLG, 2006) (WEDG)
- Wind Resource
- Impact to Residential Amenity
- Sightlines
- Adequacy of Consultation
- Community Fund
- Conflicts with Bruff Area Plan (within LDP), NBDAP and NWMP.

- Legal Interest
- Enforcement
- Recommended Conditions
- Oral Hearing

Principle of Development

8.4. As a relevant body, An Coimisiun Pleanala 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 Commission to make their decision within that framework.

8.5. As outlined in respect of policy at Section 6.0 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 9GWs by 2030. There is clear support for the development of wind 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.

8.6. 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. 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 regional and local policy context in the following section(s), but I would refer to the conclusion therein that the proposal would comply with the provisions of the Limerick City & County Development Plan, 2022-208.

8.7. As set out above in Section 6.0, 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 GHG emissions and to meet renewable energy targets set at a European Level. CAP24 & CAP25 lay 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 2050. Central to this is the targeted aim to strategically increase the country's share of renewable electricyt to 80% by 2030 through measures including the delivery of 6GW of onshore wind by 2025 and 9GW by 2030. The proposed 17no. turbine windfarm will have an estimated maximum export capacity (MEC) in excess of 76 Megawatt (MW), depending on the final turbine technology installed, or 53.6MW (approx.) if the proposed development is reduced to 12no. turbines for ornithological reasons as recommended in EIA Section 14 of my report. In either scenario, it is considered that the proposed development will make an important contribution to achieving Ireland's Climate Action Plan's target of achieving 80% renewable electricity and reducing greenhouse gas emissions by 51% by 2030. The nature and export capacity of the proposed development accords with National Policy Objective 70 of the National Planning Framework (NPF) also, which seeks to promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.

8.8. At a regional level, the RSES supports the delivery of the NPF and implementation of the Climate Action Plan, whereby Regional Policy Objective 99 seeks to support the sustainable development of renewable wind energy (onshore and offshore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines. The nature of the proposed development is consistent with this objective.

8.9. At a County level the Limerick Development Plan, 2022-2028 (as varied)("LDP") is generally supportive of renewable energy subject to environmental and visual considerations. Under Objectives CAF 28 and CAF O30 the LDP encourages the development of wind energy in accordance with Government policy and promotes the location of windfarms and wind energy infrastructure in the 'Preferred Areas' identified on Map 9.1. The proposed development is situated in an area designated in the LDP as being a 'Preferred Area' for wind energy developments. Whilst some observers point out that the GCR is not located within a 'preferred' area but partly within an area 'not open for consideration', the GCR is not a 'wind energy' development and an issue of contravention does not therefore arise. I note that the LA also takes this position. The proposed development is also located within Landscape Character Area LCA 01 'Agricultural Lowlands' where is it is a corresponding objective that wind turbines are permissible subject to specific layout recommendations which are considered further in my assessment.

8.10. I note Section 11.7.2.1 of LCDP which states that 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 that the proposed location of the wind farm is located on agricultural lands, within a man-modified landscape which is consistent with the designated LCA O1 and which is otherwise a 'preferred area' for wind energy development in the LDP. I further note that the LA report accepted the principle of development.

8.11. Overall, I consider that the proposed development is generally consistent with the EU, National, regional and local planning policy in relation to the provision of new renewable energy and climate action obligations. I am satisfied that the

principle of a windfarm development at this location is acceptable subject to consideration of the key planning and environmental issues assessed below.

Material Contravention of the LDP

8.12. In my assessment of the proposed development, I have identified a number of possible autonomous material contraventions of the Limerick Development Plan, 2022-2028 (as varied). These are assessed hereunder.

Night-time Noise.

8.13. Section 11.7.2.1 'Wind Energy' of LDP Chapter 11 (Development Management Standards) sets out general guidelines which shall be taken into consideration in the assessment of an application for a wind farm. This includes that

> "*any proposed lower fixed noise limit for night-time noise at noise sensitive properties shall not exceed 38dB(A) L_{90} or 5dB(A) above background noise levels, whichever is the greater;*".

8.14. The LA report[9] notes that there is a discrepancy between the EIAR and the provisions of the LDP in relation to setting night-time noise limits. The LA report states that the purpose of the different lower fixed night-time noise level of 38 dB (A) L_{90} in the LDP is because WEDG 2006 fixed the night-time noise limit of 43dB(A) L_{90} based on UK planning guidance PPG24 which was subsequently repealed. The LA report recommends compliance with the night-time noise limits set out in the Development Management Standards of the LDP, and whilst noting the discrepancy does not specifically identify a material contravention. The applicant does not address this specific issue in response but generally responds that noise limits have been set in accordance with WEDG 2006 and ETSU-R-97.

8.15. The assessment of night-time noise limits is addressed in the Noise & Vibration Section 11 of my EIA .It is not repeated here. In my assessment I find that the fixed night-time noise limit of 43dB(A) proposed in the application exceeds the limit of 38dB(A) L90 or 5dB(A) above background noise levels (whichever is the greater) in the LDP, but that WEDG 2006 is clear and states

[9] Council Environment Section (Environment & Climate Action) Report dated 24/10/2025.

that a fixed limit of 43dB(A) will protect sleep inside properties during the night. Accordingly, I conclude that the night-time limit of 43dB(A) proposed in the application is in accordance with the relevant Section 28 guidance and is appropriate. However, the relevant development management standard in the LDP is a specific measure and provides for a lower fixed night-time noise limit which is stated in precise and quantitative terms. It does not contain an element of flexibility allowing for judgement or discretion on the matter and it is clear from the content of the LA Report that the lower fixed limit is both deliberate and intentional. In these circumstances I am of the opinion that the proposed development clearly deviates from, and exceeds, this 'lower fixed' standard and is therefore a contravention of the LDP in relation to night-time noise and is material. In this regard I note the provisions of Section 37(G)(6) of the Planning and Development Act, 2000 (as amended) which provides that:

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

Conclusion

8.16. I consider that the appropriate guidance in relation to noise limits is the current WEDG 2006, which have not been withdrawn by the Minister and therefore remain the relevant Section 28 Guidelines to which the Commission must have regard. Having regard to the fact that the fixed night-time noise limit proposed in the application (43dB(A)) complies with WEDG 2006 and otherwise to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions to reach Ireland's renewable energy targets, I recommend that permission is granted pursuant to the provisions of Section 37G(6) of the PDA. 2000 (as amended), notwithstanding that the proposed development materially contravenes the lower fixed night-time noise limit (38dB(A) L90 or 5dB(A)) above background noise levels (whichever is greater) in the LDP.

Archaeological Sites

8.17. In relation to archaeological sites **Section 11.7.2.1** 'Wind Energy' of LDP Chapter 11 (Development Management Standards) recommends that:

> "*turbines are located three times the turbine height away to prevent visual domination. In the case of particularly sensitive sites, the applicant may be requested to relocate the turbine*."

8.18. The LA report does not specifically identify this development management standard in its report or reference a contravention of it. The Report does raise concerns in relation to the extent of recorded and likely unrecorded archaeological records within the PDS and its vicinity. A number of conditions are recommended which include licensed geophysical surveying, test excavation and monitoring. Similar concerns are raised by the DHLGH who also recommend similar conditions.

8.19. In the first instance, I consider that there are several considerations which arise in relation to this development management standard and which are relevant to the assessment of material contravention. In the first instance it refers to 'turbine height' and does not provide further definition as to whether this is tip height, hub height or other. Accordingly, there is scope for interpretation in relation to which height metric should be applied, particularly in the context of assessing 'visual domination'. In my opinion, an 'ordinary' understanding of turbine height would be based on the maximum or overall height which would be the tip height. On this basis, and in the circumstances of this case, the ordinary meaning of this development management standard recommends that turbines are not located within 480m or 450m (T6) of archaeological sites. In my opinion there are also grounds to argue that the standard is manifestly unreasonable in its recommendation that turbines are located at least three times the turbine height away from archaeological sites given that this measurement appears to be arbitrary having no basis in Section 28 guidance or best practice. The proposed development is located on lands which are designated in the LDP as a 'preferred area' for wind energy, a designation which has been informed by the plan making process and the consideration of relevant constraints, including archaeological sites. Given the extent of archaeological sites at this location and

in the wider environment of the PDS[10], the effect of this development management standard would be to effectively impose an exclusion zone in relation to wind energy in a manner which would undermine the wind energy designation of the LDP and its climate ambitions. Finally, I note that it is also a 'recommendation' and in my opinion, it is not a closed or definitive position with specificity similar to the above-mentioned night-time noise limit and is something therefore open to other relevant considerations, including alternative recommendations provided that visual dominance is prevented. In this regard I am not satisfied that this development management standard constitutes a sound basis for material contravention of the plan.

8.20. The assessment of archaeology is addressed in Section 18 of my EIA. It is not repeated here. This development standard is primarily concerned with preventing 'visual domination'. In my view the main visual effects associated with the proposed development will occur at operational stage. In the circumstances of this case, much of the recorded archaeology (38no. records) within or closely adjoining the PDS is sub-surface, levelled or fully excavated (33no.). The few sites (5no.) which do have a surface presence are limited in terms of their relict remains and none are open to the public. On this basis I accept the findings of the EIAR that the cultural visual effects of the proposed development at operational stage range from 'not significant' to 'slight', and in the absence of significant visual or cultural effects I am satisfied that the proposed development cannot result in 'visual domination'.

Conclusion

8.21. Accordingly, whilst the proposed development is contrary to this development standard, on the basis that it does provide for turbines at locations within 'three turbine heights' of recorded monuments (480m/450m), I am satisfied that this contravention is not material as the proposed development will not result in significant visual cultural effects or visual domination. If the Commission disagrees with my assessment and finds that a material contravention does arise on the basis of the location of the turbines, then the Commission can rely on the

[10] c.340 within the 3km study area, 38 within or close adjoining the PDS.

provisions of Section 37G(6) of the Act in any decision to grant planning permission.

8.22. **Objective EH O39** of the LDP concerns the 'Protection of the setting of Archaeological Monuments' and states that:

"It is an objective of the Council to ensure that no development shall have a negative impact on the character or setting of an archaeological monument".

8.23. The assessment of archaeology is addressed in Section 18 of my EIA and is not repeated here. At construction stage I conclude that the footprint of the proposed development provides for the safeguarding of recorded monuments and their ZONs on the basis of the iterative design process and the proposed mitigation strategy with the exception of T01. I recommend that T01 is omitted as a result of its location within the midst of a cluster of five barrow sites (LI031-151001, LI031-151002, LI031-151003, LI031-151004 & LI031-151005) and possible barrow cemetery as part of a prehistoric ritual landscape which could include further barrow sites and other burial or ritual features. In relation to unrecorded archaeology I conclude that the mitigation strategy is appropriate and proportionate on the basis of geophysical survey, informed test excavation, monitoring and preservation in situ or by record. Accordingly, I am satisfied that the proposed development will not have a negative impact on the character or setting of an archaeological monument at construction stage subject to the omission of T01 and that an issue of material contravention does not arise.

8.24. At operational stage Section 17.31 of my EIA finds that there will be significant indirect cultural visual effects on Dromin graveyard & church ruins (LI039-079002 & 079001). Section 18.58 of my EIA also finds that there will be significant indirect cultural visual effects on recorded monuments which are above ground and open to the public between the proposed development site and 1km. Whilst I find that the recorded monuments impacted by these effects cannot be quantified (with the exception of Dromin Graveyard & Church) on the basis of the environmental information available, I also find that they cannot be excluded and must be accepted. I otherwise find that effects are based on a worst-case scenario and will be mitigated somewhat by the lowland nature of the landscape and intervening screening features (built and natural) but that

significant residual effects will remain. Having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable. Notwithstanding this position I am of the view that a finding of significant residual effects in relation to recorded monuments between the PDS and 1km which are above ground and open to the public and in respect of Dromin Graveyard & Church, constitutes a material contravention of Objective EH O39 based on the unavoidable conclusion that such a finding must be considered to result in a negative impact on the character or setting of an archaeological monument. I would clarify for the Commission, that I am satisfied that a contradiction does not arise between this position and my conclusions in relation to 'visual domination' at 8.2.17 above, as none of the records between the PDS and >1km are within 480m or 450m of a turbine.

Conclusion

8.25. Having regard to the fact that I do not consider that effects are such that would warrant refusing planning permission and otherwise to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions to reach Ireland's renewable energy targets, I recommend that permission is granted pursuant to the provisions of Section 37G(6) of the Act, notwithstanding that the proposed development materially contravenes Objective EH O39 of the LDP in relation to the character or setting of an archaeological monument.

Historic Gardens and Design Landscapes

8.26. **Policy EH P9** Historic Gardens, Designed Landscapes and Parklands states that:

> *"It is a policy of the Council to protect and maintain surviving remnants of Historic Gardens, Designed Landscapes and surrounding Parklands including form and patterns of hard and soft landscaping and all mature trees and vegetation as highlighted in the DEHLG Survey Of Historic Gardens & Designed Landscapes Inventory".*

8.27. This matter is addressed in Sections 9.14.44 to 9.14.50 of my EIA and it is not repeated here. As can be seen therefrom the LA Report raised concerns in relation to NIAH Garden Survey sites which appeared to be omitted from the EIAR with my assessment confirming that this is the case in respect of Greenpark House (Survey No. 1565), Summer Ville (Garden Survey No. 1561) and Camas House (Garden Survey No. 1556). In respect of Greenpark House and Summer Ville I find that the entirety of the available environmental information does not support a finding of significant effects in respect of these designed landscapes and I am satisfied that an issue of material contravention of Policy EH P9 does not arise.

8.28. In relation to Camas House, I acknowledge that the position is somewhat more complicated given the proximity of the record to the PDS (200m), the inclusion of the historic designed landscape within the northern section of the PDS[11] and the current 'significant' rating by NBHS. For the reasons set out therein I reach a marginal conclusion that material considerations do not exist to support a finding of significant effects. This is based on the status of the NIAH survey with Phase 2 (desk-based assessment only[12]) complete and Phase 3 (field work) to evaluate and confirm heritage value ongoing, the absence of statutory protection, the fact that Camas House (with which the design gardens are associated) is now destroyed, the fact that the remaining NIAH records (Bell tower/stand and Outbuilding/Bridge) do not reference the demesne or designed gardens as a feature contributing to their heritage value and the fact that the only infrastructure proposed within the historic garden is T04 and T05 which are located on improved agricultural grassland and recently planted conifer plantation and which do not therefore threaten original or surviving features. I am also reassured by the fact that the omission of T1 to T5 for separate ornithological reasons will negate any potential significant impacts and that it is sufficient to rest on this position.

Conclusion

8.29. I am satisfied that my finding of no significant effects and the considered reasons on which it is based, particularly in relation to T04 & T05, also supports

[11] Based on my interpretation of historic mapping
[12] Caveated by an NBHC statement that this is not an indication of heritage value of the site

a conclusion that the proposed development will not result in a material contravention of Policy EH P9 in relation to Camas House and NIAH Garden Survey No. 1556. If the Commission is minded to disagree with my assessment and finds that a material contravention does arise, then the Commission can rely on the provisions of Section 37G(6) of the Act in any decision to grant planning permission.

Other Development Plan Considerations

8.30. Observers have highlighted a number of objectives in the LDP which they consider will be materially contravened as a result of the proposed development. These include, inter alia, Objectives EH O48 (Assessment and Recognition of Archaeological Landscapes), EH O11 (Invasive Species), EH O15 (Ground Water, Surface Water Protection and River Basin Management), EH O18 (Riparian Buffers), EH O32 (Historical Landscapes), IN 01 (Climate Action in Infrastructure Planning), CAF O29 (Wind Energy Development and Environmental Considerations) and Policies EH P1 (Protection of Natural Heritage and Biodiversity), EH P4 (Compliance with Limerick's Heritage Plan), EH P8 (Landscape Character Areas), EH P7 (Environmental Noise) and CAF P6 (Renewable Energy). The substantive assessment of the material considerations arising are addressed in the separate topics of the EIA which follows. I have however summarised the relevant conclusions in respect of the LDP compliance position hereunder.

Archaeology & Cultural Heritage

8.31. Objective EH O32 is concerned with the development of an historical landscape assessment process during the lifetime of the Plan which will identify key historical landscapes within Limerick. Objective EH O48 states that it is an objective of the Council to designate archaeological landscapes as part of an ongoing appraisal for Historic Landscape Characterisation of Limerick. These Objectives concerns development plan functions and processes, and I am satisfied that the proposed development does not have a material impact on the progression or delivery of these processes, including public participation in them and that an issue of material contravention does not arise. Otherwise, it is not considered appropriate to speculate or make presumptions in relation to the

outcome of these processes or to form judgments or opinions in relation to them. I am satisfied that the proposed development has otherwise been assessed with due and appropriate regard to the suite of archaeological and cultural heritage policies, objectives and landscape designations set out in the LDP including the designated area of special archaeological control at the Lough Gur Complex in the planning assessment and EIA of this report.

Biodiversity & Natural Heritage

8.32. Objective EH O11 concerns the control of invasive species and Objective EH O18 concerns the maintenance of riverbank vegetation and riparian buffers. I am satisfied that the proposed development provides for the appropriate management of invasive species in the HSMP and is not contrary to EH O11. Furthermore, I am satisfied that the proposed development which will result in the limited temporary loss of depositing/lowland river habitat (FW2) of 51.4m and otherwise includes the creation and enhancement of a series of habitat management regimes to mitigate habitat loss and provide for nett biodiversity gain is not contrary to EH O18. Overall, I am satisfied that the potential for significant adverse effects on biodiversity can be avoided, managed and/or mitigated by measures that form part of the proposed scheme and the HSMP.

8.33. Policy EH P1 is concerned with the protection of Limericks natural heritage and biodiversity, particularly designated National and European Sites. Policy EH P4 is concerned with placing ecological and environmental issues at the centre of decision making in adherence with Limericks Heritage Plan, 2017-2030. I am satisfied that designated European Sites have been fully considered in the AA assessment process carried out as a part of this report (Appendix 1 & 2 refers) and which finds that adverse effects on the integrity of the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects. I am also satisfied that National Heritage Areas, including pNHAs have been considered in the planning and EIA assessment of this report, including Lough Gur pNHA (Site Code:000437) and the associated population of Whooper Swan who feed within areas of the PDS. I am satisfied that with the omission of turbines T01 to T05 for ornithological reasons set out in Section 14 of this report, that there will be no

significant environmental effects on the Lough Gur pNHA or on any National Heritage site as a result of the proposed development and that it is not therefore contrary to Policy EH P1 or EH P4.

Wind Energy & Environmental Considerations

8.34. Objective IN 01 requires all infrastructure development to avoid flood risk areas and, inter alia, to be resilient to climate change. The application is accompanied by a site-specific flood risk assessment (SSFRA) in line with the Planning System and Flood Risk Management Guidelines which is included as Appendix 9B of the EIAR. The issue of flood risk is assessed in Section 15 of my EIA. As can be seen therefrom the assessment finds that with the application of proposed control measures the development will counteract any significant negative effects in terms of flood risk and prevent any discernible increase in runoff ates, either during a storm event or otherwise. The OPW, LA nor any other prescribed body raised any concerns in relation to flood risk. Otherwise, I am satisfied that consideration of the projects vulnerability to climate impacts was addressed in EIAR Chapter 11 and no significant effects have been identified. I am therefore satisfied that an issue of material contravention does not arise.

8.35. Objective CAF O29 states that it is an objective of the Council to facilitate wind energy development in an environmentally sustainable manner ensuring consistency with landscape character, the protection of the natural and built environment, visual and residential amenities. Policy CAF P6 supports renewable energy where it does not have a negative impact on the surrounding environment, biodiversity, water quality or local amenities. In this regard the proposed development is located in a ‘preferred’ area for wind and the ‘agricultural lowlands’ LCA where wind energy developments are permissible, as designated in the LDP. Having regard to same, the comprehensive assessment of the development proposal set out in this report across a range of environmental topics and in particular to my conclusions in relation to Population & Human Health, Biodiveristy, AA, Water and LVIA I am satisfied that the proposed development, subject to the omission of T01-T05 for ornithological reasons (and T01 for additional archaeological reasons) is acceptable, is compliant with the provisions of the LDP in relation to the objective to facilitate

wind energy development and that an issue of material contravention does not arise.

8.36. Policy EH P7 provides that it is a policy of the Council to proactively manage environmental noise, where it may have a significant adverse impact on the health and quality of life of communities in Limerick. I have assessed noise in EIA Section 11 of this report. As can be seen therefrom I conclude that the main significant direct and indirect effect after the application of mitigation measures is a temporary significant (noise) effect during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential receptors. I find that this effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228 but that significant effects will remain. Notwithstanding this finding, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable. No other significant adverse effects as a result of noise were identified.

8.37. In simple terms, I am satisfied that an issue of material contravention of Policy EH P7 does not arise as a result of this finding of a temporary significant (noise) effect because in my opinion a temporary effect with a limited duration of one week and occurring during daytime hours only is not of nature or sustained duration sufficient to result in a significant adverse impact on the health and quality of life of communities. If the Commission is minded to disagree with my assessment and finds that a material contravention does arise, then the Commission can rely on the provisions of Section 37G(6) of the Act in any decision to grant planning permission.

Landscape Character

8.38. Policy EH P8 provides that it is the policy of the Council to promote the distinctiveness and safeguard the sensitivity of Limericks landscape types through the landscape characterisation process in accordance with Guidelines issued by the DoELG/DAHG. I have addressed the landscape and visual impacts of the proposed development Section 17 of my EIA where I find that the

proposed development is located within a robust working landscape with an absence of scenic and visual amenity considerations and that sufficient separation distance is maintained from dwellings and otherwise exists from centres of population. I conclude that the area is designated as 'preferred for wind' and that the proposed wind farm complies with LCA and wind energy policy in the LDP, WEDG 2006 and dWEDG 2019 guidance for the reasons set out therein. I am therefore satisfied that the proposed development is not contrary to Policy EH P8.

Other

8.39. Objective EH O15 concerns the protection of surface and ground waters and the implementation of the River Basin Management Plan 2022-2028 in line with the requirements of the Water Framework Directive (WFD). These matters are addressed in EIA Section 15 of this report which is not repeated here and where I find that with mitigation measures there will be no significant adverse direct, indirect or cumulative effects on water, including hydrology and hydrogeology. I am therefore satisfied that the proposed development is not contrary to Objective EH O15 of the LDP.

RED III

8.40. Observers submit that RED III accelerates the development consent process but does not negate the applicants or the decision-making authority's obligations under the EIA or Habitats Directive. The observers are correct in this regard. In the circumstances of this case the application is supported by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) and I have carried out both a corresponding Environmental Impact Assessment and Appropriate Assessment in accordance with the respective provisions of the EIA and Habitats Directive, whilst otherwise progressing my assessment in line with the accelerated decision-making timelines. There is no question of RED III negating the requirement for proper assessment and decision-making obligations under either the EIA or Habitats Directive.

8.41. Observers also consider that 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. 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. 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.

SEA Directive

8.42. Observers expressed concerns that the proposed development was not subject to Strategic Environmental Impact Assessment (SEA) and was not compliant with the Directive. In this regard I consider the context of the existing legal environmental framework encompassing environmental assessment to be of relevance, noting that the NPF First Review, RSES and LDP have all been subject to SEA. At a project level, I am satisfied that the proposed development has been subject to environmental assessment under the EIA Directive and considering environmental tiering, I note that the proposed development is consistent with the LDP in relation to the location of wind energy (refer to Section 6.0 & 8.0 above). 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 Appendix 1 & 2 (Appropriate Assessment) and EIA Sections 15 (Biodiversity), 16 (Ornithology) and 17 (Hydrology & Hydrogeology) of this report respectively.

Wind Energy Development Guidelines, Guidelines for Planning Authorities (DoEHLG, 2006) (WEDG)

8.43. Many observers were of the view that WEDG 2006 is out of date and no longer fit for purpose in relation to the preparation and assessment of applications for wind energy development. While it is acknowledged that the Guidelines date from 2006, draft Guidelines dated 2019 have been prepared and consenting authorities await the finalisation of same by the Department. Until that time, the existing guidelines remain in force but with the applicant in this instance opting to apply key elements of the draft guidelines in terms of the

proposed development – such as the minimum set back of 4 times the tip height for visual amenity reasons. I consider that this is appropriate and seeks to apply best practice to the consideration of the proposed development.

Wind Resource

8.44. This matter is addressed in EIA Section 21.20 of my report.

Impact to Residential Amenity

8.45. This matter is primarily addressed in the various sections of my EIA including Section 10 (Population & Human Health), Section 11 (Noise & Vibration), Section 12 (Shadow Flicker), Section 15 (Water), Section 16 (Traffic & Transport), Section 20 (Air Quality). As can be seen therefrom I am satisfied that there will be no significant effects on residential amenity as a result of shadow flicker, operational noise, traffic and transport or emissions. In relation to construction noise I find that there will be a temporary significant (noise) effect during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable.

Sightlines

8.46. I note that the LA Report suggests that the exact locations of the vehicular entrances to the site are not depicted in the EIAR and requires details of the entrances and sightlines to be submitted for agreement prior to commencement of development. I do not agree that this is correct. The location of the entrances and visibility splays are shown on the plans and particulars submitted with the application and in this regard DWG No. 22635-MWP-00-00-DR-C- 5067, 5068 & 5069 refer. I am satisfied that sightlines are shown to standard within the control of the applicant. The only exceptions to this are the private road entrances (No.6 & No.7 on the site layout master sheet) and those temporary access points

associated with the accommodation works on the TDR and in this regard I am satisfied that this is not a permanent public road access arrangement and that the permits for the delivery of abnormal loads to the site, together with the TMP and Road Safety Audit process will satisfactorily cater for traffic safety matters.

Adequacy of Consultation

8.47. I have considered this matter at EIA Section 9.17 of my report were I conclude that I am satisfied that appropriate consultations have been carried out and that third parties have had the opportunity to comment on the proposed development in advance of decision making.

Bruff Local Area Plan (LAP), National Biodiversity Action Plan (NBDAP) and National Waste Management Plan (NWMP).

8.48. Observers raised concerns that the Bruff Local Area Plan is incorporated within the LDP and that the proposed development is contrary to objectives BR O3 and BR O6 of the LAP. The observers are correct that the LDP incorporates the 'zoning objectives and policies' for the settlement of Bruff[13]. I have examined this LAP, the zoning objectives and policies set out therein. I am satisfied that the proposed development is located outside the functional area and zoned lands set out in the LAP and that the proposed development is not, therefore, contrary to same.

8.49. Some concerns were raised in the observations that the loss of habitats, including hedgerow, as a result of the proposed development would result in unacceptable biodiversity impacts contrary to the NBAP. I have considered the loss of habitat(s), including hedgerow, in the EIA section 13 of my report. As can be seen therefrom I consider that the habitats of the proposed development site primarily consist of agricultural grassland of low ecological value. I am satisfied that the loss of other habitats within the development site is limited and acceptable in the context of the evolved design of the project and proposed mitigation measures. Such design and mitigation measures include a HSMP which proposes to create and enhance a series of habitat management regimes to mitigate habitat loss and provide for nett biodiversity gain and including

[13] As set out in the existing Bruff Local Area Plan (LAP) at the time of the adoption of the LDP. This relates to the Bruff Local Area Plan 2012-208 (extended to May, 2022).

3970.1m of hedgerow significantly in excess of the 1,900m lost, an additional enhancement of 6133m of hedgerow, 1.74ha of native woodland comprising 1,914 trees of high local biodiversity value, 0.85ha of pond and wetland meadow and 3.08ha of species rich grassland habitat. I am satisfied that the proposed development is not contrary to the NBAP.

8.50. Observers raised concerns that the proposed development would be contrary to the NWMP. I have addressed waste management and related construction procedures in EIA Section 16 of my report, where I have considered the Resource and Waste Recovery Management Plan (RWMP) (Appendix 2B of the EIAR refers). The RWMP is a detailed document outlining the procedures for site management practices including resource management, storage of materials and export of same offsite. It provides that excavated soils and subsoils will be managed onsite with the material primarily reused for bunding, landscaping, and localised earthworks. The remaining volumes will be directed to the designated permanent deposition areas and used to fill in the borrow pits. I am satisfied with the arrangements for the management of resources and waste and that the proposed development is not contrary to the NWMP.

Legal Interest

8.51. There are a number of concerns expressed in terms of property ownership and wayleaves. There is reference to an absence of wayleaves from property owners for cables under roads with ownership of roads extending to middle of the road for adjacent owners which appears to refer to landowner consent and appropriate permissions along the grid connection route. Other concerns relate to possible signatures from persons who are not the beneficial owner(s). I would refer the Commission 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 (for which an application is made under S.37E) to carry out any development”. Otherwise, I am satisfied that the applicant has demonstrated sufficient legal interest in the lands the subject of the proposed development, for the purposes of assessment of the planning application.

Enforcement

8.52. Observers express concerns generally in relation to the effectiveness of enforcement powers within the state and the lack of surety in relation to compliance with mitigation measures and conditions of a planning permission. A wide range of enforcement powers are available to Planning Authorities under the PDA, 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 Commission. The Commission does not have enforcement powers, or an enforcement role and this matter is not within the jurisdiction of the Commission.

Recommended Conditions

8.53. The LA reports sets out a comprehensive list of conditions which are recommended in the event that planning permission is granted. These conditions are extensive and address a range of issues. They are set out in full in Appendix B together with the conditions recommended by prescribed bodies. An assessment is provided of their inclusion or exclusion in the Schedule of Conditions with reasoning.

Oral Hearing

8.54. A number of submissions have requested that an oral hearing be convened in respect of this case. The reasons for requesting same include impacts on the archaeology of Lough Gur, on the rural character of the Golden Vale, on community wide population and human health and general biodiversity concerns. These reasons are generally consistent across the majority of the submissions (requesting an oral hearing) and are based on an observer view that the proposed turbines are of an industrial scale. Specific concerns are also raised in relation to the proximity of turbines to residential property, noise (both construction and operational), volume of traffic including impacts to business, flooding and adverse impacts on Whooper Swan. Some requests are unspecified, whilst a limited number seek an oral hearing to facilitate greater public participation in the process.

8.55. In this case I am satisfied that the nature of the matters raised are addressed in the applicants EIAR and fall within matters governed by available guidance, including WEDG 2006. I have also sought input in this case from an external independent Ornithologist, Natural Research (Projects) Ltd who have produced a

technical report which provides an examination and analysis of EIAR Chapter 7 (Ornithology), including potential impacts on Whooper Swan and a technical note to inform AA. Having regard to the documentation on file, the public submissions received and the response to same by the applicant, I am of the view that it is not necessary for an Oral Hearing to be held in respect of this case as the matters raised can be dealt with adequately through written procedures. Furthermore, whilst the timeline for REDIII decision making does not facilitate additional time for holding oral hearings or stopping of the clock to facilitate, in my opinion there are no individual issues particular to this site which would justify a limited agenda oral hearing.

8.56. On this basis I recommended to the Commission in a memo dated 12th August 2026 that it was not necessary for an Oral Hearing to be held in respect of this case. On the 14th August 2026 the Commission decided to determine the application without an Oral Hearing.

9.0 Environmental Impact Assessment ("EIA")

Statutory Provisions

9.1. The European Union Directive 2014/52/EU, amending Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment, requires Member States to ensure that a competent authority carries out an appraisal of the environmental impacts of certain types of projects, as listed in the Directive, prior to development consent being given for the project. The EIA Directive has been transposed into Irish Law, with requirements now set out in the PDA 2000 and the PDR 2001.

9.2. Part 1 of Schedule 5 of the PDR 2001 includes a list of projects for which mandatory EIA is required. Part 2 of Schedule 5 provides a list of projects where, If specified thresholds are exceeded, an EIA is also required. The proposed development falls within the definition of a project under the EIA Directive as amended by Directive 2014/52 (execution of constructions works) and falls within the scope of Class 3 (i) of Part 2 of the Fifth Schedule of the Regulations:

3. Energy Industry

(i) 'installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output of greater than 5 mega-watts'.

9.3. The proposed development with a total of 17no. turbines and with an estimated combined generating capacity of 76MW exceeds these thresholds and is therefore subject to mandatory EIA.

EIA Structure

9.4. This section of the report comprises the environmental impact assessment of the proposed development in accordance with PDA 2000 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 PDA 2000 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, 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.

9.5. Article 94 of the PDR 2001 and associated Schedule 6 set out requirements on the contents of an EIAR.

9.6. 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 & Ornithology with particular attention to species and habitats protected under the Habitats Directive 92/43EEC and the Birds Directive 2009/147/EC,
- 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.

9.7. The assessment also provides a reasoned conclusion and allows for integration of the reasoned conclusion into the Commissions decision, should they agree with the recommendation made. Adequacy of the consultations carried out by the applicant is also considered below.

Issues Raised in Respect of EIA

9.8. Issues raised in respect of EIA by parties to the application are:

- Consideration of Alternatives.
- Adequacy of expertise (competency & experience).
- Adequacy of Consultation.
- Impacts on population and human health (health & wellbeing, vulnerable persons, schools, community, noise, shadow flicker, business & tourism, agriculture, property values), Biodiversity (loss of habitats bats, flora and fauna generally), Ornithology (primarily Whooper Swan), Lands & Soils, Water (surface water, ground water, flooding and Morningstar River), Climate & Air Quality, Landscape and Visual effects (residential amenity and Lough Gur), Archaeology & Cultural Heritage (Lough Gur, Grange Stone Circle, recorded and unrecorded archaeology, protected structures and NIAH), Traffic and Transport (residential amenity, GCR, CTMP, public safety), Material Assets (Broadband and utilities), Major Accidents (GNI Gas pipeline).

- Cumulative effects.

Compliance with Requirements of Article 94 and Schedule 6 of the Planning & Development Regulations, 2001

9.9. Compliance with the requirements of Article 94 and Schedule 6 of the PDR, 2001 is assessed below:

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 comprehensive description of the development is contained in Chapter 2 of the EIAR including site location, existing land uses, ownership, substation, GCR, TDR, wind turbines, met mast, access, borrow pits, deposition areas, construction methodologies, operation and decommissioning. EIAR Chapter is also supported by EIAR Chapter 4 which sets out additional information on the civil engineering design rationale, standards, specifications and process of the various elements of the proposed development.
A description of the likely significant effects on the environment of the proposed development (including the additional information referred to under section 94(b))
An assessment of the likely significant effects of the development (direct, indirect and cumulative) on the different environmental parameters, is carried out for each of the technical chapters (topic Chapters 5 to 18) of the EIAR. EIAR Chapter 1 sets out the overall approach to assessment of effects, including legislative context, methodology (including consultation, scoping and screening), study areas, technical difficulties and availability of data and cumulative effects and this is further addressed under each topic. 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 embedded design measures and mitigation measures to address potential adverse effects identified in technical studies. Embedded design measures are described in EIAR Chapter 2. Mitigation measures and arrangements for monitoring, are summarised in Chapter 19, Table 19-1 of the EIAR (Schedule of Environmental mitigation measures) and are otherwise set out in the relevant Chapters of the EIAR and Appendix 2A (CEMP) which includes Appendix A and the Environmental Management Plans set out therein (EMP1-16inc), Appendix 2B (RWMP), Appendix 2E (SWMP) and Appendix 6I (HSMP). Measures comprise standard good practices and site-specific measures and are largely capable of offsetting significant adverse effects identified in the EIAR.
A description of the reasonable alternatives studies 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).
A description of the site selectin process, design process and alternatives considered is contained in of Chapter 3 of the EIAR. The alternatives considered include, ‘do nothing’, alternative locations (site selection process), alternative turbine heights, alternative site layouts and evolution of design, alternative grid connection options and routes, alternative site access roads and sources of aggregate material. The main reasons for opting for the current proposal were based on minimising environmental effects. Notwithstanding my subsequent findings in relation to Whooper Swan and

archaeology I am satisfied that the applicant has studied reasonable alternatives in assessing the proposed development and has outlined the main reasons for opting for the current proposal before the Commission and in doing so the applicant has taken into account the potential impacts on the environment. Further detail on the alternatives considered is set out below.
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 baseline environment is included in each technical chapter of the EIAR and an assessment of the likely evolution of it, in the absence of the development.
A description of the forecasting methods of 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 confirms in Section 1.8 of EIAR Chapter 1 that there were no difficulties encountered in the preparation of the EIAR. I comment on these matters, where necessary in the technical assessment below and for the reasons stated, I have identified inadequacies in relation to forecasting methods associated with bats, whooper swan and cultural heritage in the respective environmental topics of my EIA. These matters are addressed in my report.
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 addressed by the applicant across Chapters 8, 9, 11, 16 and 17 of the EIAR. Specific risks have been identified in relation to the project's vulnerability to extreme weather and flooding, mass movement event (peat landslide), traffic collisions, gas & electrical infrastructure and aviation. These risks are reasonable and are assessed in my report.
Article 94c A summary of the information in non-technical language.
This information has been submitted as a separate standalone document 'Non-Technical Summary' and as Volume I of the EIAR. I have read this document, and I am satisfied that the document is concise and comprehensive and is written in a language that it 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 description, and the assessment of the potential environmental impact are set out in each chapter. 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.
A list of the various experts who contributed to the report are set out in Section 1.7 and Table 1.7 & 1.8 in Chapter 1 of the EIAR. Where relevant the 'statement of authority' section of each of the individual chapters within the EIAR also includes biopics setting out individual expertise, qualifications and experience demonstrating the competence of the person in preparation of the individual chapters within the EIAR. Appendix 6A sets out a 'Statement of Competency'. I am satisfied that the EIAR has been prepared by experts with competency in the technical subject areas.

Alternatives Considered

9.10. Do nothing – agricultural operations at the site would continue. The development would not contribute to Ireland's renewable energy infrastructure or

renewable energy targets. An opportunity to significantly offset CO_2 emissions would be lost.

9.11. Site Selection Process – a detailed screening exercise was undertaken using a number of criteria and stages to assess the potential of a large number of possible sites suitable to accommodate a wind energy development. This included initial screening (Phase 1), Grid Constraints and Facilitators (Phase 2), Other constraints and facilitators (Phase 3) and Site Validation. As a result of initial Phase 1 screening the applicant focussed on the 'preferred area' designated in the LDP for wind energy development and identified 9no. potential suitable sites. These are shown on Fig. 3-2. Phase 2 and 3 screening informed the decision not to proceed with sites 1 to 8 for the reasons set out in Table 3-1 and which included extent of watercourses, archaeological constraints, ownership and grid connection considerations and proximity to residential receptors. Phase 2 confirmed the suitability of the PDS having regard to wind resource, proximity to grid, policy considerations, avoidance of environmental designations, set back from residential receptors, accessibility and landscape and visual impact for the reasons summarised in Table 3-2.

9.12. Design Process – This is addressed in Section 3.5 of EIAR Chapter 3. The design of the optimum windfarm layout was informed by the completion of baseline studies and environmental constraints which are summarised in Table 3-3. These include topography, sensitive habitats, bat ecology, public roads, ornithology, soils and geology, hydrology, archaeology, LVIA and noise sensitive receptors. Following identification of all environmental, technical and engineering constraints a preliminary layout was developed. The detailed design was then driven by a process of mitigation by avoidance.

9.13. Alternative wind farm layout and turbine scale – This is considered in Section 3.6.1 of EIAR Chapter 3. There were four iterations of the proposed development before the optimum layout was confirmed. The final layout was primarily influenced by physical and environmental sensitivities. The design evolution and iterations are set out in Table 3-4 together with the reasons for change in respect of each iteration and the resultant design improvement. Fig. 3-12 shows the final site layout and Table 3-5 sets out a comparison of the environmental effects at initial design stage relative to the final design. This includes a reduction from

18no. to 17no. turbines, tip height reduced from 200m to 160m (max), avoidance of geological hazards and introduction of a whooper swan enhancement area.

9.14. Alternative grid connection methodologies – This is considered in Section 3.6.2 of EIAR Chapter 3. Three potential grid connection options were considered and these are outlined in Table 3-6 and shown in Fig 3-13, these are all underground connections. Option No.1 and connection to the 220/110kV Killonan Substation was selected as it reduced traffic disruptions to Limerick City, there was no effect on protected structures, and it involved a reduced number of water crossings. A comparison of environmental effects is set out in Table 3-8. I also note the applicants response to TII which provides further clarifications on why an OHL loop-in connection to the grid was not an option in this case. This is addressed at Section 19.35 of my report (Traffic and Transportation).

9.15. Alternative Construction Methodology – This is considered in Section 3.6.3 of EIAR Chapter 3. This primarily includes consideration of excavated tracks versus floating design. The environmental effects of these options is assessed in Table 3-9 as neutral across a range of environmental factors and the applicant proposes to use both methodologies depending on ground conditions encountered. Alternative sources of materials (Quarry sources) together with the use of borrow pits was also considered. The environmental effects of these options is assessed in Table 3-10 and the applicants preference is to develop and utilise on site aggregate resources over importation where feasible in order to reduce traffic volumes and associated disruption, noise and air quality effects and to use borrow pits as suitable repositories for storage of surplus excavated soils.

Adequacy of expertise (competency & experience)

9.16. These matters are addressed in each respective environmental topic of my EIA (where necessary)

Adequacy of Consultation

9.17. The application has been submitted in accordance with the requirements of the PDA 2000 (as amended) and the PDR, 2001 in respect of public notices. Details of the applicants scoping work and consultations are set out in Sections 1.4.2 and 1.4.3 of EIAR Chapter 1. A Community Engagement Report is also presented as Appendix 1C. The applicant has appointed a Community Team which comprises of a Project Manager, Community Liaison Officer (CLO), a Project Co-ordinator and a Project Administrator. The key milestones of the Community Engagement Process are set out in Fig 6 of Appendix 1C and includes: launch of project website, advertisement in local newspaper and notification of political representatives (May 2025), door to door visits within 1k of the project (June 2025), in person consultations[14] (June & July 2025), Community Consultation Clinics in the Deebert Hotel, Kilmallock (August 2025), second round of Community Consultation Clinics (September 2025) with engagement ongoing. I otherwise note the paper information sources made available by the project team including leaflet drop, the contact information made available including dedicated project email address and contact telephone number.

9.18. Submissions have been received from statutory bodies and observations from third parties, which are considered in this report in advance of decision making. I am satisfied that appropriate consultations have been carried out and that third parties have had the opportunity to comment on the proposed development in advance of decision making.

9.19. Otherwise, the applicant proposes to set up a Community Benefit Fund (CBF) under the Government's RESS support programme at €2 per MWh of electricity produced by the project. This will be available to the local community for the duration of the RESS (15 years) and based on efficiency and capacity of approx. 76MW the CBF could amount to an average of €350,000[15] per annum.

Compliance

[14] By request

[15] It is acknowledged that this will be reduced pro-rata if T01 – T05 are omitted for ornithological and archaeological (T01 only) reasons.

9.20. Having regard to the foregoing, 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 PDR, 2001.

Assessment of Likely Significant Effects

9.21. 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 in Section 171A of the PDA, 2000 (as amended):

- Population and human health, shadow flicker, noise and vibration
- Biodiversity & Ornithology, 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
- Traffic and Transport
- The interaction between these factors
- The vulnerability of the proposed development to risks of major accidents and/or disasters.

9.22. In accordance with Section 171A of the PDA, 2000, which defines EIA, 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. Each topic section is therefore structured around the following headings:

- Issues raised in the application,
- Examination of the EIAR
- Analysis, Evaluation and Assessment: Direct and indirect effects.
- Conclusion: Direct and indirect effects.

10.0 **Population & Human Health**

Issues Raised

10.1. Issues raised in the public submissions received are the effects on recreation and amenity, health including those with complex health and/or neuro-divergent conditions, schools, childcare facilities and community infrastructure, property values and community wellbeing, the local economy and employment, agriculture including the equine industry, and tourism. The NEHS identified noise, shadow flicker, air quality and the protection of ground and surface waters as the main considerations for the protection of population and human health. NEHS concluded that if the mitigation measures identified in the CEMP are implemented in full then there is adequate protection of Public and Environmental Health. The LA raise concerns in relation to impacts on visual amenity, noise and shadow flicker.

10.2. The issues raised in relation to visual amenity, noise and shadow flicker are primarily dealt with in the respective technical chapters of the EIAR and are addressed in the corresponding environmental topic sections of this report.

Examination of the EIAR

Context

10.3. Chapter 5 of the EIAR deals with population and human health. It assesses the likely effects of the development on population and human health, and the key issues examined in this chapter includes population and settlement, economic activity, employment, land use, tourism, community facilities, human health and wellbeing and residential amenities. EIAR Chapters 10, 13 and 15 deal with Air Quality, Noise and Vibration and Shadow Flicker respectively and these matters are considered in the corresponding environmental topic sections of this report.

10.4. The assessment is undertaken in accordance with the European and National legislation and guidance set out in Section 5.2 and specifically the European Commission (EC), the Environmental Protection Agency (EPA), the Institute of Environmental Management & Assessment (IEMA).

10.5. A statement of competency (authority) has been included.

10.6. The methodology used for the study is set out in Section 5.2.1 and includes desk-based research, site visits and consultation(s). This methodology identified that the main potential adverse impacts on the local human environment would include air quality, noise and vibration, public safety, traffic disturbance, visual impacts and shadow flicker. The determination of the significance of an effect is then made, where practicable, in accordance with the EPA Guidance (2022)[16] and the criteria set out in Table 5-3 refers. Shadow Flicker is assessed in accordance with WEDG 2006. Air Quality significance criteria is assessed on the basis of compliance with the appropriate standard or limit values set out in Table 5-4[17]. Construction noise is assessed in accordance with the limits given in BS 5228-1:2009+A1:2014 and as set out in Table 5-5. Operational wind noise is assessed in accordance with WEDG 2006.

10.7. The study area focuses on the local receiving human environment and includes the Electoral Divisions (EDs) that interact with the proposed development. These are listed in Section 5.3.4 and include: Abbeyville, Athlacca, Ballybrcken, Ballysimon, Bruff, Crean, Dromin, and Grange. They are also illustrated in Fig. 5-4 in the context of the proposed development site boundary.

Baseline

10.8. The EIAR refers to settlement patterns in Section 5.3.5 and describes the site as a rural area characterised by agricultural holdings and one-off residential dwellings within some patches of forestry plantations. An initial study area of 1.36km from wind turbine locations (based on 10 x rotor diameter in accordance with WEDG 2006) was extended to 1.5km to ensure a conservative approach capturing any outlying receptors. The settlement pattern showing a distribution of one-off rural dwellings along local roads is evident in Fig 5-5 which identifies 279 dwellings within the 1.5km study area. Regard is also had to dWEDG 2019 and SPPR 2 which states a setback distance for visual amenity of 4 x tip height which for the proposed development is 600m for T6[18] and 640m for all other turbines. The settlement pattern in the greater region is described as ranging from small to medium community settlements and relatively isolated farmsteads.

[16] EPA Guidelines on the Information to be contained in Environmental Impact Reports (2022)
[17] As informed bh S.I. No. 739/2022 – Ambient Air Quality Standards Regulations, 2022.
[18] T6 has a lower tip height of 150m (all others are 160m).

Charleville, located 12km to the southwest, is the largest town in the vicinity of the proposed development with a population of 3,970 recorded in 2022. Smaller population centres in the locality consist of the towns of Bruff, Croom and Kilmallock, with Bruff the closest to the site approx. 2km to the east.

10.9. The GCR is mainly constructed within the public road corridor and will entail several crossing points at road junctions. The adjoining lands are mainly farmlands and private residential dwellings in ribbon development patterns. The GCR has a length of approx. 27.6km and is shown in Fig. 5-6 and 5-7.

10.10. The EIAR refers to population trends in Section 5.3.6. in the context of the 2016 and 2022 census. The 2022 census results report an increase in the population of the study area of +17.2% from 19,061 to 20,338 (+3,277 persons). This is higher than the County (+7.5%) and state (+8.1%) figures for the same period. The greatest increase was in the Ballysimon and Abbeyville EDs, while Grange ED had the lowest increase. Ballysimon is the most densely populated ED with 541 persons per km² and Dromin the least densely population with 22 persons per km². Fig.5-7 refers. In terms of economic activity and employment Census 2022 statistics show that the highest level of employment is within the professional services industry (2,561 persons), with other notable sectors including commerce and trade (2,053) and 'other' (2,003). Building and construction is the second lowest sector (355) and the EIAR states that the proposed development has the potential to significantly impact this figure. Agriculture, forestry and fishing is the lowest sector (229). The majority of workers commute to work by car as a driver (5,338). Table 5-8 and 5-9 refer.

10.11. In terms of land use (Section 5.3.8) the EIAR shows the CORINE land use classification (2018) Fig. 5-8 which shows that the majority of the wind farm occurs on predominantly agricultural lands consisting of pastures (231) with some areas of coniferous forest (312) and in a rural setting. Forestry removal to facilitate the construction of wind farm infrastructure is approx. 14.4ha. The land use environment of the GCR is classed as road and rail networks (122) and the surrounding lands as pasture (231) and traverses limited areas of urban settlement. Land use change will only occur within the area of the windfarm site and the EDs of Bruff, Crean and Dromin, where agriculture is primarily livestock

farming with the average size of holdings being approx. 43.3ha. The remaining EDs are traversed only by the GCR where no change to land use is expected.

10.12. In terms of tourism and amenities, Section 5.3.9 of the EIAR refers. There are no recreational amenities located within the boundary of the proposed development site. The nearest such amenity is Lough Gur, described as a horsehoe lake near Bruff and approx. 4.7km northeast of the proposed development site. The site is recognised as part of the Wild Atlantic Gateway and Ireland's Hidden Heartlands tourism experiences with the visitor centre recording 100,000 visitors in 2023[19]. The centre allows for tours of the Lough, with access to historic sites such as Grange Stone Circle and the Lough Gur Wedge Tomb. Its main significance is the significant archaeological record at the site and general area, and recreational water activities are also facilitated. The GCR route will follow the R512 which is described as 'adjacent' to Lough Gur. Other tourist attractions in Bruff are described (The Black Castle, Thomas Fitzgerald Centre and the Old Irish Ways Museum) together with Kilfinane Outdoor Education Centre (12km southeast). Other major recreational amenities (15km and more distant from the proposed development site) are also described including Knockfierna Famine House and Trail, the Ballyhoura Mountain Bike Trails, Glenstal Abbey and Castlegarde Castle.

10.13. In terms of human health and wellbeing (EIAR Section 5.3.10) notes that the Healthy Ireland Framework 2013-2025 defines health as "*everyone achieving his or her potential to enjoy complete physical, mental and social wellbeing. Healthy people contribute to the health and quality of the society in which they live, work and play*." The EIAR notes that overall, the local population has good health with 78% reporting 'very good' or 'good' health and less than 2% reporting 'bad' or 'very bad' health in Census 2022.

Potential Effects

10.14. The EIAR identifies the potential for a range of environmental effects on population and human health. The likely effects (potential direct, indirect and cumulative) in the absence of mitigation and as identified in the EIAR, are summarised in Table PHH1 below:

[19] The second highest attraction in County Limerick after St. John's Castle.

Table PHH1: summary of potential effects (Population and Human Health).

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	- No change to agricultural activities, periodic tree felling, local employment or economic benefit. - Potential emissions will not be created, and there will be no potential for noise, shadow flicker or visual effects. - The potential for replacement of fossil fuels with renewable energy will be lost.
Construction Phase	*Population and Settlement Patterns* - It is considered unlikely that a significant number of employees involved in construction will re-locate in the short/medium term or rent accommodation. This is assessed as a neutral, localised and short-term effect. - A number of international studies are cited in relation to property values/house prices which generally conclude that there is no evidence that house prices are consistently, measurably or significantly affected by wind farms. It is considered that the effects of the proposed development will have imperceptible significance on population and settlement patterns during construction. *Economic Activity and Employment* - The construction phase will take approx. 24mts and may create approx. 80 direct jobs. Resources and labour will be sourced in the region where possible including aggregate and concrete using local suppliers and sub-contractors. The effect is assessed as direct, short-term, localised and positive. *Land Use* - It is not anticipated that there will be any significant impacts on land use outside of the proposed development site boundary. - Agricultural and grazing activities will continue. Lan-take is minimised allowing only for windfarm infrastructure. Construction areas will be fenced off during the 24mth construction period for health and safety reasons. - The GCR will be installed in sections within the public road corridor, with rolling road closures and stop-go systems in place to minimise disruption to residents and business with works planned and undertaken in consultation with LCCC and an agreed TMP. - Effects are assessed as likely short-term, neutral, localised and slight. *Tourism and Amenities* - Given that there are no tourism attractions within the proposed development site, there will be no direct effects. - An increase in traffic associated with construction personnel and the delivery of supplies and materials may impact access to local tourist attractions and amenities. - Impacts from noise and dust will be short term and isolated, with a road cleaning programme in place. - The proposed development is not in close proximity to any recognised tourism amenity, and it is determine that there will be no long-lasting impact on these amenities during the construction phase. - Effects are assessed as localised, neutral and short-term and of imperceptible effect.

	Human Health and Wellbeing - Dwellings within close vicinity of the windfarm may experience some disturbance during construction due to haulage and construction vehicle traffic and general construction noise. Noise from these sources is predicted to be short-term and will not be constant over the construction phase. Works will be limited to 07:00 -19:00hrs Mon to Saturday and there are no dwellings within 600m of turbine locations. - Best practice works methods will be followed as outlined in the CEMP. - The GCR will result in limited localised and temporary disruption during construction to local residents due to the generation of noise and dust, however progress in sections along the route will see disturbances limited to brief exposure for residents. - The proposed windfarm development will have an adverse, short-term, not significant and localised effect on community health and wellbeing due to noise and dust generated during construction, operation of plant and deliveries to the site. - The construction of the GCR will result in brief noise disturbance. - Effects on employee health and wellbeing are assessed as slight, short-term and adverse. *Climate Change* - Short term construction traffic-related air emission have the potential to result in increases in carbon emissions and air pollutants, contribute to climate change and adversely affect emissions reductions. - The construction of the proposed development will increase dust in the air in the locality over the 24mth construction period. - Effects are assessed as moderate, adverse, short-term and localised. - The proposed development will contribute positively to climate change over its lifetime with a CO_2 payback of 0.8 years.
Operational Phase	*Population and Settlement Patterns* - A change to population and demographic trends is not expected. Effects are assessed as neutral, localised, long-term with imperceptible significance. *Economic Activity and Employment* - Operators and maintenance personnel will be sourced locally. There will be a minimal effect on employment which is assessed as imperceptible, neutral, long-term and localised. - The proposed development will generate a Community Benefit Fund (CBF) which will generate approx. €350,000 per annum for the first 15 years totalling €5,250,000. It will be administered in accordance wit SEAI guidelines supporting sustainable development, local clubs and societies in the local area. The economic effect is assessed as positive, moderate and long-term. *Land Use* - There will be no severance or loss of ROWs or amenities and agricultural activities will continue. There is no risk to existing or future land uses on adjoining lands and the development will not cause any material damage and does not pose any polluting or hazardous threat that would result in devaluation of neighbouring land or property. The effect is assessed as imperceptible and neutral. *Tourism and Amenities* - Visual effects on the archaeological complex of Lough Gur were assessed. VP17, VP18 and VP19 refer. It is assessed that VP17

	(Grange Stone Circle) and VP18 (Lough Gur Wedge Tomb) have no potential for visibility of the development with effects assessed as imperceptible. VP19 is from the local road at the northern end of Lough Gur from where blades will be seen rising just above the terrain at a considerable distance and over a partial view of the Lough. The effect is assessed as moderate-slight. - Turbines are seen at a small scale from Kilfinane Scenic Drive and Castleoliver Scenic Drive, with the effect deemed to be slight and slight-imperceptible. - Adare Manor Golf Course (over 15km distant) will not have visibility of the proposed turbines. - The Maigue River Trust suggests extending the riverside walk amenity along the Morning Star River from Bruff. If this walk is extended far enough to interact with the site, the effect of the proposed turbines are assessed as negligible. - GCR works will consist of repair works only. Works will be underground and will not impact tourist attractions or amenities. The effect is assessed as imperceptible. *Human Health and Wellbeing* - It is not anticipated that the workings of the turbines will present any danger to the public. They will be on private lands, with no public access. Modern turbines incorporate a fail-safe mechanism that causes turbines to shut down in extreme weather conditions. Overall, the proposed development will have a net benefit on human health in the long-term by contributing to the production of clean renewable energy. *(Noise)* - Turbines will operate within the established criteria set out in WEDG 2006 and will have no significant effect on human health and wellbeing. - Noise from the substation will be 13dB below background noise at the closest NSL in a worst case (night-time) scenario. The effect is assessed as imperceptible and not significant. *(Visual Impacts)* - A total of 22 viewpoints were used to determine visual effect. Given the size of the turbines, a visual consequence is unavoidable. Overall, the development is expected to have a long-term and moderate visual effect with turbines presenting as new elements in the landscape during operation. *(Air Quality)* - There is likely to be a long-term and positive effect from the operation of the turbines as they will replace fossil fuel energy sources such as coal and oil. It is estimated that over the operational life of the proposed development 2.5 million tonnes of CO_2 will be offset. *(Traffic)* - There will be negligible operational (maintenance) stage traffic associated with the proposed development. The effects as assessed as imperceptible to not significant. *(Climate Change)* - The proposed development will facilitate decarbonisation objectives at local and national levels. The effect is assessed as long-term, direct, slight, positive and extensive.

	(Shadow Flicker) - The proposed wind turbines will be equipped with a shadow flicker module to ensure that there is no shadow flicker at sensitive receptors.
Decommissioning Phase	The potential effects are the same as those associated with the construction stage but with reduced magnitude.
Cumulative	The list of projects considered in the assessment of cumulative effects is listed in Section 1.4.4 of Volume II, of EIAR Chapter 1 and includes other existing and proposed wind energy developments within 20km of the proposed development site, including the proposed Garrane Green Energy Limited Windfarm (ACP-323635-25) refers. This also includes 9no. existing or permitted solar farms within 20km of the proposed development with the nearest Ballycullane Solar Farm (6.9km) and Engie Development Ireland Ltd (7.8km). Other projects in pre-planning and a proposed anaerobic digestor 10km to the west are noted. Minor projects are discounted as they would not introduce complex or significant issues or involve extant permissions which would have been completed or expired before the proposed development commences. *Populations and Settlement Patterns* - Workers will be sourced locally; a similar approach will be adopted with other projects. This will have a significant direct impact on the local economy and employment. Effects are assessed as a **significant positive, short-term effect.** *Land Use* - Effects are assessed as neutral, slight and long-term. *Tourism and Amenities* - There will be an unavoidable cumulative visual impact, which is not envisaged to have an adverse effect on tourist and amenity facilities or their use. The effect is assessed as likely, slight and long-term. *Human Health and Wellbeing* - Cumulative impacts related to human health and wellbeing have the potential to arise locally when construction activities associated with the proposed development take place at the same time as other developments in a specific location. These effects are assessed as temporary, short-term and of slight significance. - There is no potential for cumulative noise effects. The effect is assessed as imperceptible. - No cumulative shadow flicker effects are considered possible. The effect is assessed as imperceptible.

Mitigation

10.15. Section 5.5.1 states that the potential for significant effects on the human environment arises primarily during the construction phase from traffic, noise and dust effects with specific mitigation measures outlined in the following respective EIAR Chapters: Chapter 10 (Air Quality), Chapter 11 (Climate), Chapter 13 (Noise & Vibration), Chapter 15 (Shadow Flicker), Chapter 16 (Material Assets -

Traffic and Transport), and Chapter 17 (Material Assets – Built Services). A Construction and Environmental Management Pan (CEMP) (Appendix 2A) has also been prepared for the proposed development. The EIAR states that no additional mitigation measures for population and human health are proposed in Chapter 5. The relevant mitigation measures from the aforesaid EIAR Chapters and the CEMP include:

Public Safety

- Construction management in accordance with Safety and Health Regulations and Guidelines (Safety, Health & Welfare at Work (Construction) Regulations 2013 (as amended), Safety, Health & Welfare at Work Act, 2005 (as amended), Safety, Health & Welfare at Work (General Applications) Regulations, 2007 (as amended), and Irish Wind Energy Association (IWEA) Best Practice Guidelines, 2012).
- The construction process will be managed in accordance with a Safety and Health Plan.

Traffic and Road Usage

- A Traffic Management Plan (TMP) to be agreed with An Garda Síochána and LCCC dealing with, inter alia, communication, site access, parking and delivery arrangements, condition and maintenance of the public road, and site operating hours.

Noise

- Noise reduction, abatement and control measures in accordance with BS 5228-1:2009+A1:2014 including: best practice selection, use and maintenance of plant, use of ‘sound related’ compressors, acoustic covers and exhaust silencers.

Dust

- Cleaning and maintenance of access tracks, hard surface roads will be swept, surfaces with potential to give rise to fugitive dust will be regularly watered, speeds will be restricted, a temporary vehicle wheel wash will be installed at the site entrance(s).

Shadow Flicker

- A shadow flicker control module (SFCM) will be used to eliminate shadow flicker at receptors ensuring full compliance with WEDG 2006 and dWEDG 2019.

Residual Effects

10.16. With the implementation of mitigation measures, the residual effects are set out in Section 5.6 of EIAR Chapter 5 and range from imperceptible to positive and slight. The EIAR finds that the residual visual impact on tourism and amenities will be long-term but does not further qualify the significance of the residual effect. Overall, the EIAR predicts there will be no significant adverse residual effects on population and human health as a result of the proposed development.

Analysis, Evaluation and Assessment: Direct and Indirect Effects.

10.17. I have examined, analysed and evaluated Chapter 5 of the EIAR, all of the associated documentation and submission on file in respect of population and human health. I am satisfied that the applicants understanding of the baseline environment is comprehensive and that they key impacts in respect of the likely effects on population and human health as a consequence of the development have been identified as set out in the EPA Guidelines (2022). The effects on shadow flicker, noise and vibration, landscape & visual, traffic and transport, air quality and climate are addressed in separate technical chapters of the EIAR and primarily considered in the corresponding environmental topic sections of this report. Relevant conclusions are however carried across in this section.

10.18. In general, given the location of the proposed development in a rural area and with population centres outside of the study areas for noise and shadow flicker, I am satisfied 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 or demographic trends. There will be economic benefits associated with the proposed CBF and opportunities for employment during the construction and operational stages. Observers raise a number of issues in respect of population and human health which I address below under the following substantive headings:

Mental Health & Wellbeing

10.19. This was a significant theme of concern across the observations received, with observers concerned that the proposed development will result in adverse effects across a range of health-related issues including: sleep disturbance, anxiety, migraines, depression, asthma, epilepsy and including those affecting vulnerable persons (children and adults) and those with neuro-divergent conditions, learning difficulties or physical disabilities. The extent of issues raised, and the level of concern is acknowledged. Concerns were generally associated with potential effects from shadow flicker, noise, air quality and traffic. In response the applicant refers to the assessment of impacts on Human Health and Population undertaken in EIAR Chapter 5.

10.20. The applicant reviews literature and findings on potential health effects of noise from wind farms in Section 13.3 of EIAR Chapter 13. This includes reference to a 2017 HSE position paper on wind turbines and public health[20], and a response from the Minister for Health during a Dáil Éireann debate[21] (regarding noise and shadow flicker) that "…*the most recent advice from colleagues in the HSE found that there is currently no robust evidence in the international scientific literature to show that wind turbines negatively affect people's physical health once they are appropriately installed, in accordance with guidelines*." Other Australian, Canadian and American literature is cited to support a position that there is no evidence that wind farms cause adverse health effects in humans.

10.21. I am aware of the body of National, European and International literature which typically concludes that there is no evidence of health-related effects arising from exposure to wind turbines. I note the publications references by the applicant and the position that there is currently no published credible evidence to link wind turbines with adverse health effects. This is of course conditional on a proposed windfarm development complying with the relevant guidance. Having regard to the conclusions reached in relation to air quality and traffic and transport in the respective sections of this report, to the siting of the proposed turbines a minimum of 4 x tip height from any residential dwelling in accordance

[20] The NEHS submission confirms that this paper has been withdrawn
[21] Wednesday 26th February 2025

with the enhanced visual amenity set back set out in dWEDG 2019, the operation of the turbines in accordance with strict noise limits in compliance with WEDG 2006 and with the absence of shadow flicker, I am satisfied that the proposed development will not give rise to any significant effects on public health with the exception of construction noise which is addressed below. However, for those that are concerned regarding effects or who oppose the development, I accept that phycological stress and/or annoyance may arise.

10.22. Observers raised concerns in relation to 'microshedding' of microplastics and potential human health issues arising from land contamination. I am not aware of any peer reviewed scientific evidence base quantifying the release of microplastics from the erosion of wind turbines or demonstrating any emissions likely to result in a significant effect on the environment. The routine maintenance programme of the turbines proposed by the applicant in Chapter 5 of the EIAR and in respect of public safety is noted.

Schools, Childcare facilities and Community Infrastructure

10.23. Observers raised concerns in relation to the potential adverse effects of the proposed development on children, particularly in pre-school and school environments. Concerns were expressed that such facilities were not considered in the EIAR or were treated as secondary receptors. A submission was received from Athlacca NS that noise and visual impacts may affect children with sensory issues including Autism/ASD. A submission was received from Scoil Dean Cussen (Bruff) NS in relation to noise, vibration, shadow flicker, construction traffic and air quality impacts on the learning environment, particularly in the context of the school size having 9 mainstream classrooms and 2 special classes catering for children with complex needs. Concerns were raised that the school lay between the proposed development and the proposed Garrane Wind Farm and would be exposed to cumulative effects. The applicant does not specifically address these concerns in response but rather responds in relation to the general themes of noise and shadow flicker etc relying on the parent EIAR chapters in this regard.

10.24. I note that both schools are outside the study area for shadow flicker (10 x rotor diameter or 1.36km) and for noise (35 dB LA90 contour). As a result, and

having regard to WEDG 2006, the potential for shadow flicker and noise effects is very low and not likely to result in significant effects. In my inspection of the site, I visited the location of both schools. I note that Athlacca NS is approx.3.5km west of the closest turbine locations within the proposed development. At this distance, which is significantly beyond the shadow flicker and noise study areas set out in guidance, it is considered that there is no potential for significant effects. It was also noted that the orientation of the school, intervening built environment, vegetation and nature of topography was such that no impacts on the environment or amenity of the school are likely to arise. In relation to Scoil Dean Cussen, whilst it is closer to the site (1.5km to the east), it remains outside of the study areas for shadow flicker and noise having regard to guidance, and an inspection of the site also confirmed that the intervening built environment, vegetation and nature of topography was such that no impacts on the environment or amenity of this school are likely to arise either. Concerns were also raised that this school lay between the proposed Ballinlee and Garrane Wind Farms and would be subject to cumulative effects, however this is considered to be incorrect. The school is located to the east of the subject proposed Ballinlee Wind Farm, with the Garrane Wind Farm located further to the west.

10.25. I am satisfied that the noise and shadow flicker levels associated with the proposed development will fall below the thresholds recommended in guidance, will not be significant and will not result in significant effects on the educational environment. I am also satisfied that the nearest pre-schools at Athlacca and Bruff and community infrastructure are also outside of the respective study areas for noise and shadow flicker, and therefore the same conclusions can be drawn in relation to the absence of significant effects.

10.26. In relation to air quality and traffic and transport I refer to the conclusions drawn in the respective EIA sections of this report and the findings of no significant effects.

Noise & Vibration

10.27. This matter is addressed in the ‘noise & vibration’ section of this report. For the reasons stated I am satisfied that background noise monitoring consistent

with best practice guidelines has been carried out and that a conservative approach has been taken to model the worst-case scenario in respect of operational wind farm noise. The proposed noise limits are in accordance with WEDG 2006. Whilst it is generally accepted that there are incidences of wind energy developments giving rise to adverse effects on residential amenity, by way of noise, these cases are few and site specific. In this instance, the applicant has demonstrated that the proposed wind farm can operate within the noise limits set out in WEDG 2006 and that there will be no significant cumulative operational noise effects. If permission is granted, the development will be subject to these noise limits, with any exceedances subject to enforcement action. In respect of special audible characteristics, a post-commissioning NCMP is proposed which will allow for investigation and measurement of any complaints or occurrences and appropriate mitigation.

10.28. Some observers, and the NEHS, raise concerns in relation to recent High Court Judgements pertaining to operational wind farms and noise nuisance. Whilst I note the concerns raised; I do not consider these judgements directly applicable to this case given the very specific and individual circumstances surrounding those cases.

10.29. Operational Substation noise is addressed from Section 11.24 of this report and for the reasons stated I am satisfied that it will not give rise to significant effects.

10.30. In relation to construction noise, this is addressed from Section 11.37 of this report. For the reasons stated I am of the opinion that construction noise will result in a temporary significant (noise) effect during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. It is considered that a significant noise effect on noise sensitive residential receptors, also constitutes a significant effect on population and human health for the same reasons. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary

effect is not sufficient to warrant refusing permission for the development and is acceptable.

10.31. Concerns were also raised in relation to blasting and vibration. This is addressed in from Sections 11.40 of this report respectively. For the reasons stated I am satisfied that significant effects will not occur as a result of vibration or blasting activities. Whilst it was accepted that the content of the EIAR gives rise to some uncertainty as to whether or not blasting is proposed in the extraction of rock from the borrow pits and in the construction of turbine foundations and hardstands, it was determined that blasting is not proposed in connection with such works. In the interests of certainty it is recommended that blasting is excluded by condition in the event that planning permission is granted.

Shadow Flicker

10.32. This matter is addressed in the 'shadow flicker' section of this report. Having regard to our examination of the environmental information in respect of shadow flicker it is considered that subject to implementation of the full suite of mitigation measures, no significant adverse effects will arise. However, in the interests of best practice consistent with recent decision making by the Commission, I recommend that a condition is imposed requiring zero shadow flicker in accordance with dWEDG 2019.

Property Values and Community Wellbeing

10.33. Observers raise concerns in relation to impacts on property values referencing a University of Galway CERIS[22] working paper which observers say provides quantitative validation of negative effect in an Irish setting. It is further submitted that recent decisions by Clare, Cork and Tipperary County Councils establish a precent for a link between visual impact, residential amenity and property values. There are concerns that prospective rural housing will be restricted leading to rural depopulation and adverse impacts on community life. Concerns in relation to broadband is addressed in the Material Assets – Built Services section of this report.

[22] Centre for Economic Research on Inclusivity and Sustainability – Wind Turbines and House Prices Along the West of Ireland: A Hedonic Pricing Approach (Gillespie & McHale, 2023)

10.34. In response the applicant states that wind energy guidelines are designed to protect the amenity of existing homes rather than to block future development and the existence of a wind farm is not an impediment to future housing development. The applicant responds that a personal preference or general desire not to live in an area is not a material planning consideration. In response to the concerns in relation to property values the applicant acknowledges the CERIS working paper and whilst accepting that it identified a statistically significant reduction in listed prices within 0-1km of turbines, points out that it also reported no significant effects beyond 1km, that the sample was small and not representative of broader market conditions and observed that any detected effect diminished over time with the authors describing the findings as highly localised (seven western Counties) and context-specific. Pointing to the totality of evidence available, including the UK, Scottish and International studies referenced by the applicant[23], it is submitted in response that there is no robust or generalised evidence of consistent property devaluation arising from wind farm developments.

10.35. Whilst I note the literature referenced by the observers and the applicant, these are not project specific. In my experience research on this subject points to inconsistent evidence of short-term effects only on property prices (if at all), with potential impacts limited to relatively short distances of a turbine and persuasive evidence of recovery over time. The literature referenced by both the observers and the applicant is consistent with this position. To the contrary there is also evidence of potential positive effects associated with amenity benefits and community gain proposals, so the available research is not conclusive. In my view the pertinent consideration is whether or not the proposed development will result in injury, harm or adverse effects on residential amenity to residential property. In the circumstances of this case the proposed windfarm voluntarily complies with the increased set back distance from residential properties for visual amenity reasons of 4 x tip height as set out in dWEDG 2019. Furthermore, my assessment of noise, vibration and shadow flicker concludes that no adverse effects are predicted on residential receptors with the exception of peak construction traffic noise effects during standard daytime working hours, which

[23] Section 5.4.1.1 of EIAR Chapter 5

are limited to one week duration and considered acceptable. Taking all of these factors into account, I am satisfied that there is little potential for injury, harm or significant effects on residential properties or property values in the area of the site.

10.36. In relation to the planning application decisions referenced by the observers I have examined the particulars of these cases. It is noted that Plan.Reg.No. 21/577 (Tipperary County Council) refers to a grant of planning permission for the replacement of a rural dwellinghouse which does not raise related planning considerations. Plan.Reg.No. 25/60257 refers to a decision by Clare County Council to refuse planning permission for a proposed wind energy development on 2nd July, 2025. Whilst refusal Reason No.2 considers that the proposed development would seriously injure residential amenity by reason of noise and disturbance, and that the proposed turbines would be visually overbearing on existing properties thus depreciating the value of property in the vicinity, the decision to refuse planning permission in respect of this case is currently under appeal to the Commission (ACP-323152-25 refers) and therefore remains pending at this time[24]. It is my opinion that this case and the issues arising are project and case specific and do not constitute a relevant precedent. For the reasons set out above, I am satisfied that the proposed development will not result in adverse noise, disturbance or visual amenity effects such that would injure residential amenities or raise concerns in relation to potential impacts on property values.

10.37. Concerns were also raised in relation to community wellbeing and rural depopulation effects as a result of the proposed development. Whilst the concerns are noted, no relevant studies have been referred to by the observers and I am not aware of any peer reviewed evidence base demonstrating that the presence of wind farm development has led to significant, or noticeable, depopulation within rural areas in Ireland. I have considered the findings of the applicant's EIAR in terms of absence of significant effects on population. Having regard to my conclusions in relation to community benefits, mental health and wellbeing, schools and community infrastructure and including property or land

[24] At the time of writing.

values, I am satisfied that the proposed development will not result in significant effects on the population trends in the area and that overall, it cannot be demonstrated that the presence of the proposed wind farm will directly result in depopulation within the area.

Local Economy and Employment

10.38. Observers raise concerns that no local jobs will be created, there will be very little community benefit and that traffic disruption will negatively impact the sustainability of existing businesses. Concerns are also raised that the proposed development will affect the locality's sense of place and branding. The applicant does not directly address these issues in response.

10.39. I acknowledge the concerns of the observers in this regard but consider that they are unfounded. I am satisfied that the proposed development has the potential to create local jobs during the construction period and to support local suppliers and sub-contractors. In relation to community benefit, a Community Benefit Fund is proposed by the applicant as set out and described in Appendix IC. Based on the proposed project scope it is estimated that this will generate approx. €350,000 per annum and over €5 million in the first 15 years of operation. The fund will be administered by a committee in partnership with local residents in accordance with SEAI guidelines and a worked example of potential support for sustainable development goals, local clubs, societies and near neighbours is set out in Fig.3. Whilst I accept that this fund is dependent on energy production and may be impacted by the separate recommendation that turbines T1-T5 be omitted for ornithological reasons, I am satisfied that it represents a sizeable community benefit.

Agriculture and the Equine Industry

10.40. Concerns are raised by the observers that the proposed development will result in adverse impacts on farm animals and livestock as a result of noise, vibration and shadow flicker with potential effects including reduced milk yield, increased injury, difficulties calving or calf rejection. Concerns are also raised that farming operations and expansion will be restricted, there will be a loss of farm income and succession planning will be impacted. Similar future business, expansion, income and succession concerns are raised in relation to the equine

industry. In response the applicant states that windfarms have been developed all over the world and have not displaced livestock farming. A 2012 review by the Swedish EPA is referenced which found the theory that the noise and movement of turbines would annoy or stress wildlife and livestock was not supported, with quick habituation to disturbance. The applicant further responds that additional studies (not referenced) found that noise measurements directly under a wind turbine where lower than the threshold that would cause stress reactions.

10.41. In the absence of any peer reviewed studies which indicate that wind farms have a negative impact on livestock, equine industry or agriculture, I am satisfied that the proposed development will not have a significant effect on such interests. Rathmore Stud[25] is mentioned specifically in the observations received. This Stud is located approx. 4.5km north of the nearest proposed turbine location within the proposed development and outside the study area for noise and shadow flicker having regard to the applicable guidance. I also note Glenbevan Stud, and Drombeg Stud approx. 5km and 2.5km to the west respectively and which are also outside the respective study areas, together with other Studs at a greater remove from the proposed development site. Having regard to the separation distance of these Studs from the proposed development site, I am satisfied that there is no potential for significant effects on the equine industry or its interests.

10.42. Observers also raised concerns in relation to 'microshedding' of microplastics from turbines and the potential for land contamination and associated risks to animal health. This is addressed at Section 10.22 of this report and for the reasons stated therein I am not aware of any peer reviewed scientific evidence base demonstrating any emissions likely to result in a significant effect on the environment. Observers also raise concerns that the route of the GCR is unconfirmed, proposes to pass through agricultural lands and that the impacts are unknown. The route of the proposed GCR is set out in the plans and particulars which accompany the subject application, it is described in Section 2.3.5 of EIAR Chapter 2 and contained within the planning application boundary as shown in DWG. No. 22635-MWP-00-00-DR-C-5003. It is noted that it follows

[25] 'Manister Stud' is also mentioned in the guidance, however it appears that this refers to 'Rathmore Stud'.

a mixture of national, regional and local roads in a general southern direction from the existing 220/110kV Killonan Substation to the proposed development site. I am satisfied that the route is confirmed, and as proposed includes no unknowns in respect of agricultural lands.

Tourism & Culture

10.43. Observers raise concerns in relation to adverse impacts on the Tourism sector, particularly that the Morning Star River and Golden Vale have not been adequately identified and assessed as a tourism receptor. In response the applicant states that it is understandable for local residents to extol the virtues of their local landscape, but that EIAR must take an objective stance. The applicant responds that the 'Golden Vale' is synonymous with fertile agriculture and rolling pastureland with value relating more to productivity and sustaining the rural economy rather than remote, scenic or natural character. The applicant points to the LDP 2022-2028 and the classification of the receiving landscape as LCA 01 –'Agricultural Lowlands', which is not classified as being of high value or sensitivity with policies seeking to support the rural economy rather than providing a high degree of protection to the landscape. The applicant further refers to the WES which identifies the receiving landscape as a 'preferred' area for wind energy and to the absence of scenic designations, with the nearest 5km, 7km and further distant. The applicant submits that the landscape is a productive and modified landscape and that turbines are structures of the rural landscape with a direct connection to the elements.

10.44. I am in agreement with the applicant's assessment in this regard and consider the treatment of the 'Golden Vale' in the EIAR and LVIA to be both balanced and proportionate having regard to the provisions of the LDP, 2022-2028. Tourism and cultural heritage is otherwise comprehensively addressed in the LVIA and Cultural Heritage sections of this report.

Conclusion: Direct and Indirect Effects (Population and Human Health)

10.45. Having regard to my examination of environmental information in respect of Population and Human Health it is considered that the main significant direct and indirect effects after the application of proposed mitigations measures is:

- A **temporary significant (noise) effect** during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable.

11.0 Noise & Vibration

Issues Raised

11.1. Issues raised in the public submissions received are in respect of methodology, adverse impacts on human health, livestock and the equine industry, applicability of the WHO 2018 Guidelines, infrasound, ultrasound and amplitude modulation, construction stage impacts (including those associated with piling, compaction, vibration, rock blasting and excavation etc), and cumulative effects. The LA position includes a detailed report on noise and vibration. The report raises a number of technical concerns in relation to a mapping error, background noise levels (NML4, night-time noise and criteria for areas of low background noise), the consideration of special audible characteristics (AM, LFN) and construction noise. Compliance with the lower night-time noise limits set out in the LDP, 2022-208 is recommended together with conditions in relation to the investigation of special audible characteristics and final turbine model. The NEHS raise concerns in relation to noise nuisance, the aged nature of WEDG 2006 and recommend WHO 2018 Guidelines as the most appropriate criteria for assessing the significance of predicted noise.

Examination of the EIAR

Context

11.2. Chapter 13 of the EIAR deals with noise and vibration. A statement of Competency is included. The assessment methodology is described at Section 13.4. Appropriate wind-speed dependant L_{A90} values are used to derive the operational cumulative noise limits for the wind turbines, and the average ambient daytime $L_{Aeq,T}$ noise levels are used to derive construction noise limits and to describe the effects of the operational phase of the development. The significance of effects is described using the EPA and IEMA criteria set out in Table 13.4 and based on noise level change. The Study Area is based on a 35dB contour informed by an initial noise propagation model at the rated wind speed of the turbines. The NSLs[26] within this study area are identified in Fig. 13-1. There are 519no. NSLs with their co-ordinates listed in Appendix 13C. EIAR Chapter 13 includes the following Appendices:

- Appendix 13A – Glossary of Terms
- Appendix 13B - Noise Survey Details & Calibration Certs
- Appendix 13C – Schedule of Noise Sensitive Locations
- Appendix 13D – Noise Modelling Calculation Parameters
- Appendix 13E – Cumulative Colour Noise Contour (Plot at 4m Height)
- Appendix 13G – Predicted Noise Levels

11.3. Construction noise is assessed using the limits given in BS 5228-1:2009+A1:2014[27]. It provides guidance on the 'threshold of significant effect' in respect of noise impacts at dwellings and derives appropriate construction noise limits from existing ambient noise levels using 'ABC' assessment categories as set out in Table 13.2 of EIAR Chapter 13. Vibration is assessed using the vibration criteria (below which building damage is unlikely to occur) set out in the TII (NRA, 2024) Guidelines[28] and in Table 13.3.

11.3.1. Operational noise is assessed based on compliance with WEDG 2006 as supplemented by UK-ETSU-R-97[29] and including

[26] Noise Sensitive Locations
[27] Code of Practice for noise and vibration control on construction and open sites – Noise.
[28] Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes
[29] UK Energy Technology Support Unit publication 'The Assessment and Rating of Noise from Wind Farms'.

IOA GPG, 2013[30]. A summary of the operational noise limits set out in WEDG 2006 is given as follows:

- 35 to 40 dB for quiet daytime environments of less than 30dB at a given wind speed range;
- 45dB for daytime environments greater than 30dB or a maximum increase of 5dB above background noise (whichever is the higher); and
- 43dB for night-time periods or a maximum increase of 5dB above background noise (whichever is the higher).

11.4. The applicant proposes to adopt a daytime threshold of 40dB $L_{A90,10min}$ for low noise environments where the background noise is less than 30 dB $L_{A90,10min}$ and notes that this is 5dB more stringent than EPA Guidance[31]. The applicant submits that whilst a 5dB increase above background for the night-time period is not explicit within current guidance, it is commonly applied. Otherwise, the applicant proposes a higher fixed level of 45dB and/or a higher level above the prevailing background noise level for financially involved dwellings which are direct beneficiaries only.

11.5. In relation to tonal noise, the applicant states that it is associated with wind turbine operation and that it is not possible to predict an occurrence at planning stage. In the event of a complaint the applicant states that a detailed assessment will be carried out using IOA GPG Supplementary Guidance[32] with a guarantee sought at (turbine) procurement stage that there should be no clearly tonal or impulsive components audible at any NSL. For Amplitude Modulation (AM) the applicant also states that there is no mechanism to predict occurrence at planning stage and that it is a rare event which only occurs under site specific conditions. The applicant states that research and guidance in the area is ongoing and does not consider AM further in the EIAR but proposes a Noise Complaint Monitoring Programme (NCMP) which includes post-consent investigation of any complaints or occurrences arising. In relation to Infrasound, Ultrasound and Low Frequency Noise the applicant cites a number of research

[30] Institute of Acoustics (IOA) publication of a Goof Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (GPG).
[31] Guidance Note for Noise: License Applications, Surveys and assessments in Relation to Scheduled Activities.
[32] Note 5: Post Completion Measurements (July, 2014)

reports and studies to establish a position that there are no significant environmental effects associated with such noise and operational wind turbines.

11.6. For the substation 'specific' noise is rated against background noise levels using BS 4142:2014+A1:2019[33].

11.7. For vibration it is held that typically, at a distance of 100m from a 1 MW turbine unit, the level of operational vibration is in the order of 5-10ms^{-1}, which would be imperceptible and a report is cited which found that at distances of less than 300m from a 2.4MW wind turbine, levels had dropped so far, they could not be differentiated from background levels. As the closest NSLs are more than 500m from the nearest proposed turbines, operational vibration effects are anticipated to be imperceptible and are not considered further. An increase in noise levels associated with limited vehicular maintenance traffic at operational phase is considered to be negligible and imperceptible.

Baseline

11.8. A noise monitoring programme was conducted at 6no. NML[34]s, which were selected to serve as proxy locations representative of the ambient noise conditions at all NSLs within the study area. Wind speed data at various heights was provided by an on-site LiDAR. The NML and LiDAR locations are shown in Fig. 13-2 and detailed in Table 13.5 and 13.6 of the EIAR. The survey period was between 31.07.2024 and 30.08.2024 which exceeds the minimum 2-week period set out in guidance (IOA GPG) to acquire sufficient valid data over a range of wind speeds. A range of factors affecting the propagation of sound were considered[35], an uncertainty of +2dB has been applied to the assessment[36] and a worst-case scenario is adopted assuming all NSLs are simultaneously downwind of all turbines (impossible scenario). Rainfall was monitored allowing the removal of noise data during precipitation and noise meters were located away from obvious sources of noise in line with best practice. Wind shear was considered and data sets filtered to remove issues such as the dawn chorus and the inference of other atypical noise sources in accordance with IOA GPG. Noise

[33] Methods for rating and assessing industrial and commercial sound
[34] Noise Monitoring Location(s)
[35] See Section 13.5.3.5
[36] In accordance with IOA GPG. See section 13.5.3.8

data is referenced to standardised 10 metre height wind speed. The equipment used is described at Section 13.4.6.

11.9. The prevailing measured background noise levels are presented for the daytime amenity and nighttime periods in Figures 13-4 to 13-15, and a summary is presented in Table 13.7. The nominal criteria is used to set the wind turbine operational noise limits for all NSLs. This is the lowest background level at the NMLs at windspeeds up to 6ms^{-1} which is 29dB for the daytime and 24dB for nighttime representing a low background noise environment. A worst-case impact is therefore assessed and having regard to WEDG 2006 noise limits are set at 40dB for the daytime and 43dB for the night-time[37]. For financially involved properties and at wind speeds >6m/s the daytime noise limit is 45dB (no longer a low noise environment).

11.10. The ambient (L_{Aeq}) and background (L_{A90}) noise levels measured at each NML, together with the averages, is set out in Table 13.8. This is used to set the appropriate construction noise limit (L_{Aeq}) and the baseline level for the substation assessment (L_{A90}). Having regard to BS 5228-1:2009+A1:2014 (as discussed above), the lowest noise category (A) has been selected for construction noise limits which is:

- L_{Aeq} 65dB – Monday to Friday 07:00 – 19:00hrs
- L_{Aeq} 65dB – Saturdays 07:00 – 13:00hrs
- L_{Aeq} 55dB – Saturdays 13:00 – 14:00hrs

As the substation will operate during daytime and night-time, the night-time period is assessed as a worst-case scenario. For the assessment of substation noise, having regard to BS 4142:2014+A1:2019 (as discussed above), the lowest background (night-time) noise level at the nearest NSL[38] is used, which is 20dB.

11.11. Otherwise, the existing noise environment is characterised by bird song, agricultural activity and occasional local road traffic noise.

Potential Effects

[37] At wind speeds of 6m/s excluding financially involved properties.
[38] NSL422 (NML 3 refers).

11.12. Potential direct, indirect and cumulative effects of the development as a result of noise and vibration are identified in the EIAR (Section 13.5) for the different phases of the development. These are summarised in Table NV1 below:

Table NV1: **Summary of Potential Effects**

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	The existing noise environment will remain unchanged. Increases in traffic volumes on the local road network over time will likely result in a slight but imperceptible increase in the overall baseline noise levels.
Construction Stage	*Tree Felling* - The closest NSL (520) is c535m west of T9. A total construction noise level of 51dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *Construction Compound (3no.)* - The closest NSL (359) is 114m west. (Fig. 13-16 refers). A total construction noise level of 65 dB is predicted at the nearest NSL which is at the construction noise limit. The effect is predicted to be temporary and slight. *Deposition Areas (11no.)* - The closest NSL (061) is c35m south. (Fig. 13-17 refers). A total construction noise level of 45dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *Meteorological Mast* - The mast will be installed c373m north of NSL157. A total construction noise level of 54dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *Site Entrances, Internal Access Tracks & Water Management* - The closest NSL (501) is c35m south of any access track, site entrance or water management works. (Fig. 13-18 refers). A total construction noise level of 64dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant, with such works transient in nature and progressing at pace. *Traffic Management (transportation of construction material)* - The measured existing ambient noise level is 33Db. The predicted change in noise level ranges from + 4dB for the typical period to + 10dB for the peak period. Having regard to IEMA guidelines, this equates to a **temporary slight (typical) to significant (peak) period effect.** *Borrow Pits (2no)* - The closest NSL (157) is located c50m south of Borrow Pit 2 (Fig. 13-19 refers). A construction noise level of 75dB is predicted at the nearest NSL is predicted which exceeds the limit of 65dB. This is >10dB above

	the limit and is therefore expected to be **temporary and very significant.** - At distances of less than 200m there is potential for vibration criteria to be exceeded and for the effect to be significant. The (ground-borne vibration) effect is expected to be **temporary and significant.** - Air Overpressure (AOP) from blasting – the majority of energy is at frequencies of less than 20HZ and therefore inaudible but sensed as pressure. The effect is expected to be **momentary and imperceptible.** *Turbine Hardstands & Foundations* - The closest NSL (520) is c535m west of T9 (Fig. 13-20 refers). A total construction noise level of 56dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *External Grid Connection & Joining Bays* - Distances vary along the GCR, noise levels are therefore predicted at various distances (20m, 30m & 40m). At distances greater than 40m the noise limit is not expected to be exceeded, at 20m a maximum noise level of 70dB is predicted which exceeds the limit. Approx. 100m of works will be completed per day, therefore the duration of the effect will be brief and not significant at distances >40m and slight at distances <40m. *Substation Compound & Building* - The nearest NSL (422) is c565 to the northeast. (Fig. 13-22 refers). A total construction noise level of 51dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *Horizontal Directional Drilling (HDD)* - As a working assumption, the nearest NSL is estimated to be 80m from a launch/receive pit. A total construction noise level of 68dB is predicted which exceeds the limit of 65dB. The effect is predicted to be temporary and slight, with works progressing at pace and completed within one week at any one location. *Turbine Delivery* - Delivery will occur at night. The predicted noise level is 33dB at 20m from the route. This is above the measured ambient night-time noise level of 28dB. The 5dB increase is considered subjectively imperceptible. It is below the 45dB max façade noise level (WHO) to prevent sleep disturbance. The increase is considered minimal and well below recommended thresholds. The convoy will move quickly, and the duration of the effect is assessed as brief and not significant. *Turbine Erection* - The nearest NSL (520) is c535m west of T9. A total construction noise level of 44dB is predicted at the nearest NSL which is below the limit of 65dB. The effect is predicted to be temporary and not significant. *Vibration – General Construction Works* - No substantial sources identified. The effect is predicted to be temporary and not significant. *Vibration – blasting events*

	- Any blasting requirements will be designed and managed by a competent blasting supervisor. Ground-borne vibration will be controlled within limits. The effect is predicted to be brief and not significant. *Public Road Works (for turbine delivery)* - These works are considered to be minor. The effects are predicted to be temporary and slight.
Operational Stage	*Windfarm* - Predicted noise levels, including cumulative noise levels, are below the noise limit criteria at all NSLs with 6no. exceptions (NSL 057, 065, 370, 422, 503 & 520.) Of these 3no. were financially involved and therefore the higher limit of 45dB is applicable, resulting in no exceedances (NSL 057, 503 & 520). Of the remaining NSLs the daytime limit is exceeded at the 6m/s wind speed only by 0.1dB at NSL065 and by 0.4dB at NSL370 and 422. These marginal exceedances are based on a worst-case scenario. Noise levels are below the limit at all other wind speeds and do not exceed the night-time criteria in any wind speed. The effects are assessed as long-term and not significant. *Vibration* - Minimal vibration is generated when operational which is too weak to be felt by people or to affect buildings or structures. Effects diminish rapidly with distance. An imperceptible effect is predicted. *On-site Electrical Substation* - The nearest NSL (422) is located c565m NE of the substation. The closest NML (3) to this NSL is used for the background noise level. Night-time is assessed as a worst-case scenario. Results demonstrate that the predicated operational noise level (7Db) is 13dB below the existing background noise level (20 dB). The effect is assessed as long term imperceptible and not significant.
Decommissioning	Similar as those predicted for the construction phase, but with less noise impact as certain infrastructure will not be removed (Substation, GCR). The effect is predicted to be temporary and not significant.
Cumulative	The proposed, permitted and operational windfarms located within a 20km radius of the proposed development, and which were considered in the cumulative assessment are detailed in Table 13-24. This includes the proposed Garrane Wind Farm (at planning stage) consisting of 9no. Vestas (V150 6MW) approx. 8km southwest of the nearest turbine within the proposed development. The predicted noise levels from all turbines considered confirmed that there is no potential for cumulative impacts as the noise levels are at least 10dB below the predicted noise levels from the proposed development at the NSLs. Not significant.

Mitigation

11.13. Mitigation measures are set out in Section 13.7 of EIAR Chapter 13. The operational phase is predicted to operate within the noise criteria set out in WEDG 2006 without mitigation and the decommissioning phase is not expected to have any associated significant effects. At the operational stage post-

commissioning noise surveys will be carried out in accordance with best practice. If an issue arises with tonality associated with the proposed development an appropriate detailed investigation will be undertaken in accordance with the respective EPA[39] and IOA[40] guidance. Otherwise, a NCMP[41] will be implemented following IOA GPG guidance and if a complaint is received or an exceedance occurs, then appropriate mitigation will be taken (following investigation) such as curtailment.

11.14. To ameliorate any noise and vibration effects at construction stage, a schedule of noise and vibration control measures are proposed including the following:

- Adoption of best practices in relation to active community engagement, selection, placement and operation of plant, and control of construction hours.

Noise

11.15. Noise abatement measures in accordance with BS5228-1:2009+A1:2014 with supervision to ensure compliance including:

- proper maintenance of plant,
- use of exhaust silencers,
- use of attenuated compressor models with acoustic covers,
- machinery shut down (or throttle back) when not in use,
- use of hoarding at borrow pits (and other noisy activity) capable of achieving a noise reduction of 3dB to 10 dB,
- use of acoustic enclosures or portable screens for plant and equipment operating in close proximity to residential dwellings or for plant (pump/generator) required to operate outside before 07:00hrs or after 19:00hrs.

Vibration (Borrow Pits)

- Monitoring will be conducted at the closest NSLs to Borrow Pit No.1 and Borrow Pit No.2 (359 & 157) respectively to ensure compliance with the set vibration criteria.

[39] Appendix IV Guidance Note for Noise: Licence Applications, Surveys and Assessment in Relation to Scheduled Activities (2016).
[40] IOA Noise Working Group (Wind Turbine Noise) Amplitude Modulation Working Group (AMWG) – A Method for Rating Amplitude Modulation in Wind Turbine Noise (August 2016).
[41] Noise Complaint Monitoring Programme as described at S.13.2.2.10.4 (as opposed to 13.2.2.9.4 as stated in the mitigation measures section of the EIAR) and also at Section 13.10.

- Site representative liaison with likely affected homeowners. Regular condition inspection of properties to ensure no cosmetic or structural damage occurs.

Blasting Events (Turbine foundations works)

- Impact controls as set out in Section 13.7.1.4 of EIAR Chapter 13 including site representative liaison with likely affected NSLs, trial blasts to obtain scaled distance analysis, and vibration monitoring to ensure compliance with set vibration criteria.

Residual Effects

11.16. Section 13.8 of the EIAR summarises the likely residual noise and vibration effects following the implementation of mitigation measures. A summary of the likely residual effects at construction stage is presented in Table 13-30 which range from 'negative, brief and slight' to 'negative, temporary and slight'. The likely residual effects at operational phase are expected to remain long-term imperceptible/not significant and they are summarised in Table 13.31. No significant residual effects are predicted at decommissioning phase and no significant cumulative noise or vibration effects are predicted.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

11.17. I have examined, analysed and evaluated Chapter 13 of the EIAR, and all of the associated documentation and observations on file, including the applicant's response to submissions, in respect of noise and vibration. I am satisfied that the that the Applicant's understanding of the baseline environment is comprehensive and that key impacts in respect of the likely noise and vibration effects as a consequence of the development have been identified. Issues raised include the methodology and a number of technical concerns, compliance with the lower night-time noise limits set out in the LDP, 2022-208, the aged nature of WEDG 2006, the applicability of WHO 2018 Guidelines, construction stage impacts, impacts on human health, livestock and the equine industry, special audible characteristics, noise nuisance and cumulative effects. These matters are addressed under respective headings below.

Methodology and Technical Concerns

Mapping Error

11.18. The LA was concerned that the noise impact assessment (NIA) was based on a mapping error in respect of T9[42] (*suggesting T9 was plotted c40m off its ITM co-ordinates*) which may compromise the accuracy of calculations at NSLs and the noise contour plot in Appendix 13E. In response the applicant states that the turbine coordinates used in the NIA are provided in Table 13-22[43] and are confirmed as correct. The applicant states that an update to the NIA is not therefore required.

11.19. I have examined this matter, and I note that the LA concern stems from Fig.13-20 of EIAR Chapter 13. This Fig. concerns an aerial photograph which shows the position of T9 in relation to NSL520 in respect of the assessment of construction noise. Whilst I do not refute that the LA has identified an anomaly in the position of T9 as shown on Fig.13-20 relative to the precise coordinates provided for this turbine, I do not consider that this necessarily points to any material error in the NIA or noise calculations. It is perhaps suggestive only, necessitating an appropriate data check. In this regard I am satisfied that the NIA and associated noise modelling is informed by the coordinate data which has been inputted. This has been checked by the applicant in response to the submissions received and confirmed as correct. I have found no anomaly in the environmental information provided (EIAR Chapter 2, 13 or other), which suggests that there is any error or inconsistency in the ITMX and ITMY coordinates provided for T9 and there is otherwise nothing in evidence or fact which points to a data or modelling error in this regard. Accordingly, I am satisfied that the NIA and associated calculations are reliable. Any anomaly in Fig.13-20 is most likely limited to the visual representation of T9 thereon and I am satisfied that it is not of material consequence to the NIA, its modelling or noise calculations or the input data which informed same.

Noise Monitoring Location No.4 (NML4)

11.20. The LA raised concerns that NML4 was located close to vegetation/hedgerow which may have influenced background sounds levels at least at higher wind speeds. The LA considered that NML4 may not be representative of ambient

[42] *Fig. 13-1 of EIAR Chapter 13 refers*
[43] This reference is incorrect. Turbine coordinates are provided in Table 13.24.

noise conditions. In response the applicant states that baseline noise levels from 6no. NMLs are summarised in Table 13-7 and that the lowest background level from all NMLs per wind speed bin (nominal criteria) were adopted to set the operational noise limits for all NSLs. The applicant further states that noise levels from NML6 were higher than levels from other NMLs and were not included in the nominal criteria.

11.21. I have considered this issue, and I note that there is no evidence to suggest that the background noise for NML4 is significantly different to that at other NMLs. Indeed, I note that background noise levels are comparable with other NMLs including those located away from vegetation. Notwithstanding the applicant's use of nominal criteria, I am satisfied that there is nothing to suggest that the background noise levels recorded at NML4 are affected by proximity to vegetation.

Regression Curves

11.22. The LA noted that a fourth order polynomial was used to determine the regression curves for the day-time background noise levels for the 6 NMLs but a third order polynomial was used to drive the regression curves for the night-time background noise levels. The LA submits that the derived average background noise levels are possibly higher than expected at higher wind speeds (9 and >10 m/s) and given the limited data at higher wind speeds, a fourth order polynomial for the night-time background noise regression curves would be more consistent. In response the applicant simply states that in the expert opinion of the authors[44], appropriate polynomial criteria were applied following applicable guidance to provide best-fit curves.

11.23. The LA position is based on an opinion that the data captured during the period when background noise was being assessed, did not have sufficient (night-time) data points at higher wind speeds and therefore the available data should have been analysed using a 4th order polynomial equation. Whilst it was open to the applicant to re-run the trend-line using 3rd and 4th order polynomials in response to the LA submission, they did not do so and confirmed their opinion that appropriate polynomial criteria were used. These polynomials are typically

[44] EIAR Chapter 13.

used to fit lines of best fit to scatter data correlating measured background sound levels against wind speeds. They are of greater importance in relation to daytime background noise data as they will inform the derived operational noise limits which will be set in accordance with WEDG 2006. However, the LA concern relates to night-time background noise and in this regard WEDG 2006 sets a fixed limit of 43dB to protect residential amenity, which is not impacted by the failure to use a 3rd order polynomial in this case. Accordingly, whilst I accept that the LA position is technically correct, I do not consider that the failure to use a 3rd order polynomial in respect of night-time background noise is of material consequence. The LA position in this case is most likely based on a different approach to night-time noise (from WEDG 2006) and the lower night-time noise limits set out in the LDP, 2022-2028 and this matter is addressed below.

LDP, 2022-2028, WEDG 2006 & WHO 2018 Guidelines

Daytime Noise Limits

11.24. The LA submits that the applicant's approach to deriving day-time noise limits for an area of low background noise (<30dB) is flawed and is not in accordance with ETSU-R-97 Guidance. In response the applicant does not directly address the LA position in this regard but rather refers to EIAR Chapter 13 and states that daytime limits consistent with ETSU-R-97 have been set, that predicted noise levels are anticipated to operate within best practice noise criteria recommended by WEDG 2006 and have been assessed following guidance from ETSU-R-97 and the IOA GPG.

11.25. The relevant guidance in respect of this matter is WEDG 2006 which provides that, in general, a lower (daytime) fixed limit of 45dB(A), or a maximum increase of 5dB(A) above background noise at nearby noise sensitive location is considered appropriate to provide protection to wind energy development neighbours. In 'very quiet' areas WEDG 2006 states that the use of the 5dB(A) margin is not necessary 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 be limited to an absolute level within the range of 35-40 dB(A). WEDG 2006 does not offer further guidance in this regard but does state that in general, noise is unlikely to be a significant problem where the distance from the nearest turbine to any NSL is more than

500m[45]. In the circumstances of this case, the applicant has applied the 40dB daytime limit and this reflects the position adopted in respect of most wind energy developments received by the Commission. Indeed, the standard noise condition applied by the Commission in low noise environments stipulates a maximum noise level of 40dB(A) for the daytime period (in quiet environments).

11.26. A question arises as to whether or not there is reason to depart from this approach in the circumstances of this case and require a lower daytime noise limit within the 35-40dB(A) range. As referenced by the LA submission, ETSU-R-97 does offer guidance on the factors to be considered when deciding what limit to apply. ETSU provides that the choice of the daytime limit within the range of 35-40dB(A) is to be determined by the following factors:

- The generating capacity of the wind farm and the likely consequence that the choice of daytime noise limit would have on the energy generation of the wind farm,
- The number of dwellings in the neighbourhood of the wind farm and the magnitude of the levels to which these are exposed, and
- The duration and level of exposure to wind turbine noise of dwellings in the neighbourhood of the wind farm.

11.27. The LA is correct that these factors were not considered by the applicant in deciding which daytime noise limit should be applied. Rather the applicant relied on EPA Guidance (NG4) to justify a 40dB daytime limit, on the basis that this was 5dB below the more stringent limit set by NG4 for an 'area of low background noise'. The LA maintains that there is a difference between a 'low noise environment' (WEDG 2006/ETSU) and an 'area of low background noise' (NG4). I am in agreement with the LA in this regard, and this is clearly the case when the measured background noise levels are considered in the context of the thresholds set in both guidance documents[46]. Accordingly, the relevant guidance to determine the matter is WEDG 2006 and consideration of the factors set out in ETSU.

11.28. ETSU states that these factors are presented in priority order, with the largest weight being given to the overall generating potential of the wind farm with the

[45] Section 5.6, WEDGE 2006.
[46] Measured background noise levels (nominal criteria) are <30dB which is consistent with a low noise environment (WEDG/ETSU), but not an area of low background noise (NG4).

number of dwellings, duration and level of exposure being secondary and tertiary considerations. Specifically, ETSU provides that the higher the generating capacity of the project is, in the national context, the more the daytime limit should tend towards the upper end of the range. In relation to NSLs, ETSU provides that when turbines are located near a relatively large number of NSLs, for example a town or village, then the daytime limit should reduce or remain towards the lower end of the range, but when located near isolated individual dwellings it should remain towards the upper end of the range.

11.29. In the circumstances of this case the generating capacity of the project is significant in the national context. In accordance with ETSU this indicates that the daytime limit should tend to the upper end of the range.

11.30. In relation to the number of NSLs exposed to wind energy noise from the proposed development, these consist primarily of isolated one-off rural dwellings within the 35dB noise contour[47]. Whilst I note that the contour extends to the east to include the outer edge of the settlement of Bruff, this is at the extremity of the study area and closest to/downwind of turbines T1-5 which are proposed to be omitted for separate ornithological reasons. Otherwise, the study area does not include towns or villages. In accordance with ETSU this also indicates that the daytime limit should remain towards the upper end of the range.

11.31. In summary, the proposed daytime noise limits associated with the development comply with WEDG 2006 and are consistent with the established norms of most noise impact assessments contained within EIARs received by the Commission. They are also consistent with recent decisions of the Commission in relation to the assessment and control of noise limits, and the conditions of permission applied thereto. Having regard to the guidance set out in ESTU in relation to the choice of daytime limits, it is considered that the circumstances of this case point towards a daytime limit at the upper end of the 35-40dB(A) range. In addition, the generating capacity will already by impacted by the omission of proposed turbines 1-5 for the ornithological reasons stated in Section 14 of this report, and it is considered that there is no reasonable or proportionate basis on which to further impact or reduce the generating capacity

[47] Fig. 13-3 of the EIAR refers.

of the proposed wind energy project having regard to the priority renewable energy considerations. To do so would be to bring the viability of the project into question and it is considered that this would not be reasonable based on the considerations arising. Accordingly, I am satisfied that a daytime limit of 40dB(A) as proposed by the applicant in this case is in accordance with WEDG 2006, is not contrary to, or inconsistent with ETSU-R-97, and is appropriate.

LDP, 2022-2028 (Night-time Noise Limits)

11.32. The LA also raises a concern that the proposed night-time noise limit (43dB(A)) is in excess of the lower night-time noise limits (38dB(A)) set out in the LDP, 2022-2028. The LA recommends compliance with the LDP, 2022-2028 night-time noise limits. The applicant does not address this specific issue in response but generally responds that noise limits have been set in accordance with WEDG 2006 and ETSU-R-97.

11.33. In this regard WEDG 2006 is clear and states that a fixed limit of 43dB(A) will protect sleep inside properties during the night. ETSU-R-97 is also clear in stating that different lower limiting values apply during the day and night for NSLs, with the noise limit set to 43dB for night periods. Accordingly, the applicant is correct in stating that the proposed night-time noise limits are in accordance with guidance. On this basis I am satisfied that compliance with the lower limits set out in LDP, 2022-2028 is a departure from the relevant and applicable guidance, would not be appropriate and is not required.

11.34. I have addressed the issue of whether or not a material contravention of the LDP, 2022-2028 arises in the planning assessment section of this report.

WEDG 2006 & WHO Guidelines (2018)

11.35. Concerns were raised by observers in relation to the aged nature of WEDG 2006 and that in the absence of updated guidelines, they may no longer be appropriate for the assessment of noise. NEHS (and observers) opined that the most appropriate criteria for assessing the significance of predicted noise is the WHO ‘Environmental Noise Guidelines for the European Region’, 2018. In response the applicant states that the WHO Guidelines are conditional and should not currently be applied as target noise criteria for wind turbine development in Ireland.

11.36. In relation to the WHO Guidelines, I note that they express recommendations for noise as Lden, which is not the metric used in Ireland for the prediction, measurement or assessment of wind turbine noise and this is reflected in WEDG 2006 and the ETSU-R-97 methodology. Whilst I note that the current (wind energy) Guidelines date from 2006, and that draft Guidelines dated 2019 have been prepared but await finalisation, it is the case that WEDG 2006 remain in force and are the current guidance against which noise impacts and effects should be assessed.

Construction Stage Impacts

11.37. The LA report recommends that a lower limit of 55dB LA_{eq}, 1hr should be adopted (for construction noise) based on BS 5228-1:2009+A1:2014 (and Mineral Policy Statement 2) and an opinion that the proposed civil works are more akin to 'surface mineral extraction' than 'conventional construction activity', if the works will last more than 6 months. Observers raise concerns in relation to the impacts of construction noise and vibration, particularly that associated with blasting, piling, compaction, heavy plant and the borrow pits. Concerns are raised that noise, and vibration limits will be exceeded, that there is an inadequate assessment of blasting in the EIAR and that there is a risk of structural damage to property. In response the applicant states that Mineral Policy Statement 2 does not provide appropriate guidance as the construction works are temporary and mineral extraction works are typically long-term. Otherwise, in relation to construction noise the applicant simply relies on EIAR Chapter 13 in response.

11.38. The predicted construction noise levels are set out in Section 13.5.2 of EIAR Chapter 13. I am in agreement with the applicant that the majority of predicted construction noise levels in a worst-case scenario at the nearest NSLs sits at or falls below the Category A daytime threshold set out in BS 5228 (for significant effects) and translates to brief or temporary effects which are slight or not significant (pre-mitigation). The main exception to this concerns the proposed borrow pits, were a construction noise level of 75dB is predicted at NSL157 c.50m south of borrow pit No.2. This predicted noise level exceeds the construction noise limit by 10dB and is assessed (pre-mitigation) by the applicant as a temporary but very significant effect. The applicant proposes to mitigate

construction noise effects associated with the extraction of rock from the borrow pits through the use of acoustic construction hoarding which can achieve a noise reduction of 3dB to 10dB in addition to other best practice measures in accordance with BS 5228 and which includes machinery and plant noise abatement measures, control of working hours and community engagement. In assessing this issue, it is also necessary to consider the duration of the effect. The applicant describes it as 'temporary' and Table 2-6 of EIAR Chapter 2 states that borrow pit activity (phase 6) will have a duration of 1.5 months. Having regard to EPA guidance[48] on the duration and frequency of effects I am satisfied that the effect is correctly described as temporary. I have considered the range of mitigation measures described in BS 5228 and as proposed by the applicant, and I am satisfied that acoustic screens, noise barriers and other noise abatement measures are available as described by the applicant and which can achieve a reduction of 10dB reducing the effect of worst-case construction noise associated with the borrow pit(s) consistent with the Category A daytime noise limit. The applicant assesses the residual effect as negative, slight and temporary and I am in agreement with this assessment.

11.39. In relation to the LA suggestion that a lower limit of 55dB should be adopted for daytime construction noise (based on BS 5228-1:2009+A1:2014 (and Mineral Policy Statement 2)) I am in agreement with the applicant that this would not be appropriate. The standard referred to by the LA refers to 'surface mineral extraction works' lasting more than 6 months (and up to 10 years). In the context of the proposed development, the main civil works which could be described as mineral extraction works consists of the extraction of rock from the borrow pits. This activity is predicted in Table 2-6, Chapter 2 of the EIAR to have a duration of 1.5 months and is clearly not an activity which falls within the scope of mineral extraction works as described in BS 5228. Other activities which involve elements of mineral extraction include excavation works associated with turbine foundations, hardstand and access tracks, with these activities also having a limited duration ranging from 1 month to 4 months and therefore not materially changing the position.

[48] Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022) – Table 3.4. 'Temporary Effects' – 'effects lasting less than a year'.

Blasting (Noise & Vibration)

11.40. There are some concerns raised as to whether or not blasting is proposed in the extraction of rock from the borrow pits and in the construction of the turbine foundations and hardstands. Observers were concerned that the potential effects were not assessed in the EIAR. I am of the opinion that this concern most likely arises as a result of the applicant's consideration of:

- **'**Noise – Air Overpressures (AOP)' under section 13.5.2.10 'Borrow Pits', where the applicant states 't*he intensity of AOP from blasting relates to blast design and set up….*' and assesses the effect as '*imperceptible and momentary'* and,

- 'Vibration – Blasting Events' at Section 13.5.2.18 under 'Turbine Erection' where the applicant states '*the level of vibration at a receiver location from a blast depends predominantly on the distance from the blast, the maximum instantaneous charge, sequencing of charges and ground conditions between the blast areas and the receiver location*' and '*the blast charge will be designed to ensure the potential of ground borne vibration is within the limits set*'. The effect associated with blasting events at turbine foundations is assessed as *'not significant and brief*'**.**

11.41. The reason for the inclusion of these considerations in the context of the proposed borrow pits and turbine foundations is unclear. What is clear is that blasting is not proposed by the applicant in the extraction of rock from the proposed borrow pits. In this regard I refer to both Section 13.5.2.10 of EIAR Chapter 13 and Section 2.4.7 of EIAR Chapter 2 which state that the extraction of rock from the borrow pits is proposed to be undertaken by a combination of rock breaking and ripping. I also note that the assessment of construction noise associated with the borrow pits is consistent with this information and does not consider blasting. In relation to the construction of turbine foundations and hardstands, Section 2.4.1.4 of EIAR Chapter 2 states that the turbine foundations and hardstand areas will be 'excavated' and Sections 13.5.2.11 and Section 13.5.2.16 of EIAR Chapter 13 states that works will be undertaken by general construction techniques or supplemented by piling. Again, the

assessment of construction noise associated with turbine hardstands and foundations is consistent with this information and does not consider blasting. In the interests of certainty, it is recommended that this matter is addressed by condition in the event that planning permission is granted, excluding the use of blasting in the extraction of rock from the borrow pits or the excavation of turbine foundations or associated hardstands.

Other Construction Noise & Vibration Effects

11.42. I note that the construction of the GCR may give rise to (unmitigated) noise levels in excess of the daytime limits at distances of 20m. However, I am satisfied that these activities will not result in any significant effects as the nature of the work is transient, exposure at any receptor is short-term, works will not take place outside of daytime working hours and with exceedances at distances of 40m and greater not expected. The unmitigated effect is assessed by the applicant as brief and slight or not significant and I agree with this assessment.

11.43. In relation to construction related traffic the applicant considers typical and peak period traffic. During the typical period the applicant estimates that there will be 10no. deliveries of material to site per day equating to <1.25 per hour with noise levels predicted to be 37dB relative to a measured Ambient noise level of 33dB. Having regard to the IEMA guidelines, the applicant assesses the potential increase of 4dB during the typical construction period as slight. During the peak construction period there will be up to 5no. deliveries to site per hour for a period of one week. Peak period noise levels are assessed as 43dB which is an increase of 10dB over Ambient and having regard to IEMA guidelines the applicant assesses this as a temporary significant impact. The applicant assesses the residual effect as ‘not significant’ based on general noise reduction, control and abatement measures. However, in the absence of specific identified mitigation measures which directly address this effect, and within NSLs as close as 10m to the construction route, I am not satisfied that the applicant has sufficiently demonstrated that this significant effect will be mitigated and reduced. Notwithstanding, I am satisfied that a temporary significant effect during day-time working hours for a period of one week is acceptable.

11.44. I acknowledge that during construction, there are likely to be adverse effects from construction noise and an increase in traffic on the local roads, particularly

from the perspective of some local residents and including significant effects during the peak delivery period. However, I am satisfied that where these occur, they will for the main part result in 'slight' effects, with significant effects limited to a temporary one-week period only within daytime working hours. I am satisfied that these temporary significant effects are acceptable, and I note that NEHS states that there is no requirement for additional noise mitigation measures during construction with the proposed measures providing adequate protection for public and environmental health.

11.45. In relation to vibration, I am satisfied that in the absence of blasting, there will be no significant environmental effects. The main risks arise in relation to extraction activities associated with the borrow pits, particularly Borrow Pit 2 as a result of its proximity to NSL157 (50m). At this distance, there is potential for unmitigated excavation activities (rock breaking and ripping) to exceed vibration limits. The applicant proposes to control vibration levels within the set limits[49] through liaison, monitoring and inspection with the residual effect assessed as brief, negative and slight. I am satisfied that vibration effects can be mitigated within set limits as proposed by the applicant, noting that activity in proximity to NSL157 is likely to be very short with total borrow pit activity scheduled to last 1.5mts and not all activity taking place in such close proximity. Otherwise, I am satisfied that general construction works and the operational phase will not give rise to significant vibration effects.

Impacts on Human Health, Livestock and the Equine Industry

11.46. Noise and vibration related impacts on human health is addressed in the Population & Human Health Section of this EIA. In respect of livestock and the equine industry observers raised concerns that noise and vibration could have severe impacts on livestock, particularly during calving and on the progeny of racehorses and thorough bred mares. In response the applicant states that wind farms have been developed all over the world which have not displaced livestock farming but have contributed to the financial viability and sustainability of windfarms. The applicant further points to research and studies which did not

[49] EIAR Table 13.3. – Applicable TII Vibration Criteria

support evidence of annoyance or distress in wildlife or livestock and found that noise measurements were below the levels that would cause stress reactions.

11.47. I note that the studies reference by the applicant are not recent, are not project specific and/or are not cited. I have not therefore considered them further. I note that the concerns raised by the observers were associated in part with the potential noise and vibration impacts associated with blasting. Whilst it is accepted that the content of the EIAR may give rise to some uncertainty in this regard, I am satisfied that blasting is not proposed and recommend in the interests of certainty that it is excluded by condition in the event that permission is granted. Accordingly, there will be no significant effects on livestock or the equine industry associated with such effects. Otherwise, I am satisfied, for the reasons set out above, that temporary construction noise levels and operational noise levels are not such that would result in significant effects including on livestock or the equine industry and in the absence of any peer reviewed studies to the contrary I am satisfied that the proposed development will not have a significant effect on such interests.

Special Audible Characteristics & Noise Nuisance

11.48. Observers raise concerns in relation to infrasound, low frequency noise and amplitude modulation (AM). Issues raised include a failure to assess such noise characteristics in the EIAR, and the associated health effects including sleep disturbance and on persons with neuro-divergent conditions. In response the applicant relies on the NCMP which is described in Chapter 13 of the EIAR.

11.49. In relation to Infrasound and low frequency noise the applicant cites a number of research reports and studies to establish a position that there are no significant environmental effects associated with such noise and operational wind turbines. This includes EPA guidance[50] that infrasound is not a significant feature of modern turbines. I note the reports and studies cited both by the applicant and the observers, to support their respective positions. Whilst noting the contents of same, they are not project specific and I have not considered these further. It is generally accepted that it is not possible to predict these

[50] EPA Guidance Note for Noise Assessment of Wind Turbine Operations at EPA licensed Sites (NG3).

matters at planning stage, with occurrences being unpredictable and site specific at operational stage, if occurring at all. In this regard I am satisfied that the applicant's proposal to address special audible characteristics through a monitoring programme which allows for investigation, measurement and mitigation is in accordance with guidance and established practice. Otherwise, I am satisfied that it is also generally accepted that low frequency noise, including infrasound, is not a particular characteristic of modern wind turbines, and lies below the threshold of human perception. On this basis, I consider that the NCMP provides an appropriate redress mechanism should there be complaints or occurrences to the contrary.

11.50. In respect of tonal noise and AM specifically, the applicant's position is that it is not possible to predict at planning stage. In the event of a complaint the applicant states that a detailed assessment will be carried out using IOA GPG Supplementary Guidance which allows the post-construction measurement of AM to be rated and mitigated in accordance with a penalty scheme. In this regard I am aware of the judgement in Nagle View Turbine Aware Group v An Bord Pleanala (IEHC 603 (2024)) in which Mr. Justice Humphreys endorsed the (then) Boards treatment of AM and its decision not to impose a condition given there is currently no method available to predict AM and no objective basis for the imposition of a condition. I am therefore satisfied that the applicants position to address the matter through a post-construction noise monitoring scheme (to be agreed with the LA) is both reasonable and appropriate having regard to the basis of recent legal judgement on the matter.

11.51. In relation to noise nuisance, I note that both the NEHS and observers reference recent High Court judgements in relation to operational wind farms, with NEHS opining that WEDGE 2006 is no longer sufficient to protect residential amenity. I note the concerns raised; however, I consider that these judgements are very site-specific pertaining to individual project circumstances and therefore they are not directly applicable to the consideration of this case. The matter of noise limits and noise characteristics has been addressed in the context of WEDG 2006 in this report, and otherwise I am satisfied that the NCMP provides an appropriate mechanism for the redress of any complaints in relation to special audible characteristics or exceedances which may arise or occur.

11.52. In relation to the on-site substation, I note that some observers raised concerns in relation to the potential for constant ‘humming’ associated with same, particularly during the night-time. However, the NIA finds that predicted noise levels, in a worst-case (night-time) scenario are 13dB below existing background noise levels at the nearest NSL with potential effects assessed as imperceptible and therefore I am satisfied that there is no risk of significant environmental effects associated with operational phase substation noise.

Cumulative Effects

11.53. The applicant considers cumulative effects in Section 13.5.3.2. I am satisfied that there are no projects which would result in cumulative noise or vibration effects at the construction stage. In terms of the operational stage, the applicant finds that there is no potential for significant cumulative noise effects as the predicted noise levels associated with existing and planned windfarms are at least 10dB below the predicted noise levels from the proposed development at NSLs. I am satisfied that this assessment is based on best practice guidance as set out in the IOA GPG and is an appropriate basis on which to safely conclude that there will be no significant cumulative effects as a result of operational noise.

Other Matters

11.54. Concerns were raised generally by the Observers that the applicant did not follow best practice in relation to the assessment of noise and that the methodology used was inadequate and unreliable. I am satisfied that the nearest NSL’s have been identified and that background noise monitoring consistent with best practice guidelines including ETSU-R-97 and IOAGPG has been carried out. I am satisfied that the applicant has followed industry best practice guidelines for the assessment of background noise and that a conservative approach has been taken modelling a worst-case scenario with factors affecting the propagation of sound, wind shear, uncertainty and atypical noise sources all considered in accordance with IOA GPG. Whilst the noise environment for the area of the windfarm site will change at operational stage, subject to operation of the proposed development within the noise limits set out in the application documents, I am satisfied that no significant adverse effects by way of operational windfarm noise will arise at noise sensitive receptors.

11.55. Concerns have also been raised regarding the turbine layout, the spacing of turbines and the increased risk of wind wake and turbulence. With regard to windtake, WEDG 2006 and dWEDG 2019 are concerned with the potential development of adjoining windfarm sites, and not the spacing of turbines within an individual development proposal. For adjacent windfarms, the guidelines state the same, specifically "*to ensure optimal performance and to account for turbulence and wake effects, the minimum distances between wind turbines will generally be three times the rotor diameter in the crosswind direction and seven times the rotor diameter in the prevailing downwind direction*." In the circumstances of this case there are no adjacent cumulative windfarm developments. With reference to industry standards, I note the spacing of turbines within a proposed windfarm is a commercial decision as outlined by the Irish Wind Energy Association Guidelines depending largely on orientation, prevailing wind and wind analysis (March 2012). In this regard I note the standard design approach for optimising energy yield and performance includes wind analysis, turbine separation distance in the interest of minimising wake effects and turbulence to optimise individual turbine performance, and turbines numbers to increase overall energy yield. Turbine separation distance is also noted to be a consideration for turbine manufacturing warranty, noting that incorrect spacing could impact on the performance and wear and tear of the turbines. Furthermore, the increased height and blade length of modern turbines are noted to capture more wind energy at lower wind speed and more consistent wind given the higher altitude with less turbulence created by surrounding vegetation and buildings. The modern wind turbine design generally incorporates features which allows for wake adjustments.

11.56. Finally, I note that ETSU-R-97 has now been officially replaced in the UK Iin June 2026. It has been replaced by the updated Assessment and Rating of Wind Turbine Noise (ARWTN) Guidance. It is considered that the applicability of the new ARWTN Guidance (if any) is a matter for consideration in the adoption of any new Wind Energy Development Guidelines by the Minister. Notwithstanding that ETSU has been withdrawn, I am satisfied that the application has been presented and assessed in accordance with best practice in the form of WEDG 2006 and IOA-GPG which remains in force.

Conclusion: Direct and Indirect Effects

11.57. Having regard to my examination of environmental information in respect of noise and vibration it is considered that:

- Having regard to predicted levels of construction noise and vibration, standard construction noise and vibration limits, the distance of the development from sensitive receptors, the absence of blasting and/or the short-term nature of works, I am satisfied that no significant adverse effects will arise during construction from noise or vibration with the exception of effects associated with peak construction stage delivery traffic.
- Whilst the noise environment for the area of the windfarm site will change at operational stage, subject to operation of the proposed development within the noise limits set out in the application documents, no significant adverse effects by way of operational windfarm noise will arise at noise sensitive receptors.

And

That the main significant direct and indirect effect after the application of mitigation measures is:

- A **temporary significant (noise) effect** during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable.

12.0 **Shadow Flicker**

Issues Raised

12.1. Issues raised concern potential shadow flicker impacts on entire communities (not just dwellings) and including schools, churches and community facilities; impacts on human health including persons with neuro-divergent conditions and stroboscopic effects, breach of WEDG 2006; LCDP policies EH021 – EH023, methodology & competency, and adequacy of mitigation. The LA and NEHS recommend zero shadow flicker in accordance with dWEDG 2019.

Examination of the EIAR

Context

12.2. Chapter 15 of the EIAR deals with shadow flicker. The shadow flicker assessment was undertaken in accordance with WEDG 2006, with regard also had to dWEDG 2019. A statement of authority is included, and no limitations or difficulties were encountered when undertaking the assessment. The study area for the assessment of shadow flicker is ten rotor diameters of the turbine locations or 1.36km. All residential properties within the study area were identified using the LCCC planning database and the GeoDirectory database. The location of the study area in relation to the proposed turbines and identified receptors is shown in Fig. 15-3.

12.3. The methodology used is described in Section 15.3 of the EIAR. It considers spatial relationships including distance, wind direction including when the rotor place is perpendicular to the sun-receptor line of sight, and sunshine hours having regard to data available from Met Éireann for County Limerick[51]. A theoretical model is simulated based on worst case assumptions, and a realistic scenario is then modelled to reflect cloud cover in the region. The theoretical model (worst case) model assumes that: the sun is always shining, wind is blowing above cut-in speed and turbines are always rotating, the wind direction is (always) such that the turbine rotor is aligned with the sun-receptor line, and there is no screening by vegetation or trees (bare earth scenario). This model also assumes that windows directly face the development, rooms are occupied and curtains/blinds are open. The realistic model carries forward all of these

[51] Shannon Airport Meteorological Station

assumptions with the exception that predicted sunshine hours are factored in (29% of the day)[52] and it is therefore still a conservative model.

Baseline

12.4. EIAR Chapter 15 relies on the description of the baseline environment in EIAR Chapter 5 Population and Human Health. There are 228 houses within the study area, and these are identified on Table 15-2 together with their grid co-ordinates references. No other sensitive receptors are identified by the applicant within the study area.

Potential Effects

12.5. The potential shadow flicker effects of the development are set out in the EIAR and are summarised in Table SF1 below:

Table SF1: Summary of Potential Effects (Shadow Flicker)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	No effects.
Construction Phase	No effects.
Operational Phase	In a theoretical model it is predicted that 99 no. dwellings will experience shadow flicker (SF) in excess of the 30-hour threshold limit per year, and 126 no. dwellings will experience SF in excess of the 30-minute threshold per day. In a realistic scenario (accounting for sunshine hours) this reduces to 8 no. dwellings (H59, H71, H113, H114, H115, H168, H227 and H228) which will experience SF in excess of the annual 30-hr threshold and one dwelling (H118) which will experience SF in excess of the 30-min per day threshold. This is assessed as a **long-term significant effect**.
Decommissioning Phase	No effects.
Cumulative	The existing and proposed project considered in the assessment of cumulative effects are listed in Section 1.4.4 of Vol. II of Chapter 1. Given the considerable distance between the proposed development and other planning and existing wind farm developments, no cumulative shadow flicker effects are considered possible.

Mitigation

12.6. Mitigation measures are described in Section 15.7 of EIAR Chapter 15. The applicant proposes to control turbines to eliminate shadow flicker at a receptor

[52] EIAR Section 15.3.3. and Table 15-1 refer.

using a programmable shadow flicker module. Following the implementation of this mitigation, the applicant states that the proposed development will be fully compliant with WEDG 2006, and no residual effects are predicted. The applicant states that should dWEDG 2019 be formally adopted, then the same control system can be adapted to meet any updated SF requirements.

Residual Impacts

12.7. With the implementation of mitigation measures the EIAR concludes that there will be no significant effects relating to shadow flicker, including cumulative effects.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

12.8. I have examined, analysed and evaluated Chapter 15 of the EIAR, the associated documents and submissions on file in respect of shadow flicker. I am satisfied that the applicants understanding of the baseline environment is comprehensive and that they key impacts in respect of likely shadow flicker effects, including cumulative effects have been identified. I note that the LA report suggested that the Met Éireann observatory weather station used in identifying the real-world (sunshine) conditions was not detailed, however I am satisfied that this was not the case with the station at Shannon Airport identified. Observers and the LA report raise several issues in respect of shadow flicker which I address below under respective headings.

Community Impacts & Secondary Receptors

12.9. Concerns were raised by the observers that secondary noise sensitive receptors such as schools, community centres, churches etc were not considered or assessed in the assessment of shadow flicker, with concern that impacts would be community wide and not (residential) receptor specific. In response the applicant does not address this issue directly but relies on EIAR Chapters 5 (population & human health) and the subject chapter 15.

12.10. Whilst it would have been preferable for the applicant to address this concern, the absence of such an assessment is supported by the absence of such secondary receptors within the study area. Having inspected the subject site, examined the available mapping and GIS data resources, including the register

of early years services for County Limerick[53], I am satisfied that this is a rural area where the primary receptors within the study areas are residential dwellings. The nearest pre-schools and schools at Athlacca and Bruff, are outside of the study area for shadow flicker. In this regard I would point the Commission to section 5.12 of WEDG 2006 which states that at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low. I am therefore satisfied that there will be no significant community impacts on secondary receptors outside of the study area.

Human Health

12.11. The concerns raised by the observers in relation to health effects are addressed in the population and human health section of this report.

LDP, 2022-2028 & WEDG 2006

12.12. Observers raised concerns that the levels of shadow flicker predicted in a realistic scenario were contrary to policies EH021-EH023 of the LDP, 2022-2028 and were in excess of WEDG 2006 limits. The applicant does not directly address this issue in response. EH021 & EH023 are objectives of the LDP which relate to the control of noise and vibration including construction noise, commercial and industrial noise and entertainment noise. They are not therefore germane to the consideration and assessment of shadow flicker. The observers are correct, that shadow flicker is predicted in a 'realistic scenario' in excess of the limits set in WEDG 2006 at 9 no. dwellings as summarised at Table SF1 above and this is assessed by the applicant as a long-term significant effect. However, the applicant proposes to mitigate this exceedance using a shadow flicker control programme which will eliminate shadow flicker during conditions when it is predicted to occur in full compliance with WEDG 2006. Accordingly, shadow flicker in excess of the thresholds set out in WEDG 2006 is not proposed by the applicant and the residual effect is not significant.

Methodology & competency

12.13. Observers raised a number of concerns in relation to the methodology employed in the assessment of shadow flicker. Observers opined that the study

[53] www.tusla.ie

area was obsolete, with a number suggesting that the shadow flicker envelope extended much further (than 1.36km) including up to 4.8km. Concerns are also raised that impacts on outdoor amenity areas and rural dwellings built post 2023 have not been assessed. The applicant does not address these issues in response.

12.14. Whilst I note the technical reports and opinions submitted by some observers suggesting that the envelope of shadow flicker effects extends beyond the 1.3km study area (from each turbine), I am satisfied that 'significant effects' will not occur beyond the study area. In this regard the applicant has conducted a shadow flicker assessment following relevant WEDG 2006 guidance and established norms. The assessment is based on a 'realistic scenario' which remains conservative and includes a number of worst-case assumptions which are unlikely to occur in real world conditions. I accept that in reality shadow flicker effects which are less than those predicted are likely to occur, when worst case assumptions are replaced with real world conditions and I would again refer the Commission to Section 5.12 of WEDG 2006 which states that at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low. Whilst I do not refute that there may be technical argument for a shadow flicker envelope beyond the EIAR study area, I am satisfied that this will not result in significant effects. It is accepted that the applicants shadow flicker assessment is based on impacts on occupied internal rooms through specific windows, as is established practice in EIARs. As already stated, the assessment is based on a number of worst-case assumptions and is a conservative one and I am also satisfied that a shadow flicker assessment which protects residential amenity based on the methodology adopted by the applicant, will also ensure satisfactory protection of the external amenity areas associated with that dwelling, such that significant effects will not occur.

12.15. It has been suggested by some observers that certain dwellings, including that at V35 X995 and those built post-2023 have not been included in the assessment of shadow flicker effects. The applicant does not address this point in response. In respect of the dwelling at V35 X995 it is noted that the location of this dwelling is outside the 1.36km shadow flicker study area and its omission is justified on this basis. This dwelling is unlikely to be subject to significant shadow

flicker effects. It is accepted that any dwellinghouses built within the study area post completion of the shadow flicker assessment, cannot have been included within it. However, in the absence of verifiable data as to the existence of such dwellings it is difficult to validate the position or assess the matter further at this stage. It is considered that the instances of this occurring, if any, are likely to be relatively few particularly given that the shadow flicker assessment confirms that regard was had to the LCCC planning dataset. In any event I am satisfied that this matter can be controlled by post-commissioning monitoring (as proposed by the applicant) and a condition of permission setting appropriate shadow flicker limits at any dwelling (see next section of this report) which will ensure that these properties will not be subject to significant shadow flicker effects.

12.16. Observers questioned the competency of the authors of EIAR chapter 15 and noted that no details of specialist software or data analysis qualifications were provided. The applicant does not address this issue in response. The competency of the assessor(s) is set out in Section 15.1.2 of the EIAR with qualifications in Computer Aided Design (CAD), GIS, BEng, PgDip and CEnv. The details of the Project Design Team is further set out in EIAR Chapter 1, Section 1.7 and I note that the authors of this Chapter includes an Environmental Scientist with 9 years+ experience and a Lead GIS Technician with 19 years+ experience in constraint mapping, GIS baseline data and modelling SF analysis, including more than 25 wind farm projects. I am satisfied that the authors of Chapter 15 have demonstrated satisfactory qualifications and experience and have demonstrated competency in the technical subject area.

Adequacy of mitigation

12.17. Observers raised some concerns that the mitigation proposed by the applicant does not represent best practice and falls short of the zero shadow flicker advocated by dWEDG 2019. Both the LA and NEHS recommend zero shadow flicker in accordance with dWEDG 2019. In response the applicant notes the position of the prescribed bodies and states that a condition in this regard is accepted. However, I consider that the position in the EIAR is somewhat ambiguous. The applicant states in Section 15.7 and Section 15.9 that software will be installed to control shadow flicker ensuring full compliance with WEDG 2006 and which is capable of adapting to a new updated requirements should

dWEDG 2019 be formally adopted. In my opinion, the applicant is proposing to control shadow flicker in accordance with the thresholds set out in WEDG 2006 of 30mins per day or 30 hours per year. I am not satisfied that this represents best practice. The draft Wind Energy Guidelines (2019) advocate zero shadow flicker using technology. For some time now, zero shadow flicker in accordance with dWEDG 2019 has represented best practice in respect of applications for proposed wind farm developments to the Commission and in decision making itself by the Commission. I therefore recommend that if the Commission is minded to grant planning permission, a condition is imposed requiring zero shadow flicker in accordance with dWEDG 2019.

Conclusion: Direct and Indirect Effects (Shadow Flicker)

12.18. Having regard to my examination of the environmental information in respect of shadow flicker it is considered that subject to implementation of the full suite of mitigation measures, no significant adverse effects will arise. However, in the interests of best practice consistent with recent decision making by the Commission, I recommend that a condition is imposed requiring zero shadow flicker in accordance with dWEDG 2019.

13.0 **Biodiversity**

Issues Raised

13.1. Issues raised by the observers concern the decline of biodiversity, loss of hedgerows and habitat and impacts on NHAs, including impacts on badgers, otter, invasive species and a failure to demonstrate nett biodiversity gain. Impacts on bats was a significant concern raised by the observers, including adequacy of survey effort, methodology employed, baseline, assessment of effects and mitigation measures. Concerns are also raised in relation to impacts on Lesser Horseshoe Bats and cumulative effects. The LA noted that the amphibian and bat surveys were carried out in 2023 and recommends that they should be updated. The DHLGH (NPWS) did not make any comments in respect of nature conservation.

13.2. The impacts on birds are considered separately in the Ornithological section of this report, and the impact on European Sites is primarily addressed the Appropriate Assessment Section of this report (Appendix 1 and Appendix 2).

Examination of the EIAR

Context

13.3. Chapter 6 of the EIAR deals with Biodiversity including flora and fauna, namely habitats, bats, non-volant mammals, amphibians, reptiles and aquatic ecology (excluding Ornithology which is addressed in EIAR Chapter 7). Associated Appendices are:

- Appendix 6A – Statement of Competency
- Appendix 6B – Details of Protected Species
- Appendix 6C – Details of Terrestrial Non-native Species
- Appendix 6D – Baseline report on Habitat & Mammal Surveys
- Appendix 6E – Baseline report on Bat Surveys
- Appendix 6F – Aquatic Ecology and Fish Report
- Appendix 6G – Baseline GCR Aquatic Ecology Report
- Appendix 6H – LCCC policies & objectives
- Appendix 6I – Habitat and Species Management Plan (HSMP)

13.4. Section 6.1.2 summarises the proposed development and states that it is the result of an iterative design process that incorporated environmental constraints at an early stage to avoid or reduce potential adverse effects on sensitive ecological, hydrological and landscape features[54]. The assessment is undertaken having regard to the requirements for the protection of habitats, species and biodiversity as set out in European and National Legislation and policy as described in Section 6.1.3. In addition, legislation and guidance which applies to the protection of habitats, flora and fauna in Ireland is also considered. A statement of competency (authority) is included. Table 6-1 refers.

13.5. The assessment methodology is described at Section 6.2. The study area is defined as the overall lands encompassing the development together with the

[54] As detailed in EIAR Chapter 3 – consideration of alternatives.

varied and individual ecological feature study areas determined by guidance as set out in Table 6-2. The assessment methodology includes determining the zone of influence (informed by the source-pathway-receptor model), consultation with statutory consultees and relevant stakeholders[55], data requests, desk study (NBDC, EPA, NPWS, BCI, GSI and other data sources[56]), identification of designated sites, and terrestrial surveys. The criteria used for the description and assessment of effects follows CIEEM, 2018 Guidelines[57]. Dedicated surveys include:

- Habitat Surveys – August & September 2023, July 2025.
- Bat Preliminary Roost Assessment (PRA) Surveys– August 2023, February 2024.
- Bat Activity Transect Surveys – August & September 2023.
- Static Bat Detector Deployments – May-June 2023, July-August 2023 and September-October 2023.
- Emergence/Re-entry Bat Roost Surveys – July, August, September & October 2023.
- Hibernation Bat Surveys – February 2024.
- Mammal Surveys (excluding bats) – August & September 2023, July 2025.
- Badger Trail Camera Surveys – September & October 2023, March & April 2024 and June 2024.
- Otter Surveys – February & March 2024.
- Amphibians and Reptiles – February, August & September 2023.
- Aquatic Ecology Surveys – July & September 2022.
- GCR Aquatic Surveys – January 2025.
- TDR and GCR Terrestrial Surveys – March 2024.

13.6. A statement of limitations is provided at Section 6.2.10. In relation to habitats some surveys were undertaken outside the period (April-June) for earlier flowering plants with such plants identified using a vegetative key. It is stated

[55] Table 6-4 refers.
[56] As described in Section 6.2.6.1
[57] Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine – Chartered Institute of Ecology and Environmental Management (CIEEM), 2018.

that this did not impact the classification of habitat types. In relation to mammals a precautionary approach was taken to active badger setts which were assessed as potential breeding setts in the absence of evidential confirmation. Whilst the study area for habitat and mammal surveys included some dense vegetation which were not accessible, any mammal trails present were investigated. It is stated that this limitation does not pose a risk to the robustness of the data collected. In relation to Bats, the spring, summer and autumn detector failures are noted as described[58]. It is stated that other detectors at similar locations are comparable and can be used as a proxy for the analysis and assumed activity levels for the periods of missing data. In relation to aquatic ecology it is noted that electrical fishing efficiency was reduced at several locations due to dense instream vegetation, but that the level of surveying undertaken was sufficient to assess fish populations present. Overall, it is considered that the survey limitations are not considered to be significant as appropriate measures were carried out to ensure the validity and robustness of data gathered.

Baseline

13.7. The baseline environment is described in Section 6.3 of the EIAR. A list of European sites within the potential ZOI of the proposed development are listed in Table 6-22. These sites are fully described and assessed in the NIS and considered in the AA section of this report. Nationally designated sites within the potential ZOI of the proposed development, together with the important ecological features for each site are identified in Table 6-23. Based on a source-pathway-receptor model the following sites are carried forward for further assessment:

- Lough Gur pNHA (Site Code: 000437) – located approx. 4.6km northeast,
- Inner Shannon Estuary – South Shore pNHA (Site Code: 000435) – located approx. 37.1km downstream.

13.8. A review of NPWS Article 17 datasets showed no Annex I or links to Annex I habitats were present within the study area, and this was confirmed during field surveys. All habitats identified within the study area are described in Appendix 6D and listed in Table 6-24 with their Fossitt (2000) habitat type codes. Habitats

[58] Section 6.2.10.2

are valued according to CIEEM guidance and local (lower) value habitats with limited ecological importance[59] are screened out. Habitats which are brought forward for further assessment include:

- WL1 Hedgerows – 34 hedgerows totalling 9.1km were recorded within the planning application boundary. Each were assessed in line with the Hedgerow Appraisal System (HAS) with the results set out in Table 6-25. Two hedgerows are assessed as 'high', six as 'moderate' with the remainder 'slight' or 'low'.
- WL2 Treelines – approx. 12.8km of treeline habitat was recorded across the study area, occurring in a sporadic distribution and with woody species primarily comprising Ash, Horse chestnut, Sycamore, Elder, Birch, Alder, Hazel and Sessile Oak. Where Ash was present, ash dieback was noted in less than 50% of treelines.
- BL2 Earthbanks – generally supporting hedgerow and treelines (see above).
- GS4 Wet Grassland – approx. 12.3ha recorded within the study area and all within the southern section.
- FW2 Depositing/lowland rivers – the fourth order Morning Star River [EPA Code:24M02] flows in a westerly direction in the centre of the northern section of the study area. It discharges into the River Maigue [EPA Code:24M01] which flows into the Lower River Shannon SAC (Site Code: 002165) and the River Shannon and River Fergus Estuaries SPA (Site Code: 004077) approx. 24.2km and 36.9km downstream respectively. Eleven tributaries of the Morning Star River comprising 1st and 2nd order streams are listed in Table 6-26.
- FW4 Drainage Ditches – drainage ditches are prevalent across the study area, with 24 recorded within the proposed development application boundary. A condition assessment is set out in Table 6-27. Of these two scored 'good' with the remainder scoring as 'moderate' or 'passes'.
- WD2 Mixed broadleaved/conifer woodland – approx. 6.9ha of this woodland habitat is present within the study area. (Fig. 6-13 and 6-14 refer).
- WS2 Immature Woodland – this habitat is considered limited within the study area (5.9ha) with approx. 3.8ha found in the northern section of the site.
- WS1 Scrub – this habitat was found to be relatively sparse across the study area, accounting for approx. 2.7ha.

13.9. There were no records of Flora Protection Order (FPO) plants within the study area, and this was confirmed during field surveys. Four stands of Giant rhubarb

[59] Such as BLS Buildings and artificial surfaces and GA1 improved agricultural grasslands.

(*Gunnera manicata*) were recorded in the northern section of the study area, all occurring along the banks of the Morning Star River. It is noted that no giant hogweed (as identified by the Maigue River Trust) was identified during surveys. Two large stands of Japanese knotweed were recorded in the southern section of the study area, adjacent to agricultural sheds approx. 50m from a proposed access track in 2023. New growth was detected at this location in July 2025. All invasive plant species recorded during field surveys is identified in Table 6-28 and Fig 6-18. Habitats at the TDR are mainly existing road network and verge habitats. Along the GCR Habitats primarily consist of improved agricultural grassland, buildings and artificial surfaces, hedgerows, and treelines.

13.10. In terms of Bats the PRA identified 21 buildings within the study area of which eight were classified as having moderate roost potential and 71 potential tree roost features (PRFs) of which 14 were classified as having moderate potential. Table 6-29 sets out the potential roost features in the context of bat habitat classification and turbine locations. Roost emergence and re-entry surveys (2023) established the presence of five confirmed roosts within buildings (B3, B6, B8, B9.1 and B9.2). These were considered to be used on a transitional or temporary basis (Fig. 6-21 and 6-30 refers). No tree roosts were confirmed during emergence/re-entry surveys; however, it was determined that there remains a likelihood that bats will still use PRFs within trees transitionally for roosting and therefore all PRFs have been assessed as roosts. The PRA survey identified no buildings/structures and 60 tree PRFs along the TDR and GCR, none of which are likely to support a roost of high conservation status.

13.11. During winter roost inspections eight PRFs were surveyed and assessed including six farm buildings (B2, B3, B4, B5, B6 and B8) and two bird boxes (B9.1 and B9.2). Inspections did not record any evidence of hibernating bats. (Table 6-31 refer). Three transect surveys were conducted in the autumn survey window (2023) with the data collected suggesting that flooding may have caused elevated bat activity due to greater abundance of invertebrates.

13.12. The results of the static bat detector surveys is presented in Section 6.3.3.2.1.5. In Spring 2023, a total of 37,457 passes were recorded with Soprano pipistrelle (59%), Common pipistrelle (28%) and Leisler's bats (11%) the most common species and with other species accounting for 2%. Activity suggests

potential roosts near D.02, D.03, D.04 and D.10 for Leisler's Bat and all locations except D.01, D.12, D.13 and D.14 for pipistrelle species. For other detectors, activity suggest foraging or commuting rather than direct roost proximity. In the summer deployment (2023) a total of 65,237 passes were recorded with Soprano pipistrelle (55%), Common pipistrelle (33%) and Leisler's bats (10%) the most common species and with other species accounting for 2%. There is no activity within known emergence windows at any of the detector locations. In the autumn deployment (2023) a total of 47,013 passes were recorded with Soprano pipistrelle (58%), Common pipistrelle (27%) and Leisler's bats (11%) the most common species and with other species accounting for 3%. There is no activity within known emergence windows at any of the detector locations.

13.13. In summary the highest level of activity in all seasons was at D.01 with significantly higher activity in spring. This detector was located on a hedgerow, next to a ditch on the northern boundary of the development with connectivity to the Morning Star River. Together with other detectors in the vicinity, it is assumed that movement of the dominant species (Soprano Pipistrelle) is to the north of the project site. Summer and autumn had similar activity at detector locations throughout the development, although slightly higher to the north. D.08, D.10 and D.13 show higher activity in the summer season in the southern section suggesting possible east-west commuting. Fig. 6-23 shows that the majority of activity for all species occurred below wind speeds of 3 m/s. Turbine locations and associated detector activity is set out in Table 6-32.

13.14. In terms of other mammals seven mammal species were identified using the study area during surveys. These are identified on Table 6-33 and include badger, otter, pine marten, Irish stoat, Irish hare, red fox[60] and American mink (invasive species). Badger activity was recorded throughout the study area with latrines, prints, scat, trails and feeding signs frequently recorded. Eight setts were identified across the study area of which three were deemed to be active, and five inactive. The largest (sett 1) was considered active with up to five entrances, with the remaining locations deemed peripheral or outlier setts. These

[60] I note that this species is not further addressed in the EIAR Chapter 6. It is however addressed in Appendix 6D which states that the wider area provides an abundance of suitable habitat, the species is not protected under wildlife legislation and it is not carried forward as an IEF.

setts are described in detail in Section 6.3.3.3.1.1 and their locations shown in Fig. 6-24. Otter activity was concentrated along the Morning Star River demonstrating the species is actively present and utilising the river. No evidence of otters breeding was found during field surveys with no holts, active or inactive identified with the Morningstar River primarily used for foraging and commuting purposes. Pine marten were recorded at two locations via camera trail monitoring with no other sightings of pine marten or field signs recorded (Fig. 6-26 refers). One of the two observations was identified as a potential den feature (tree hollow). This is in the northern section of the site approx. 6.6m from the access track to T5. A camera trail was deployed to validate results which recorded pine marten interpreted as hunting rather than using the feature as a den site. Whilst not is use as a breeding den during field surveys, this cannot be ruled out as a potential den site in the future. The proposed development site includes suitable habitat to support Irish Hare, although no sightings or field signs were recorded during surveys and NBDC database did not reveal previous records. An Irish stoat was recorded once passing a badger sett entrance, there were no other observations during surveys and the NBDC database dies not reveal previous records.

13.15. An American mink was sighted during otter surveys resting along the bank of the Morningstar River, before moving downstream to the west. This species is a high-impact invasive species. The common invasive mollusc Jenkins Spire Snail (*Potamopyrgus antipodarum*) was recorded during macroinvertebrate surveys. No other invasive fauna species were recorded during surveys.

13.16. Mammal activity was noted in some areas along the TDR and GCR mainly in the form of trails. No evidence of badger setts or other mammal burrows were found. Three of the four watercourse crossings along the TDR were considered suitable for otter (Camoge River, Killorath Stream and Glenbevan Stream) and one of the seven watercourse crossings on the GCR (Sixmile Bridge crossing the Camoge River). No obvious holts were recorded, however the presence of Otter is assumed. For these reasons the terrestrial and aquatic habitats of the TDR and GCR are considered to be of Local (Higher) ecological importance.

13.17. In terms of amphibians and reptiles an incidental observation of common frog spawn was recorded during bat surveys. Smooth newt were not recorded during

any surveys. Common lizard was not recorded during any site surveys and the habitats of the site are not considered suitable for this species.

13.18. In terms of aquatic ecology records of protected aquatic species from existing datasets in the environs of the proposed development were identified. These are summarised in Table 6-34 and include Brook Lamprey, Atlantic Salmon and White Clawed Crayfish. Aquatic habitats were deemed to be impacted by agricultural practices with observations of riparian and instream impacts from cattle access and runoff from denuded areas, together with excessive siltation. Habitat quality for macroinvertebrates was rated at most survey sites as between marginal and sub-optimal. As streams increased in size and depth downstream of the study area, suitability also increased. A relatively small proportion of the fluvial habitat was classified as suitable for salmonid spawning with only the Morningstar River offering some sub-optimal but functional spawning habitat. The small size of watercourses near the proposed development are considered unsuitable for holding large spawning salmonids and are not considered sufficiently large for large trout or adult salmon throughout the year. There are adequate silt deposits in the watercourses draining the development site for juvenile lamprey larvae and small trout, but poor spawning habitat.

13.19. The results of macroinvertebrate surveys are presented in Appendix 6F, with species richness summarised in Table 6-36. The bulk of species recorded are pollution tolerant. The biological water quality results are summarised in Table 6-37 indicating that all sites are ecologically affected with WFD status ranging from poor to moderate. A total of 140 no. fish were recorded during electrical fishing investigations with the results presented in Table 6-38 and 6-39 and including minnow (69), Salmon (34), stickleback (28), brown trout (6), Lamprey (2) and stone loach (1).

Important Ecological Features (IEF)

13.20. Section 6.5.5 summarises the Important Ecological Features (IEFs)which have been carried forward for further assessment[61]. This includes:

- Inner Shannon Estuary – South Shore pNHA

[61] Although not recorded in surveys Common frog, smooth newt, Irish Hare, Hedgehog and Pygmy Shrew are carried forward because of the presence of suitable habitat.

- Lough Gur pNHA
- Terrestrial Habitats – Hedgerows (WL1), Treelines (WL2), Earth Banks (BL2), Depositing/lowland River (FW2), Drainage ditches (FW4), Mixed broadleaved/conifer woodland (WD2) and Immature woodland (WS2)
- Bats – Common pipistrelle, Soprano pipistrelle, Nathusius pipistrelle, Leisler's bats, Myotis species and Brown long eared bat
- Terrestrial non-volant mammals – Badger, otter, pine marten, Irish Stoat, Irish Hare, Hedgehog and Pygmy Shrew
- Amphibians and Reptiles – Smooth newt, common frog
- Aquatic ecology – white-clawed Crayfish and their habitats
- Fish – Atlantic Salmon, brown trout, river lamprey and brook lamprey and their habitats, three-spined stickle back.

Potential Effects

13.21. The potential effects of the proposed development on biodiversity are set out in the EIAR and summarised in Table BDY1 below.

Table BDY1: Summary of Potential Effects (Biodiversity)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	It is likely that the existing baseline conditions would continue to exist. It is likely that existing environmental conditions will not change in the near future, however over time with increasing environmental and climatic conditions there will be added pressures to IEF populations.
Construction Phase	*National Designated Sites* - Inner Shannon Estuary – South Shore pNHA – weak hydrological connection with the site over 37.1km. While pollutants or suspended sediment associated with the development is unlikely to reach this pNHA in the absence of mitigation there is potential for indirect water quality effects of a **temporary to short term significant effect of a minor magnitude at a local geographic level.** - Lough Gur pNHA – assessed in EIAR Chapter 7 and the ornithology section of this report. *Habitats* - Hedgerows (WL1), Treelines (WL2) and Earth banks (BL2) – in the absence of mitigation the development will result in the permanent loss of hedgerow and treeline habitat totalling a length of c 2.4km[62]. This is

[62] Considered to actually be 1.9km (Hedgerow) and 922.3m (Treelines). Table 6-42 of EIAR Chapter 6 and Table 2 of Appendix 6I refers.

	assessed as a **permanent, adverse and likely significant effect at a local geographical scale**. Approx. 9.7m of earth bank will be lost which is not considered significant. In the absence of mitigation there is potential for **direct adverse, temporary to short-term likely significant effects** on hedgerows and treelines **at a local geographical scale** as a result of dust deposition suppressing photosynthesis. In the absence of appropriate biosecurity measures there is the potential to contribute to the dispersion of Japanese Knotweed leading to alterations to hedgerow, treelines and earth banks by preventing the growth of native species. This is assessed as a **direct adverse, long-term and likely significant effect at a local geographic scale**. - Depositing/lowland River (FW2) – the loss of 1st and 2nd order streams to facilitate clear span or closed conduit culverts for (8no.) access track crossing points (51.4m in total) is assessed as a **direct adverse, temporary and likely significant effect at a local geographic scale**.Works associated with a clear span bridge over the Morningstar River and the eight watercourse crossings of 1st and 2nd Order streams has potential to result in the release of hydrocarbons and suspended sediments. This is assessed as an **indirect adverse, short to medium term and likely significant effect at a local to County geographic scale**.In the absence of appropriate biosecurity measures there is the potential to contribute to the dispersion of Japanese Knotweed leading to alterations to habitats by preventing the growth of native species. This is assessed as a **direct adverse, long-term and likely significant effect at a local geographic scale**. - Drainage ditches (FW4) – the collective habitat loss of drainage ditches across the development of 236m[63] will result in a minor decline in local biodiversity and may compromise ecological connectivity. In the absence of mitigation this is assessed as a **direct adverse, temporary and permanent likely significant effect at a local higher scale**. In the absence of mitigation, potential water quality deterioration arising from a pollution event (hydrocarbons/suspended solids) is assessed as a **short to medium-term likely significant adverse effect at the local geographic scale**. - Mixed broadleaved/conifer woodland (WD2) – In the absence of mitigation, there will be a permanent loss of 1.1ha of this habitat to accommodate the access track to the substation and construction compound No.3. This is assessed as a **permanent, adverse and likely significant effect at a local geographic scale**. In the absence of mitigation there is potential for **direct adverse, temporary to short-term likely significant effects at a local geographical scale** as a result of dust deposition suppressing photosynthesis. - Immature woodland (WS2) – the loss of 1.1[64]ha habitat due to the construction of the substation is not considered to be ecologically significant (due to signs of ash dieback). The remaining 0.7ha of habitat loss is of higher quality and in the absence of mitigation is assessed as a **direct, adverse, permanent and likely significant effect at a local**

[63] The EIAR states that 236m of drainage ditches will be culverted, but that 1.3km of permanent drainage ditches will be removed. This permanent loss is confirmed in Table 6-42. Accordingly, the potential effects of this habitat loss has not been correctly assessed.
[64] Considered to actually be 1.8ha as per Table 6-42 of EIAR Chapter 6 and Table 2 of Appendix 6I.

	(higher) geographic scale. In the absence of mitigation there is potential for **direct adverse, temporary to short-term likely significant effects at a local geographical scale** as a result of dust deposition suppressing photosynthesis. - TDR & GCR – no significant habitat loss effects predicted. - Invasive Plant Species – In the absence of appropriate biosecurity measures, excavation of access tracks and movement of construction vehicles has potential to disperse Japanese Knotweed. This is assessed as a **direct, adverse, long-term and likely significant effect at a local geographic scale** (including the TDR & GCR). *Mammals (Bats)* *Habitat Loss* - As part of the implementation of bat buffers, tree felling and hedgerow removal (as shown in Table 6-43) 13 PRFs will be removed. Based on the transitional and temporary roost types present, the species present, additional roosting potential and existing baseline conditions this is not considered significant and is assessed as a **permanent, adverse and likely moderate effect at a local geographic scale** for roosting bats. - In total 1537.1m[65] of hedgerow and 922m of treelines will be permanently removed. 230m of hedgerow will be trimmed to a height of 0.8m. This has potential to indirectly affect commuting and foraging bats, reducing connectivity. The permanent loss of habitats is assessed as **permanent, adverse, moderate effect at a local geographic scale** for commuting and foraging bat species. The temporary loss of habitats is assessed as a t**emporary, adverse, moderate effect at a local geographic scale** for commuting and foraging bat species. - TDR & GCR – no significant likely effects predicted. *Disturbance and Displacement* - There is no potential for direct adverse effects from artificial light at night (ALAN) on roosts within the development site. In the absence of mitigation, indirect impacts from ALAN will result in temporary, adverse, not significant effect at a local geographic scale during construction for commuting and foraging bats. - Disturbance from increased human and machinery presence may directly or indirectly deter bats from using adjacent roosting, commuting or foraging features, however this is not predicted to be significant based on roost types, temporary works, species present and additional roost potential. This is assessed as temporary, adverse, not significant at a local geographic scale. - TDR & GCR – no significant effects predicted. *Other Mammals* - TDR & GCR (all other mammals) – no significant effects predicted as a result of habitat loss, disturbance or displacement. *(Badgers)* *Permanent loss of setts* - Two setts, 2 and 3 will be permanently lost. Sett 2 is an active outlier sett with six entrances (two active and four inactive). No evidence of breeding was recorded. Sett 3 is inactive and its three entrances showed no signs

[65] This is confirmed as 1.9km in Table 6-42 and Table 2 of Appendix 6I and is understated here.

	of use in 2023 or 2025. Destruction of these setts has the potential to cause displacement of badgers as energy will be expended seeking alternative breeding habitat (cannot be ruled out) with foraging efficiency disrupted and reproductive success reduced. This is assessed as a **direct adverse, permanent and likely significant effect at a local geographic scale**. - There is potential that blasting or piling activities associated with turbine foundations and hardstands may result in the collapse of setts (Sett 4 84m from T7 and Sett 7 100m from T17). This is assessed as a **direct adverse, permanent and likely significant effect at a local geographical scale**. *Risk of Death (Mortality)* - Blasting, piling can result in a risk of death to dependent cubs and death or injury to adults. Open excavations, deep trenches and foundations can lead to nocturnal foraging badgers becoming entrapped. In the absence of mitigation this is assessed as a potential **direct, adverse, permanent and likely significant effect at a local geographic scale**. *Foraging Habitat Loss* - There will be a loss of 34ha of grassland habitat, 18% of the development site boundary and 6.5% of the study area. Considering the substantial suitable foraging habitat available, any loss of foraging resource is not considered significant at any geographical scale. *Disturbance and Displacement* - In the absence of mitigation there is potential for displacement and disturbance effects on badger during construction associated with piling, blasting and general construction works (mostly on Sett 4 & 7 as above). This is assessed as an **indirect, adverse, temporary to short-term likely significant effect at a local geographic scale**. *Other Mammals (Otter)* *Habitat Loss* - Temporary habitat loss of c.288m of foraging and commuting habitat will arise from the culverting of drainage ditches and 1st and 2nd Order streams (1.7% within site boundary). There will be a temporary loss of 300m² of riparian habitat on each side of the Morningstar River (at clear span bridge) where activity was concentrated. 1.3km of drainage ditches will be removed to facilitate turbine hardstands (8% within site boundary). Overall habitat loss is assessed as minimal and **temporary, adverse, likely significant at a local geographical scale**. *Water Quality* - Deterioration in water quality associated with a pollution event has the potential to contribute to reduced prey availability for otter, serious harm or mortality. This is assessed as an **adverse temporary to short-term likely significant effect at a local geographic scale** (including the GCR over the Camoge River). *Disturbance and Displacement* - There is potential for disturbance and displacement effects from ALAN and noise. Otters travel over long distances and the Morningstar River is likely a limited proportion of their range. Effects will be at a local scale and are assessed as **indirect adverse, temporary likely significant at a local geographical scale**.

	Other Mammals (Pine Marten) *Habitat Loss* - There will be a loss of c 2.6ha of suitable habitat (woodland and forestry) to facilitate bat feature buffers at T5 & T6. This is assessed as a **direct, adverse, short-term likely significant effect at a County geographic scale**. *Disturbance and Displacement* - Construction works and ALAN are likely to result in effects. These are assessed as adverse, temporary to short-term likely significant at a local geographical scale. *Other small Mammals (Irish Hare, Irish Stoat, Pygmy Shrew & Hedgehog)* *Risk of Death (Mortality)* - Risk of mortality from uncovered excavations assessed as a direct, adverse, temporary to short-term likely significant effect at a local geographic scale (all species). *Habitat Loss* - No significant effects predicted (all species). *Disturbance and Displacement* - No significant effects predicted (all species). *Amphibians* *Loss of Habitat* - The permanent and temporary loss of drainage ditches will result in an **adverse, temporary to permanent and likely significant effect at a local geographical scale** on the amphibian population present. *Water Quality* - A pollution event has the potential to affect water quality in drainage ditches. This is assessed as an **adverse, temporary to short-term and likely significant effect at a local geographical scale** (common frog and smooth newt). *Aquatic Ecology* *Habitat loss and degradation* - The loss and degradation of aquatic and riparian habitat (drainage ditches, tributaries of the Morningstar River & Morningstar River) is assessed as an **adverse effect, temporary and likely significant at a local geographic scale**. In stream habitat loss (drainage ditches) where culverts are installed is not assessed as significant. *Water Quality* - Potential pollution sources are described in Section 6.7.1.6.1.2.1 (sediment and nutrient release) and S.6.7.1.6.1.2.2. (other pollutants). - A potential pollution event (Morningstar River) would adversely affect downstream habitats and populations of salmonids, white-clawed crayfish recovery and restoration and other receptors. This is assessed as a **temporary adverse effect significant at a County/Regional level**. - A pollution event (Tributaries of the Morningstar River) could affect downstream habitats and ecological receptors. This is assessed as a **temporary adverse effect significant at a local geographical scale**

	with indirect effects downstream on the Morningstar River assessed as **temporary and significant at a County/Regional level**. - An accidental pollution event associated with HDD construction (Camoge River) and GCR construction works has the potential to affect water quality downstream adversely affecting habitats and populations of salmonids and lamprey, white-clawed crayfish recovery and restoration and other receptors. This is assessed as a **temporary adverse effect significant at a County/Regional level**. Effects on tributaries of the Camoge River[66] are assessed as **temporary adverse and significant at a local geographical scale**. *Noise* - Excessive noise (excavation or piling) has the potential to disturb salmonid fish (Morningstar River). This is assessed as a **temporary adverse and significant effect at a local geographical scale**. *Invasive Riparian and Aquatic Species* - Construction works can introduce or spread invasive species and waterborne pathogens. Giant rhubarb and Japanese knotweed recorded with the proposed development site. Crayfish plague pathogen known to be within catchment. The risk of spread is assessed as a **long-term significant adverse effect at a local geographical scale**. - Japanese Knotweed and Winter Heliotrope were recorded along roadside verges of the GCR. The risk of spread of invasive species is assessed as an **adverse likely long-term significant effect at a local geographical scale**.
Operational Phase	*Designated Sites* - Inner Shannon Estuary – South Shore pNHA – an accidental pollution event of significant magnitude reaching this site is unlikely. Taking a precautionary approach there is potential for an **adverse, temporary to short-term likely significant effect** on water quality. - Lough Gur pNHA – Assessed in EIAR Chapter 7 and the ornithology section of this report. *Habitats* - Effects due to habitat loss are assessed at construction stage. - No significant effects are predicted as a result of dust deposition arising from maintenance vehicle traffic. - There is potential for water quality to be adversely affected from an accidental spillage however at a much reduced magnitude to the construction phase. This is assessed as an **adverse, temporary to short-term likely significant effect at a geographical scale** on drainage ditches, 1st and 2nd Order Streams and the Morningstar River. *Mammals (Bat species)* *Collision Risk* - All turbine locations, with the exception of T5 & 16 have a moderate potential for collision of high-risk species. T5 & T16 have a high potential for collision of high-risk species. Potential direct impacts of collision and barotrauma are assessed as a permanent, adverse and likely significant effect at a local geographical scale for the local bat population. *Disturbance & Displacement*

[66] Rockstwon Stream, Loughgur Stream and Ballycullane Stream

	- Known roosts are beyond the distance for direct disturbance from ALAN. Light spill levels are not expected to reach the closest linear feature. There is no evidence that bats are attracted to aviation lighting. Significant effects are not predicted. - There is no potential for direct or indirect effects from human activity and machinery (maintenance & servicing). *Other Mammals* - There will be no likely significant disturbance or displacement effect at any geographical scale on mammals (all other species) including on badger and pine marten as a result of operational lighting at the onsite substation. - There is low potential for water quality to be adversely affected during the operational phase and no likely significant effects on otter at any geographical scale. *Amphibians* • There is potential for water quality deterioration. This is assessed as an **indirect, adverse and likely significant effect** on amphibians at **a local geographical scale.** *Aquatic Ecology* There is no potential for significant disturbance and displacement effects at any geographical scale. A potential water quality deterioration as a result of an accidental pollution event will have a deleterious effect on downstream ecological receptors. This is assessed as a **temporary, adverse and likely significant effect at a local geographical scale**.
Decommissioning Phase	Similar to construction phase but at reduced levels. Effects could primarily arise as a result of disturbance (ground clearance and reinstatement including loss of nesting/roosting sites and ALAN) and surface water quality effects (ground disturbance, refuelling and materials storage). Adverse effects on ecological receptors is considered to be **significant at a local geographical scale.**
Cumulative Effects	The existing and proposed wind farms considered in the assessment of cumulative effects are set out in Table 6-47 & 6-48. *Water Quality* • If coinciding pollution events or events of increase suspended sediments were to occur there is potential for adverse, slight to moderate, long-term cumulative effects on the Morningstar, Maigue, Groody, Shannon River/estuary in the immediate vicinity of the confluence. However, it is reasonable to assume that approved projects will demonstrate no adverse environmental effects and incorporate good practice measures. Therefore, as concluded in EIAR Chapter 9[67] there are no significant cumulative effects predicted. *Habitat Loss* • No significant cumulative effects predicted at any geographical scale. *Mammals (Bat Species)* • No cumulative effects are expected on the local bat population. Other developments/projects considered in the assessment of cumulative effects are set out in Table 6-49.

[67] Hydrology & Hydrogeology.

	• Overall, due to the nature and scale of other developments, such dispersed projects are not expected to result in significant cumulative effects.

Mitigation

13.22. The EIAR refers to a suite of mitigation measures detailed in Section 6.8 which address the effects predicted in respect of IEFs. An Ecological Clerk of Works (ECoW) will be appointed to ensure the mitigation measures outlined, the HSMP (Appendix 6) and the CEMP (Appendix 2A) are implemented. The ECoW will give toolbox talks, monitor the efficacy of mitigation and have authority to stop works. All mitigation measures are incorporated in the CEMP. Measures are very extensive and include:

Construction Phase

Mitigation for protection of watercourses and downstream designated sites (Section 6.8.1.3.1.1)

- Implementation of the CEMP and Surface Water Management Plan (SWMP)(Appendix 2E)
- Construction of a site surface water management system to attenuate run-off, guard against erosion and safeguard downstream water quality. This will include interceptor drains upslope of works areas, swales, check dams to reduce velocity and allow sediment to settle, silt traps and fencing.
- Vehicle entry to surface waters will be avoided. Watercourse crossing works will be staged, a small number will be undertaken at one time. Temporary damming (sandbags) will cut off in-water works from the main channel. Works will take place during low-flow periods.
- A 10m buffer will be retained for construction works. Works within 50m of a watercourse will not take place in adverse weather. Deposition areas will be enclosed with silt fencing with a SUDS designed for the retention of large water volumes. Exposure of stripped ground and stockpiles will be minimised, hessian, mulches or tackifiers will be used where this is not possible. Re-seeding will take place as soon as practicable.
- Concrete washout and refuelling will be controlled in designated compounds and bunded enclosures. Spill kits will be carried. Wastewater will be stored and tinkered off site for treatment and disposal at a licensed facility.

Mitigation against habitat loss of hedgerows, treelines and woodland habitat (Section 6.8.1.4.1.1)

- Hedgerow and woodland replanting and translocation as proposed in the HSMP consists of c. 3,970m, resulting in a nett gain of c. 1,574.7m

Mitigation against habitat degradation of hedgerows, treelines and woodland habitat (Section 6.8.1.4.1.2)

- A pre-construction assessment will be carried out by an appropriately qualified arboriculturist and Root Protection Areas (RPAs) implemented. No construction works or activities within 5m of hedgerows, 3m for activities in close proximity to hedgerows.

Mitigation to prevent dust deposition (Section 6.8.1.4.1.3)

- Water will be used as a dust suppressant, public roads will be inspected and cleaned, vehicle speeds will be controlled, wheelwash facilities will be implemented, stockpiling will minimise exposure to wind and daily inspections will examine effectiveness.

Mitigation against water quality effects on depositing/lowland rivers and drainage ditches (Section 6.8.1.4.1.4)

- As above for watercourses and downstream designated sites.

Mitigation to prevent the spreading of invasive species (Section 6.8.1.4.1.5)

- Bio-security measures are included in the HSMP. They include: fencing off Japanese Knotweed & Giant rhubarb, signage cleaning of footwear and equipment, chemical treatment. Excavation and burial of winter heliotrope, incineration or licensed disposal or application of herbicide. Products will be sourced from licensed facilities, and relevant guidance will be followed.

Mitigation against Bat habitat loss (Section 6.8.1.5.1.1)

- Tree felling will be carried out outside activity and hibernation seasons. Where this is not possible it will be carried out in consultation with statutory bodies. PRFs of the tree to be felled and within 30m will be checked immediately prior to felling, trees to be removed will be soft felled to allow for dispersal. The addition of bat boxes will compensate for removal of PRFs, with siting confirmed by ECoW. Bat buffer zones will be created early, spoil will be used to create a homogenous habitat, and the area will be prevented from scrubbing up through a mowing or grazing regime. See also HSMP replanting and translocation measures.

Mitigation to avoid disturbance and displacement (Bats) (Section 6.8.1.5.1.2)

- LED luminaries will be used, light spill minimised with accessories used where needed.
- Good practice vehicle and plant selection, use and maintenance (low noise models, silencers, speed restrictions, shut down etc).

Mitigation for Badgers and their Setts (Section 6.8.1.6.1.1)

- Sett closures and provision of up to two artificial setts will be undertaken in accordance with TII Guidance[68]. Pre-construction surveys will be undertaken with camera monitoring of identified setts.

[68] Guidelines for the Treatment of Badgers prior to the Construction of National Roads Scheme, 2006.

- Sett removal - monitoring of activity, closure outside the breeding season, installation of one-way badger gate, destruction will only commence after 21-day exclusion period.
- Artificial setts – undertaken by specialist, within affected groups territory, located and landscaped to ensure lack of disturbance, constructed several months prior to closure of active sett, use encouraged with bait and bedding.
- Entrapment – fencing will be mammal friendly, exposure of excavations will be limited and egress points will be provided.
- HSMP – will provide added foraging habitat and suitable areas for sett excavation.

Mitigation to protect badgers from disturbance and displacement (Section 6.8.1.6.1.2)

- Buffer zones (30m for inactive sett, 50m for active, 150m for blasting). Construction works primarily during daylight hours.

Mitigation to protect otters from disturbance and displacement (Section 6.8.1.7.1.1), lighting (Section 6.8.1.7.1.2) and water quality deterioration (Section 6.8.1.7.1.3)

- Pre-construction surveys. Buffer zones (150m from otter holts with breeding females or cubs, no vehicles within 20m of active holts, no lights within 15m of active holts). Construction works mainly limited to daylight hours. Limited exposure of excavations with egress points.
- Use of senor/timer triggered lighting, LED luminaries, minimisation of light spill.
- Water Quality - As above for watercourses and downstream designated sites.

Pine Marten (Section 6.8.1.8)

- No works within 100m of active breeding den, or 30m of inactive, non-breeding den.

Amphibians (Section 6.8.1.9)

- Pre-construction surveys in breeding season (Feb-March) and consultation with NPWS. Water Quality - As above for watercourses and downstream designated sites.

Aquatic Ecology (Section 6.8.1.10)

- Water Quality - As above for watercourses and downstream designated sites.
- HDD and Frac-out – as above.
- Bridge Design – No instream works.
- Watercourse and drain crossings - construction will be staged, only a small number will progress at one time.
- Biosecurity – measures set out in Section 6.8.1.4.1.5 will be implemented. For white-clawed crayfish plague, IFI Biosecurity Protocol for Field Survey Work (2010) will be followed.
- Use of pesticides – avoided.

*Biodiversity Enhancement (Section 6.8.1.11) *See Fig 6-32 and Appendix 6I for further detail.*

- HSNO sets out management areas, measures, methods and actions to achieve biodiversity enhancement. Five areas are proposed.
- Area 1 – proposed management of lands for Whooper Swan only.
- Area 2 – proposed hedgerow and treeline enhancement and replanting (3,970m and a nett gain of 1,574.7m).
- Area 3 – proposed establishment of pond and wetland meadow (to provide suitable breeding habitat for amphibians including common frog and newt).
- Area 4 – proposed establishment of native broadleaved woodland.
- Area 5 – proposed establishment of native species-rich grassland and woodland edge habitat.

Operational Phase

- Measures to protected designated sites, water quality, and habitats are include relevant measures set out above for the construction stage. (Sections 6.8.2.1 and 6.8.2.2 refer).

Bats

Collisions and Barotrauma (Section 6.8.2.3.1.1)

- Exclusion buffers as set out in Table 6-51 and ranging from 73.9m to 97.1m and habitat management of bat buffers to ensure desired condition as set out in the HSMP.
- Feathering of Blades to prevent 'idling' in low wind speeds for all turbines.
- Curtailment regime will be implemented for Leisler's Bat and Nathusius pipistrelle species. It is proposed that T1-T7 are curtailed during the spring (May-June) and autumn (mid-August to end October) at wind speeds between 3 and 5 m/s at ground level. Where linear features are being retained within bat buffers (T3, 6, 12 & 14) curtailment will be implemented for the full activity season of year one. Curtailment will be monitored and fined tuned.

Disturbance & Displacement (Section 6.8.2.3.1.2)

- As per Construction Phase.

Other Mammals (Section 6.8.2.4)

- As per construction phase for water quality (otter)

Aquatic Ecology (Section 6.8.2.4.1.2)

- As per construction phase for water quality, watercourses and downstream aquatic IEFs.

Decommissioning Phase (Section 6.8.3)

- Relevant measures as per the Construction Phase. A Decommissioning Plan will be implemented to manage and control the component removal and ground reinstatement.

Monitoring (Section 6.9)

- Construction Stage - ECoW monitoring of construction stage water quality mitigation measures. This will include a monitoring schedule with frequency and parameters agreed with LCCC. It will include baseline sampling, monthly sample analysis, monitoring of surface water outfalls and routine inspections.
- Operational Stage - Habitat recovery, restoration, reinstatement and enhancement monitoring quarterly during construction and annually in years 1, 2 and 3 (post-construction) in line with the HSMP.
- Operational Stage – monitoring to ensure bat buffer zones remains as featureless as possible as incorporated in HSMP. Monitoring will occur during the curtailment plan. Compliance checks will take place in April and august for the first three years of operational phase, ever 5-years thereafter. Bat activity monitoring will also occur in years 1, 2 and 3.
- Operational Stage – A comprehensive on-site fatality monitoring programme will be undertaken across years 1, 2, 3, 5, 10, 15 and 25 supporting adaptive management through long-term ecological data collection.
- Operational Stage – monitoring of up to two artificial setts will be undertaken for a period of one-year post-construction.

Residual Effects

13.23. With the implementation of mitigation measures, the residual effects are set out in Section 6.10 of EIAR Chapter 6 and summarised in Table 6-52. This provides that mitigation and enhancement measures are sufficient to avoid significant effects on IEFs and as such no residual effects are predicted with the exception of a short term significant residual effect at a local geographic scale as a result of habitat loss until such times as the newly planted and translocated habitats (Area 2, 4 & 5) in the HSMP are established (1-5 & 5-10 years).

Analysis, Evaluation and Assessment: Direct and Indirect Effects

13.24. I have examined, analysed and evaluated Chapter 6 of the EIAR, all of the associated documentation including the appendices and the submissions on file in relation to biodiversity. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that they key impacts in respect of likely effects on biodiversity as a consequence of the development have been

identified. Observers raise a number of issues in respect of biodiversity which I address below.

Decline of biodiversity, loss of habitat and hedgerows (generally)

13.25. Observers raise concerns in relation to the habitat and hedgerows which will be lost to the proposed development, concerns include the loss of breeding and foraging habitat and associated impacts on wildlife (generally), the adequacy and accuracy of the assessment, a failure to provide nett biodiversity gain in accordance with the NBAP and invasive species. In response the applicant relies on EIAR Chapter 3 (consideration of alternatives) to demonstrate that the design of the project has evolved to minimise and mitigate potential impacts on biodiversity and affirms that a full impact assessment has been undertaken in EIAR Chapter 6 (Biodiversity) in accordance with best practice and guidance.

13.26. The baseline habitats within the proposed development site are identified and quantified in Table 6-24 of EIAR Chapter 6 and in Table 1 of the HSMP. The anticipated habitat loss as a result of the construction of the proposed development is identified and quantified in Table 6-42 of EIAR Chapter 6 and Table 2 of the HSMP and I have confirmed the consistency of information across these documents. I am satisfied that the assessment has included consideration of the GCR, TDR and borrow pits in addition to other elements of the proposed development infrastructure. Habitats of local (lower) value and with limited ecological importance are screened out from further assessment and this is considered reasonable. This includes the majority habitat ‘agricultural grassland’ of which there is 182.3ha within the proposed development site boundary. The following terrestrial habitats were brought forward for further consideration as IEFs: Hedgerows (WL1), Treelines (WL2), Earth Banks (BL2), Depositing/lowland River (FW2), Drainage ditches (FW4), Mixed broadleaved/conifer woodland (WD2) and Immature woodland (WS2). The unmitigated impact of habitat loss in respect of IEFs, is assessed as likely significant at a local geographic scale. Of 34 hedgerows within the proposed development site the majority were assessed as ‘slight’ or ‘low’ value within six assessed as ‘moderate’ and only two as ‘high’.

13.27. The design of the project has evolved to minimise the loss of habitats, particularly those of greater ecological value and this is evident in EIAR Chapter 3 were turbine locations, access and track locations were altered to reduce hedgerow removal and in the mitigation measures where historical townland boundary hedgerows are retained within bat buffers and with curtailment proposed as mitigation as opposed to hedgerow removal. The proposed development also includes a HSMP which proposes to create and enhance a series of habitat management regimes to mitigate habitat loss and provide for nett biodiversity gain. Area 2 (27.5ha) provides for hedgerow and treeline enhancement and replanting, as described in detail in Section 5.1.2. of the HSMP. In total 3970.1m of hedgerow will be replanted within the application boundary, significantly in excess of the 1.9km hedgerow loss and 922.8m treeline loss and resulting in a nett biodiversity gain of 1,147.3m[69] with further enhancement of 6133.1m of hedgerow. Area 4 (1.74ha) provides for the establishment of native broadleaved woodland as described in detail in Section 5.4 of the HSMP. In total 1.74ha or native woodland will be planted consisting of approx. 1,914 trees of high local biodiversity value and a mixed species composition as detailed in the HSMP significantly in excess of the 1.1ha mixed woodland loss and resulting in nett biodiversity gain. In addition to Areas 2 and 4, the HSMP provides for 0.85ha of pond and wetland meadow (Area 3) and 3.08ha of native species-rich grassland habitat (Area 5) to enhance the overall habitat quality and biodiversity within the proposed development site. Of the remaining IEF habitats the limited loss of earth banks (BL2) is not considered significant, the limited temporary loss of depositing/lowland river habitat (FW2) of 51.4m is considered significant at a local geographical scale, the loss of 1.8ha of immature woodland (WS2) is not considered to be ecologically significant and the loss of drainage ditches (FW4) of 1.3km is considered significant at a local (higher) scale. The residual effect is assessed as a short-term significant residual effect at a local geographic scale only pending the establishment the HSMP.

13.28. The observers have identified a number of inconsistencies in the metrics provided for temporary and permanent habitat loss, this consists of both linear

[69] Not 2390.6m as stated in the EIAR.

metrics and percentage values and I have identified were this occurs in the footnotes to Table BDY1 above. I have confirmed that the information provided by the applicant in Table 6-42 of EIAR Chapter 6 and Table 2 of Appendix 6I is correct across both documents and therefore the errors primarily arise in the applicant's assessment of potential effects. In my view they are unintentional human error as opposed to flawed methodology or assessment. I have considered the correct information in my assessment of habitat loss above, and I am satisfied that the applicants findings in respect of potential effects remain valid.

13.29. Overall, I am satisfied that the habitats of the proposed development site primarily consist of agricultural grassland of low ecological value. I am satisfied that the loss of other habitats within the proposed development site is limited and acceptable in the context of the evolved design of the project and proposed mitigation measures. This is further influenced by my findings of no significant effects in respect of the flora, fauna, hydrology and AA sections of my report. With the implementation of the HSMP I am satisfied that overall, there will be nett biodiversity gain as a result of the proposed development.

13.30. Whilst I have recommended that Turbines T1 to T5 in the northern section are omitted for separate ornithological reasons this is primarily as a result of potential mortality effects associated with collision risk on Whooper Swan and I am satisfied that it is severable from the assessment of biodiversity in this section. In my ornithological conclusions I recommend that all project infrastructure associated with T1 to T5, together with Area 1 of the HSMP, in the northern section of the proposed development is omitted. This is with the exception of the access roads required for the GCR and TDR, the borrow pit, deposition area and Areas 2-5 of the HSMP which remain necessary as a mitigation measure in relation to habitat loss as discussed above. Otherwise, the omission of project infrastructure in the northern section of the proposed development (for ornithological reasons) will reduce the habitat loss and biodiversity impacts of the proposed development and whilst this further supports my findings in relation to biodiversity, I wish to be clear that my conclusions are not based on or influenced by same. In my opinion the full implementation of Area 2 to 5 of the HSMP remains appropriate and justifiable in the interests of

nett biodiversity gain, particularly as the presentation of the information in the application does not allow for the distinct identification of habitat loss in the northern or southern sections of the proposed development including relative to habitat type and therefore a proportionate reduction of the HSMP is not possible, and would not in any event be appropriate.

Conclusion

13.31. I accept the applicants findings that mitigation and enhancement measures are sufficient to avoid significant effects on IEFs and as such no residual effects are predicted with the exception of a short term significant residual effect at a local geographic scale as a result of habitat loss until such times as the newly planted and translocated habitats (Area 2, 4 & 5) in the HSMP are established (1-5 & 5-10 years). This will be mitigated by the omission of turbines T01 to T05 in the northern section of the site, however short-term significant residual effects at a local geographic scale will remain. These are considered acceptable and not sufficient to warrant refusing planning permission.

Impacts on NHAs

13.32. The potential impacts on Lough Gur pNHA are addressed in the ornithological section of this report. The unmitigated potential impacts on the Inner Shannon Estuary – South Shore pNHA are assessed by the applicant as adverse, temporary to short-term and likely significant in the evident of an accidental pollution event of significant magnitude reaching the site as a result of hydrocarbons or sediment discharge. In my opinion, this is a particularly conservative position based on an abundance of caution and which is very unlikely to occur as a result of the significant downstream location of the site approx. 37km from the proposed development. With mitigation measures, as set out in the CEMP to protect water quality no significant residual effects are predicted. I am in agreement with the applicant's findings in this regard and satisfied that there will be no significant effects on the biodiversity of this site. Notwithstanding this conclusion, I would observe that the omission of project infrastructure in the northern section of the project site (for Ornithological reasons) and within which the Morningstar River is located, offers further reassurance that there will be no significant effects on this pNHA as a result of

hydrological connectivity, although I wish to be clear that my findings are not dependent on same.

Impacts on Flora and Fauna generally

13.33. Observers were generally concerned that the proposed development would result in adverse impacts on wildlife generally with concerns raised in relation to many species including hedgehog, fox, badger, otter, Irish hare, stoat, pine marten, frogs and other. The applicant again relies primarily on EIAR Chapter 6 in response.

13.34. There was no evidence of Irish hare or Pygmy Shrew in the field surveys and no NBDC records within the 2km study area. There were no sightings or field signs of hedgehog during the field survey, and only one NBDC record within the 2km study area for this species in 2017. For stoat there are no NBDC records within the 2km study area, but a trail camera deployed at an active badger sett entrance did record footage of the movement of a single stoat. These species were all brought forward as IEFs for further consideration on a precautionary basis given that the proposed development site was considered to include suitable habitat contributing to the local population. The potential for unmitigated effects on these mammal species was subsequently assessed as direct, adverse, temporary to short-term likely significant effect at a local geographic scale and not significant for habitat loss, disturbance or displacement. With mitigation measures, no significant residual effects are predicted. Fox were excluded as an IEF as they are not protected under wildlife legislation and there is an abundance of suitable habitat within the site and wider environment. This is a common species in Ireland with no protection status. It is not in decline and is highly adaptable to habitats within and surrounding the development site and I consider its exclusion as an IEF to be sound. Having regard to the ecological baseline for these species, the limited signs of activity within the extents of the proposed development site, the embedded design measures particularly those addressing the risk of mortality associated with excavations, I am satisfied that there will be no significant effects on these species.

Badgers

13.35. The presence of badger throughout the proposed development site is confirmed both by the presence of setts and by high levels of secondary evidence (latrines, prints, scat, trails and feeding signs). Eight setts were identified across the study area of which three were deemed to be active and five inactive. The proposed development will result in the loss of two setts, namely Sett 2 and Sett 3. The latter sett (3) is inactive and showed no signs of use in 2023 or 2025, however Sett 2 is active and is assessed as an outlier sett with no breeding recorded and with two (out of six) entrances active. The destruction of these setts is assessed as a direct, adverse, permanent and likely significant effect at a local geographical scale. There is also the potential that blasting or piling activities may result in the collapse of Sett 4 (84m from T7) and Sett 7 (100m from T17) and this is assessed as direct adverse, permanent and likely significant effect at a local geographical scale. The risk of mortality, disturbance and displacement associated with construction works is also assessed as likely significant at a local geographical scale. Mitigation for Badgers and their Setts is set out in Section 6.8.1.6.1.1 of EIAR Chapter 6 and with mitigation no significant residual effects are predicted.

13.36. I note that mitigation includes sett closure (outside the breeding season), removal (after 21-day exclusion period) and provision of up to two artificial setts in accordance with TII guidance and specifically with pre-construction surveys and camera monitoring. In this regard I am satisfied that the exclusion of a sett which is an outlier sett, and not a main, subsidiary or breeding sett, is acceptable. The main consideration is the rationale which is used to determine that a sett is an outlier sett. This should ideally be confirmed by evidence from camera traps as is the case in respect of the proposed development and the field survey effort. Accordingly, I am satisfied that the exclusion of an outlier sett (x2) is acceptable in accordance with TII guidance and unlikely to significantly affect the local badger population including the breeding population. I further note that following guidance, the provision of a replacement artificial sett is not required if the sett to be excluded is an outlier sett. This provides further reassurance that the effects of excluding an outlier sett are not significant, however I have no objection to the provision of artificial setts as a mitigation measure and note that this is welcomed by the LCCC biodiversity officer. Otherwise, I would confirm to

the Commission that this species is not an Annex IV species and is not protected in European Law. Accordingly, a derogation is not required prior to the granting of planning consent.

13.37. Otherwise, I note the mitigation measures to avoid entrapment, disturbance, displacement and/or mortality including buffer zones of 30m (inactive) sett, 50m (active sett) and 150m (blasting). As discussed previously in this report, blasting is not proposed in the construction methodology and therefore in the interests of certainty it is recommended that it is precluded by condition in the event that planning permission is granted. Overall, I am satisfied that the embedded design and proposed mitigation measures including closure, exclusion and removal of 2 outlier setts, pre-construction surveys, best practice construction methods, the measures proposed in the HSMP and ecological supervision are sufficient to avoid significant effects on badger as a result of habitat loss, sett loss, mortality, disturbance or displacement.

Otter

13.38. The presence of Otter within the proposed development site was found in the form of foraging and commuting behaviour concentrated along the Morningstar River, however no evidence of breeding was found with no holts (active or inactive) identified. The potential (unmitigated) effects on this species were assessed as likely significant at a local scale as a result of habitat loss, a deterioration in water quality, disturbance and displacement. With mitigation, no significant residual effects are predicted. I note the mitigation measures proposed in relation to pre-construction surveys, buffer zones, lighting controls and good construction practices in relation to morality, disturbance and displacement. Extensive water quality mitigation measures are proposed, as contained in the CEMP and I am satisfied that they are robust, practical and enforceable. The temporary loss of foraging and commuting habitat (288m of drainage ditches and 300m of riparian habitat) as a result of culverting and the pre-cast clear span bridge over the Morningstar River is considered to be minimal and will be available again to otter post-construction. Whilst 1.3km of drainage ditches will be removed from within the proposed development site, this habitat is considered to be of limited ecological value to otter as confirmed by field surveys and baseline activity, and in addition it is a small component of the

12.1km of drainage ditch habitat which exists within the proposed development site. Given the ecological baseline and the absence of holts, I am satisfied that the embedded design and proposed mitigation measures are sufficient to avoid significant effects on otter as a result of habitat loss, water quality, disturbance or displacement.

Pine Marten

13.39. Pine marten were recorded at two locations via camera trail monitoring with no other sightings or field signs recorded. One of the two observations was identified as a potential den feature (tree hollow). This is in the northern section of the site approx. 6.6m from the access track to T5. A camera trail was deployed to validate results which recorded pine marten interpreted as hunting rather than using the feature as a den site. Whilst not is use as a breeding den during field surveys, this cannot be ruled out as a potential den site in the future. Potential unmitigated effects on pine marten were identified as habitat loss, disturbance and displacement. These were assessed as significant at a County (habitat loss) and local geographic scale. With mitigation, no significant residual effects are predicted. I note that the IEF habitat loss associated with this species is quantified at 1.1ha of mixed woodland (WD2) and 1.8ha of immature woodland (WS2). The loss of immature woodland (WS2) is not considered ecologically significant, and the HSMP proposes 1.74ha of native woodland (Area 4) comprising 1,914 trees of high local biodiversity value and a mixed species composition significantly in excess of the WD2 habitat loss . It is otherwise proposed to mitigate disturbance and displacement effects by lighting controls and construction works buffers (100m active breeding den, 30m inactive, non-breeding den). I am satisfied that the embedded design and proposed mitigation measures are sufficient to avoid significant effects on pine marten as a result of habitat loss, disturbance or displacement.

Invasive species

13.40. The applicant proposes biosecurity measures to prevent the introduction and/or spread of invasive species in the HSMP (Appendix 6I). Specific measures are set out in relation to the treatment of Japanese Knotweed, Giant rhubarb, Winter heliotrope and to avoid the introduction of invasive plant species. I am

satisfied that the biosecurity measures proposed follow the relevant best practice guidelines and are sufficient to avoid significant effects associated with invasive species.

Impacts on Bats

Competency of Authors

13.41. Observers raised concerns in relation to the competency of the individuals undertaking the bat survey, with a concern that they held only general environmental or unrelated qualifications. The applicant does not directly address competency in its response to the submissions. This matter is addressed in Section 1.7 of EIAR Chapter 1, Section 6.1.4 of EIAR Chapter 6, and Section 1.6 of Appendix 6E (Bat Technical Results Report). In this regard I note the comprehensive environmental and ecological resources applied to EIAR Chapter 6, including to the bat surveys and technical report. This includes senior personnel with a range of qualifications including in the fields of ecology, environmental biology, wildlife biology & conservation, environmental science, environmental management, geology, animal biology and zoology etc. I note the experience of the team and that many personnel are qualified members of CIEEM and hold a bat derogation licence for disturbance issued by the NPWS. I am satisfied that that EIAR Chapter 6 and the associated bat surveys and technical report have been prepared by experts with competency in this technical subject area.

Desk Study

13.42. Observers were concerned that the desk study was completed after field deployments began, contrary to best practice. Observers were further concerned that the desk study consisted of BCI roost lists only and did not capture BCI local surveys or recorded sightings by local volunteer groups, Vincent Wildlife Trust, LCCC Biodiveristy Officer or NPWS wildlife ranger. As a result, it is suggested that multiple known roost sites within a 10km buffer of the site are omitted. The applicant does not directly address this issue in response, rather defers to EIAR Chapter 6 and confirms that it was carried out in accordance with relevant guidance and best practice.

13.43. In relation to the desk study, I note that it included a review of designated sites, an examination of mapping and aerial imagery resources, a high-level assessment of potential habitat suitability, a review of available data sets including Biodiversity Maps report (species recorded and known roosting sites (NBDC, 2023)) and BCI roost records. It is accepted that BCI roost records were requested on 2nd August 2023 and that field surveys commenced during the 2023 and 2024 active bat seasons, with PRAs commencing in August 2023, February and March 2024 and static detectors deployed in May-June 2023, July-August 2023 and September-October 2023. Whilst it is clear that some field work commenced in advance of the request for BCI roost lists, this is only one element of the desk study and it does not necessarily translate to a material error in the methodology employed. It is not known when the BCI bat roost data was provided in respect of the desk-study work, however the Biodiversity Maps report, including species recorded and known roosting sites (NBDC, 2023) was available to the applicant. Therefore, this data together with the other elements of the desk-study was available to the applicant in advance of field work and the subsequent BCI roost data did not introduce new material information, which would compromise the desk study or survey quality.

13.44. In addition to the timing of the request for BCI roost data, another issue which relates to the sequencing of desk study and field work concerns the preliminary roost assessments (PRAs) and the roost emergence/entry surveys. Although the applicant states that the desk-based study informed the scope of bat surveys required, it is difficult to agree entirely with this position when the PRAs commenced in August 2023, and the roost surveys commenced on 18th July 2023. Whilst this potentially raises a sequential problem with the timing of PRAs relative to roost emergence/re-entry surveys, from my examination of the application data I do not consider that a material deficit exists. In this regard I note that the preliminary roost assessment identified 8 buildings and 14 trees with moderate roosting potential. The locations are shown in Fig.4 & 5 (Appendix 6E). The subsequent roost emergence/re-entry survey confirmed the presence of 5 roosts in these buildings and no tree roosts. The location of the confirmed roosts is shown in Fig.8 and described in Table 9 (Appendix 6E) and notwithstanding any issue which arises with the sequential timings provided for

the PRA and subsequent surveys, my examination of the data confirms a direct correlation between the potential roosts identified and the locations of the surveys carried out which clearly supports an informed methodology.

13.45. In relation to the suggested failure of the applicant to have regard to local surveys or recorded (bat) sightings by local volunteer groups, Vincent Wildlife Trust, LCCC Biodiveristy Officer or NPWS wildlife ranger I am satisfied that this is not the case. The national data set available at 'Biodiversity Maps' includes records of bat observations received and maintained by BCI and NBDC and includes data from numerous surveys, undertaken by BCI, their members, citizen recorders and professional ecologists and I am satisfied that the applicant has had regard to same. I note that the LCCC Biodiveristy Office did not raise a concern in this regard and the NPWS did not make any nature conservation comments and the applicant is not obliged to have regard to any other anecdotal data which might exist, the latter issue being addressed by the applicant's own survey effort. Otherwise, I note that Lesser Horseshoe Bat Database is maintained by NPWS and I have addressed this issue below.

Lesser Horseshoe Bat (LHB)

13.46. Observers raised concerns that the location of multiple known LHB roost sites were omitted as a result of the applicants failure to have regard to local surveys or recorded (bat) sightings by local volunteer groups, Vincent Wildlife Trust, LCCC Biodiveristy Officer or NPWS wildlife ranger. In this regard I note that the primary source of data is the National Bat Database of Ireland maintained by Bat Conservation Ireland (BCI), and the NPWS National Lesser Horseshoe Bat Database. I note that a copy of this national data set is accessible through Biodiveristy Maps and includes counts by bat workers or NPWS staff. I have consulted the relevant national database and I note that the nearest record of this species is approx. 7km to the northeast in the area of 'Grange'. Grid R6243 refers. There were 5 individual counts of this species in 1997 and none in 2006, 2008, 2012, 2014 or 2015. There are no national or European designated sites for this species within the vicinity or ZOI of the proposed development site and the site is not ecologically linked to an important LHB roost or population. Otherwise, I note that there was a single record of LHB at D.02 in Autumn in the static deployment (2023). The collective evidence is persuasive, and I am

satisfied that the environment of the site is not an important habitat for Lesser Horseshoe Bats.

Static Detectors

13.47. Observers raised concerns that the location of the static detectors was not informed by a clear rationale or methodology, that proxy locations were sometimes used and that the data survey period was limited with early spring activity and autumn swarming periods missed. Other concerns were raised in relation to the use of multiple detector models (mixed hardware) and the absence of calibration logs or a rationale for malfunctions.

13.48. The applicant describes the methodology for the deployment of static bat detectors at Section 2.2.1 of Appendix E, with the locations chosen to provide an overview of bat activity at given habitat features and turbine locations (including open areas), with 14 no. detectors deployed (D.01 – D.14) following NatureScot Guidance (2021) for a wind energy development in excess of ten turbines. The locations are shown in Fig. 2 and Fig.3 of Appendix 6E. I have examined the habitat features of the site, the location of proposed habitat removal and the locations of proposed project infrastructure (including turbine locations) and I am satisfied with the location and coverage of detectors deployed by the applicant having regard to best practice considerations. In relation to detector malfunction and failure, I note that D.08 failed to record any data and D.09 recorded only for one night in Spring, that D.14 failed to record any data in Summer, and D.09 and D.10 failed to record any data in Autumn. These detectors are all in the southern section of the site. In a worst-case scenario 12 detectors recorded data in any survey period and in terms of simple numbers, this still complies with guidance for a wind energy development of the scale proposed, provided that the detectors which did record maintained appropriate site coverage. In the spring period I am satisfied that D.07, D.13 and D.14 are appropriate proxy locations for the failure of D.08 and D.09 to record data. In the summer period, I am satisfied that D.09 is an appropriate proxy for the failure of D.14 to record data. In the autumn period I am satisfied that D.14 and D.08 are an appropriate proxy for D.09 and that D.11, D.12, D.13 and D.14 provide appropriate coverage for D.10 in similar habitat conditions. Whilst the failure to record data is noted and not uncommon, I am satisfied that the applicant has deployed sufficient detectors at

sufficient locations to ensure appropriate coverage and satisfy relevant guidance, notwithstanding the absence of a rationale for malfunctions.

13.49. In terms of the survey period I note that consecutive survey nights in each season, were in excess of the minimum 10-day period set out in guidance (ranging from 14-20 days), in a variety of weather conditions and at varied detector heights. I have no concerns in this regard.

13.50. In relation to the use of mixed hardware, I note that data collected using SM2Bat+, SM Mini Bat and SM4BAT-FS was analysed using Kaleidoscope software (Version 5.6.3) and data collected using Batllogger M detectors was analysed using BatExplorer software. Observers were concerned that this introduced significant developer bias. In my experience it is not uncommon to find more than one software version used in bat surveys and I am satisfied that it is not a technical problem of itself. It does however require 'manual vetting' by a suitably competent ecologist to ensure there are no analytical inconsistencies. The applicant addresses this issue in Section 2.5 of Appendix 6E and confirms that manual verification was undertaken for all automatically identified bat species (with the exception of common and soprano pipistrelles[70]), which exceeds the 10% recommended manual verification in guidance (NatureScot, 2021). Accordingly, I have no concerns in this regard. I further note that an 'in-house' analysis script was developed for the data collected using statistical software R, with analysis comparing activity levels with other wind farm developments (from the consultants database) and with activity levels assessed using the criteria applied by Matthews et al (2016). This is also described in Section 2.5 of Appendix 6E. Observers also raised concerns in relation to this methodology on the basis that it is unverified and not peer reviewed. Again, in my experience the use of in-house analysis scripts, including use of the R software in this case, is not uncommon. In this case the methodology used is transparent, is tested against comparable datasets and has included manual verification.

13.51. Observers also raised concerns that static detectors were not deployed at height (above canopy level), potentially reducing accurate data collection for bat

[70] Recordings of common and soprano pipistrelles determined a match ration of 100% and were deemed accurate to a degree that did not necessitate manual verification.

species with short or lower echolocation calls (LHB, Brown Long-eared Bat, Natterer's Bat, Whiskered Bat). In this regard, I note that NatureScot (2021) states that monitoring at height is unlikely to detect the presence of any species not already recorded using detectors at ground level and should only be considered (in woodland areas) where: other evidence suggests a high level of bat activity within the height of the rotor-swept area, existing infrastructure allows (where detectors may be fixed to nacelles of existing turbines) or a meteorological mast is present. These conditions do not apply at the subject site, and I am satisfied that detectors at height are not required. Otherwise, I note the varied location of detectors as shown in the photographic evidence presented in Appendix A of Appendix 6E and I am satisfied that the locations sufficiently meet with guidance and specifically I note that turbines in this case are not proposed within woodland ("keyholing").

Roost Assessments

13.52. Observers were concerned that a site wide roost assessment was not carried out in accordance with best practice, with a low number of confirmed roosts, no survey of the TDR and an excessive number of trees listed for further assessment. In this regard the desk study included the collation of relevant bat information within 10km of the proposed development site and the PRA included a search distance of 300m from the site boundary. Accordingly, I am satisfied that a site wide assessment, plus an additional 300m from the proposed site development boundary, was carried out which both meets and exceeds NatureScot (2021) guidance[71]. Observers also opine that the roost emergence survey is limited with inadequate seasonal coverage and no bat studies for felling areas. I note that emergence surveys were carried out in Summer and Autumn only. This matter is primarily addressed in Collins, 2016 which provides guidance on the survey effort for presence/absence surveys but qualifies the guidance provided by stating that surveys should be proportionate with visits adjusted up or down by the project ecologist bearing in mind site specific circumstances. In this regard I am satisfied that the applicants survey effort

[71] 200m + rotor diameter from the site boundary (268m in this case).

between July and October, including two visits to multiple sites sufficiently follows best practice guidance, albeit only in respect of PRFs in buildings.

13.53. One issue does therefore arise in relation to the emergence/re-entry surveys and this concerns the lack of evidence and/or methodology which informed the finding of 'no tree roosts' within the study area. In this regard the PRA identified 14 trees with moderate roosting potential within the study area, with no roosts confirmed in subsequent roost emergence/re-entry surveys. Of these 13 are to be felled within the PDS to accommodate the proposed development. However, the applicant provides no evidence to support these findings with information on roost survey times, methodology and details provided for buildings only as shown in Table 4 of Appendix 6E. This is not considered to represent best practice, and at the very least information on the survey effort and prescriptive approach set out in Collins (2023) should have been provided to give confidence in a negative result. Whilst this is a concern, it is mitigated by the fact that of the 13 PRF[72] trees identified within the site for felling, 12 are identified as PRF-I[73] and 1 as PRF-M[74]. This gives reassurance on the basis that Collins (2023) recommends that emergence surveys are not required in relation to PRF-I's, which means that the surveys carried out by the applicant were discretionary and in addition to best practice. In relation to PRF-M, Collins (2023) recommends that 3 separate dusk emergence surveys are recommended between May-September, with at least one survey in the maternity period (May to August). There is no evidence that such a survey effort was carried out.

13.54. The applicant quantifies the removal of 12 PRF-I's and 1 PRF-M as 23% and 7% of the respective roosting potential of the site and finds that this is not significant but in line with the natural progression of tree felling and planting associated with continuing agricultural use. In the absence of mitigation this is assessed as a permanent, adverse and likely moderate effect at a local geographic scale. Mitigation is proposed in the form of felling outside of the activity season or hibernation season[75]. Where this is not possible additional measures include ECoW checks of the PRFs in trees to be felled (and PRFs

[72] Potential Roost Feature
[73] Low Potential.
[74] Moderate Potential.
[75] Felling times are set out in Table 6-50

within 30m) no later than the morning of felling, with trees to be soft felled and with bat boxes put in place to compensate for removal of PRFs. With mitigation no significant residual effects are predicted. I note that the LA Report recommends that PRF checks should be carried out by endoscope and otherwise recommends that soft felling should be practised.

13.55. Notwithstanding the applicant's failure to provide evidence to support the findings in relation to PRFs in trees, I am satisfied on the basis that only one tree to be felled contains a PRF-M that this matter can be addressed by condition. Notwithstanding that the applicant has proposed pre-construction checks as a mitigation measure, in the absence of corroborating evidence in the EIAR, I am of the view that pre-construction checks should be in the form of endoscope surveys and I am satisfied that this can be addressed by condition and is reasonable on the basis of the collective baseline information available. On this basis I am satisfied that there will be no significant adverse effects on bats as a result of the loss of roosting habitat.

13.56. The TDR was surveyed in March 2024 and surveys identified 52 trees along the route, with 15 no. recorded as PRFs and 36 recorded as requiring further assessment (FAR). The applicant did not carry out further surveys based on the construction methodologies for the TDR. I am satisfied that this position is reasonable on the basis that the location of the proposed accommodation works does not include a PRF or FAR.

Transect Surveys

13.57. Observers where concerned that limited transect surveys were carried out which did not include T6 to T12 in the southern section of the site. The methodology is described in Section 2.2.3 of Appendix 6E and the routes are shown in Fig. 9, 10 & 11. I note that they generally correspond with confirmed roost locations within the site and potential foraging/commuting habitat and linear features. In any event, NatureScot (2021) provides that such surveys are site-specific and discretionary and I am satisfied that the transect surveys carried out are consistent with guidance.

Habitat Loss

13.58. Observers identify that the information provided in the EIAR is inconsistent in respect of habitat loss, particularly in relation to hedgerow and treeline removal. The observes are correct in this regard and this has been addressed from Section 13.25 above where I have established that there is no material error, and the assessment of potential effects associated with habitats loss remain valid.

Operational Phase Mortality

13.59. Collision and Barotrauma is addressed in Section 6.7.2.3 of EIAR Chapter 6. The collision risk assessment finds that all turbines, with the exception of T5 and T16 have a moderate potential for collision of high-risk species Leisler's Bat (NYCLEI), Common Pipistrelle (PIPPIP), Soprano Pipistrelle (PIPPYG) and Nathusius' Pipistrelle (PIPNAT), with T5 and T16 having a high potential for collision of the same high-risk species. This is assessed as a permanent, adverse and likely significant effect at a local geographical scale in the absence of mitigation. The proposed development includes mitigation measures which notably consist of the provision of bat buffers in accordance with NatureScot (2021) recommendations and ranging from 73.9m to 97.1m, feathering of blades and a curtailment strategy. Overall, a precautionary approach is being taken. This includes the following measures:

- The feathering of blades to prevent all turbines idling during low wind speeds and below the manufacturers specified cut-in speed,
- The curtailment of all turbines during spring (May to June) and Autumn (Mid-August to end-October) at wind speeds between 3 and 5m/s, and
- The curtailment of turbine T1, T2, T3, T4, T5, T6, T7 and T14 at wind speeds between 3 and 5 m/s for the full activity season of one year.

13.60. Whilst bat buffer features are considered effective in reducing turbine collisions for high-risk collision bat species such as common and soprano pipistrelles, it is acknowledged that they can be less effective for species like Leisler's bat and Nathusius' Pipistrelle which regularly commute and forage at turbine height in open areas. Therefore, full season curtailment (Year 1) is proposed as mitigation for these species, notwithstanding their low activity levels within the site. Otherwise, this full season curtailment is also proposed where linear features (such as townland boundaries) are being retained within bat buffer zones (T3, T6, T12 and T14). A monitoring scheme is then proposed as

detailed in Section 6.9.3 of EIAR Chapter 6 which will ensure the maintenance of bat buffers, bat activity monitoring and carcass searches to ensure desired habitat and curtailment conditions.

13.61. On this basis no significant residual effects are predicted.

Other issues

13.62. Observers were concerned that the issues raised in relation to the desk study and survey effort rendered the baseline deeply flawed and on this basis it was contended that mitigation measures could not be designed on the basis of same and did not support a finding of no significant effects. For the reasons set out above, I am satisfied that the survey effort and baseline is satisfactory in the site-specific circumstances of this case and is closely aligned with applicable guidance, with the exception of emergence/re-entry surveys and tree roosts which I have addressed above. I have no concerns in relation to same or the mitigation measures proposed subject to the additional requirement for pre-construction emergence/re-entry surveys in accordance with Collins (2023).

13.63. In terms of mitigation observers were concerned that bat buffer zones in accordance with NatureScot (2021) could not be maintained because they fell within third party (non-involved) lands. The bat buffer zones are shown in Fig.3 – 6 (inc) of Appendix 6I and I am satisfied from an examination thereof that they are all contained within the red line boundary of the proposed development site. It is evident therefrom that some buffer zones are reduced by the location of boundaries, and as described above the applicant proposes a curtailment strategy were the retention of linear features fall within the buffer zones. Accordingly, I am satisfied that a legal interest consideration does not arise.

13.64. Adverse impacts from artificial light was also a concern raised by many observers both during construction and operational stage. This is comprehensively addressed by the applicant with mitigation measures including primarily daytime working, use of LED luminaries, light sensors and trigger controls, buffer zones and the hooding and alignment of light. I am satisfied that these measures are practical, established, proven, implementable and enforceable and I am satisfied that no significant disturbance or displacement effects will occur as a result of ALAN.

13.65. Finally, observers were concerned that the bat survey data was out of date and that updated surveys were required. This was also raised by the LCCC biodiversity officer. In response the applicant states that surveys were undertaken in 2023 and 2024 and at the time of submission of the application only a limited number of surveys were two years old, with the PRA surveys, hibernation surveys, autumn static detector surveys and emergence/re-entry surveys all less than 2 years old. The applicant furthermore points to NatureScot (2021) guidance which states that surveys remain valid for a period of two years and otherwise that updated ecology surveys completed in July 2025 confirmed that habitat conditions, and therefore the ecological baseline, had not changed since the original bat surveys. I am satisfied that the applicant's position is reasonable in this regard.

Conclusion: Direct and Indirect Effects (*Biodiversity*)

13.66. Having regard to my examination of environmental information in respect of biodiversity it is considered that the main significant direct and indirect effect after the application of mitigation measures is:

- A **short term significant residual effect** at a local geographic scale as a result of habitat loss until such times as the newly planted and translocated habitats (Area 2, 4 & 5) in the HSMP are established (1-5 & 5-10 years). This will be mitigated by the omission of turbines T01 to T05 in the northern section of the site, however short-term significant residual effects at a local geographic scale will remain. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing planning permission and is acceptable.

14.0 Ornithology

Issues Raised

14.1. Observers raised concerns in relation to Whooper Swan including the adequacy of the survey effort, collision risk, the efficacy of the proposed Whooper Swan Management Area (WSMA) and mitigation measures generally

for this species. It was also submitted that other species, including Curlew were underrepresented. Other issues raised included the wetland function of the site, particularly with regard to Whooper Swan feeding areas and cumulative effects. The LCCC biodiversity officer also raised concerns in relation to Whooper Swan including collision risk, implementation of the WSMA and displacement.

External Independent Consultant Report on Ornithology

14.2. I have sought input in this case from an external independent Ornithologist, Natural Research (Projects) Ltd who have produced a technical report (May 2026) which provides an examination and analysis of EIAR Chapter 7 (Ornithology), including potential impacts on Whooper Swan ("NR Report"). In accordance with Section 171A of the PDA, 2000, which defines EIA, the NR report is structed (in accordance with all other topic sections in this report) around the following headings: Issues Raised, Examination of the EIAR, Analysis, Evaluation and Assessment: Direct and Indirect Effects. I concur with the findings of the NR Report and therefore I am adopting same in this report and in the interests of brevity I am providing a relevant summary only referenced to the parent section of the NR Report under each heading. I have then provided the Conclusion on Direct and Indirect Effects, which although informed by the NR Report, is my own. The NR Report is appended in full as Appendix D to this report.

Examination of the EIAR

Context

14.3. Section 2-8 (inc) of the NR report notes that EIAR Chapter 7 examines the potential effects of the proposed development on birds and includes the following associated Figures and Appendices:

- Appendix 7A: Statement of Competencies
- Appendix 7B: Baseline Ornithology Report
- Appendix 7C: Collision Risk Modelling Report
- Appendix 7D: Whooper Swan Management Plan (WSMP)
- Figure 7-1: Overview of the proposed Ballinlee Wind Farm
- Figure 7-2: Overview of Development Boundary and Ornithological Study Areas
- Figure 7-3: VP locations and associated viewsheds for Year 2

- Figure 7-4: VP locations and associated viewsheds for Year 3
- Figure 7-5: Whooper swan foraging locations and roost site
- Figure 7-6: Designated sites within 20 km of the Development
- Figure 7-7: Projected flight lines from VP watches illustrating SW-NE trend
- Figure7-8: Proposed whooper swan management plan lands

14.4. The European, international and national legislation, policy and guidance which informed the assessment is noted, together with the methodology uses. The sources used in the desk study are described in Section 6 and the field survey methodologies, which are detailed in Section 7.2.8 of the EIAR, are summarised in Section 7. Section 8 notes the statement of limitations which primarily relates to lack of access to a small proportion of the core study area and the Vantage Point (VP) Surveys.

Baseline

14.5. The baseline environment is addressed in Section 9 – 15 (inc) of the NR report. The NR report notes that Section 7.3.2 of the EIAR summarises the findings from all surveys, and that EIAR Table 7-5 summarises the ornithological activity recorded in each season from VP watches. The target species recorded are set out in Section 12 of the NR Report. Section 13 of the NR Report summarises the results of collision risk modelling with reference to EIAR Section 7.3.3, Table 7-6 and Appendix 7C.

14.6. Section 14 & 15 of the NR Report notes that Important Ornithological Features (IOFs) have been identified using CIEEM guidance, the following IOFs scoped in for further assessment:

High Sensitivity

- River Shannon and River Fergus Estuaries SPA
- Lough Gur pNHA
- Whooper swan (wintering), (Annex 1: EU Birds Directive)
- Golden plover (wintering), (Annex 1: EU Birds Directive)
- Little Egret (all seasons), (Annex 1: EU Birds Directive)
- Peregrine (all seasons), (Annex 1: EU Birds Directive)

Medium Sensitivity

- Curlew (BoCCI Red Listed)
- Lapwing (BoCCI Red Listed)
- Snipe (BoCCI Red Listed)

- Kestrel (BoCCI Red Listed)
- Meadow Pipit (BoCCI Red Listed*)*

Low Sensitivity

- Mute Swan (Lower Conservation Concern)
- Mallard (Lower Conservation Concern)
- Teal (Lower Conservation Concern)
- Cormorant (Lower Conservation Concern)
- Grey heron (Lower Conservation Concern)
- Black-headed gull (Lower Conservation Concern)
- Lesser black-backed gull (Lower Conservation Concern)
- Buzzard (Lower Conservation Concern)
- Long-eared owl (Lower Conservation Concern)
- Sparrowhawk (Lower Conservation Concern)

Potential Effects

14.7. Potential direct, indirect and cumulative effects of the proposed development on IOFs are identified in Table 1 of the NR Report. These are adopted and presented[76] in Table ONY1 below:

Table ONY1: Summary of Potential Effects *(Ornithology)*

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	The baseline conditions of the Development would continue and the ecological value of the area for birds would be expected to remain broadly comparable with current conditions in the short term. Notes that a failure to transition to renewable energy carries an implicit risk of long-term ecological degradation at a broader scale.
Construction Phase	*Waterfowl - mute swan, mallard and teal* - These waterfowl species were regularly present within the core study area including breeding by mute swan. *Direct Habitat Loss & Disturbance* - Drainage ditch habitat loss is calculated at 1.3km, representing a loss of marginal foraging and nesting habitat for waterfowl though this habitat is considered to be of low ecological value at the site level and alternative habitat is available in the wider landscape. The proposed clear span bridge design will avoid direct habitat loss at the Morningstar River Crossing. - Any disturbance would be temporary during the construction period and could lead to short-term displacement and reduction in breeding success or altered behaviour.

[76] I have adjusted the presentation of the summary of potential effects, to highlight only significant effects (in bold).

	Significance of Effect - The loss of drainage ditch habitat is considered a low-level effect given the availability of alternative habitats and the low numbers of waterfowl using these features. - Disturbance to waterfowl is assessed as minor and localised adverse with impacts reversible post-construction. - In Table 7-10 predicted effects are described as Negligible to minor – no adverse effect on integrity. *Whooper swan (non-breeding season)* - Surveys over three non-breeding seasons confirm regular use of Camas South area by up to 50 whooper swans, and along with the Ballycullane area these birds are considered to be functionally connected to the roost at Lough Gur pNHA and represent a locally important wintering population. *Direct Habitat Loss & Disturbance* - Construction activities fall within the sensitivity distance thresholds given for this species and disturbance from these activities has the potential to cause short-term disruption to feeding swans at Camas South, representing a direct disturbance effect during the construction period. Displacement in the Camas South area is considered likely during construction and may lead to longer flights, and associated additional energy expenditure, to alternative feeding areas. It is considered that disturbance could reduce feeding efficiency and alter local site use patterns for up to two non-breeding seasons. *Significance of Effect* - Direct disturbance effects are anticipated on whooper swans foraging at Camas South in combination with indirect displacement to alternative feeding areas. - Construction-phase disturbance is assessed as a **moderate adverse effect at a County/Regional scale** in the absence of mitigation. - In Table 7-10 predicted effects are described as **moderate, locally significant** without mitigation and not significant with the WSMP in place. *Curlew (non-breeding season)* - The maximum flock size recorded within the core study area was 24 birds which is given as being equivalent to 0.06% of the national non-breeding population. *Direct Habitat Loss & Disturbance* - Construction activities have the potential to cause displacement to foraging and roosting birds at distances of 250-500m and therefore habitat availability may be temporarily reduced. Birds may be displaced in to less favourable areas with associated consequences for foraging efficiency and energy budgets. *Significance of Effect* - Given the low numbers recorded, the localised and temporary nature of site use and the availability of suitable alternative habitats it is considered that any displacement is expected to be **short-term and**

	reversible and is therefore assessed as minor adverse at the local scale. - In Table 7-10 predicted effects are described as **Minor, local**. *Golden Plover (non-breeding season*) - Within the core study area, the highest count recorded was of 130 birds in flight and this is used to inform a precautionary worst-case displacement scenario, representing approximately 0.14% of a national non-breeding population of 92,060 birds. Two flocks were recorded using the core study area for roosting or feeding with the largest being 80 birds. *Direct Habitat Loss and Disturbance* - Golden plover has high site fidelity to traditional feeding grounds and is sensitive to disturbance during non-breeding activity with a maximum disturbance buffer of 500m given. Therefore, it is considered construction activity may cause temporary behavioural disruption or displacement with not all surrounding farmland functionally equivalent and any disturbance having consequences for foraging efficiency and energy budgets. However, it was considered that site use was low with only two flocks were recorded using the core study area for foraging or roosting over three non-breeding periods. *Significance of Effect* - As there was considered to be limited use of the site for foraging and roosting and other suitable alternative habitat available any displacement is expected to be **short-term and reversible and is therefore assessed as minor adverse at the local scale**. - In Table 7-10 predicted effects are described as **Minor-moderate local**. *Lapwing (non-breeding)* - Whilst birds were recorded regularly in flight through the core study area use of the area for foraging and roosting during the non-breeding period was considered to be limited and no breeding was recorded. *Direct Habitat Loss and Disturbance* - Lapwing are considered sensitive to disturbance during the non-breeding period and a maximum disturbance buffer of 500m is given. Construction activities may cause temporary behavioural disruption or displacement though Pearce-Higgins et al. (2012) found no significant adverse effects of wind farms on lapwing during construction. *Significance of Effect* - As there was considered to be limited use of the site for foraging and roosting and other suitable alternative habitat available any displacement is expected to be **short-term and reversible and is therefore assessed as minor adverse at the local scale**. - In Table 7-10 predicted effects are described as **Minor local**. *Snipe (non-breeding)* - Up to 23 individuals were recorded during the non-breeding season. No evidence of breeding was recorded. *Direct Habitat Loss and Disturbance*

	- Snipe are a BoCCI red-listed species in Ireland and are considered sensitive to disturbance during the non-breeding period and a maximum disturbance buffer of 500m is given as being commonly applied to wader species although references are given that indicate that actual behavioural disruption occurs within c.100m of human activity or construction. *Significance of Effect* - It is considered that temporary disruption or displacement may be caused by construction activity. However, due to the low numbers involved, the dispersed usage in the area and the availability of suitable habitat in adjacent areas it is considered that displaced individuals are expected to relocate locally. The effect is therefore considered **short-term, reversible and minor adverse at the local scale.** - In Table 7-10 predicted effects are described as **Minor local.** *Other waterbirds (All seasons)* - Cormorant, grey heron and little egret were recorded in low numbers within the core study area, primarily within the non-breeding season. There was considered to be no evidence of reliance on the proposed development area for foraging, roosting or nesting. All species were most frequently encountered commuting along river corridors. *Direct Habitat Loss and Disturbance* - These species are considered to be generally tolerant of moderate human activity with a disturbance distance given of 100-200m. Construction activities may cause temporary behavioural disruption or displacement. Potential effects on water quality and loss or modification of feeding areas could reduce foraging opportunities. *Significance of Effect* - Cormorant and grey heron: It is considered that given the low numbers, dispersed use of the proposed Development site and the availability of alternative habitat nearby, any effects are expected to be **short-term and reversible and are therefore assessed as minor adverse at the local scale.** - Little Egret: It is considered that given the low numbers, largely transitory use of the proposed Development site and the availability of alternative habitat nearby, any effects are expected to be **short-term and reversible and are therefore assessed as minor adverse at the local scale.** - In Table 7-10 predicted effects on all species are described as **Minor-not significant.** *Gulls (All seasons)* - Lesser black-backed gull and black-headed gull were recorded within the core study area. There was considered to be no evidence that either species bred or roosted within 5km of the proposed Development with birds either foraging opportunistically or transiting through the area. *Direct Habitat Loss and Disturbance* - These species are considered to be generally tolerant of human activity with a disturbance distance given of 300m. Any construction phase disturbance is considered to be temporary and reversible due to the

	species mobility, generalist behaviour and low dependency on the proposed Development site. *Significance of Effect* - For both species any effects are expected to be temporary and reversible and are therefore assessed as **minor adverse at the local scale.** - In Table 7-10 predicted effects on both species are described as **Negligible – not significant** *Buzzard (All seasons)* - Buzzard was recorded nesting in tow locations within the core study area with another nest within the 2 km study area. *Direct Habitat Loss and Disturbance* - A disturbance buffer distance of 300m is given and it is considered that there is the potential for temporary displacement of two breeding pairs across the 24-month construction period. It is considered that due to the adaptability of the species and the availability of similar habitats in the wider area that any effects are expected to be temporary and reversible once construction is complete. *Significance of Effect* - The potential displacement of breeding territories is considered temporary and reversible once construction activities have ceased due to the widespread availability of similar habitats in the wider area and the species' adaptability. Potential displacement of up to two breeding territories is assessed as **minor adverse at the local scale**. - In Table 7-10 predicted effects are described as **Negligible – not significant.** *Kestrel (All seasons)* - Observed regularly in the breeding and non-breeding seasons, no nest locations were identified but some territorial activity was observed indicating possible breeding. *Direct Habitat Loss and Disturbance* - A disturbance buffer distance of 200-300m is given and it is considered that construction activities may temporarily alter hunting or territorial behaviour although no lasting effects are anticipated. *Significance of Effect* - Temporary displacement and potential disruption of hunting or territorial behaviour is assessed as a **minor adverse at the local scale.** - In Table 7-10 predicted effects are described as **Negligible – not significant.** *Long-eared owl (All seasons)* - Confirmed breeding at a site 300m outside of core study area *Direct Habitat Loss and Disturbance*

	- During construction a 300 m exclusion buffer will be placed around known roosting and foraging areas, the nest location is over 1km from the nearest proposed turbine location. *Significance of Effect* - Temporary disturbance may result in short-term avoidance of adjacent habitat but no significant long-term effects are anticipated and it is assessed as **minor adverse at the local scale.** - In Table 7-10 predicted effects are described as **Negligible – not significant.** *Peregrine (All seasons)* - No breeding recorded within 5km of the proposed Development with the only birds being those transiting or hunting at altitude over the site. *Direct Habitat Loss and Disturbance* - No confirmed use of the core study area. *Significance of Effect* - No construction-related disturbance or potential effects are expected. - In Table 7-10 predicted effects are described as **Negligible – not significant.** *Passerines (All seasons)* - Meadow pipit was the only red-listed BoCCI species recorded with the following, amber-listed species also present; goldcrest, greenfinch, house martin, house sparrow, linnet, sand martin, skylark, starling, swallow and willow warbler. Goldcrest, house sparrow, linnet, skylark, starling, swallow, and willow warbler were confirmed to have bred within the core study area. *Direct Habitat Loss and Disturbance* - Figures are given for the amount of various habitats that will be permanently lost within the Development Boundary (Grassland: 33.4ha, Hedgerows: 1.9km, Treelines: 922.3m, Drainage ditches: 1.3km, Mixed broadleaf/conifer woodland: 1.1ha, Immature woodland: 1.8ha). This represents the removal or permanent alteration of habitats used by passerine species within the core study area. - Construction activities are considered to have the potential to cause temporary displacement, reduced breeding success or nest abandonment. The scale is this is considered to be influenced by habitat structure, proximity of the construction and the sensitivity of each species. *Significance of Effect* - It is considered that populations are likely to recover fully post-construction and overall, the proposed Development is unlikely to result in significant long-term effects on breeding passerine populations within the core study area. - In Table 7-10 predicted effects for all passerine species are described as **Negligible – not significant.**
Operational Phase	*Waterfowl-mute swan, mallard and Teal* *Disturbance and Displacement*

	- It is considered that all three species are likely to habituate to operational infrastructure and potential impacts are likely to arise from turbine presence and associated disturbance and temporary displacement. Routine maintenance activities are considered to be negligible compared with existing land management activities. Sustained displacement is not anticipated as baseline surveys indicate majority of functionally used habitats lie outside the turbine footprint. Proposed turbine locations are not directly adjacent to mute swan nest locations and long-term displacement considered unlikely. It is considered that Teal and Mallard will exhibit moderate habituation to the proposed Development over time. *Significance of Effect* - In absence of mitigation operational activities may cause temporary displacement of local populations of mute swan, mallard and teal and therefore there is considered to be an **indirect, adverse and minor effect at a local geographic scale.** *Collision Risk* - The CRM predicted a collision rate of 0.17 mallard per annum, which equates to 6.14 individuals over the life of the development. This is considered to be negligible at both local and county scales. CRM not undertaken for mute swan or teal due to low flight frequency and height of many observations being below the turbine envelope. *Significance of Effect* - In absence of mitigation, potential direct impact from collision with turbine blades are predicted to be extremely low for local populations of mallard, mute swan and teal. As such, there is considered to be an **indirect, adverse and negligible effect at the local scale.** - In Table 7-10 predicted operational effects are described as negligible to minor – not significant *Whooper swan (non-breeding season)* *Disturbance and Displacement* - Disturbance may arise from operational turbines and routine maintenance; however, it is considered that routine maintenance activities are negligible compared with existing land management activities. Displacement is expected to be spatially limited, primarily affecting fields near turbine T3. - The local whooper swan population adjusted their use of the site in response to prevailing wind direction and associated commuting efficiency with the Ballycullane area used during periods of strong southerly winds. Predicted levels of operational turbine noise are considered to be below thresholds associated with sustained avoidance and it is considered that suitable alternative foraging habitat remains available. *Significance of Effect* - In the absence of mitigation, disturbance and displacement effects are considered **moderate adverse at a local scale**, due to partial loss of foraging opportunity within the turbine envelope and potential energetic costs associated with altered site use. *Collision Risk* - The CRM predicted a collision rate of 0.22 whooper swans per annum in the non-breeding season of 2022/2023 and 0.55 whooper swans in the

	non-breeding season of 2023/2024. which equates to 7.7 and 19.2 individuals respectively over the life of the development. For the 2023/2024 breeding season a behaviourally adjusted CRM was applied, utilising additional flight activity estimated from behavioural observations, flight speed measurements and bioacoustics data to account for movements not observed during standard vantage point watches- i. e during the hours of darkness. - Collision rates exceed a low-risk threshold of 0.05 birds/year but are considered to be low relative to national and regional populations. “CRM assumptions prioritise observed use patterns over macro-avoidance (99.5%, Band,2024), which would otherwise imply substantial habitat loss. Micro-avoidance remains less well quantified (Mackie, 2025), introducing some uncertainty in close-range turbine interactions”. Operational-phase-monitoring at comparable wind farms, e.g. the Thanet Offshore Wind Farm (UK) and Carrownagowan Wind Farm (Ireland) indicate that over time birds generally exhibit higher avoidance rates than those predicted by the CRM. *Significance of Effect* - In the absence of mitigation, collision risk is considered low and not significant at a local scale, based on predicted mortality rates, observed avoidance behaviour, and evidence from operational-phase monitoring at comparable wind farms. - In Table 7-10 predicted operational effects are described as **moderate, locally significant** without mitigation and not significant with the implementation of the WSMP. *Curlew (non-breeding season)* *Disturbance and Displacement* - Disturbance distances exhibited by curlew of up to 250-500m are given. No breeding birds were recorded. Turbine operation is considered the primary potential disturbance pathway while human maintenance activity is considered negligible. Operational longer term than construction but most potential foraging outside immediate turbine envelope. Displacement expected to be spatially limited. *Significance of Effect* - In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of local non-breeding curlew. As such, there is an **indirect, adverse, and minor effect at a local scale**. *Collision Risk* - Most flight activity was considered to be of low altitude and therefore no collision risk modelling was undertaken. *Significance of Effect* - In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of turbines. As such, there is considered to be an **indirect, adverse, and minor effect** on non-breeding curlew at a local geographical scale. - In Table 7-10 predicted operational effects are described as **minor local**. *Golden Plover (non-breeding season)* *Disturbance and Displacement*

	- Golden plovers are considered sensitive to disturbance and may avoid areas within 300-500m of turbines. Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is negligible compared with existing land management activities. Displacement expected to be spatially limited. *Significance of Effect* - In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of turbines. As such, there is considered to be an indirect, adverse, and minor effect on golden plover. *Collision Risk* - The CRM predicted a collision rate of 3.25 per annum representing 0.0035% of the national population. It was considered that most flights were recorded outside the rotor-swept zone and potential interactions were low. *Significance of Effect* - In the absence of mitigation, operational-phase collision risk for local golden plover is considered to be extremely low. As such, there is an indirect, adverse, and negligible effect at a local scale. - In Table 7-10 predicted operational effects are described as **negligible to minor-moderate local.** *Lapwing (non-breeding)* *Disturbance and Displacement* - Non-breeding lapwing are considered sensitive to disturbance and may avoid areas within 300-500m of turbines. Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Displacement expected to be spatially limited as most suitable lapwing foraging areas lie outside the turbine envelope. *Significance of Effect* - In the absence of mitigation, operational-phase activities may result in temporary behavioural avoidance and minor displacement of lapwing. As such, there is considered to be an **indirect, adverse, and minor effect at a local geographical scale.** *Collision Risk* - The CRM predicted a collision rate of 0.77 per annum equating to 27 individuals over the 35-year operational lifespan, representing 0.00077% of the national population. *Significance of Effect* - Mortality at this scale is considered to be negligible at local and national scales. - In the absence of mitigation, potential collision with turbines is predicted to result in an **indirect, adverse, and minor effect at a local scale**. - In Table 7-10 predicted operational effects are described as **minor local.** *Snipe (non-breeding)*

	Disturbance and Displacement - Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Displacement is expected to be spatially limited as most suitable snipe foraging areas lie outside the turbine envelope and there is extensive alternative habitat in the wider area. *Significance of Effect* - In the absence of mitigation, temporary behavioural avoidance and displacement of snipe is assessed as negligible and not significant at the local geographical scale. *Collision Risk* - The CRM predicted a collision rate of 0.06 per annum equating to 1.95 individuals over the 35-year operational lifespan, representing 0.0004% of the national non-breeding population. Collision risk is considered to be negligible. *Significance of Effect* - In the absence of mitigation, collision-related mortality is considered to be negligible and not significant at the local geographic scale. *Habitat loss* - Permanent habitat loss includes 33.4 ha of grassland and 1.3km of drainage ditches along with a temporary habitat loss of 51.4m of lowland river features. This is considered to represent a measurable loss within the core study area but minor in the context of the wider landscape. *Significance of Effect* - In the absence of mitigation, the effect of permanent habitat loss on snipe is considered to be minor and not significant at the local geographical scale. - In Table 7-10 predicted operational effects are described as **minor local.** *Other waterbirds (All seasons)* *Disturbance and Displacement* - Disturbance to cormorant, grey heron and little egret may arise from operational turbines and routine maintenance, however it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Most flight activity was considered to be primarily commuting flights along river corridors and away from operational activity. Any displacement is expected to be temporary due to low densities of these species and availability of functional habitat. *Significance of Effect* - In the absence of mitigation, temporary behavioural avoidance and displacement are assessed as adverse, minor and not significant at the local geographical scale. *Collision Risk* - Collision rates are considered to be low for all three species:

	- Cormorant: 0.27 collisions per year equating to 9.6 individuals over 35 years which is considered to be a negligible fraction of the national population. - Grey heron: 0.14 collisions per year equating to 4.8 individuals over 35 years, it is considered low flight heights further reduce risk. - Little egret: Not modelled due to low levels of flight activity. *Significance of Effect* - In the absence of mitigation, collision-related mortality is considered to be negligible and not significant at the local geographical scale. *Water Quality* - No permanent alteration to water flow or clarity, which can affect prey availability, are anticipated. *Significance of Effect* - In the absence of mitigation, operational-phase effects on prey availability due to water quality changes are considered to be negligible and not significant at the local geographical scale. - In Table 7-10 predicted operational effects are described as minor – not significant *Gulls (All seasons)* *Disturbance and Displacement* - Black-headed gull and lesser black-backed gull were recorded; no breeding or loafing was recorded with all records relating to foraging birds or flight activity. Both species are considered to be moderately sensitive to disturbance but are described as being highly mobile, behaviourally flexible and capable of habituating to operational infrastructure. Most potential foraging habitat lies outside the turbine envelope and alternative habitat is abundant in the wider area. Operational activities may cause temporary behavioural avoidance, typically to within 300m of turbines. *Significance of Effect* - In the absence of mitigation, operational-phase disturbance may cause temporary behavioural avoidance. As such, there is considered to be an **indirect, adverse and negligible effect on both species at the local geographical scale.** *Collision Risk* - For black-headed gull the CRM predicted a collision rate of 1.87 per annum equating to 16.45 individuals over the 35-year operational lifespan, representing 0.014% of the national non-breeding population. For lesser black-backed gull the CRM predicted a collision rate of 2.59 per annum equating to 12.25 individuals over the 35-year operational lifespan, representing 0.055% of the national non-breeding population. *Significance of Effect* - In the absence of mitigation, collision risk is predicted to be minimal. As such, there is considered to be a direct, adverse and negligible effect on black-headed gull and lesser black-backed gull at the local geographical scale. *Water Quality*

	- Water quality may be altered through run off or accidental pollution which could temporarily reduce prey availability. The development is designed to retain functional hydrological connectivity and aquatic habitat quality; the volume and frequency of disturbance are considered minimal. *Significance of Effect* - In the absence of mitigation there is potential for short-term, localised changes in water quality. As such, there is considered to be an indirect, adverse and negligible effect on local waterbird populations at the local geographical scale. - In Table 7-10 predicted operational effects are described as negligible – not significant *Raptors (All seasons)* *Disturbance and Displacement* - The raptor species concerned vary in their sensitivity to disturbance. Buzzard and kestrel are considered to be generally tolerant of moderate human activity and have demonstrated the capacity to habituate to wind farms over time. Peregrine, long-eared owl and barn owl are considered to be more sensitive particularly during the breeding season and sparrowhawk is moderately sensitive. - Buzzard, kestrel and sparrowhawk were recorded breeding recorded within or near the core study area with long-eared owl likely just outside the core study area. Barn owl and peregrine nest further than 5km away. No species were recorded nesting within the proposed development footprint. Other raptor species were considered to be highly mobile and use habitats across the wider landscape. *Significance of Effect* - In the absence of mitigation, temporary behavioural changes or minor avoidance may occur, but these are reversible. As such, there is considered to be an **indirect, adverse and minor effect on raptors including long-eared owl at the local geographic scale**. *Collision Risk* - Undertaken for buzzard, kestrel, sparrowhawk and peregrine. Predicted annual collision risk were low in all cases being less than 0.1% of national breeding populations. Not undertaken for long-eared owl, merlin, peregrine and white-tailed eagle due to low flight activity and flights either recorded over or under turbine envelope. *Significance of Effect* - In the absence of mitigation, temporary behavioural changes or minor avoidance may occur, but these are reversible. As such, there is considered to be an **indirect, adverse and minor effect on raptors at the local geographical scale.** *Lighting Effects* - Operational lighting is limited and low intensity and all raptor species concerned are considered to be highly mobile and able to avoid illuminated areas. No nests are located immediately adjacent to illuminated infrastructure. Alternative hunting and commuting routes remain available. No behavioural changes or displacement expected. *Significance of Effect*

	- In the absence of mitigation, operational-phase lighting may cause minor, temporary behavioural avoidance by raptors at a local scale. This is considered to be as an **indirect, adverse and minor effect, reversible once birds habituate or avoid illuminated areas.** *Noise Effects* - Turbine noise is considered to be of low amplitude and frequency and raptor species are considered to be unlikely to be displaced from core foraging or commuting routes. Birds are predicted to habituate to the presence of turbines over time. *Significance of Effect* - In the absence of mitigation, it is considered that operational-phase noise may cause minor, temporary behaviour avoidance at a local scale. This is assessed as an **indirect, adverse and minor effect, reversible once birds adjust to turbine operation.** - In Table 7-10 predicted operational effects are described as negligible – not significant *Passerines (All seasons)* *Disturbance and Displacement* - Operational turbines and routine maintenance may cause localised behavioural responses in passerines. Any temporary displacement or disruption in movement is expected to be limited due to most species flying below rotor height and breeding territories and foraging occurring mostly outside the immediate turbine envelope. *Significance of Effect* - In the absence of mitigation, operational-phase disturbance and temporary displacement may occur in passerines. This is considered to be an **indirect, adverse and negligible effect at a local geographical scale.** *Collision Risk* - Passerines generally show low susceptibility to collision with turbines and no collision modelling was required. Potential for collision mortality considered negligible. *Significance of Effect* - In the absence of mitigation, the potential for collision-related mortality in passerines during operation is considered negligible at a local geographical scale. - In Table 7-10 predicted operational effects are described as negligible – not significant
Decommissioning Phase	Effects are anticipated to be broadly similar in nature to construction phase though of generally reduced magnitude and duration. As decommissioning is likely to occur at least 35 years after the original baseline surveys the effects will require reassessment against updated baseline conditions.
Proposed Grid Connection Route.	The GDR is not assessed separately to the main windfarm. Activities will be restricted to the existing road network.
Turbine Delivery Route	The TDR is not assessed separately to the main windfarm. Activities may involve vegetation trimming which is accounted for as a direct effect. This is

	also considered relevant for a temporary access track required for turbine delivery.
Designated Sites	A separate Technical Note has been prepared in relation to predicted effects on the River Shannon and River Fergus Estuaries SPA[77].
Cumulative Effects	A 20 km study radius was used to identify other developments where overlapping effects may arise. The 20 Km radius was consistent with guidance provided in the Wind Energy Development Guidelines (2006) and the Draft Wind Energy Guidelines (2019). Cumulative effects were identified where impacts were the same as those identified for the development, i.e. direct habitat loss, disturbance and displacement, collision risk and indirect effects via water quality changes. - Permanent habitat loss was only considered to be potentially cumulative if other developments occur within 300 m of the proposed Development and any disturbance or displacement effects are expected to be spatially limited to 300 m. - Table 7-11 describes all operational, permitted and proposed wind farms within 20 km of the proposed Development. It was considered that cumulative effects due to disturbance or habitat loss were unlikely as they were all located over 300 m away. Spatial separation of turbines and low predicted CRM values were considered to indicate negligible cumulative collision risk and with the implementation of the WSMP, SuDS and standard construction mitigation it is considered that any cumulative water quality effects are likely to be minor and not significant. - Table 7-12 describes all other major developments within 10km of the proposed Development that could contribute to cumulative effects via water quality. Projects that had been completed since 2019 or were not yet completed or under construction and in the same hydrological catchment areas were included. - As all other developments were more than 300m away and localised habitat impacts do not overlap with the proposed Development all cumulative effects were considered to be negligible. Any cumulative water quality effects are considered minor and reversible.

Mitigation

14.8. Embedded mitigation measures are described in Sections 16-18 (inc) of the NR Report. The extensive construction, operational and decommissioning phase mitigation measures together with monitoring are then described in sections 19 – 42 (inc) of the NR Report. Measures include proposed habitat management at Camas South for Whooper Swan and targeted turbine curtailment (T1, T2, T3 & T4).

Residual Effects

[77] European Sites are addressed in my AA Screening (Appendix 1) and AA (Appendix 2) to this report.

14.9. The residual effects are described in Sections 43-49 (inc) of the NR Report. It is noted that with mitigation no significant residual effects are predicted at construction, operational or decommissioning phase(s).

Analysis, Evaluation and Assessment: Direct and Indirect Effects

14.10. The external consultant ornithologist has examined, analysed and evaluated Chapter 7 of the EIAR (Ornithology) including all associated appendices and figures. This is addressed in Section 50-51 (inc) of the NR Report which finds that although comprehensive bird surveys have been undertaken over a total of three years, there are errors in the way flight survey data has been collected and collision risk modelling undertaken which has implications regarding the potential effects of the proposed development on Whooper Swan. This is addressed under a number of headings which are summarised as follows:

Collision Risk Modelling

14.11. The NR report notes that VP surveys were undertaken over 3 years, but CRM analysis was only undertaken for Year 2 and 3. The NR report finds that this is contrary to NatureScot Guidance (2024 & 2025) and that by excluding Year 1 without justification (from a valid three-year dataset) the applicant has reduced representativeness of the baseline, the ability to accurately calculate mean activity and standard deviation and has prioritised ‘minimum’ compliance over a robust, evidence-based assessment.

The Principle of Independence

14.12. The NR report also identifies a number of concerns with the VP survey, particularly that the survey methodology is not conducted as a series of independent samples but is concentrated into single days or narrow time windows which introduces significant temporal bias undermining the validity of the findings. Specifically, the NR reports finds that the approach limits the number of unique environmental windows sampled, reduces data diversity and fails to capture the necessary diurnal and environmental diversity required for assessment, and excludes the biological variation present. The NR report is concerned that the ‘low activity’ consequently reported is an artifact of sampling bias rather than an accurate reflection of site usage and ultimately opines that a collision risk model (CRM) built on clustered data is less reliable than one

informed by strictly independent, stratified samples and directly contradicts NatureScot guidance.

Density Estimation

14.13. The NR report finds that it is unclear how the applicant has calculated breeding season and non-breeding season estimates of bird density, with internal inconsistency between the flight logs in Appendix 7B and the density estimates in Appendix 7C raising concerns in relation to the integrity of the entire dataset and rendering the CRM unverified and fundamentally unreliable.

Whooper Swan flight activity from Vantage point surveys

Representativeness of Survey Effort

14.14. In addition to the VP survey issues identified in relation to CRM above, the NR Report also finds that the data collection methods during the 2022/2023 non-breeding season were problematic. NatureScot guidance advocates that when selecting VPs the aim is to achieve maximum visibility using the minimum number of points, yet the applicant used seven VPs with Fig. A4.1 (Appendix 7B) showing total coverage, a high degree of overlap and no visible gaps without justification. This includes up to four observers performing simultaneous VP watches despite having identical viewsheds, and three simultaneous observers of known feeding areas important for recording flight activity to and from roosting areas and locally between feeding areas. The NR report notes that the applicant states in Appendix 7B that observers remained in contact to prevent double counting and “passed” birds between viewsheds, but finds that the raw data contradicts this claim, with no flights tracked across multiple VPs and further discrepancies in flight records. The NR report finds that such inconsistencies make it impossible to determine whether valid flight data has been erroneously excluded from the CRM and that the methodology intended to avoid double counting has effectively fragmented continuous flight paths failing to account for a birds full duration and trajectory across the site leading to a systematic underestimation of “time at risk” and producing unreliable collision mortality figures.

Collection of dawn and dusk flight activity data

14.15. The NR Report sets out NatureScot guidance in relation to bird survey methods for development sites affecting geese or swans flying to or from roost sites and for development sites near feeding areas or those intercepting flights between feeding sites. Whooper swan flight activity peaks during dawn and dusk as birds fly to and from their roosting and feeding areas and identifying these movements is a critical objective. Guidance requires, inter alia, observations one hour before and after both dawn and dusk which is 36 hours observation per non-breeding period in addition to, and independent of, the standard 72 hours of annual surveys. This represents specific flight activity surveys intended to inform CRM.

14.16. The NR Report finds that the necessary dawn and dusk vantage point watches were not carried out, and that the standard VP watches rarely coincided with dawn or dusk periods and that these periods are essential for capturing birds in transit (in this case) between their roost site at Lough Gur and favoured feedings grounds at South Camas. In winter 2022-2023 the applicants survey effort completely missed the dawn window (Oct, Nov, Jan & March) and concluded prior to sunset (Oct, Nov, Dec & Feb). In the winter 2023-24 season key dawn windows were entirely omitted, and vital dusk activity was unrecorded across November, December and January and omitted in October, February & March. The NR Report finds that this invalidates the baseline flight activity assessment.

14.17. The NR Report finds further issues with nocturnal data and the CRM, noting that bioacoustics monitoring indicates significant nocturnal WS activity between 00:00 and 01:00hrs, including in the Rathcannon Pond Area with movements between this location and roosting or feeding areas poorly understood. Whilst it is not explicitly stated in the NR Report, it is clear that this underlines the need for dawn and dusk surveys in accordance with best practice, and in the absence of same there is significant nocturnal activity involving unknown flightpaths. The NR Report notes that the applicant used “inferred” flight data to calculate an additional collision risk, but provided no methodology or reasoning for its derivation, relying on inadequate VP surveys and unverified assumptions of “known flight corridor usage”. The NR Report finds that the level of flight activity

at dawn and dusk is likely underrepresented and any collision risk figures underestimated.

Whooper Swan Feeding Distribution and Roost Surveys

14.18. The NR Report acknowledges that effort was made to record the feeding distribution of WS, but finds that this is not adequately presented, with no figures presenting the results of year 2 waterbird surveys or any whooper swan surveys, data used from 2020/21 which is not described, and other issues identified in relation to recorded flights, behavioural data and flight speed surveys which prevent a proper examination.

Whooper Swan Management Area (WSMA)[78]

14.19. The NR Report notes that the proposed mitigation strategy centres on field enhancement to provide safe feeding areas (for WS) within the 1km corridor between the turbine arrays (T1-T3 and T4 & T5). The Commission will note that this refers to the WSMA and 'Area 1' of the HSMP (Appendix 6I). The NR Report finds several issues with the proposed WSMA, which can be summarised as follows:

- It cannot be assumed that WS will adapt to these areas. Feeding distribution surveys over four winter periods have recorded no swan activity in these specific fields,
- The proposed grassland management measures ignore local conditions and the established preference of the resident WS population. Without understanding current feeding conditions, there is no guarantee that enhanced fields will be more attractive to WS (than those they currently frequent) with any claim they will be successful speculative and unsupported by evidence,
- It is possible that displaced birds will relocate to similar fields south and west of their current preferred feeding grounds, most likely leading them through the locations of T1-T3 resulting in an elevated collision risk,
- The outcomes of the WSMA are far from certain, with the applicant admitting that the strategy is somewhat experimental. Various precautionary measures including deterrents, curtailment and monitoring are reactive rather than preventative underlying the uncertainty of the mitigation plan, particularly the effectiveness of creating alternative feeding areas,

[78] Referred to as Whooper Swan Management Plan (WSMP) in the NR Report

- Fundamentally the mitigation strategy relies on baseline flight activity data which is not representative of WS movements, did not follow guidance, and any assumptions regarding flight corridors and collision risk are technically unsound.

14.20. The NR Report opines that the foundation of a mitigation hierarchy is the avoidance of significant environmental impacts at the design stage, and that the robust application of a mitigation hierarchy is impossible without comprehensive baseline information. In this regard the NR report finds that rather than demonstrating that the proposed development avoids critical flight corridors and feedings grounds there is a reliance on WS assumed "visual acuity" to navigate hazardous environments which priorities reactive curtailment over the preventative measure of proper turbine siting and a fundamental departure from established EIA best practice.

Survey Effort (Other species)

14.21. Whilst the NR Report identifies some limited issues with the survey effort in relation to lowland waders and winter walkover surveys it considered that there was no evidence to suggest that waders breed within the relevant 500m buffer, and the combined survey data provided sufficient coverage of species and areas of interest within the study area and its surroundings. In relation to Curlew specifically the NR report noted that the nearest extant breeding pair are now over 20km away and that surveys suggest that curlew do not breed within the study area with occasional records of curlew calling would not constitute a breeding record.

Wetland Function

14.22. The NR Report finds that any hydrological changes that occur during construction and operation that reduce the amount of surface water in fields may potentially have a detrimental effect on feeding WS. However I am satisfied based on my assessment set out in Section 15 that the proposed development would not have an adverse, or significant residual impact on groundwater, or on the hydrology of the site subject to the mitigation and control measures which form part of the application.

Cumulative effects and other EIAR concerns

14.23. The NR Report notes that observers raised concerns in relation to a number of other species but finds after thorough scrutiny that effects are likely to be not significant due to a combination of at least one of the following: lower conservation concern, no evidence of breeding or roosting, or a low incidence of occurrence.

14.24. In relation to the assessment of cumulative effects the NR Report finds that an assessment has been undertaken in conjunction with other projects using relevant guidance and the only concern is that the outcomes predicted for WS are unsound.

NR Report Conclusions

14.25. The NR Report sets out its conclusions in Sections 104 to 115 (Inc). The main conclusion drawn is that the potential impacts on WS population have been underrepresented leading to a collision risk estimate that is likely an underestimate of the actual risk for the detailed reasons set out in the NR Report and summarised above. In relation to mitigation the report finds that the mitigation strategy for WS is based on inadequate data regarding flight paths and collision risk and hinges on a speculative assumption that WS will used "enhanced" fields without sufficient investigation further relying on various precautionary measures that are reactive, rather than preventative, underscoring the uncertainty of the mitigation plan.

14.26. The NR Report finds that if the high-risk infrastructure T1-T5 (inclusive) in the northern section of the site was removed then the primary collision risk could be eliminated. In this scenario the WSMP which was devised to mitigate the effects of T1-T5 (Inc), would not be required. The report finds that the remaining turbines T6 – 17 are sufficiently distant from known feedings areas at Camas South so as to avoid direct flight paths between feeding and roosting areas and provided T1-T5 (Inc) are removed and monitoring is enforced to the south in respect of T6-T17, the development would not pose a risk to the local WS population and significant effects on the local WS population would be avoided.

14.27. In respect of other species, the NR report concludes no other species of high conservation concern, including species listed on Annex I of the Birds Directive

or red-listed BoCCI species regularly use the site and that it is reasonable to assume that effects on these species would be negligible.

Conclusion: Direct and Indirect Effects *(Ornithology)*

14.28. Having regard to the examination of environmental information as set out above, including in the NR Report, I am satisfied that there is no potential for significant environmental effects on ornithology with the exception of Whooper Swan. In respect of Whooper Swan, I am satisfied that there is inadequate survey data to inform the baseline for this species, particularly as a result of the failure to conduct dawn and dusk VP surveys, temporal bias in the standard VP surveys, failure to follow best practice in the survey methodologies and failure to investigate flight connectivity and fully understand flight paths through the site, particularly at night. I am satisfied that this inadequate baseline has resulted in an under-representation of potential impacts on Whooper Swan, an underestimation of collision risk and does not provide a reliable evidential basis for a robust mitigation hierarchy.

Mortality (Collision Risk)

14.29. I am satisfied that the primary collision risk is limited to turbines T1 and T5 in the northern section of the site, which lie between the Lough Gur Whooper Swan population and their currently preferred feeding areas at Camas South. I am satisfied that this risk can be eliminated and significant effects avoided by the omission of turbines T1 to T5 and that this can be addressed by condition. I am satisfied that there is no significant collision risk in respect of T6 to T17 (Inc) subject to implementation of a post-commissioning monitoring scheme as proposed in the mitigation measures set out in EIAR Chapter 7.

Displacement

14.30. Although not specifically identified in the NR Report (as a significant effect), I am also of the opinion that the location of T1 to T5 in the currently preferred feeding areas of the Lough Gur WS population is likely to result in significant displacement effects into new feeding areas. This has not been investigated in the EIAR and is an unknown. The NR Report does acknowledge displacement as a potential effect when discussing mitigation and the WSMA, opining that it

cannot be assumed that displaced birds will use the WSMA and may move into new feedings areas of habitat composition consistent with current preferred areas, resulting in flight paths (between roosting and feeding areas) directly interacting with turbines T1 to T3. Therefore, in addition to the identified significant collision risk, I am also of the view that there is a high likelihood of displacement effects from exiting preferred feeding areas for Whooper Swan with unknown consequences for energy costs, feeding efficiency and additional collision risk possibilities which at the very least will be significant. I am satisfied that this risk can be eliminated and significant effects avoided by the omission of turbines T1 to T5 and that this can be addressed by condition.

Mitigation

14.31. I am satisfied that the mortality and displacement effects identified above cannot be mitigated by the Whooper Swan Management Area (WSMA) as it is based on an inadequate ornithological baseline for this species and it cannot be assumed that Whooper Swan will adapt to this area as surveys recorded no activity in the WSMA fields, current feeding conditions were not investigated and the proposed field management regime is unsupported by evidence, ignoring local conditions and the established preferences of the resident whooper swan population. As the WSMA is proposed to mitigate the effects of T1 to T5 in the northern section of the site, it will be redundant with the omission of these turbines. In the event that planning permission is granted, it is therefore my recommendation that the WSMA is also omitted in addition to T1 to T5.

14.32. In the interests of clarity and to properly define the terms of any permission granted, I recommend that all project infrastructure in the northern section of the site associated with turbines T1 to T5 (Inc) and the WSMA is omitted with the exception of the borrow pit, deposition area, GCR, delivery/haul route and Areas 2-4 of the HSMP. The borrow pit, deposition area, GCR and haul/delivery route are required to be retained for the reasons set out in the Material Assets (Traffic and Transport) section of this report. Areas 2-4 of the HSMP are required to be retained for the biodiversity reasons addressed in the preceding section of this report. I am satisfied that the retention of these features will not result in any significant adverse displacement or disturbance effects on WS during the

temporary construction stage, which are primarily associated with the wind turbines.

14.33. It is therefore considered that the main significant direct and indirect effects on Ornithology are:

- A **significant mortality effect** on Whooper Swan as a result of collision risk associated with turbines T1 to T5 (Inc) in the northern section of the site as a result of their location in currently favoured feeding areas of the Lough Gur population. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative, inadequately investigated and over reliant on other reactive mitigation measures contrary to best practice. This effect can be avoided and the collision risk eliminated by the omission of said turbines T1 to T5 (Inc).

- A **significant displacement effect** on Whooper Swan as a result of the location of turbines T1 to T5 in currently favoured feedings areas associated with the Loug Gur population and unknown displacement responses into new feedings areas. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative, inadequately investigated and over reliant on other reactive mitigation measures contrary to best practice. This effect can be avoided by the omission of said turbines T1 to T5.

15.0 **Water**

Issues Raised

15.1. Chapter 9 of the EIAR is ‘Water’. It describes the existing and receiving environment in terms of the topography of the site and surrounding area; soil, subsoil, and geology; rainfall; hydrogeology; hydrology; flood risk, water supply and drinking source protection. The chapter describes the mitigation measures proposed by the Applicant to limit any potential significant impacts in terms of the hydrological and hydrogeological regime, flow rates, water quality, and flood risk, respectively.

15.2. The following is a summary of the main concerns arising.

Surface Water Runoff and Contamination

- Construction water runoff could pollute watercourses and groundwater.
- Potential downstream impacts on the Morning Star River, River Camoge, and River Maigue, in particular, with a risk of effects on aquatic habitats, biodiversity and sensitive species, including Freshwater Pearl Mussel.
- Compliance with WFD.

Flooding and Drainage

- Increased flood risk by altering drainage patterns, particularly land which is already flood prone and where proposed turbines are located in Flood Zones A and B.
- Flood Risk Assessment inadequate with deficiencies in data, modelling, flow estimates, the application of the sequential test and absence of freeboard and finished level information.
- Pluvial and groundwater flood risks, borrow pits and depositions areas not adequately assessed.

Private Water Supplies

- Private wells not adequately assessed or identified.
- Excavation and cabling works could alter groundwater flows, affect the water table and impact private drinking water supplies, particularly given moderate to high groundwater vulnerability and potential for contamination of aquifers.
- Impacts on the Boherard Group Water Scheme (Boherard GWS) and other groundwater dependent supplies.
- No contingency plans for disruption or contamination of private water supplies and liability for damage caused not clear.

Examination of the EIAR

Context

15.3. A desktop study, site investigations, and field surveys were undertaken as part of assessing this environmental topic. The site walkover survey was undertaken to establish the environmental baseline conditions of the site in relation to water, including hydrology and hydrogeology.

15.4. Groundwater was encountered at a depth of 1.4m for Trial Pit No. 4 and 2.2m for Trial Pit No. 16. No groundwater was met for any of the remaining trial pits. Appendix 8A is a copy of the 'Ground Investigation Report' and Appendix 8B provides a record of the 'Trial Pit Logs'. The site investigation locations are presented in Figure 9-3 of the EIAR.

15.5. The Morningstar River flows west to northeast across the site. Minor streams generally flow perpendicular to this river and include the Killorath Stream, Rathcannon Steam, Ballinlee South Stream, Ballinrea Stream, Ballingayrour Stream, and North Ballinlee Stream, respectively. The Morningstar River meets the Maigue River roughly 5.8km west of the site. The proposed development requires new crossings of all watercourses within the main development site, except for the Killorath and Ballinlee South streams.

15.6. The bedrock beneath the site mainly comprises dark, muddy limestone and shale. The proposed wind farm area is primarily over a 'Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones'. However, further north, including along the proposed GCR, the site traverses various other locally and regionally important aquifers, including aquifers which are designated as 'Karstified (diffuse)' and 'Bedrock which is Generally Moderately Productive'.

15.7. Water is addressed in Chapter 9 and Appendices 9A (WFD Assessment Report) and 9B (Flood Risk Assessment Report) of the EIAR. A description of the proposed project is set out in Chapter 2 of the EIAR.

Baseline

15.8. The baseline is set out in Section 9.2 of the EIAR. It provides a description and review of the site's location and topography; soil, subsoil and geology; rainfall; hydrogeology; hydrology; flood risk; water supply and drinking water; water quality data; and Water Framework Directive (WFD); respectively.

Topography and ground conditions

15.9. The topography of the site is generally flat at 53mOD. There is a slight rise 1km to the west of 75m. The grid connection route elevation is generally between 50-65mOD. Ground conditions are summarised in Section 9.2.5 of the

EIAR. This is a combination of topsoil, peat remnants, and sandy gravelly clay with a mix of cobble and boulder content.

Hydrogeology

15.10. The groundwater body (GWB) beneath the majority of the main development site is the 'Hospital GWB (EU Code: IE_SH_G_107)'. The Hospital GWB covers approximately 260km^2 and occupies the lowlands of Co. Limerick (GSI, 2025). There are several small tributaries draining to the major rivers crossing this GWB. The GWB beneath the southern portion of the main development site is the Bruree GWB (EU Code: IE_SH_G_046). The area is well drained, and streams generally flow off the lower parts of the GWB where they ultimately drain into the River Maigue, Morningstar or Deel.

15.11. There is a groundwater vulnerability rating of 'Moderate' for the majority of groundwater beneath the main development site. However, some of the northern portion, a small area in the central portion and in the southern area of the main development site have been assigned a groundwater vulnerability rating of 'High'. There are two small regions both in the north and south of the main development site which have been assigned a groundwater vulnerability rating of 'Extreme' or with 'rock at or near surface or Karst'. There are two turbines (T9 and T12) within areas which have a groundwater vulnerability rating of 'High' (H). The remaining proposed turbine locations and substation have a groundwater vulnerability rating of 'Moderate'.

15.12. The majority of the underground grid connection route has a groundwater vulnerability rating of 'Moderate' to 'High'. However, there are some areas along the route which have a groundwater vulnerability of 'Extreme' or with 'rock at or near surface or Karst'. No karst features are within 2km of the main development site. The closest features are c. 50m west of the grid connection route as it passes through Grange. A groundwater vulnerability map is included in Figure 9-5 of the EIAR.

Hydrology

15.13. The main development site is within the Shannon Estuary South WFD Catchment (I.D.: 24) and the Maigue_SC_030 WFD Sub-Catchment (Sub-Catchment I.D.: 24_17). The main development site is within the

Morningstar_060 WFD Sub-basin (EU Code: IE_SH_24M020800). The Morningstar_060 (River Waterbody Code: IE_SH_24M020800) comprises the Morningstar River and several minor tributary streams. The streams generally flow perpendicular to the Morningstar, and include the Killorath Stream, the Rathcannon Stream (Raymondstown Stream), the Ballinlee South Stream, the Ballinrea Stream, the Ballingayrour Stream, the North Ballinlee Stream, Parkroe Stream and Camas South Stream. The Morningstar River ultimately confluences with the Maigue River approximately 5.8km west of the site at its nearest point.

15.14. The grid connection is within the Shannon Estuary South WFD Catchment (Catchment I.D: 24) but also crosses the Ballynaclogh_SC_010 and Shannon [Lower]_SC_090 WFD Sub-catchments. The GCR also directly crosses the Camoge River and minor headwater streams / drainage channels contributing to the Groody River. The Camoge crossing will require horizontal directional drilling as the existing road bridge is a protected structure.

15.15. The biological water quality of the Morningstar River and its tributaries has varying levels of ecological health, with many watercourses indicating 'Poor' to 'Moderate' status (Table 9-6 refers).

Infrastructure

15.16. There is no existing Uisce Éireann (UÉ) or PA drainage infrastructure throughout the main development site. However, the route of the proposed grid connection will cross and be in close proximity to existing infrastructure within the public road network.

Flood Risk

15.17. The Flood Risk Assessment (FRA) (Stages 1 and 2) indicated potential for flooding at the site. The main potential source of flooding is fluvial flooding from the Morningstar River, and its tributaries, particularly in the northern part of the site. A Stage 3 FRA was therefore carried out to assess flood risk in further detail so as to provide a quantitative appraisal of the site. The majority of the 17 turbines and substation are in Flood Zone C ('low probability of flooding') (i.e., less than 0.1% annual exceedance probability or 1 in 1000). However, four turbines are within Flood Zone A/Flood Zone

B and therefore have a ‘high’ to ‘medium’ probability of flooding during the 1% and 0.1% AEP events, respectively. [The application proposes mitigation measures in this regard, see Page 9-26 of the EIAR].

Water Supply

15.18. There are 137 groundwater sources recorded at the site or within a 2km radius of the site, including the route of the proposed grid connection (Table 9-8 and Figure 9-6 of the EIAR refers). There is no existing water supply at the main development site and no connection to a public or group water scheme is required for the project. There is no groundwater source protection at the site. However, the Bruff Public Supply Groundwater is approximately 2km east of the main development site at its closest point (underlain by a Locally Important Aquifer).

WFD

15.19. The application includes a stand-alone WFD Assessment Report (Appendix 9A of the EIAR). Figure 9-8 of the EIAR provides an illustration / map of the lake, ground and surface waterbodies in the area and their WFD Status 2016-2021. Table 9-11 provides information on the WFD status for waterbodies in the area, including the Morningstar_060, which cuts across the site. The indicative values range from ‘good’ to ‘poor’ and there is connectivity between the site and several different catchments.

Potential Effects

15.20. The potential effects of the proposed development on Water are set out in the EIAR and summarised in Table W1 below.

Table W1: Summary of Potential Effects (Water)

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	Under the do-nothing scenario, no development would take place on this site, the water environment would likely remain relatively unchanged.
Construction Phase	*Hydrological and Hydrogeological Flow Regime* - Crossings of the Morningstar River and its tributaries which could adversely constrain flow if not appropriately sized with effects on channel velocities, scour and erosion. - Some surface water drains required to be removed or infilled due to the location of access tracks, turning heads or wind turbine hardstand areas.

	- Potential for shallow groundwater to be encountered during groundworks which would require dewatering. Excessive and prolonged dewatering / water abstraction could depress groundwater levels in the vicinity of the abstraction point. - Without mitigation, the impact on the hydrological and hydrogeological flow regime is assessed as **adverse, imperceptible to slight and temporary, but within a localised zone only**. *Water Quality* - Minor works required to existing surface/land drains. Treated surface water drainage will outfall to an existing surface water drain for the IPP & SS compounds and culvert crossings. - Potential for contaminants to enter watercourses leading to disturbance of the stream bed and increased suspended solids downstream of works. Increased suspended solids in a watercourse raise turbidity, reducing light penetration and limiting photosynthesis, which can disrupt the aquatic food web. - Settling solids can smother spawning grounds and benthic habitats, while fine particles clog fish gills, causing stress or mortality. They can carry organic matter, thus, increasing oxygen demand and lowering dissolved oxygen levels. This can also transport pollutants like excess nutrients and heavy metals, leading to further contamination. - Without mitigation, the impact is assessed as **adverse, moderate, and short-term.** *Water Crossings* - There is the potential for disturbance of stream banks and riverbeds and increased suspended solids downstream of works' areas, particularly during the construction of clear span bridges across the Morningstar River and culvert crossings of minor streams / drainage channels. - Without mitigation, the impact on the Morningstar River, its tributaries and Maigue River, is assessed as **adverse, moderate, and medium-term**, depending on the scale of the incident. *Horizontal Directional Drilling (HDD)* - HDD at crossings (4 no.) along the proposed grid connection route requires earthworks involving the removal of vegetation cover and excavation of entry and exit pits. Due to the proximity of construction activities to streams, there is a risk of impacting surface water quality during trench excavation, including the accidental release of fracturing lubricants and oils with subsequent contamination of the receiving waterbody. - Without mitigation, the impact on the Morningstar River, its tributaries and Maigue River, is assessed as **adverse, moderate, and medium-term**, depending on the scale of the incident. *Piling* - Piling, if required, may potentially create pathways for contaminants to enter underlying groundwater and spread through an interconnected network of underground pathways to receiving watercourses, including the Morningstar River. Piling in karstified aquifers presents unique challenges and risks due to the characteristics of karst landscapes. - Without mitigation, the impact on receiving waterbodies, including groundwater, is assessed as **adverse, moderate to significant and temporary.** *Blasting*

	- Rock blasting, if required, at turbine foundations, will result in ground vibration and air overpressure and generation and expansion of fractures and joints within the rock. This may potentially create pathways for contaminants and increased risk to water quality of the underlying aquifer. - Without mitigation, the impact on receiving waterbodies, including underlying aquifers, is assessed as **adverse, slight to moderate, and temporary.** *Discharge of Sediment and Other Contaminants* - Excess runoff entering watercourses can carry sediment that smothers existing bed forms, and associated habitats, which can alter the chemical composition of a watercourse. - Potential risk of runoff with contaminants (excess sedimentation, oils, lubricants etc.) migrating offsite via existing surface water drainage along public roads. Contaminants could then enter receiving watercourses with subsequent adverse effects. - Without mitigation, the impact is assessed as **adverse, significant, and medium-term.** *Handling of Deleterious and/or Cementitious Materials* - During excavation, groundwater vulnerability will temporarily be increased with an increased risk to the underlying bedrock aquifer due to potential accidental release of deleterious materials (e.g., fuels or other hazardous materials being used onsite). The failure of secondary containment or a materials handling accident could create a direct pathway to the underlying bedrock aquifer. Furthermore, in karstified limestone areas, like the Fedamore, Ballingarry and Bruree GWB's, there is a high degree of interconnection between groundwater and surface water. - Potential risk of cementitious materials entering / impacting the underlying groundwater at the site. Concrete and other cement-based products are highly alkaline and corrosive and can have significant adverse impacts on water quality. - Without mitigation, the impact is assessed as **adverse, significant, and medium-term** on the underlying aquifer environment and receiving waterbodies, depending on the nature of the incident. However, effects on downstream waterbodies, such the Shannon, are unlikely due to the distance involved, dilution, and nature of the works. *Flood Risk* - Potential risk that flood events could mobilise pollutants present onsite, such as suspended sediments, hydrocarbons, cementitious materials, and other deleterious substances. Floodwaters can act as a transport mechanism, carrying these contaminants offsite and into nearby surface waterbodies resulting in a deterioration in water quality. - Without mitigation, the impact is assessed as **adverse, temporary, moderate / significant.** *Wastewater* - Accidental leaks associated with welfare facilities. In particular, if a foul water holding tank were to leak, it could introduce pollutants such as nutrients, pathogens, or hydrocarbons into the underlying groundwater body. The tanks will be regularly emptied by a licensed waste contractor and transported offsite for safe disposal. - Without mitigation, the impact is assessed **as neutral, imperceptible and temporary.**

Operational Phase	*Hydrogeological Flow Regime* - During the operational phase there will be no discharges to groundwater. However, there will be a minor increase in hardstand in the immediate vicinity of the wind turbines, resulting in a localised reduction of groundwater infiltration and recharge. - The GCR is in existing areas of hardstanding, or in the verge of public roads. The shallow excavation depths required will likely have negligible effect on the groundwater flow regime. - Without mitigation, the impact is assessed as **neutral, imperceptible and permanent.** *Water Quality* - Surface water runoff will be managed in accordance SuDS and treated and attenuated prior to outflow. Any existing drainage channel that is modified or removed will be replaced with an appropriately located and sized conveyance swale to ensure flow paths and rates are preserved. - If the accidental release of hazardous material (i.e., oils being used onsite) occurred, through the failure of secondary containment or a materials handling accident, over open ground then these materials could infiltrate to underlying groundwater or migrate offsite via surface water drainage leading to environmental impacts. - Without mitigation, the impact is assessed as **adverse, moderate / significant, and medium/long-term.** *Wastewater* - Rupture or leakage of the wastewater holding tank. The holding tank is of twin-hull design and fitted with an alarm to indicate levels and when it is due for empty. It will be emptied by a permitted contractor and treated at a licenced facility. - Without mitigation, the impact on water quality is assessed as **neutral, imperceptible, and long-term.** *Flood Risk* - Part of the site is in Flood Zone A where the probability of flooding is high. This means there is potential for contamination of surface waters. However, the proposed structures will be defended from flooding to an appropriate standard. As such, the risk of contamination of surface waters, including during a future climate scenario flood event, is low. - Without mitigation, the impact is assessed as having the potential to be **adverse, imperceptible, and permanent.**
Decommissioning Phase	- Short-term alterations to local surface water flow paths may occur, including excavation, backfilling, and regrading of land, which may temporarily disrupt existing drainage patterns. Also, potential disturbance by the presence of cranes, heavy goods vehicles and personnel onsite. - Turbines will be removed at decommissioning. However, access tracks will remain in place. Hardstanding and foundation areas will be reinstated to match the surrounding landscape. - The potential for adverse effects is similar to those associated with the construction phase (see above), but of a lesser / reduced magnitude.
Cumulative	- The Garrane windfarm is in the same hydrological catchment as the proposed development. The EIAR states that a temporary transition compound for turbine components may also be required at Kildimo, County Limerick, to facilitate the Knockshanvo (Co. Clare) wind farm development.

	- These projects are hydrologically connected to the Morningstar, Maigue, and Shannon River/estuary catchments. If construction coincides with that of the Ballinlee Wind Farm Development and standard practice control and mitigation measures are not applied, these projects have the potential for cumulative effects on water quality within the estuary. - In a worst-case scenario, extreme weather during construction, combined with a fuel spill or accidental release of other hazardous compounds, could lead to sedimentation and contamination of surface and groundwater. In the absence of mitigation measures, there could be an impact on underlying aquifers and/or downstream receiving waterbodies (e.g. Morningstar River, Maigue River, Natura 2000 sites, etc.). - A full list of projects considered in the cumulative assessment are identified in Volume II, Chapter 1 of the EIAR. - If coinciding pollution events were to occur during the construction phase there is potential for **adverse, slight/moderate and long-term cumulative impacts** on the Maigue, Groody, Shannon River / Estuary. - Cumulative adverse effects during the operational phase are considered to have less potential. They are assessed as **adverse, imperceptible and permanent.**

Mitigation

15.21. The EIAR includes a comprehensive and extensive range of mitigation and monitoring measures in relation to water. This Chapter assesses the potential effects of the project to ensure that appropriate mitigation measures will limit any potentially significant impacts in relation to this environmental topic.

15.22. Where significant effects in relation water, and its related topics, are predicted, mitigation has been incorporated into the project. The mitigation measures seek to avoid, reduce or offset potential significant residual effects. The mitigation measures employed seek to avoid any significant impact on the receiving groundwater and surface water environments, and associated receptors, such as European Sites. They also seek to ensure compliance with the EU Water Framework Directive, European Communities (Environmental Objectives) Surface Water Regulations, and the European Communities Environmental Objectives (Groundwater) Regulations, respectively.

15.23. I consider the mitigation measures and related procedures to be detailed and thorough and note that they have been designed to address specific potential impacts on various receptors. The measures are clearly set out in Section 9.5 of the EIAR. Some of the main mitigation measures and procedures proposed include: -

Construction Phase

- Surface water will be diverted around open excavations using standard temporary drainage methods.
- Open water bodies adjacent to areas of proposed works, including settlement ponds, will be protected by fencing. A 20m buffer will also be retained for construction works.
- Entry to the Morningstar River and its tributaries by vehicles will be avoided, while vehicle usage along the banks will be restricted.
- Silt traps, silt fences and settlement ponds will be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase.
- Surface water monitoring for turbidity, pH/EC and colour will be undertaken daily both upstream and downstream of the working areas and, where required, at settlement pond outlets. Where water from the settlement ponds fails to meet the required standards, additional modules will be added to the settlement pond until the required standards are met.
- The proposed piling methodology (if piling is required) will be in accordance with EPA guidance and minimise the potential for any temporary conduit between sources of contamination at ground surface and underlying groundwater.
- Where there is a requirement to use lubricants, drilling fluids or additives the contractor will use water-based, biodegradable, and non-hazardous compounds under controlled conditions.
- Blasting, if required, at turbine foundations will be carried out by a suitably qualified specialist under licence. Surface water management measures will ensure that runoff cannot enter the area.
- For directional drilling, the area around the bentonite batching, pumping, and recycling plant will be bunded using Terram Geotextiles and sandbags to contain any spillages. Drilling fluid returns will be contained within a sealed tank or sump to prevent migration from the works area.

Operational Phase

- Refuelling will be carried out using 110% capacity double bunded mobile bowsers.
- Hazardous waste will be disposed of to a licenced waste facility.
- Surface water will be managed in accordance with SuDS to treat and attenuate water prior to outflow via either overland or an existing drainage ditch.
- Foul drainage from temporary welfare facilities will be discharged to temporary holding tank(s), the contents of which will be periodically transported offsite to a licensed facility

Residual Effects

15.24. Section 9-13 of the EIAR includes a 'Residual Effects Assessment' which sets out the various construction and operational activities, attributes, predicted impacts (pre-mitigation), significance, duration, type, mitigation proposed, and remaining residual risk (post-mitigation). The EIAR concludes that with the implementation of the prescribed mitigation measures there would be no significant adverse residual impacts on the receiving hydrological and hydrogeological environment.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

15.25. I have examined, analysed and evaluated Chapter 9 of the EIAR and all of the associated documentation and observations on file in respect of water. I am satisfied that the key impacts in respect of the likely effects as a consequence of the development have been identified. A number of issues have been raised by the observers and in the submissions received in relation to water which I address under the relevant headings set out below.

Surface Water Runoff

15.26. The Commission will note that observations have raised concerns regarding the potential for diverting natural flow paths, increasing surface water runoff, and the risk to surface water posed by contamination from silt, pollutants and various contaminants. I note that there is no proposal to divert natural drainage features, as outlined within the EIAR, and no direct discharge to any watercourse is proposed as part of the project. However, the re-routing and culverting of existing man-made drains will be required and internal access tracks at the main development site will require several crossings of existing watercourses.

15.27. As noted in the observations, the construction phase for the project will require large quantities of concrete, oil, fuel, hydrocarbons, chemicals, and other construction-related substances, which could result in significant surface and groundwater pollution, if not properly managed, controlled, and administered in accordance with the relevant procedures and guidance. In particular, local residents question the potential for contaminants to enter nearby watercourses, including the Morningstar River, the River Maigue and other downstream

watercourses, including the Shannon, with consequent impacts on water quality and water-dependent ecosystems. Some observations also state that the River Maigue is already steadily experiencing declining water quality and that the proposed development may exacerbate this trend. Others suggest that long-term hardstand areas could increase peak flows, reduce infiltration and degrade floodplain areas / increase flood risk.

15.28. I note that runoff from developed areas will be directed to settlement ponds onsite and subject to an effective and comprehensive surface water management system. In this regard, a review of the Applicant's Surface Water Management Plan (SWMP) (Appendix 2E of the EIAR) was undertaken as part of this assessment. The SWMP sets out detailed measures in relation to the proposed proprietary treatment device, which is required to remove pollutants from runoff, detention basins, the proprietary discharge control device (which is required to manage flow rates), and other components, including outlets, swales, check dams, silt fences, and wheelwash facilities, amongst others. The proposed SWMP will ensure that sensitive aquatic habitats and species, will not be disrupted.

15.29. The system will be constructed onsite, and this will help to attenuate run-off, avoid soil erosion, guard against downstream water quality impacts, and ensure that the existing hydrological / hydrogeological flow regime is maintained. Furthermore, the drainage system will be implemented adjacent to all work areas, including internal site access tracks, equipment and material storage areas, crane hardstand areas, and temporary site construction compounds. [Section 9.3.1.2 of the EIAR refers]. Clean water will bypass the work areas and, as such, the treatment system will only have to deal with construction water. This will be done by intercepting clean water and conveying it to the downstream side of the construction areas, either by means of a conveyance swale and/or vegetated soil bunds. Furthermore, I note that the application makes provision for buffer zones along watercourses, the avoidance of instream works, and that watercourse crossings have been specifically designed to prevent sediment mobilisation and to protect channel integrity.

15.30. The SWM system will be regularly inspected and maintained during the operational phase of the project, including directly after a major rainfall event. The SWMP states that maintenance of features such as swales, check dams, silt fences, settlement ponds and detention basins areas will be done in accordance with best practice. A record of inspection and maintenance will be kept and updated as required. [Table 5-1 of the SWMP 'detention basin maintenance schedule' refers.]

15.31. Having regard to this, I am satisfied that the proposed surface water management system will control discharge and ensure there will be no increase in runoff volumes, or peak flow rates, emanating from the site. I am also satisfied that the proposed drainage design and mitigation and monitoring measures designed to protect water quality, including during construction, is comprehensively addressed within the EIAR. As a result, the proposed development is not likely to result in any significant effects in terms of surface water quality, or receiving waterbodies, respectively.

15.32. I note that no concerns were raised by the PA, or prescribed bodies, in relation to surface water. The HSE concurred with the conclusions of the EIAR chapter on Water (Chapter) and found that there is adequate protection of surface and groundwater during construction and operational. However, this is on the condition that all the identified mitigation measures are implemented.

Groundwater and Hydrogeology

15.33. A recurring concern raised by third parties is that the application fails to address the issues associated with shallow and variable groundwater levels across the site. In particular, it is observed that ground water was met during site surveys at depths of c 1m to 2.3m below ground, including in drier summer months, meaning the likelihood of groundwater interaction could be high during excavation, blasting (if required), and construction of turbine foundations and borrow pits.

15.34. The EIAR openly acknowledges that groundwater across the site is shallow, and particularly so in low-lying locations across the land. Conditions are influenced by different soil, subsoil and floodplain factors, which are reflected in

the GSI mapping, vulnerability classification, and ground investigation data collected by Northwest Geotech (2024), which was, in turn, used to inform the design and layout of the proposed development. Importantly, I note that the hydrogeological setting of the subject lands is predominantly characterised as locally important aquifers with variable vulnerability, rather than being of regional importance (Section 9.2.5.3 of the EIAR refers).

15.35. I note also that potential interactions between excavation, turbine foundations, borrow pits and groundwater are assessed in Section 9.4.1 of the EIAR. It is apparent that based on the site investigation work, the EIAR predicts that localised and temporary dewatering will be required during excavation and will only be required where groundwater is encountered. Any water ingress can be addressed via standard construction practices, in my opinion, and controlled by standard dewatering methods, such as by pumps, wellpoint systems, sheet piles, amongst other techniques. These systems will help to keep working areas dry and stable and are typically utilised under such conditions.

15.36. As the water is pumped out during dewatering operations, it is often muddy and thick with earth deposits (i.e., high turbidity), or it can potentially hold contaminants or suspended soils. Therefore, it cannot be discharged directly into local watercourses. However, I note that the Applicant intends to utilise a construction stage treatment train, which involves a combination of different processes to treat the water *before* it is released. Dewatering outflows would be addressed as part of the overall surface water drainage network, then attenuated and settled, before being permitted to infiltrate to ground. It is therefore considered that there would be no likely significant impacts arising, such as the alteration of groundwater flow paths, or release of pollutants or silt, into the receiving hydrological or hydrogeological environment as a result of the proposed works. I further note that the borrow pits and turbine foundations will not require any permanent dewatering and consider that post-construction reinstatement works will effectively reinstate the site to its pre-existing drainage and infiltration regime.

15.37. In relation to works in areas of karstified aquifers, including potential piling, I note that observers raise concerns that during excavation for the turbine foundations and borrow pits that this could create fast-moving pathways for pollutants to enter underlying aquifers and streams. As noted in the EIAR, the main risk of piling in karstified aquifers lies in the potential for contaminants used during construction, such as grout or other materials, to infiltrate groundwater through existing conduits, fractures, or dissolution features made by the piling process. Contaminants can then spread rapidly through the interconnected network of underground pathways characteristic of karst landscapes to receiving watercourses, including the Morningstar River, and its tributaries, in this case. Some third parties also state that the presence of 'disappearing streams' and springs onsite were not adequately identified in the application and that potential connectivity to Lough Gur, water supplies and wetlands has not been properly assessed.

15.38. I note that some parts of the site are characterised by the presence of karstified aquifers (Section 9.2.5.2 and Figure 9-4 of the EIAR refers). For example, the northern section, where proposed T4 is underlain by an Rkd aquifer. There is also a pair of springs c. 50m west of the proposed underground GCR at Grange. The springs feed the headwater streams of the Camoge catchment and are likely linked to sinkholes draining to Lough Gur (c. 1.8km to the east) – Lough Gur itself is a karst lake which is fed by groundwater springs, karst features and localised sinkholes to feed its basin, as well as surface water from adjacent lands. However, I note that the proposed underground GCR is restricted to existing hardstand areas and roadside verges. Therefore, this, combined with the shallow excavation depths required by the project, means that it is unlikely to result in any discernible effect on the groundwater flow regime, in my view.

15.39. The majority of the proposed development area is not affected by underlying karst aquifers and instead lies over bedrock which is designated 'Locally Important Aquifer (Category: LI)' and is generally moderately productive, and only in local zones. Therefore, as noted above, there are no significant karst features identified within the main development footprint of the overall project. However, where this is the case, e.g. the south

part of the site, I am satisfied that the proposed development would not have an adverse, or significant residual impact on groundwater, subject to the mitigation and control measures which form part of the application.

Flood Risk

15.40. Several observations query flooding, stating that the proposed development is within a historically flood-prone area, and that the application fails to engage with the issue properly. The overall contention is that the subject lands are not suitable for a largescale energy installation – i.e. wind farm and related components – and that the works required for the turbine foundations, crane hardstand, and access roads would increase the amount of impermeable surface, thus, leading to increased flood risk and water pollution.

15.41. Some parties assert that no comprehensive flood risk assessment has been completed as part of the application. Others state that four of the 17 proposed turbines are in Flood Zone A / B, thereby having a medium to high probability of flooding, particularly given the presence of a high-water table across the land, and should be refused because of this. Past examples of flooding are cited in submissions, including of the L5127 (local road), whereby it is alleged local access was cutoff due to flood waters. Observers also state that construction impacts arising from soil compaction in a flood zone have not been properly assessed and that heavy vehicles and equipment during the works phase would significantly increase flood risk by applying mass loads to moisture-laden soil, thereby, removing pore space.

15.42. The Commission will note that the application is accompanied by site-specific flood assessment (SSFRA). The document has been completed in accordance with the 'Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)' ('the Flood Risk Guidelines') and used to inform Chapter 9 of the EIAR. The SSFRA employs the sequential approach and, where appropriate, the justification test. It is found under Appendix 9B of the EIAR and has been reviewed in detail as part of the assessment of the application.

15.43. The SSFRA utilises a staged approach (1 – 3) and recognises the potential for fluvial flooding from the Morningstar River and its tributaries as the main

source of flood risk. This is particularly the case in the northern part of the site, where Flood Zones A / B apply. The assessment includes detailed flood modelling and identifies the majority of the subject lands as subject to Flood Zone C (i.e., low probability of flooding). [The EIAR also states that the locations subject to Flood Zones A and B have been subject to a detailed design and scheme layout assessment.]

15.44. The Applicant makes the case in their response that with mitigation there would be no significant displacement of floodwater which could increased flood levels on surrounding land, roads, or properties. They state that no obstruction of existing drainage networks or flow paths would occur and that no increase in upstream or downstream flood risk would occur on foot of the project. I note that mitigation for the construction phase has been developed with a view to protect field drains from inundation, allows for temporary drainage management, and avoids any works which could potentially impede floodwater flows during an extreme weather event (heavy rainfall, etc.). I consider the controls thorough and comprehensive and effective in terms of reducing the potential for significant effects.

15.45. The controls are referenced under Section 9.5.1 of the EIAR and 4.4.7 of the SSFRA. The measures include setting turbines, access tracks and hardstand areas well above the predicted flood levels. They provide a series of openings and culverts to provide flow continuity and conveyance of water across the floodplain. The conveyance locations are shown in Figure 4.13 of the SSFRA. I note that the Applicant also proposes to utilise a series of other measures, including settlement ponds, swales, and silt traps to slow down and control surface water runoff. The intention is that post-development rates match, or are lower, than the pre-development greenfield rates. I note that the Planning Authority, nor any Prescribed Authorities, raised any concerns regarding flood risk.

15.46. Furthermore, wind turbines, and their foundations, and associated hardstand areas have a relatively small and confined footprint. When mitigation is properly applied, the physical volume of water displaced within the wider floodplain would likely be negligible, in my view, and any increase in water levels will not be significant, subject to mitigation. Therefore, the application

of the proposed control measures, as outlined above, would be able to counteract any significant negative effects in terms of flood risk, in my view, and prevent any discernible increase in runoff rates, either during a storm event or otherwise.

Private Water Supplies / Drinking Water

15.47. Observations have raised concerns over potential impacts on private drinking water supplies in the locality and that the application has not adequately mapped or assessed private wells. The main concern is that excavation and cabling works could potentially alter groundwater flows, affect the water table, and impact water supplies as a result. It is stated that this is a particular issue given the moderate to high groundwater vulnerability and risk of contamination of groundwater aquifers.

15.48. Submissions also query whether the Boherard Group Water Scheme (GWS) would be impacted by the project. The GWS relies on a groundwater source roughly 50m deep. The EIAR states that 37 homes are supplied by this scheme. I have reviewed the information in Table 9-8, which provides a detailed list of all GSI recorded springs and wells within 2km of site. Figure 9-7 is also noteworthy as it illustrates the location of GSI wells and springs, and source protection areas.

15.49. In relation to the concern regarding unrecorded wells, and that some existing wells have not been identified by the application, I note that the Applicant has taken it that each of the rural dwellings in the vicinity of the main development site are supplied by wells. This approach has therefore assessed the potential impacts on these (unrecorded) private water supplies, as well as those formally documented on the GSI groundwater well database[1]. I am satisfied that all water supplies and drinking sources in the area have therefore been properly assessed, and accounted for, and that a comprehensive review of water supply and drinking source protection areas has been undertaken by the Applicant.

15.50. I am also satisfised that the EIAR sets out a detailed monitoring and management approach for potential scenarios whereby unforeseen or negative impacts might arise (Section 9.8 refers). The Applicant's WFD Assessment

expands on the EIAR mitigation measures by setting out further measures and controls to safeguard local groundwater bodies which are subject to the Water Framework Directive (2000/60/EC). The controls would help to ensure that the proposed development would not negatively impact the current WFD status of any receiving waterbody, in my opinion, and are summarised on Page 43 of the Applicant's Response. They include: -

- No abstraction of groundwater for the construction or operational phase. All construction water will be imported to the site. Potable water at the substation will be provided by a dedicated storage/harvesting tank (i.e., not via local supply).
- No discharges to groundwater will occur. All foul water will be directed to sealed holding tanks and then transported offsite by tanker (as per Chapter 9 of the EIAR and SWMP).
- Application of strict buffer distances and prohibition of refuelling or storing of hazardous materials near private wells and group water schemes.

15.51. The Commission will note the submission made by Uisce Éireann stating that the Maigue_080 waterbody is designated as a drinking water protection area (DWPA). This waterbody is approximately 10.3km downstream of the site. UÉ note that the EIAR includes good mitigation measures for protecting surface water protection areas and that given the supporting documents included in the application which seek to protect surface water the risk to the Maigue_080 WB is likely to be low.

15.52. However, I also note that the UÉ submission goes on to state that the potential risk to the downstream abstraction has not been fully assessed, as would be expected. Therefore, they recommend that several conditions should be attached as part of any decision granting permission for the development proposal, including, for example, that the Applicant must submit a Downstream Drinking Water Protection Plan for the written agreement of the Planning Authority in consultation with Uisce Éireann. The Plan should identify the River Maigue abstraction at the Adare WTP, as a sensitive receptor, and demonstrate how the construction works will not lead to a deterioration in water quality for the construction phase.

15.53. Further conditions recommended require the implementation of the surface water monitoring programme (as outlined in Section 9.5.1 of the EIAR), monitoring of relevant parameters both upstream and downstream of site discharge (e.g. turbidity, pH/CE, colour, suspended solids, etc), agreed notification protocols in case of an accidental spill or incident, prohibition of high-risk construction activities during heavy rainfall (e.g. excavation, soil disturbance, concrete pouring, etc), amongst others.

15.54. In response, I note that the Applicant has indicated that they are happy to comply with the Uisce Éireann conditions, if permission is granted, and that the assessment, mitigation, and residual effects on the Maigue_080 waterbody and Adare Water Supply (as set out in the EIAR Chapter 9, WFD Assessment, CEMP and SWMP) will be collated and submitted to the PA in a specific 'Downstream Drinking Water Protection Plan' in consultation with UÉ.

15.55. I do not entirely agree with the Uisce Éireann position that the potential impacts on the abstraction point have not been fully assessed in the EIAR. Appendix 9A of the EIAR Chapter 9 sets out the applicants WFD assessment and Section 4.6 thereof clearly identifies the Maigue_080 waterbody, which is ~10.3km downstream of the site as a designated DWPA[79]. Table 5.1 then sets out the results of the applicants WFD surface waterbodies screening assessment, and it is clear therefrom that the Maigue_080 (IE_SH_24M109) was screened out due to the distances involved and dilution within the waterbody. On this basis it was considered unlikely that potential pollutants would migrate to the surface waterbody in concentrations sufficient to cause adverse effects on status.

15.56. Having regard to this, I am satisfied that the issues raised by Uisce Éireann have been fully addressed by the Applicant and that there would be no adverse effects on downstream water quality objectives, including those associated with the Maigue_080, and no deterioration in surface water status will occur on foot of the proposed development. I would specifically clarify for the Commission that in reaching this conclusion I am satisfied, based on my collective findings, that the proposed development will not present a risk of significant or adverse effects to

[79] River Drinking Water Protected Area

the River Maigue abstraction at Adare Water Treatment Plant as a result of distance (>10.3km) and the embedded design, best practice and mitigation measures set out in EIAR Chapter 9 to protect water quality including surface and ground waters. Therefore, the addition of this receptor to the Downstream Drinking Water Protection Plan is in the interests of completeness as opposed to carrying a matter of environmental assessment over to post-consent stage. In this regard I am satisfied that no significant adverse risk arises.

Water Framework Directive

15.57. Observers raise concerns that the application is not consistent with the requirements of the WFD (2000/60/EC). The Applicant has completed a stand-alone WFD Assessment Report (Appendix 9A of the EIAR), which has assessed whether the project would be likely to result in a deterioration of any surface or groundwater status (i.e., compromise meeting WFD objectives). The assessment has been carefully considered as part of assessing the application.

15.58. I note that Table 9-11 of the EIAR identifies the relevant waterbody name, code, location and distance from the site (km), its WFD status, WFD risk, and whether a hydrological connection exists between it and the subject site. The various waterbodies form part of the Morningstar, Camoge, Ballynaclogh, Groody and Maigue river catchments. Other various catchments are listed under transitional, coastal and groundwater body headings. I am satisfied that the receiving waterbody environment has been accurately described and recorded in the EIAR.

15.59. I note that groundwater flow across the site is generally northwest in the direction of the Shannon Estuary. The downstream receiving waterbodies include the Morningstar River, Camoge River, Groody River, Maigue River, their associated minor tributaries and the Shannon Estuary. The GSI database identifies 70 groundwater sources within a 2km radius of the site, including the proposed underground GCR. The EIAR (Table 9-11) provides information on the WFD status for waterbodies in the area, including the Morningstar_060, which cuts across the site. The WFD status / values (2016-2021) range from ‘good’ to ‘poor’ and there is connectivity between the site and several waterbodies in the area.

15.60. The main development site (wind farm) is underlain by the Hospital, Fedamore and Bruree GWBs. Whilst the Fedamore GWB, Knockroe Northwest and Knockroe Southwest GWBs, Herbertstown GWB, Ballyneety GWB and Limerick City East GWB lie underneath the GCR at various points.

15.61. Most of the main development site is underlain by groundwater with a 'moderate' vulnerability rating. I note also that localised areas in the northern part of the site, with a small central area, and parts of the southern section have a rating of 'high'. Two small areas in the northern and southern parts of the site are identified as having an 'extreme' groundwater vulnerability or rock at or near the surface or karst. I note that T9 and T12 are within areas of 'high' groundwater vulnerability also, whilst remaining turbines are in areas classified as 'moderate'.

15.62. The proposed underground GCR spans areas of 'moderate' to 'high' groundwater vulnerability. I note that some very limited sections of the route pass through areas designated with an 'extreme' GW vulnerability or rock at or near the surface or karst. Any potential deterioration in surface water quality has the potential to affect the Lower River Shannon SAC (Site Code: 002165) and River Shannon and River Fergus Estuaries SPA (Site Code: 004077). The potential impacts on European Sites is addressed in the AA section of the Report (Appendix 1 & 2 refers) which concludes that adverse effects on site integrity can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects.

15.63. I accept the Applicant's conclusion that there is limited potential for the proposed development to alter or undermine the overall status of the GWBs through the works proposed. Whilst there would be localised temporary dewatering at excavations and potential for impacts on water quality through accidental spills or leaks of hydrocarbons and other pollutants on the site, I am satisfied that adequate mitigation has been incorporated as part of the application such that the level of residual risk would not be significant. Consequently, there is no likely potential for the proposed development to alter the overall status or prevent the achievement of the environmental objectives of groundwater body for the purposes of WFD.

Drainage Channels and Crossings

15.64. The Commission will note the submission made by the OPW regarding potential drainage alterations and the construction of new / modified bridges and culverts to cross existing watercourses. The OPW did not object to the proposed development. However, as acknowledged by the Applicant, a separate Section 50 consent process will be required, in the event that planning permission is granted.

15.65. The Section 50 consent process is governed by the Arterial Drainage Act 1945 and helps to ensure that new or altered bridges or culverts over watercourses do not increase flood risk in an area. The process is managed by the OPW. The OPW are responsible for protecting the flow of water for such waterbodies and making certain that any such new structures do not worsen flood risk either upstream or downstream.

15.66. As noted above, the application is accompanied by a Site Specific Flood Risk Assessment (SSFRA), which is included under Appendix 9B of the EIAR. The SSFRA was prepared in line with the Planning System and Flood Risk Management Guidelines. I note that the OPW, Planning Authority, nor any other prescribed bodies, did not raise any concerns regarding the application of the guidelines to the proposed development, or in relation to flood risk.

Conclusion: Direct and Indirect Effects

15.67. Having regard to my examination of the environmental information in respect of Water I am satisfied that subject to implementation of the full suite of mitigation measures there will be no significant adverse direct, indirect or cumulative effects on water, including hydrology and hydrogeology.

16.0 **Land and Soils**

Issues Raised

16.1. Chapter 8 of the EIAR is 'Land and Soils'. It addresses geology and the existing geotechnical conditions of the site. The chapter describes the mitigation measures proposed by the Applicant to limit any potential significant impacts in relation to soil and geology, accidental spills and contamination to land, rock

blasting (if required), piling, tree felling and the construction and laying of the grid connection route and connection to the existing substation at Killonan.

16.2. It outlines the methodology used and the assessment criteria for identifying any residual impacts and the significance of effect. The following is a summary of the main concerns arising:

- The area is already heavily developed with existing wind turbines.
- Ground stability risks, including potential landslides, peat instability, subsidence and impacts from altered drainage patterns during construction works.
- Agricultural impacts, including loss and fragmentation of existing farmland, soil compaction, erosion, and reduced land productivity.
- Borrow pits and deposition areas, concerns raised about visual impact on ecological degradation, drainage disruption, sediment runoff, and whether suitable construction aggregate exists onsite.
- Traffic impacts, including unsuitable onsite material would require significant aggregate imports, resulting in significantly higher HGV movements than predicted.
- Waste risks, including potential contamination from construction activities, microplastic release from turbine blades, and the absence of a detailed waste and spoil management plan.
- Landownership concerns regarding the Applicants legal entitlement to use certain lands, particularly along the proposed grid connection route.

16.3. The Applicant provided a response to the above issues as part of their submission to ACP on 17 February 2026.

Examination of the EIAR

Context

16.4. A desktop study, site investigations, and walkover surveys were undertaken as part of assessing this environmental topic. The site walkover survey was undertaken to establish the environmental baseline conditions of the site in relation to land, soils and geology. This chapter of the EIAR has been completed in accordance with European and Irish legislation (Section 8.1.2 refers). Section 8.1.1 provides a Statement of Authority which outlines the competency of the assessors, including their qualifications and experience.

16.5. The assessment methodology is set out under Section 8.2 of the EIA. The scope of the assessment for this environmental topic covers the effects of the construction, operation and decommissioning of the proposed development in terms of the local land and soil environment and how this has had a bearing on

the site layout, site selection and locations of individual turbines. The associated appendices for this chapter include: -

- Appendix 8A Northwest Geotech Ltd, 2024 Ground Investigation Report
- Appendix 8B Trial Pit Logs

16.6. The Applicant undertook several site visits to determine the geology and aggregate resource at various locations throughout the proposed development site. The methodology employed is described below. However, in summary, the majority of the wind farm site is on agricultural pastures with some small areas of coniferous forest. The topography is relatively flat. The site is underlain by two distinct layers of limestone. The lower layer is Ballysteen limestone, which is roughly between 100 and 200m deep. Underneath this is a thicker layer of Waulsortian limestone, which ranges from 300 to 500m deep.

16.7. The soils map (GSI) for the wind farm site indicates three main types of soil within the site, which include 'Till derived from limestones', covering the majority of the proposed development, 'A, Alluvium" covering the northwestern portion of the site, and small pockets of 'L, Lacustrine sediments' and 'Rock, Bedrock outcrop or subcrop' dispersed throughout the wider area (Figure 8-9 of the EIAR refers).

Baseline

16.8. The EIAR provides a baseline assessment in terms of land, soils, and geology. It examines and discusses the potential impacts that the construction and operation of the proposed development may have. The EIAR confirms the information has been gathered from a desk study, visual inspection and field survey (informed by trial pits).

Soil and Subsoil

16.9. The GSI soils map for the proposed wind farm area indicates three types of soil within the site (Figure 8-8 of the EIAR refers). Table 8-2 outlines the predominant soil type for the site. During the Northwest Geotech Survey (6th – 9th August 2024), a total of 24 no. trial pit holes were excavated to a depth of up to 2.7m. [A detailed log is provided in the Northwest Geotech report in this EIAR, Volume III, Appendix 8A.] Additional site investigation works were carried out

during November 2024 and February 2025. A summary of the ground types encountered were as follows:

- Topsoil: encountered typically in 200-400mm thickness across the site.
- Recent deposits (peat): encountered at depth in TP01, TP02, TP04 as spongy dark brown amorphous peat, thickness of 0.25m – 0.80m.
- Glacial Till: sandy gravelly clay, frequently with low to medium cobble and boulder content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth.

16.10. The EIAR (Section 8.3.2) confirms that much of the wind farm site is on agricultural pastures (Agricultural Area 231) with some coniferous forest (321). Agricultural pastures dominate the surrounding lands (Figure 8-2 of the EIAR refers). There is also a scattered pattern of rural dwellings and farmhouses. Land uses for the site and surrounding area have been mapped in Figure 8-3 of the EIAR. The topography of the site is relatively flat and the proposed turbine locations have been selected to allow for a balance of cut and fill of the underlying strata at each location.

16.11. The underground Grid Connection Route (GCR) is proposed to be almost entirely along an existing road carriageway. Where the route enters the wind farm site from the public roadside to connect to the onsite 110kV substation, the land use is primarily agricultural. Soils and subsoils along the underground electrical cabling route are mainly mapped as basic Tills derived from Limestone, with some areas of bedrock at surface level - Non calcareous, made ground, Till derived chiefly from basic igneous rocks, Glaciofluvial sands and gravels and bedrock at surface calcareous.

16.12. The temporary access track required for the Turbine Delivery Route (TDR) is proposed to be installed on land currently in agricultural use (grassland). The rest of the TDR, however, is part of the public road network. In this regard, I note that the delivery of turbine components will require temporary works on sections of the public road network along the route. This includes hedge or tree cutting; the relocation of powerlines, poles, lampposts, signage, and other such related infrastructure; and verge strengthening (i.e., application of a more stable load bearing surface to protect the roadside edge). Soils and subsoils where the temporary access track is to be located, are

mapped as Sandstone Till, mostly derived from Devonian sandstones. The soils would be classed as deep well drained mainly acidic mineral soils.

Geological Heritage

16.13. The EIAR (Figure 8-11) illustrates the distance from the subject site and various geological heritage sites, including Lough Gur and Grange Stone Circle, respectively. These sites are roughly 4 / 5km to the northeast of the proposed wind farm area. The underground grid connection route would run within the public road network (R512) and alongside the western side of Grange Stone Circle.

16.14. The EIAR states that due to the distances involved, no effects to geological heritage are predicted.

Economic Geology

16.15. The closest recorded quarry is c. 3km west and recorded as being filled/restored. The nearest active quarry to the site is c. 9.5km at Ballinleeny, Co. Limerick. According to the GSI, there are a number of recorded metallic and non-metallic mineral locations in the area, mainly composed of iron and zinc (Figure 8-12 of the EIAR refers). There are no records of any metallic or non-metallic mineral locations within the application site.

16.16. The GSI Aggregate Potential Mapping Database indicates that two locations within the wind farm site have ‘very high’ potential for crushed rock aggregate. These are the two locations for the proposed borrow pits. In contrast, the GSI record for granular aggregate across the site is ‘very low’ to ‘moderate’.

Peat and Slope Stability

16.17. The Applicant has completed a desk-top review of the GSI’s Landslide Events database, which has no record of any landslides within or in proximity of the subject lands. The nearest recorded landslide is located approximately 12km northwest of the site. Furthermore, according to the GSI Landslide Susceptibility map, the proposed development would be located in areas classified as being “Low” and “Low (inferred)”. I note that Figure 8-13 provides a graphic taken from the GIS ‘Landslide Susceptibility’ mapping tool.

16.18. The Applicant also undertook a scoping exercise to determine if a detailed Peat Landslide Hazard and Risk Assessment would be required as part of the application and if peat is present. The study found that no peat is mapped on the GSI maps for the site. However, I note that during site investigations a small area of peaty type soil was found in the northeastern corner of the site, including small patches of peat at the locations of Turbine Nos. 1, 2 and 4 with an average depth of less than 0.5m. The depth of peat and existing ground slope at the locations of Turbine Nos. 1, 2 and 4 are plotted on the graph on Page 8.20 of the EIAR (see Figure 8-14). Overall, the scoping exercise found that there would be no risk of instability of the site, access tracks, turbine bases, or grid connection from peat. [The issue of peat and slope stability is further addressed below under the sub-section entitled 'Soil Stability / Ground Conditions'.]

Turbine Foundations

16.19. It is proposed to construct 17 turbine foundation pads. Each turbine base will bear onto rock or other such suitable bearing stratum. The foundation will be 27m in diameter and to a depth of approximately 3.5m below ground level. The excavation works will be carried out using hydraulic excavators.

16.20. The EIAR states that if rock is encountered it will be removed by a combination of rock breaking and ripping and if necessary, blasting. If poor ground conditions are encountered during excavation piled foundation may be considered. A piled foundation requires the use of a piling machine equipped with an auger drill to rotary bore a number of holes around the area of the turbine base to the sub-formation depth determined at construction stage.

Sensitivity of Soils and Geology

16.21. As noted within the EIAR, the sensitivity of an environmental receptor is based on its ability to absorb an impact without perceptible change. The land and soils present within the wind farm site, grid connection route and TDR temporary access track have a mixture of 'low' and 'medium' sensitivity.

16.22. There are no designated Geological National Heritage Areas within the main wind farm site. There are two designated sites along the proposed underground GCR. The EIAR states that these are already impacted by the existing road

carriageway. The small amount of peat on the wind farm site indicates that the sensitivity rating for this is 'low'.

16.23. The geology along the grid connection route is classified as having a 'medium' sensitivity as the bedrock may be karstified in areas.

Geohazards

16.24. The EIAR notes that geological hazards at a wind farm site may include features like faults, karst areas and a presence of specific, sensitive soil types, such as peat. A review of the GSI database indicates no karstic features or faults at the wind farm site. During the Northwest Geotech Site Investigation a small amount of peat was discovered, but this presented no risk due to the relationship between ground slope and peat depth as shown in Figure 8.14 'Peat Risk Category' of the EIAR.

16.25. The grid connection is proposed to be almost fully within the existing road network and, therefore, it is not anticipated that geological hazards would arise.

Borrow Pits & Deposition Areas

16.26. There are no existing borrow pits or deposition areas on site.

Potential Effects

16.27. The potential direct, indirect and cumulative effects of the proposed development on land, soils and geology are set out in the EIAR and summarised in Table LSG1 below.

Table LSG1: Summary of Potential Effects (Land, Soils and Geology)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	Under the do-nothing scenario, no development would take place on this site, the land and soils environment would likely remain unchanged, with the exception of potential future agricultural/forestry practices. If the proposed development does not proceed, there would be no direct or indirect significant effects on land, soils, or geology.
Construction Phase	*Change of Land Use* - During works, material will be excavated, moved, altered, or compacted, which would influence the existing land use and its requirements. - The existing land use would change over the course of the construction phase from existing pastural activities to a functioning wind farm. The surrounding lands would however remain in agricultural use.

	- Permanent land use change would affect c. 4.5% of the total lands within the application area, and include wind turbines, access tracks, substation and related compound, Independent Power Provider (IPP), met mast, material deposition areas, and sediment settlement ponds. - The GCR is mainly within an existing public road. There would be small changes to the land only, and imperceptible changes to topography. - Along the TDR, some locations will require verges to be filled with granular material to harden the surface for transport vehicles. - Without mitigation, the impact of altering the land use within the wind farm site is assessed as **adverse, short-term, direct, localised, moderate, likely effect** on land use and the grid connection and TDR would have an adverse, localised, brief, direct, minor and likely and not significant effect. *Soil and Geology* - Large volumes of soil, subsoil and bedrock will be excavated, moved, altered and/or removed from the site. - Excavated soil, subsoil and bedrock will be required for site levelling, construction of the wind farm infrastructure (i.e., gravity foundations for turbine bases, crane hardstands, met masts, substation, internal cable network, tracks and drainage accommodation works) resulting in the permanent removal of material. - Stone required for the construction of new access tracks, construction compound and drainage will be imported from quarries, based locally where possible. - The total volume of excavated material would be approx. 321,758m3. - The active construction area for the GCR connection will be small, ranging from 100 to 200m in length at any one time, and will be transient in nature as it moves along the route. - Most of the turbine delivery route will not require excavation. Additional granular material to soft verges is not likely to contribute to soil erosion. - Soil compaction may occur due to movement of overland traffic, such as construction and maintenance vehicles. - Soil slippage is low risk due to the gently sloping topography of the site. However, deposition areas, borrow pits and stockpiled material have potential for slippage, if mitigation measures are not put in place. - Without mitigation, soil erosion, compaction and slope stability represent **adverse, moderate, localised, minor, direct, likely and short-term effects.** - The soil, subsoil and bedrock along the grid route and TDR are considered medium sensitivity receptors. Without mitigation, the degree of the effect would be adverse, localised, brief, direct, likely, minor to temporary and localised and not significant. *Accidental Spills and Contamination* - Sedimentation may lead to the erosion of the soil, transportation of contaminants throughout the land and soil and compaction of the soil, reducing porosity and affecting water infiltration in the soil. - Contaminated runoff arising from soil erosion can pose a significant risk to the geological and hydrogeological environment, if it percolates into the soil. - Contamination, or pollution, caused by human-made chemicals entering and altering the natural environment can occur as a result of waste-related activities, historical activities, leakages and accidental spillages of chemicals. This can lead to the degradation and the physio-chemical alteration of the land, ground and surface water and soils environment as

	well as cause indirect effects to the biodiversity, human health and material asset environments. - Hazardous substances, such as fuel and oil, have the potential to affect the soil and geological environment should a spill occur. - Cement spills pose a threat to the land and soils environment and may impact on the hydrological environment and groundwater environment, as pH would likely be altered. - Without mitigation, the effect is assessed as **adverse, localised, brief and occasional, direct, likely, minor, low, and slight.** *Rock Blasting* - Mechanical excavation mainly used at turbine locations and borrow pits. If rock unsuitable for ripping, blasting may be needed. - Blasting will not be carried out at the borrow pits. If blasting is required at turbine locations, it will result in ground vibration and Intensity of vibration will depend on a number of factors including rock type and structure, weight/timing of explosive and distance from blast site. - Blasting has a higher intermittent noise level then rock breaking. However, it decreases the amount of breaking/ripping required and the time to extract material. - Any blasting would be carried out by a qualified specialist under licence in line with best practice mitigation measures, including notification of the PA, Garda Síochána and adjoining landowners. - Without mitigation, the impact is assessed as **adverse, localised, brief and occasional, direct, likely, minor, low, and slight.** *Piling* - Piling, if required, will be for the proposed turbine foundations only. The EIAR states this would be limited and avoid producing significant volumes of material. - Any material arising from piling will be removed for recovery to the onsite deposition areas. - The magnitude of potential effects associated with using piled foundations for the turbines is estimated as minor. - Without mitigation, the impact is assessed as **adverse, localised, temporary, direct, likely, moderate, low and slight.** *Tree Removal/Felling* - Felling of approximately 1,900m hedgerows, 922m of treelines and 14.4ha of overall forestry removal is required to accommodate the construction of the turbine foundations and associated hardstands, access tracks, turbine assembly and deposition areas. - Forestry and trees in a radius of approximately 74m to 97m around each turbine will be felled as part of the project. [Additional tree line and hedge removal will also be needed in some areas for the new access tracks and construction areas.] - The sections of conifer forestry proposed to be felled include the areas around Turbines 4 and 5 and their associated hardstand, access tracks and deposition areas; and the proposed substation, construction compound 1, and the access track from the site entrance to the substation and beyond to T6. - The main effects relate to landscaping, soil excavation, root and stump harvesting, which can cause extensive soil disturbance and expose underlying overburden. A large volume of soil can remain attached to

	roots when stumps are extracted from the ground. This in turn may influence soil stability and contribute to soil sedimentation, soil erosion and surface water runoff. - The use of heavy machinery can induce soil loading and compression of soft deposits which may influence surface water runoff and soil erosion rates. - Forestry felling will be undertaken in accordance with a tree felling licence and by a suitably experienced and qualified felling company. - Without mitigation, the impact is assessed as **adverse, localised, temporary, direct, likely, negligible, low and not significant.**
Operational Phase	*Change of Land Use* - All potential effects to land and land use will occur during the construction phase. No additional effects to land and land use will occur during the operational phase, as no further works are proposed. - Once operational, existing agricultural activities will recommence following construction. Conventional felling and forestry activities will resume and continue to take place. - Observation and monitoring measures, such as ongoing management of drainage swales, cross-checking stability of borrow pits and deposition areas, management of in drain filtration will happen as part of maintenance practices. - Without mitigation, the impact is assessed as adverse, localised, long term, direct, likely, negligible and not significant. *Soil and Geology* - No excavation during the operational phase. However, some erosion of soil may continue early into the operation phase until vegetation is fully established. - Landscaping and revegetation of excavated areas, deposition areas, and hardstand will recover soil structure and function. - Vehicular movements during operation and maintenance will be restricted to the areas of hardstand and existing/newly constructed access tracks. - Wheel wash facilities will be available to prevent soil and water contamination. The effect on hydrogeology will remain, but to a far lesser extent, due to the risks associated with sedimentation and contamination of the aquifers as a result of erosion and runoff. - Traffic levels will be very low during the operational phase and maintenance on turbines will be carried out from existing access tracks and hardstands. - Without mitigation, the impact is assessed as adverse, localised, temporary, direct, likely, minor, low, and not significant. *Accidental Spills and Contamination* - Potential for accidental spillages from plant and machinery with the effect depending on the nature of the emission. Some construction vehicles or plant may be necessary for the maintenance of turbines which could result in minor accidental leaks or spills of fuel/oil. - The transformers in the substation and turbines are oil cooled. Therefore, there is potential for spills / leaks of oils from this equipment resulting in contamination of soils and groundwater. - Without mitigation, the impact is assessed as **adverse, localised, short-term, direct, unlikely, high, and slight.**

Decommissioning Phase	- Similar to those associated with construction (see above), but of a lesser / reduced magnitude. - Potential reversal of some of the construction impacts by rehabilitating areas. - Turbine components will be removed at decommissioning. However, access tracks will remain in place. Hardstanding and foundation areas will be reinstated to match the surrounding landscape. - The turbine bases will be covered with local topsoil to regenerate vegetation, which will reduce runoff and sedimentation effects. - Underground cables will likely be cut back and left in-situ. - The decommissioning phase of the project will require minimal earthwork and have minimal adverse effects on land, soils and geology. It represents a positive, localised, direct, likely, long-term and not significant effect.
Cumulative Effects	Excavation and removal of soil and subsoil across projects. Import of aggregates and materials to the area across projects. The list of projects considered in the cumulative assessment are identified in Volume II, Chapter 1 of the EIAR. It is considered that there is no potential for significant cumulative effects.

Mitigation

16.28. The EIAR includes a comprehensive and extensive range of mitigation and monitoring measures in relation to land, soils and geology. The primary mitigation measure employed by the Applicant is the design of the proposed development whereby consideration has been given to the location of the proposed turbines, access tracks, borrow pits, and deposition areas, as well as other infrastructure to avoid and minimise effects. I consider the mitigation measures and related procedures to be detailed and thorough and note that they have been designed to address specific potential impacts on various receptors, including land, topsoil, bedrock, subsoil, geology and associated designated areas. The measures are clearly set out Section 8.5 of the EIAR. They are also included in the Construction Environment Management Plan (CEMP) (Appendix 2A of the EIAR), Resource Waste Management Plan (RWMP) (Appendix 2B), Surface Water Management Plan (SWMP) (Appendix 2E), and Traffic Management Plan (TMP) (Appendix 16A), respectively, and include:

Construction Phase:

- To reduce the potential effect of changing the land use associated with the footprint of the proposed development, the footprint of the works has been minimised to avoid unnecessary soil sealing, disruption, etc.

- A minimal volume of soil and subsoil will be removed to allow for infrastructural work to take place in comparison to the total volume present on the site due to optimisation of the layout by mitigation by design.
- Existing access tracks have been utilised in the design as much as possible such that the existing land use does not change in these areas of the site.
- The CEMP includes site management controls to mitigate for soil erosion (Volume III, Appendix 2A refers).
- Excavations for the borrow pits and turbine hardstands will be completed to an approved temporary works design and carried out to ensure they are stable or adequately supported. This will involve creating safe side slope angles, installation of drainage around and within the excavation, and installation of sediment control measures within the drainage system to prevent soil erosion.
- Temporary stockpiles of excavated material will be directed for use in backfilling and restoration or placed in the deposition areas onsite.
- Reusable excavated sub-soils and aggregate will be stored in temporary stockpiles at suitably sheltered areas to prevent erosion or weathering and shaped to ensure rainfall does not degrade the stored material.
- Stockpiles will be stored away from any open surface water drains, managing height and slope of all stockpiles and minimising soil movement.
- To decrease the potential for soil compaction, the scheduling of HGVs during the construction phase will occur and limit vehicle movements in, through and off site.
- Machinery will not operate directly on excavated/stockpiled soils.
- Within and around excavations, pore water pressure will be kept low by avoiding loading the soil/subsoil and giving careful attention to existing drainage.
- An emergency response system will be developed for the construction phase of the project, particularly during the early excavation phase. [This will involve 24-hour advance meteorological forecasting (Met Éireann download) linked to a trigger-response system. When a pre-determined rainfall trigger level is exceeded, a planned response will be undertaken.]
- A competent project geotechnical engineer will be employed during the construction phase.
- As part of the detailed design and assessment, identification of potential planes of weakness will be made in the overburden such as discrepancies in the material type and foliation direction in the bedrock.
- A bunded containment area will be provided within the compound for the storage of fuels, lubricants, oils etc. Spill kits will be made available and maintained onsite. A fuel management plan will be implemented.

- A detailed list of mitigation measures is set out under Section 8.5.1.4 of the EIAR for rock blasting, if this is required. This includes: -

- blasting will not occur after periods of heavy rainfall to mitigate ground instability,
- blasting will only take place if extraction using rippers or hydraulic breakers is impractical,
- A detailed blasting design will be undertaken by a suitably qualified and experienced specialist for each blasting location,
- preparation of a blast management plan to ensure compliance with the Explosive Act 2006 (as amended), and
- appropriate notification procedures to be put in place.

- A detailed list of mitigation measures is set out under Section 8.5.1.5 of the EIAR for piling, if this is required. This includes: -

  - Piles will be installed to the design depth and diameter, with casing or slurry support used where ground conditions require it.
  - Pile integrity and/or load testing will be undertaken in accordance with the design requirements.
  - Blinding concrete (approx. 100 mm thick) will be used to provide a clean working surface. The concrete will be protected from rainfall.

- Only water-based, biodegradable, and non-hazardous compounds will be used, under controlled conditions.
- Topsoil removed from tree felled areas will be used in landscaping works or placed in the deposition areas. Where possible, the vegetative layer will be stored with the vegetation and soil facing the 'right way up' to encourage regrowth.
- Runoff from the clear-felled areas will be treated using the separation of clean and dirty water by the installation of berms, channeling dirty water to silt traps and settlement ponds, and ensuring that the discharge rate of the drainage system is no higher than existing by using settlement ponds.
- Brash mats will be used to support vehicles on soft ground, reducing soil erosion and avoiding the formation of rutted areas.

Operational Phase

- All vehicular movement during operation and maintenance will be restricted to the areas of hardstand and access tracks.
- The risks associated with sedimentation and contamination of the watercourses and aquifers due to erosion and runoff will be significantly reduced as areas are revegetated and construction/forestry traffic ceases.
- Drainage swales will continue to be monitored.
- Minimal refuelling or maintenance of operational vehicles or plant will take place onsite. Offsite refuelling will occur at a controlled fuelling station, whilst onsite re-fuelling will be undertaken using a double

skinned bowser with spill kits ready for accidental leakages. A minimal amount of fuel will be stored onsite at any one time.

- An emergency plan to deal with accidental spillages will be prepared and communicated to plant operatives.
- The substation transformer oil storage tanks will be in a concrete bund capable of holding 110% of the oil in the transformer and storage tanks.
- The tree felling areas will be monitored and maintained on a continuous basis.
- The land associated with the footprint of the development will be reinstated at the end of the operational stage such that it can be used again for pastoral purposes.

Residual Effects

16.29. Section 8-6 of the EIAR includes a table 'Residual Effects' which sets out the various construction and operational activities, receptors, project components (e.g. the wind farm site, GCR, TDR, etc.), effects (pre-mitigation), references to mitigation measures, and the remaining residual risk (post-mitigation). The EIAR concludes that with the implementation of the prescribed mitigation measures likely significant effects range between 'not significant' to 'slight'.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

16.30. I have examined, analysed and evaluated Chapter 8 of the EIAR, and all of the associated documentation and observations on file in respect of land, soils and geology. I am satisfied that the that the Applicant's understanding of the baseline environment is comprehensive and that key impacts in respect of the likely effects on land, soils and geology as a consequence of the development have been identified. Issues raised include the adequacy of site investigations and the baseline information, risk of peat stability and landslide, the requirement for rock breaking or use of explosives with excavations, borrow pit and deposition areas (potential for visual impact and drainage disruption), waste risks, potential contamination from construction activities and microplastic release from turbine blades.

Soil Stability/Ground Conditions

16.31. The EIAR is informed by an independent site investigation specialist, Northwest Geotech Ltd, who provide services in the geotechnical and ground investigation development sector. The EIAR notes that they undertook a Site

Investigation (SI) Survey on 6th – 9th August 2024, which comprised of twenty-four machine dug trial pits. The trial pits were excavated using a 3tn tracked excavator fitted with a 400m wide bucket, to depths of up to 2.7m. I note that water strikes encountered during the excavation were recorded, along with changes in levels as the works proceeded. In this regard, groundwater was encountered at a depth of 1.4m for Trial Pit No. 4 and 2.2m for Trial Pit No. 16. A detailed log of the report is provided in the EIAR, Volume III, Appendix 8A.

16.32. Additional site investigation work was carried out during November 2024 and February 2025 whereby nine further trial pits were excavated to inform the location of the proposed borrow pits. I note that there have been no significant changes in the land use or landform since the SI surveys were undertaken.

16.33. The general purpose of an SI survey, undertaken as part of a planning application for a wind farm, such as that proposed, is to evaluate the ground, geological and environmental conditions associated with the application site and its receiving environment. The process determines structural feasibility, helps to minimise risk, and guide the location and design of various wind farm components and works, including turbine base foundations, access roads, grid connection route and underground cabling, and the turbine delivery route, among other items, as applicable.

16.34. The SI is important in this case as it helps to determine the subgrade soil strength, its bearing capacity, and ability to anchor and hold in place the various structures associated with the proposed wind farm facility, including that of heavy turbine structures. The survey helps to identify any potential geological faults, voids, or weak points in the underlying soil, which could possibly undermine the construction or future operation of the development proposal. The Applicant outlines that the site investigation surveys undertaken as part of the subject application provide a full and comprehensive review of the proposed development site.

16.35. The EIAR states that the turbine foundations may be constructed using a piling method on competent strata (i.e., bedrock or subsoil of sufficient load bearing capacity). The foundations will be roughly 27m in diameter and reach a depth of 3.5m below ground level. The construction methodology is outlined in

the ‘Civil Engineering’ section of the EIAR (Volume II, Chapter 4). I note that approximately 1125m3 of concrete and 170tn of steel is expected to be used in the construction of each turbine base. The estimated material quantities required are shown in Section 4.12 of the EIAR. [Planning Drawing No. 22635-MWP-00-00-DR-C-5403 provides further details on the wind turbine foundations.]

16.36. The application does not include a specific Peat Stability Assessment Report, or Landslide Assessment. However, I have considered the scope of the geotechnical analysis and I am satisfied that the majority of the proposed development footprint (turbines, access tracks, etc.) are at locations where there is no peat, or on peat depths which are less than 0.5m, and that areas of deeper peat (>1m) – if they exist at all on the site – have been fully avoided. The topography of the land is also such that there any slopes across the site are gentle and subdued (i.e., less than 5 degrees), which further reduces the likelihood of slippage or mass land movements.

16.37. The potential for peat instability or slope failure is therefore low, in my opinion. I consider that the Applicant has demonstrated a proper and thorough understanding of the geology and underlying subsoil strata pertaining to the site, including peat, to inform the turbine layout and the assessment of likely significant effects. I further note that the geotechnical surveys undertaken of the land show that peat is present in pockets that are small, isolated, and infrequent, and that the overall ‘peat risk ranking’ across the site is ‘zero’ (Figure 8-14 ‘Peat Risk Category’ refers).

16.38. More generally, I note that the Applicant has carried out an extensive Site Investigation survey and that the 24 trial pit locations, and references to the type of soils and subsoils found in the area, are clearly presented in the EIAR. Table 8-4 sets out the respective trial pit numbers, their geographic coordinates, the depth of trial pit dug, and a description of findings. The predominant materials encountered include sand, silt and clay. Figure 8-15 illustrates the trial pit positions across the land, and I consider that an appropriate physical spread and sampling methodology was employed in this regard.

16.39. The issue of peat and landslide has therefore been completed in accordance with the relevant guidance, in my opinion, which includes the ‘Peat Landslide

Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments, 2nd Edition, 2017, Scottish Government). I am satisfied that further geotechnical investigations, were required, are covered by the methodology outlined in the CEMP accompanying the EIAR, and that method statements for each element of work, prepared by the appointed contractor, will be reviewed and signed off by the project engineer prior to works commencing.

16.40. In summary, given the qualitative analysis undertaken of the site conditions, the assessment of consequences, and proposed mitigation measures, the likelihood of significant adverse effects arising in relation to soil stability, ground conditions and ground structure, in my opinion, would be low.

Road Subsidence

16.41. I note the concerns by observers regarding sections of the public road network in the area, including the R516, sinking and that the road level has become uneven in sections due to subsidence. The contention raised is that the proposed development would exacerbate this issue, particularly during the construction phase, where there would be a presence of heavy vehicles and equipment moving across the land, an increase in traffic volumes, and because of the existing presence of soft ground and low load-bearing strata in certain areas.

16.42. The Applicant acknowledges in their response that the potential for construction traffic to interact with the ground conditions has been recognised. For this reason, it is submitted that a pre-construction bridge and road survey will be carried out for the proposed haul route along the R516. The road network will be inspected regularly for any damage or structural failure and any repairs promptly made. In addition to this, I note that once the construction phase has concluded, the Applicant has agreed for a ‘completed post-construction road and bridge survey’ to be carried out. Any sections of road which are identified as damaged will be fully reinstated and restored in accordance with the relevant requirements.

16.43. I am satisfied that the measures put forward in this regard are adequate and acceptable and would prevent the future deterioration or structural decline of

local roads serving the area. The approach put forward would help to ensure that existing road conditions would not be adversely affected by the proposed development, and that any future remedial works required would be able to be identified and implemented, as appropriate.

Borrow Pits/Excavated Materials

16.44. Several concerns have been raised regarding the potential negative effect of the proposed borrow pits on land and soils and whether the application has properly assessed the consequences of largescale excavation in terms of soil stability. Some submissions query the scale of the borrow pits and the extent of soil and rock which would be extracted from the land and whether this would lead to ground disturbance, disruption of natural drainage pathways, erosion, excavation methods and soil handling procedures. The overriding concerns for the majority of local residents is that the application fails to provide sufficient clarity regarding land and soil implications resulting from the proposed borrow pit excavations, particularly as no specific Borrow Pit Management Plan accompanies the application.

16.45. The baseline conditions for the receiving environment are described in Sections 8.3.1 – 8.3.16 of the EIAR and summarised under Sections 8.1.1.12 – 8.1.1.31 of this report. The site is characterised by mineral soils, derived from limestone till, with small areas of poorly drained mineral soils and limited pockets of shallow peat, as noted above. Most of the site has a ‘low’ to ‘medium’ sensitivity. This reflects the absence of any designated geological features, the prevalence of mineral soils and limited amount of peat. I also note that no geological hazards, including karst features or faulting, were identified within the site.

16.46. It is intended that the two proposed borrow pits – which have a combined area of roughly 60,700sqm – would be constructed following a standard methodology of stripping, segregation, and temporary storage of topsoil and subsoil in the designated deposition areas. The resultant material would then be used as part of the works phase. Post-construction, the borrow pits will be backfilled with excess site-won materials excavated during earthworks, capped with stored soil, and finally restored to agricultural use, which would address concerns regarding

visual intrusion and related impacts on the landscape, in my opinion. There would be no significant changes at surface level once the site restoration phase for this component of the project has been completed.

16.47. I note that the Applicant confirms that they do not expect all excavated materials to be suitable for reuse onsite and that this will be determined during the construction stage, which is not unusual, in my opinion, and in accordance with standard construction methodologies. Any unusable or contaminated material found during the process will be removed from site and disposed of by a licensed contractor in accordance with legal requirements.

16.48. The Commission will note that the trial pits (24 no.) were dug using a 3-tonne tracked excavator fitted with a 400m wide bucket. The trial pits were excavated up to a depth of 2.7m below ground level or until such point the water table was reached. The excavator used in this case is considered appropriate for the scope and objectives of the ground investigation required to inform the proposed development. The machine provides adequate reach and digging capability to safely excavate the required trial pits to the necessary depths, whilst simultaneously allowing for the exposed soil and rock profiles to be properly examined, inspected, and recorded by the geotechnical engineer to meet the required industry-standards. It is noted that for wind farm developments, trial pits are typically undertaken to assess 'near-surface' ground conditions, including soil types, groundwater conditions, rock horizons, and peat depths, where present. I consider the use of a 3-tonne tracker excavator standard practice for such investigations, particularly where access constraints, environmental sensitivities, and softer ground conditions are met. The tracked configuration also helps to minimise ground disturbance and soil compaction.

16.49. To establish the borrow pits and turbine hardstand areas, I note that onsite excavation works will utilise safe slope angles and, where necessary, structural supports to prevent land collapse or failure. The site will include perimeter and internal drainage systems to control surface water and groundwater. Provision is also made for sediment controls to prevent soil erosion and to avoid any sediment or silt leaving the site, which could otherwise be detrimental to water quality and aquatic habitats. [Further information on the construction

methodology for the borrow pits is set out in CEMP found under Volume III, Appendix 2A of the EIAR.]

16.50. I note that groundwater was encountered at a depth of 1.4m for Trial Pit No. 4 and 2.2m for Trial Pit No. 16. No groundwater was met for any of the remaining trial pits, however. In addition, I note that groundwater levels can vary due to seasonal and other effects and may occasionally differ slightly to those recorded during SI surveys. The Applicant has confirmed in their response that no direct works are proposed within any source protection areas and that standard protection measures, including exclusion zones, pollution prevention controls, and emergency response procedures, will be implemented as part of the project (Sections 9.5.1 and 9.5.2 refer). The EIAR also notes that monitoring and adaptive management procedures will be utilised where any should unforeseen impacts might arise (Section 9.8).

16.51. In terms of waste management and related construction procedures, I have considered the Resource and Waste Recovery Management Plan (RWMP) on the file (Appendix 2B of the EIAR refers). The RWMP is a detailed document outlining the procedures for site management practices; key construction materials, quantities and costs (oils, absorbents, concrete, bricks, tiles, packaging, wood, glass, etc.); and required site infrastructure (resource management, storage of materials and export of same offsite). Specifically, in relation to excavated materials, it is stated that an estimated total of 296,918m³ of waste material will be generated during the construction phase (this figure includes topsoil and mineral soil).

16.52. The excavated soils and subsoils will be managed onsite with the material primarily reused for bunding, landscaping, and localised earthworks. The remaining volumes will be directed to the designated permanent deposition areas and used to fill in the borrow pits. A total of 24,840m³ of excavated materials is predicted to be produced by the project. In this regard, I note that the 'Civil Engineering' section of the EIAR confirms that a 30% contingency factor has been applied to the overall borrow pit volume to ensure there would be adequate acceptance capacity available. This has been informed by the desktop geological assessment and trial pit investigations undertaken at the proposed borrow pit locations.

16.53. I am satisfied, therefore, that the EIAR has demonstrated that the potential for land and soil implications due to borrow pit excavation and related construction activities have been properly assessed. Furthermore, the EIAR sets out comprehensive mitigation, reinstatement and restoration measures as part of the project. This information is clearly described in the EIAR. In conclusion, I am satisfied that there would be no significant adverse effects arising in terms of soil stability, drainage function, land quality or land collapse / failure, respectively.

Other Issues

Microplastics

16.54. The Applicant has not provided a detailed response to the issue raised by third parties regarding wind turbines and their potential contribution to microplastic pollution through the gradual shredding of blades due to wear and tear. Over time, small particles may be released from the blade surface and carried by the wind into surrounding soil and watercourses. While wind turbines can generate microplastics, it is considered that they are generally a much smaller source of pollution than other common causes (for example, vehicle tyre wear, road markings and paint, packaging and other plastic waste).

16.55. It is noted that most modern turbines utilise durable composite materials which are able to withstand erosion over a prolonged time period. They are typically made from thermoplastic compounds which are easier to repair and maintain over a long time. In many cases, turbine blades also have a protective coating to reduce abrasion from rain and other airborne particle which actively reduces the potential for blade shredding.

16.56. Furthermore, the facility will be subject to a regular maintenance and repairs schedule to ensure turbines, and other infrastructure associated with the facility, are operating at an optimum level, undamaged and intact. I have otherwise addressed this issue in Section 10.22 of my report (Population & Human Health).

Loss of Farming Land

16.57. There will be a limited loss of agricultural land associated with the footprint of the overall development. However, it is considered that the impact on agriculture would be generally low and that the majority of land would remain available for various forms of ongoing farming activities. Furthermore, wind farm

developments can provide a form of supplementary and stable source of income to property owners through, for example, lease agreements. This can help to support the long-term viability of farms in areas where agricultural incomes can vary thereby contributing to the continued management and value of agricultural holdings.

16.58. I further note that Climate Action Plan 2024 (CAP 2024) states that the development of renewable energy is a land use diversification option for farmers in accordance with the carbon budget programme and CAP 2024. Given the rural nature of the site, and current use of the land for farming in places, I consider that this is a potential and viable option for landowners in the area, and that the project would not solely result in the removal of land from farming practices without any alternative, discernible gains. I am therefore satisfied that that this is not a reason for refusal. This is otherwise addressed in Section 10 of this report (Population & Human Health).

16.59. I would clarify for the Commission, that whilst no significant effects have been identified in relation to 'blasting', it is proposed that for the separate reasons set out in my assessment of noise at Section 11.40 of this report, that a condition is imposed excluding the use of blasting in the extraction of rock from the borrow pits or the excavation of turbine foundations or associated hardstands. I am satisfied that this will have no material implications for the construction of the proposed development, including the wining of materials from the borrow pits.

Conclusion: Direct and Indirect Effects

16.60. In summary, I have considered this chapter and the submissions relating to land, soils and geology. I am satisfied that potential effects would be avoided, managed, and mitigated by the measures forming part of the proposed development and through suitable site conditions. Having regard to my examination of environmental information as set out above I am satisfied that there would not be any significant adverse direct, indirect or cumulative effects on land, soils and geology.

17.0 **Landscape & Visual**

Issues Raised

17.1. Issues raised in respect of landscape and visual effects in the observations received relate to the scale and height of the turbines which it is considered will result in adverse impacts on residential amenity, the character of the Golden Vale, protected views (Lough Gur, Knockfierna, Ballyhoura Hills, Galtee Mountains) and the pastoral heritage of the area including many graveyards and cumulative effects. Observers also raised concerns in relation to the adequacy of the LVIA including the methodology employed, the viewpoints selected and the absence of nighttime montages (in terms of light pollution). The LA report expresses visual amenity concerns as a result of the height and scale of the turbines proposed, particularly on VP10 and VP11, on the form and setting of archaeological sites, protected structures, architectural conservation areas and NIAH Garden Survey sites.

Examination of the EIAR

Context

17.2. Chapter 12 of the EIAR deals with landscape and visual effects and includes the Landscape and Visual Impact Assessment (LVIA) of the project. The LVIA has been prepared in accordance with the EU, international and national legislation and guidance set out in Section 12.1.2. The methodology uses the EPA, Landscape Institute, IEMA, NatureScot, Scottish Natural Heritage and WEDG guidance referenced in Section 12.2.4 and was informed by desk study and field work. A study area of 20km (as shown in Fig. 12-1) has been adopted in accordance with WEDG 2006 and dWEDG 2019 and based on a turbine blade tip greater than 100m (160m) and in the absence of any sites of national or international importance within 25km. The Study area for the GCR and TDR is approx. 500m based on guidance and professional judgement. The LVIA provides a focus on the 'Central Study Area' (CSA) within is the landscape within 5km of the site. The remainder of the study area is referenced in the LVIA as the 'Wider Study Area' (WSA) beyond 5km to the 20km outer limit.

17.3. The scope of the assessment and the criteria for the assessment of landscape and visual effects, including cumulative effects, is set out in Sections 12.2.6 & 12.2.7 and follows EPA and IEMA 'Guidelines for Landscape and Visual

Impact Assessment -Third Edition (2013) ('GLVIA3'). A statement of competency (authority) is included.

17.4. Associated Appendices include:

- Appendix 12A – Visual Impact Assessment at each of the 22 Viewpoints (VPs)
- Appendix 12B – ZTV Maps

Baseline

Landscape

17.5. In terms of landform and drainage the EIAR describes the site and wider study area as predominantly flat to gently undulating lowland plains enveloped by mountains of modest height (rising to 528m above sea level (asl) from plains at 100m asl) in the wider eastern, western and southern quarters. The Ballyhoura mountains are noted to the south/southeast and smaller isolated hills within the study area are noted at Tory Hil, Lough Gur and Knockainey. The main water course is noted as the Morningstar River dissecting the northern portion of the site (east to west) and connecting with the River Maigue running north-south in the western half of the study area. The predominant land use within the site and study area is agricultural farmland. Commercial forestry is also noted. Several wind farms are noted in the upland areas to the south, west and southeast.

Landscape Policy Context and Designations

17.6. The LVIA finds that the proposed development is located within a landscape that is consistent with the 'Hilly and Flat Farmland' landscape type as defined in WEDG 2006 and dWEDG 2019. The guidance in relation to location, spatial extent, spacing, layout, height, cumulative and set back considerations is noted and paraphrased by the LVIA. In relation to set back, the additional set back distance of 4 x tip height in accordance with dWEDG 2019 from existing sensitive receptors for visual amenity reasons is adopted (640m (600m from T6)).

17.7. Section 6.4 of the LDP, 2022-2028 contains a Landscape Character Assessment and the proposed development site is located within LCA 01

‘Agricultural Lowlands’, with specific objectives including retention of landscape features, hedgerows and trees, discouraging development of locally prominent sites, and encouraging the regular arrangement of turbines with equal spacing. Several other LCAs in the study area are noted and shown in Fig. 12-3. There are no designated scenic views and prospects directly towards the site with the closest being at Lough Gur approx. 4.6km to the northeast and others in the vicinity of Tory Hill (7km to the NW), Kilfinane Scenic Drive (13.2km to the SE) and Castleoliver Scenic Drive (12.6km to the SE). Fig. 12-4 and LDP Objective EH 031 refers. It is otherwise considered that there are no open views of the site from significant views and landmarks within the study area.

17.8. Section 9.4.4 of the LDP, 2022-2028 deals with ‘wind energy’ and the proposed development is located within a ‘Preferred Area’ for wind energy. Map 9.1 refers. It is considered that the proposed development will not significantly influence salient landscape character and the landscape and wind energy policies of County Cork (9.5km SW) or County Tipperary (11km east) and they are not considered further. Relevant scenic designations and visual receptors are considered separately.

Visual Baseline

17.9. A computer-generated Zone of Theoretical Visibility (ZTV) Map has been prepared based solely on terrain data (bare ground visibility) and ignoring features such as trees, hedgerows or buildings. Its purpose is to determine areas of no visibility (of the proposed development) so as to focus on areas with potential for visibility. Fig. 12-6 refers. The ZTV Map illustrated the following key points:

- There is comprehensive visibility within 8km of the site in all directions. Thereafter visibility is sporadic to the north and northeast beyond Lough Gur Hills.
- Visibility extends to 12km to the south. Thereafter the Ballyhoura Hills screen visibility from much of County Cork.
- Visibility around Limerick City and the M20/N21 corridor is patchy. Comprehensive visibility is indicated for the N20 which runs to the west of the site.

- Most settlements have potential for at least some visibility with several exceptions being Ballingarry, Patrickswell and Caherconlish.

17.10. A Route Screening Analysis (RSA) was undertaken for every road within a 5km radius[80] of the proposed turbines using a Digital Surface Model (DSM). The purpose was to get a clearer understanding of visibility within the CSA. The RSA Map is shown in Fig. 12-7, and the results are shown in graphical format in Fig. 12-8. The results show that within a relatively short distance (2km), it is difficult to obtain clear views of the proposed turbines as a result of vegetation and lowland setting. It is noted that this stands in stark contrast to the ZTV Maps based on bare-ground terrain data. The RSA results were then further refined to determine the extent of 'open visibility', where it occurs. The results are shown in Fig. 12-9 and Fig. 12-10. The results how that there are few instances where more than 7 of the 17 turbines are openly visible within the CSA.

17.11. The results of the ZTV were used to select Viewshed Reference Points (VRPs) using six categories of receptor type: key views (KV[81]), designated scenic routes/Views (SR/SV), local community views (LCV), centres of population (CP), major routes (MR) and amenity and heritage features (AH) as described in Section 12.3.3.3. The relevant scenic designations in Limerick, Cork and Tipperary are identified in Table 12-8 together with information on their inclusion or exclusion as a VRP. The LVIA selected 22 VRPs and these are listed in Table 12-9, together with distance from nearest turbine, category of receptor type and direction of view.

17.12. The sensitivity of the CSA and the WSA is assessed as 'medium-low' having regard to GLVIA3. The sensitivity of other categories of receptor are assessed as ranging from 'High-medium' (SR, AH) to 'medium low' (LCV, CP, MR).

Potential Effects

[80] This is considered best practice. It was not considered practical to survey every road within the 20km WSA.

[81] Whilst the LVIA is not clear, it is noted that KV as a receptor type is not carried forward in the assessment. It is presumed that this is because it was already established that there are no site of national or international importance within 25km of the proposed development. Views are therefore represented by SR/SV in the LVIA.

17.13. The EIAR identifies the potential for a range of landscape and visual environmental effects. The likely significant effects (direct, indirect and cumulative) as identified in the EIAR, are summarised in Table LV1 below:

Table LV1: Summary of potential effects *(Landscape and Visual)*

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	The receiving landscape and visual baseline would remain the same, albeit with pressure for similar scale and form of development likely to follow.
Construction Phase	*Landscape Effects* - Construction phase landscape impacts result from the combination of physical changes to the landscape fabric, construction related activity and machinery and the influence of emerging turbines on the landscape character. Effects will be short-term and temporary. - Within the site and its immediate surrounds <1km the magnitude of these combined impacts is deemed to be **high**, which when combined with a **medium-low** sensitivity, results in a worst-case significance landscape effect of **substantial-moderate which will be of adverse quality**. - At 1-3km the magnitude of combined impacts will reduce to **medium** with the significance of effect reducing to **moderate and adverse**. - At 3-5km the magnitude of combined impacts will reduce to **medium-low** with the significance of effect reducing to **moderate-slight and adverse**. - Beyond the CSA the significance of landscape effects reduces further, including for distinct landscape features such as the Lough Gur complex and Tory Hill and consequently the significance of landscape effects is not considered greater for these receptors. - It is considered that the proposed development will not generate significant landscape effects. *Visual Effects* - Construction phase visual effects will result from the erection of the proposed turbines, with lifting plant introducing vertical features into views, discernible within the CSA. Effects will be short-term and temporary. - Within the CSA the magnitude of visual impact is deemed to be **high-medium**, which when combined with a generally **medium-low** receptor sensitivity results in a visual effect no greater than **moderate.** - Within the WSA it is considered that activity would be difficult to discern at distance. When combined with a generally **medium or medium-low** sensitivity the visual effect is assessed as no greater than **moderate-slight.** - The significance of visual effects reduces for high sensitivity features such as Lough Gur and Tory Hill is not considered greater for these receptors. - It is considered that the proposed development will not generate significant landscape effects.
Operational Phase	*Landscape Effects* - The landscape has a utilitarian character due to the presence of working rural land uses such as agriculture and forestry. Although the proposed development represents a stronger human presence and level of built development, it will not unduly detract from the productive rural character of the landscape.

	- The underlying features and characteristics of the landscape will be retained. The wind farm represents a supplementary vertical land use that does not uniquely interfere with the ground place rural productivity of the site and its surrounds. - In relation to the site and its immediate surrounds (<1km) the magnitude of change to landscape character is deemed **high-medium**, which when combined with a **medium-low** sensitivity, the level of effect is assessed as **moderate**. Beyond this distance (1-5km) the magnitude of change to landscape character will reduce to **medium-low**, which when combined with a **medium-low** sensitivity the level of effect is assessed as **moderate-slight**, tending to **slight** with increasing distance. - Beyond the CSA (>5km) the significance of landscape effect is not considered to be higher than moderate-slight, including for Lough Gur and Tory Hill. - For the WSA it is acknowledged that the proposed turbines may be visible and contribute to a marginal increase in the intensity of wind energy development, but this will be difficult to discern and would not notably alter perceived character. The magnitude of change will reduce to **low and negligible** with increasing distance, which when combined with **a medium-low** sensitivity the level of landscape effect is assessed as **slight or lower.** - The quality of effects will be adverse, but with increasing distance (>15km) would be neutral. Effects will be long-term. - It is not considered that there will be any significant adverse landscape effects. *Visual Effects* - A summary of the operational phase visual impact assessment is presented in Table 12-10. *Designated Scenic views/Routes (SV/SR)* - VP3, VP4, VP17, VP18, VP19 and VP21 represent designated SV and SRs. - VP3 and VP4 represent the Kilfinane and Castleoliver Scenic Drive respectively. Slightly elevated views are afforded across the lowlands to the north, the turbines are seen at small scale (alone) and given the viewing distances involved the effect is deemed to be **slight** for VP3 and **slight-imperceptible** for VP4. - VP17, VP18 and VP19 represent the scenic route that surrounds Lough Gur Heritage Complex. VP17 is from the Grange Stone Circle and VP18 is from the Lough Gur Wedge Tomb and neither has potential for visibility of the proposed development. Effects are deemed imperceptible. VP19 is from the northern end of Lough Gur where partial blade sets of approx. 3 turbines will be seen rising above the terrain and vegetation that forms the skyline at the head of the Lough. A degree of visual ambiguity is acknowledged, and it is accepted that the developments represents a new form of built development in a landscape which does not contain a high degree of overt human intervention and a modern element in an archaeological landscape. Nevertheless, as a result of distance, with turbines reading as a background feature distinct from the foreground setting the visual effect was deemed to be **moderate-slight** on the basis that the receptor was assessed as **high-medium** and the magnitude of change **low.** - VP21 represents Tory Hill. The turbines will not be visible and the effect is deemed imperceptible. - It is not considered that there will be any significant effects at designated scenic routes and views.

	Local Community Receptors (LCR) - VP7, VP9, VP10, VP11, VP12, VP13, VP14, VP15, VP16, VP17, VP18 and VP20 represent LCRs. - This category of receptor represents individuals who live, work and move around within 5km of the PDS. The sensitivity was generally assessed as **medium-low** for these receptors. - At VP10 (Dromin Graveyard & Church ruins) there is a clear and unambiguous view across the plains at a prominent scale. There is a strong sense of perspective and depth, emphasising scale and distance of the with and a minor degree of clutter is acknowledged. It is considered that the turbines are compatible within a broad rural vista across a productive lowland landscape. The sensitivity is assessed as **medium** and the effect as **substantial-moderate**. - At VP11 the turbines will be fully visible at a prominent scale, with a dominant presence. It is considered they do not appear out of place in a productive rural vista and are not overbearing. The effect is assessed as **substantial-moderate**. - VP12, VP13, VP14 & VP15 (all within 2km) have effects assessed as **moderate**. These are lesser and differentiated from VP10 & VP11 because some clusters might have blade sets openly visible, but others are substantially or fully screened. - From the remaining VRPs the significance of visual effects ranges between **moderate-slight and imperceptible**. - It is not considered that there will be any significant effects at Local Community Receptors. *Centres of Population (CP)* - VP1, VP3, VP4, VP5, VP7, VP8, VP16 and VP22 represent CPs. Population centres are generally considered to have mid to low levels of visual receptor sensitivity. - VP1 (Hospital), VP3 (Kilfinane), VP4 (Ardpatrick) and VP5 (Charleville) are all contained within the southern quarters of the study area with slightly elevated broad views across the lowland plains of Limerick. The turbines are visible as small-scale features in distant plains with effects assessed as **slight to imperceptible**. - At VP7 (Bruree) the visual effect is assessed as **slight** due to the degree of screening. - At VP22 (Adare) there is no view afforded. - Bruff is the nearest village represented by VP16 on the bridge over the Morningstar River. A partial view of one blade set is visible at a noticeable scale despite the high degree of screening which may appear ambiguous in an urban context. The effects are diluted by the high degree of screening in general. The effect is assessed as **moderate-slight.** - It is not considered that there will be any significant effects at Centres of Population. *Major Routes (MR)* - VP2 and VP6 were selected to represent major routes. - VP2 is the R515 regional road 8km to the southeast and VP6 if from the N20 National Road at Harding Grove 6.4km to the west. The visual effects are assessed as **slight-imperceptible and imperceptible** due to distance and levels of intervening screening. - It is not considered that there will be any significant effects at Major Routes. *Tourism, Recreation (Amenity) and Heritage Features (AH)*

	- One of the key considerations is considered to be visual effects from the important and well visited archaeological complex of Lough Gur approx. 6km to the NE. This is represented by VP17, VP18 and VP19 assessed as designated scenic routes above and with visual effects assessed as **imperceptible** (VP17 & VP18) and **moderate -slight** (VP19). - There is no visibility from Adare Manor Golf Course 15km distant. - It is not considered that there will be any significant effects at Amenity and Heritage Features. *Night-time Visual Impacts* - There will be aviation lighting which will be baffled on the underside to limit light spill to the ground. Whilst this is a rural area it is not designated as a 'dark sky reserve' and there are settlements, houses and other features which contribute to the baseline lighting context. Visual amenity and landscape character will not be affected by nighttime lighting effects which will be minor. - It is not considered that there will be any significant effects from turbine lighting.
Decommissioning Phase	*Landscape Effects* - Similar to construction phase with the removal of turbines and movement of large turbine components. Effects are deemed to be **moderate and adverse at worst, but temporary.** *Visual Effects* - Similar to the construction phase due to the movement of heavy machinery, with such effects temporary and decreasing as turbines are removed from view and the landscape reinstated. Decommissioning phase effects are not considered to be significant.
Cumulative Effects	The consideration of cumulative effects is placed primarily on the cumulative wind energy developments set out in Table 12-11. These range from 10km to 20km from the PDS and include the proposed 'Garrane' wind farm. A cumulative ZTV Map is provided in Appendix 12B based on bare-ground intervisibility. - Given the topographical nature of the study area it is considered unsurprising that the ZTV indicates theoretical visibility of the proposed development in conjunction with existing and planned wind turbines is possible from over 85% of the study area. - The proposed Garrane WF falls within the same low land landscape as the proposed development (without terrain features between them) and they are the closest to each other, with all other WFs more than 16km. There is strong potential for theoretical intervisibility, however the RSA indicates that there is little visibility of the proposed development within the lowlands beyond 3km. The RSA for the Garrane WF confirms these findings. It is considered likely therefore that intervisibility between these two developments will only be possible from elevated terrain to the south of the study area and at this considerable separation distance, they will read as background features relative to each other. - Other windfarms are at distances ranging from 16km to 20km. They are physically and contextually separated in elevated uplands and long-distance visibility from the lowlands is rare. - It is considered that the proposed Balinlee WF contributes a **low cumulative impact**, which when combined with **medium-low sensitivity** results in a cumulative effect assessed as no greater than **slight.**

Mitigation

17.14. No specific mitigation measures are proposed. Landscape and visual mitigation is embedded in the siting and design of the development and includes the 4 x tip height setbacks from the nearest residential receptors together with regular and even turbine spacing.

Residual Effects

17.15. No mitigation measures are proposed. Residual effects are therefore the same as those set out in Table LV1 above. It is not considered that the proposed development will contribute to significant landscape or visual effects, including cumulative effects.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

17.16. I have examined, analysed and evaluated Chapter 12 of the EIAR, all of the associated LVIA documentation and observations on file in respect of Landscape and Visual Amenity. The applicant states that the determination of an effect in EIAR Chapter 12 is made in close accordance with the EPA Guidelines, with two variations. One of these variations sees the applicant substitute use of the word 'significant' for 'substantial', whilst acknowledging that 'substantial' and above is deemed to be significant in EIA terms (EIAR Section 12.2.7). The applicant identifies three effects as 'substantial-moderate' in the LVIA and then proceeds to conclude that the proposed development will not result in significant effects. In my opinion, a 'substantial-moderate' effect can come within the scope of a 'significant' effect having regard to EPA Guidance and the applicant acknowledges that 'substantial-moderate' judgements are considered borderline significant[82]. In my view the placement of an effect in the 'substantial-moderate' category requires a judgement about whether or not they are significant, with full explanation as to the conclusions reached and I am of the view that the applicant provides insufficient reasoning for the subsequent finding of no significant effects in this case. I address this issue where it arises in respect of three effects in my assessment which follows. Notwithstanding I am satisfied that the key impacts in respect of the likely effects on landscape and visual amenity as a consequence of the development have been identified. A number of issues in respect of

[82] In a footnote to Table 12-5 in respect of landscape effects.

landscape and visual amenity were raised in the observations and the LA Report which I address below with reference to the applicant's response to submissions on 17th February 2026.

Issues raised by the Local Authority

17.17. Whilst noting the LVIA and its findings the Local Authority submitted that the proposed turbines are not representative of the range of turbines identified in WEDG 2006. The LA also raised concerns in relation to the potential visual impact(s) on the form and setting of a number of archaeological sites, the possible omission of architectural and cultural heritage assets including Historic Gardens and Designed Landscapes. The LA report also considers that historic bridges have not been adequately assessed in the EIAR.

17.18. The applicant does not directly respond to concerns in relation to the range of turbines proposed relative to WEDG 2006. This is a common and recurrent theme in observations received in respect of applications for modern wind energy development. In terms of height, WEDG 2006 considers blade tips over 100m to be tall but notes that the notion of what constitutes 'tall' will change over time with technological advances and that there will be a shift in turbine height relative to capacity[83]. There is no preclusion in WEDG 2006 to turbines of the scale and height proposed. It is accepted that WEDG 2006 are as this time aged, and that turbine technology and scale has significantly increased since they were first introduced, however whilst draft guidelines were published in 2019, they have not been adopted and it is clear that the 2006 guidelines remain in force. Given the policy context for the urgent and rapid roll out of alternative forms of renewable energy within the state, including the need to dial up onshore wind, I consider the delay in the publication of revied wind energy guidelines does not of itself preclude decisions on wind energy development including the granting of permission. I am satisfied that WEDG 2006, dWEDG 2019, government and industry best practice guidelines continue to provide a robust and reasonable basis for the assessment of applications for wind energy developments (including EIA and AA processes) and on which informed decisions can continue to be made.

[83] Chapter 6, Section 6.2 .Aesthetic Considerations', EDG 2006.

17.19. In response to the LA concerns in relation to the form and setting of archaeology, architectural and cultural heritage the applicant responds that in accordance with GLVIA3 these matters are addressed in EIAR Chapter 14 Archaeology & Cultural Heritage so as to ensure assessment from the correct expert perspective. These matters are addressed in my assessment of archaeology and cultural heritage in the next section of this report.

Golden Vale and general Landscape Character

Golden Vale

17.20. Observers raised concerns that the scale and height of the proposed turbines would injure the rural landscape, its scenic quality, pastoral heritage and the tranquillity of the area. Specific concerns were raised in relation to the character of the Golden Vale, protected views at Lough Gur, Knockfierna, Ballyhoura Hills, Galtee Mountains and Tory Hill. I assess the landscape and visual effects on Lough Gur separately hereunder. The applicants responds that the 'Golden Vale' is synonymous with fertile agriculture and rolling pastureland with value relating more to productivity and sustaining the rural economy rather than remote, scenic or natural character. The applicant points to the LDP 2022-2028 and the classification of the receiving landscape as LCA 01 –'Agricultural Lowlands', which is not classified as being of high value or sensitivity with policies seeking to support the rural economy rather than providing a high degree of protection to the landscape. The applicant further refers to the Map 9.1 which identifies the receiving landscape as a 'preferred' area for wind energy and to the absence of scenic designations, with the nearest 5km, 7km and further distant. The applicant submits that the landscape is a productive and modified landscape and that turbines are structures of the rural landscape with a direct connection to the elements.

17.21. This was a significant and recurrent theme across the observations raised with most visual amenity concerns framed in the context of adverse impacts to the character of the 'Golden Vale'. Having examined the provisions of the LDP, 2022-2028 I am satisfied that the applicant's position that the 'Golden Vale' is synonymous with fertile agriculture and pastureland and not as a remote or scenic landscape is correct. The only reference to the Golden Vale in the LDP,

2022-2028 is in the context of its location within the 'agricultural lowlands' and their contribution to the extensive biodiversity of Limerick[84] and I have addressed this in the biodiversity section of this report. I note the reference to 'Munster Vales' in the context of rural tourism[85], but that this does not include 'the Golden Vale'. Otherwise, the PDS is located within landscape character LCA 01 'Agricultural Lowlands', which is described in the LDP, 2022-2028 as the largest of the LCAs in Limerick, comprising almost the entire central plain and where it is recognised as a farming landscape with its pastoral nature reinforced by the presence of farmyards. It is a specific objective of the LDP, 2022-2028 to 'encourage the regular arrangement of turbines with equal spacing' in this LCA taking field boundaries into account. In terms of renewable energy, the PDS is located in a 'preferred area' for wind energy as designated in Map 9.1 of the LDP were it is an Objective (CAF O30) to promote the location of wind farms. Accordingly, I am satisfied that the applicant's assessment of the host landscape and the Golden Vale is correct. The landscape is not unique and it is not designated in the LDP, 2022-208 for visual amenity or scenic qualities and it is clear that wind energy development is not only permissible, but promoted at this location. I am therefore satisfied that it would not be appropriate to assess the landscape and visual impacts of the proposed development from the position of the 'Golden Vale' as a receptor. There is no policy provision or landscape designation which would support this premise.

17.22. WEDG 2006 provides guidance relative to the siting and design of wind farms in specific representative landscape character types. The applicant has identified the location of the proposed development within a 'hilly and flat farmland' landscape character type. According to WEDG 2006 the key characteristics of these landscapes are intensively managed farmland, a patchwork of fields delineated by hedgerows with occasional villages and towns. Roads, telegraph poles and power lines are significant features of such working and inhabited landscapes. Having inspected the subject site, I am satisfied that the landscape of the proposed development is consistent with these key characteristics. This is further supported by the LCA designation in the LDP, 2022-2028. WEDG 2006

[84] Paragraph 6.3.1
[85] Section 5.9.2 of the LDP, 2022-2028.

provides that these landscapes are not usually highly sensitive and the essential key is one of rational order and simplicity with due regard given to houses, farmsteads and centres of population. Guidance recommends sufficient distance from farmsteads, houses and centres of population, regular spacing responding to the underlying field pattern, a linear or grid layout is recommended and it is stated that turbines tend not to be tall.

17.23. In my opinion the central considerations in respect of the proposed wind farm concern the relationship with farmsteads, dwellings and spatial arrangement. Whilst the spatial arrangement does not obviously read as a linear or grid layout in plan form, I am satisfied that it has been formed by an iterative design process and responds to the underlying field pattern and hedgerow boundaries. It is clear from the LVIA that the underlying landscape character is not altered by the proposed development. In addition, I am satisfied that in many inward views the development does read as linear in form as a result of perspective and orientation factors from the public road network and other public locations. In terms of dwellings and farmsteads, the proposed development meets the additional set back distance of 4 x tip height (640m/600m) for visual amenity reasons set out in dWEDG 2019 and therefore I am satisfied that a sufficient distance will be maintained as recommended by guidelines. In terms of population centres, I am satisfied that the proposed development is sufficiently removed from same, such that with distance and intervening vegetation the wind farm is largely screened with the effects assessed as ranging from slight-imperceptible, to moderate-slight but not significant. I accept that there are elements of visual clutter in some VPs particularly associated with telepgraph poles and overhead wires, however the guidelines only consider this a concern in highly sensitive landscapes, which the host landscape is not. I accept that the turbines are tall and will appear in many views as visually dominant however, on balance I am satisfied that this is a robust working landscape with an absence of scenic and visual amenity considerations, and that sufficient separation distance is maintained from dwellings (inc farmsteads) and otherwise exists from centres of population. The RSA has confirmed that visibility is intermittent in the CSA and in the WSA the turbines are viewed as small scale features in distant views. The

area is designated as ‘preferred for wind’, and the wind farm complies with LCA and WES policy, WEDG 2006 and dWEDG 2019 guidance.

Knockfierna

17.24. In relation to Knockfierna I note that LCA 04 of the LDP, 2022-208 refers. This LCA is described as one of the most dominant hills in the centre of County Limerick, because of its scenic value and the variety of archaeological and historical sites that exist on it. The specific objective of this LCA states that it is considered unsuitable for wind energy development. This LCA is located approx. 12km west of the proposed development site. Whilst there is no VRP from this location, it is significantly outside of the CSA and VP6 which exists between this LCA and the site (6.4km to the west) assessed the (operational) visual effect as imperceptible, neutral and long term. Notwithstanding that VP6 is an alternative receptor type (MR) and is not elevated, I am satisfied having inspected the subject site that at a distance of 12km the proposed development is distinct from LCA 04 and will not result in significant adverse landscape or visual effects.

Ballyhboura Hills and Galtee Mountains

17.25. In relation to the Ballyhoura Hills I note that LCA 02 of the LDP, 2022-2028 refers. This LCA is described as a locally dominant range of hills running along the Cork County boundary, much within a Special Area of Conservation. This LCA is located approx. 12km to the south and VP3 and VP4 are representative. The LVIA assessed the operational stage impacts as slight, adverse and long term (VP3) and slight-imperceptible, neutral-adverse and long-term (VP4) with the turbines seen as small scale (alone) in a distant view. Having inspected the subject site I consider that the effects (from VP3 and VP4) are correctly assessed in the LVIA and I am satisfied that the proposed development will not result in adverse landscape or visual effects on the Ballyhoura Hills at this distance, notwithstanding the potential elevated nature of views. I note that observers also made reference to the Galtee Mountains, however these Mountains are located to the south/southeast of LCA 02 and at a greater distance from the PDS and I am satisfied that there is no potential for significant effects.

Tory Hill

17.26. In relation to Tory Hill, I note that LCA 09 of the LDP, 2022-2028 refers. This LCA is described as an isolated locally prominent hill which is an important feature in the surrounding countryside of geological importance. This LCA is located approx. 6.6km to the northwest of the PDS and VP21 is representative of both the LCA and the designated view and prospect (scenic road) at this location. The LVIA assessed the operational stage impacts as imperceptible, neutral and long-term as the proposed turbines will not be visible due to screening by intervening terrain and vegetation. Having inspected the subject site I consider that the effects from VP21 are correctly assessed in the LVIA and I am satisfied that the proposed development will not result in adverse landscape or visual effects on Tory Hill.

Substantial-Moderate Effect No.1

17.27. The applicant finds that the combination of physical changes to the landscape fabric, construction related activity and machinery and the influence of emerging turbines on landscape character results in a landscape effect which is substantial-moderate and adverse within <1km of the PDS. This is based on a high-medium magnitude impact and a medium-low sensitivity. The applicant however then proceeds to conclude that the proposed development will not generate significant landscape effects during the construction phase without explanation as to why a 'substantial-moderate' effect is not considered significant. In order to address this matter, it is first necessary to examine the landscape value/sensitivity and the magnitude of landscape impact criteria selected by the applicant, as it is the balance between these factors that determines the significant of a landscape impact.

Landscape Value & Sensitivity

17.28. The applicant has selected a 'medium-low' value based on the criteria set out in Table 12-3 and as confirmed in Section 12.3.5 were the applicant finds that the sensitivity of the CSA (<5km) is no greater than 'Medium-Low'. In my opinion the sensitivity of the landscape is more consistent with the 'low' criteria. A 'medium' sensitivity landscape is one which has 'some' capacity and scope for development, and which includes a designation of protection at a county or non-designated local level. A 'Low' sensitivity landscape is one which exhibits a

‘higher’ capacity for change from development, typically including non-designated landscapes that have some elements or features of recognisable quality. In the circumstances of this case, the landscape of the proposed development site includes no designations of protection but is designated as a ‘preferred’ area for wind energy where it is an objective of the LDP to promote the location of wind energy development. In my opinion the absence of a designation of protection points to a low landscape value and sensitivity, and the designation as a ‘preferred’ area for wind is inconsistent with ‘some’ capacity for development and more consistent with a ‘higher’ capacity for development. On this basis, it is my opinion that the landscape value and sensitivity is low.

Magnitude of Effect

17.29. The applicant has selected a ‘high-medium’ magnitude of impact. A ‘medium’ magnitude impact refers to change which is modest in extent and scale and in my opinion the change associated with the development of a 17-no. turbine wind farm and associated infrastructure of the nature proposed cannot be considered ‘modest’ by any metric. A high magnitude impact is one which refers to change which is more limited in extent and scale (from very high and large in extent and scale), with the loss of important landscape elements and features that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change. On balance, I am satisfied that the proposed development is not modest in scale, does involve the loss of landscape elements and features (habitats, hedgerow & treelines) and will introduce new uncharacteristic elements and features (wind turbines) and on this basis it is my opinion that the magnitude of impact is high.

Significance of Effect

17.30. Having regard to the Matrix set out in Table 12-5, a low landscape value/sensitivity and a high impact magnitude, results in a moderate-slight effect, which is not significant in EIA terms. Having regard to the limited nature and spatial extent of the combined construction effects described by the applicant within <1km of the PDS, the temporary nature of these works, their short-term duration (particularly the erection of individual turbines), the absence of sensitive landscape receptors (designations of protection) and the screening effect of

roadside hedgerows and field boundaries evidenced by the RSA, it is my opinion that these considerations are more consistent with a finding of a moderate-slight effect which is not significant. Accordingly, I am satisfied that the construction phase will not result in significant landscape effects albeit for slightly different reasons to the applicant.

VP10 and Substantial Moderate Effect No.2

17.31. VP10 is located at Dromin Graveyard, to the south of the proposed development with a northerly view. The LVIA describes the view as expansive from a locally important node, Dromin Cemetery and church ruins where visitors enjoy tranquillity and an opportunity for reflection. The LVIA finds that there is a clear and unambiguous view of the proposed windfarm trailing across the plains at a prominent scale and that there will be a considerable increase in the scale and extent of built development within the view but that the turbines appear as a compatible component within a broad rural vista and productive lowland landscape. The VP sensitivity is considered medium, the magnitude of impact high-medium and the significance of the effect assessed as substantial-moderate, negative and long-term. In the circumstances of this case, I am of the view that the magnitude of impact is clearly 'high' having regard to the criteria set out in Table 12-6 and the fact that the proposed development intrudes into a 'significant' portion of the view as opposed to a 'moderate intrusion'. I agree that the sensitivity is correctly assessed as 'medium' having regard to the fact that a susceptible receptor/receptor group is present and the tranquillity, panoramic, historical, cultural, spiritual, and sense of place value criteria set out in Section 12.2.7.2.1 are present. Accordingly, this confirms the visual effect in the a 'substantial-moderate' category and requiring a judgement as to whether it is significant or not. The graveyard and church ruins at Dromin is a recorded monument (LI039-079002 & 079001) and my conclusions in respect of recorded monuments open to the public (and above ground) within <1km of the PDS find that there will be a significant indirect cultural visual effect. Notwithstanding this I find that having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emission, that these effects are not sufficient to warrant refusing permission for the development and are acceptable. As Dromin graveyard is within <1km of the PDS I find that it is a

receptor which comes within the scope of significant indirect cultural visual effects and given its locally elevated position I am of the view that these effects will not be mitigated and significant residual effects will remain.

Residential Amenity

17.32. Observers raised concerns that the proposed turbines are too close to residential properties, are in breach of separation distances and will be visually dominant as a result of excessive height and scale. The LVIA selected 12 VRPs to represent local community receptors including residential property. These are VP7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 20.

17.33. Having inspected the subject site I am of the view that the main landscape and visual effects from the proposed development will be on residential receptors closest to the proposed development site to the east, at the centre of the windfarm between the northern and southern sections and to the south. I am satisfied that these locations and the potential worst case scenario impacts are represented by VP11 from an unnamed local road at Dromin North, by VP14 from L-1414 at Camas South and by VP15 from the R512 at Tyncocka.

17.34. VP14 is located on local L-1414 at Camas South and is located between the northern and southern sections of the proposed development. The L-1414 runs west-east from its junction with the R512 just south of the village of Bruff. VP14 affords views to the north and to the south. The LVIA finds that none of the turbines to the north are visible due to screening by roadside vegetation. To the south the LVIA finds that the blade sets of eight of the proposed turbines, and the partial blade sets of three more turbines are visible rising above and beyond the foreground dwelling and vegetation. The LVIA finds that the turbines are seen at a reasonable but not of dominating scale and represent a compatible feature within this productive rural setting. The VP sensitivity is considered medium-low, the magnitude of impact medium and the significance of the effect assessed as moderate, negative and long-term. In my opinion VP14 represents well the landscape and visual impact that will be experienced by the local community, including residents along the L-1414 and in the central location of the site. VP14 and VP14b (Part 1 of 1) clearly demonstrate the screening effect of roadside vegetation which limits open or sustained views of the windfarm to

the north, consistent with the findings of the RSA as discussed above. VP14 and VP14b (part 2 of 3) clearly show the turbines in the southern section of the site and their relationship with the local road and rural dwellings. In my opinion the turbines are clearly removed to the background and as a result of distance and intervening screening and do not occupy a prominent or dominant position on the landscape or relative to residential receptors. They do not read as over-scaled with the spatial arrangement demonstrating appropriate symmetry with the underlying field pattern and boundaries. I am satisfied that the impacts are correctly assessed and that significant effects will not occur.

17.35. VP15 is located on the R512 at Tynacocka and is located to the east of the proposed development with a westerly orientated view. The R512 travels north-south between the settlements of Bruff and Kilmallock to the east of the site. The LVIA finds that despite close proximity (of this view) to the southern turbines, only a small proportion will be visible with three turbines openly visible to the west, and the partial blade sets of two further turbines visible rising above intervening vegetation beyond the dwelling to the southwest. The remainder are fully or substantially screened. The LVIA finds that the visible turbines are prominent but not overbearing, a degree of ambiguity is acknowledged but it is found that they do not appear out of place nor over-scaled relative to foreground buildings. The VP sensitivity is considered medium-low, the magnitude of impact high-medium and the significance of the effect assessed as moderate, negative and long-term. In my opinion at least three turbines are prominent at this location as acknowledged by the LVIA and from the perspective of the driver on the R512 I am satisfied that this impact is mitigated by the fact that only a limited number of turbines are present in a fleeting view at a particular limited section of the R512. However, for the residential receptors at this location, the experience, or perceived experience is likely to be different. VP15, 15a and 15b clearly demonstrate the relationship between the proximate turbines and the existing residential receptors at this location, with close to the full scale (base to tip) of three turbines visible to the rear of these properties in the near distance. Although located to the rear of intervening field boundaries, there is little screening effect, and the turbines are prominent and will affect a strong visual and physical relationship with these properties. For this reason, I accept that for

some receptors the landscape and visual effects will be subjectively perceived as significant. Notwithstanding, I consider the conclusions of the LVIA to be objective and reasonable and I note that the turbines meet the additional set back distance (for visual amenity reasons) from residential receptors of 4 x times the tip height as set out in the dWEDG 2019 and I do not consider that they will be overbearing on any individual dwelling as a result of same.

VP11 & Substantial-Moderate Effect No.3

17.36. VP11 is located on an unnamed local road at Dromin North, to the south of the proposed development with a northerly view. The LVIA finds that the proposed turbines will be fully visible at a prominent scale in close proximity and that they will have a dominant visual presence seen in a clear and unambiguous manner from base to tip. The LVIA finds that the wind farm will bring a new form of development that will considerably increase the intensity of built development within the scene but is not out of place in this rural vista and does not interfere with the agricultural land use. The VP sensitivity is considered medium-low, the magnitude of impact high and the significance of the effect assessed as substantial-moderate, negative and long-term. In the circumstances of this case, I am in agreement with the applicant that the magnitude of impact is clearly 'high' having regard to the criteria set out in Table 12-6 and that the sensitivity is correctly assessed as 'medium-low' having regard to the susceptibility and value criteria set out in Section 12.2.7.2.1. Accordingly, this places the visual effect into a 'substantial-moderate' category and requiring a judgement as to whether it is significant or not.

17.37. Having inspected the subject site, I note that the vista represented in VP11 is not a consistent experience sustained along the local road at Dromin North. Rather the maintained hedgerow at this location opens up a more prominent view, whereas roadside vegetation generally restricts views of the proposed development to intermittent views consistent with other areas of the CSA and as established by the RSA. The impacts at this location therefore primarily affect the residential receptors. I note that the LVIA finds that the turbines will be fully visible at a prominent scale in close proximity with a dominant visual presence from base to tip. I do not fully agree with this assessment and find that this position applies to a proportion of turbines in the near distance (and not the full

development), and that this position changes quickly with perspective and range of view, reducing as screening increases over short distances to the west and east. I also find that the turbines visible from base to tip is also limited. For these reasons I am in greater agreement with the findings of the LVIA that there is a strong sense of perspective generated by the scale differential between the nearest and furthest turbines which highlights the depth of the layout and the sense of space and distance across the plains. In my view this is a strong component and the main characteristic of the view from this location which informs the interpretation of the turbines and I find that in this context the proposed development assimilates well within the broad productive rural vista. Again, I accept that from a subjective point of view, the landscape and visual effects for some receptors will be perceived as significant simply as a result of proximity, but for the aforesaid reasons and including compliance with the increased visual amenity set back distances set out in dWEDG 2019, I am satisfied that the relationship between the turbines at residential receptors is satisfactory and whilst I accept that the effects do come within the scope of substantial-moderate I do not consider that the threshold for significant effects is met.

17.38. In summary I consider that the main landscape and visual effects on residential receptors will occur in the CSA and for dwellings along the R512, L-1414 and the unnamed local road at Dromin North. I am satisfied that within the CSA and environment of lowland plains, the majority of effects will be mitigated by intervening screening in the form of roadside hedgerows and field boundaries. Otherwise, I am satisfied that the visual amenity of residential receptors will be sufficiently protected by the increased set back distance of 4 x tip height set out in dWEDG 2019. Within the WSA I am satisfied that there will be no significant visual amenity effects on residential receptors as a result of increased separation distance.

LVIA & Viewpoints

17.39. Observers raised concerns in relation to the LVIA methodology including that it is inadequate (particularly of the CSA), that the ZTV is not complete (particularly for Bruff and the NW sector), that viewpoints are selective and exclude community scale receptors and there is no night-time assessment.

Concerns are also raised in relation to disclosure of the software used. In response the applicant confirms that the photomontages are verifiable and the LVIA has been carried out in accordance with best practice.

17.40. In the circumstances of this case I find that these points of concern are unfounded. I am satisfied that the applicant has carried out an LVIA in accordance with appropriate guidance, informed by ZTV mapping and which includes 22no. viewpoints representative of a range of receptors including scenic routes and views, local community views, centres of population, major routes and amenity and heritage features. I am satisfied that the LVIA has included the CSA and that multiple viewpoints including VP9-16 (Inc) are representative. I am satisfied that a complete ZTV based on bare-ground terrain was prepared (which informed the LVIA), that it included Bruff and the NW sector and that it is not 'incomplete' in this regard as is plainly evident in the ZTV mapping in Appendix 12B. Concerns were raised that certain community receptors were not assessed including for example the National School in Bruff, however I am satisfied having inspected the site that there will be no visibility between the proposed wind farm development and this school as a result of intervening screening. This is supported by the findings of the RSA and VP16. I note that concerns were raised that the applicant failed to assess cumulative visual and landscape effects, including from Athlacca. Again, having inspected the site, I am satisfied that cumulative landscape and visual effects are not possible from Athlacca given the orientation of view towards the proposed development site which does not include existing or planned wind energy developments as evidenced by cumulative ZTV Mapping in Appendix 12B. VP12 is representative. I otherwise address cumulative effects below. In relation to the suggested failure to address night-time effects, this is also incorrect. The applicant addresses night-time visual impacts in Section 12.5.8. of the LVIA and I am in agreement with the applicant that any such effects, associated with aviation lighting, will be minor. In relation to the software used, the applicant addresses this concern in Section 4.9.6 of the Response to Submissions document (February 2026) and on the basis of same I have no concerns in this regard.

17.41. From my inspections of the proposed windfarm development and examination of the ZTV, VRPs and LVIA, I am satisfied that the VP's selected by the

applicant are fair, accurate and representative and that ZTV Mapping and the LVIA have been prepared and carried out by a competent consultant with expertise in this technical area in accordance with best practice and guidance.

Lough Gur

17.42. A significant theme raised across the observations received was the potential for adverse landscape and visual effects on Lough Gur and that the proposed development would intrude upon and/or injure the scenic and heritage rich landscape including archaeological features which would contravene related provisions of the LDP, 2022-2028. Specific concerns were raised that VP19 was not representative. In response the applicant states that views from Lough Gur were comprehensively assessed in the LVIA represented by VP17, VP18 and VP19 and including the scenic route which surrounds the Lough Gur Heritage complex, with the overall visual effect deemed to be not significant even accounting for the sensitivity of the receptor.

17.43. Lough Gur is identified as LCA 05 in the LDP, 2022-2028 where it is described as '*one of the most significant archaeological sites in Limerick'*. The LDP recognises the presence of a wide variety of archaeological monuments as one of the characteristic features of the area and recognises the attractive amenity of the Lough with its pleasant rural setting and views of the lake. Specific LDP Objectives for this LCA include safeguarding the visual amenity of the area including views in and out of the Lough and both restricting development and protecting the archaeological resource within the area of Special Development Control shown on Map 6.3. Section 6.4.2 of the LDP also refers to the designated view and prospect at Lough Gur which is shown on Map 6.2. It is an Objective of the LDP (EH O31) to (inter alia) '*preserve, protect and encourage the enjoyment of views and prospects of special amenity value of special interest and to prevent development, which would otherwise interfere with views and/or prospects'*.

17.44. The Lough Gur Heritage Complex is located approx. 4.6km to the northeast of the proposed development site. The designated view/prospect at this location consists of a circular local route around the immediate environs of the lake as designated in Map 6.2 of the LDP. Given the significant heritage and

archaeological character of this site, the provisions of the LDP and the extent of concern raised in the observations received a significant period of time was taken to explore and examine the potential for landscape and visual effects during site inspection. In short, a detailed examination of the location of Lough Gur established that there is very limited, and close to no landscape or visual inter-relationship between the Lough Gur Heritage Complex and the proposed development site. VP17 of the LVIA represents Grange Stone Circle to the west of the Heritage Complex and VP18 represents Lough Gur Wedge Tomb to the south of the complex. The LVIA found that there is no potential for visibility from either of these heritage resources and therefore assessed the effects as imperceptible. I inspected both of these sites and their locations, and I am entirely satisfied that the findings of the LVIA in this regard are correct as verified by site inspection. In the interests of clarity, the Lough Gur Wedge Tomb is an enclosed site, resting within locally undulating topography and heavily screened by both same and existing vegetation. This landscape setting extends beyond the site of the tomb and defines the immediate and further environs, such that the landscape protection is robust and intervisibility is not possible (notwithstanding distance). The Grange Stone Cricle is located in very close proximity to the R512, which primarily impacts and defines its setting. It is removed from the proposed development site and as a result of lowland elevations, distance and intervening built form and vegetation screening there is no intervisibility between the respective sites. Whilst the GCR will pass along the R512 past this site, the transient nature of the sub-surface works will not result in any significant landscape or visual effects.

17.45. VP19 is located within the Heritage Complex itself and represents a view across the lake in the direction of the proposed development site. The LVIA finds that the partial blade sets of around three turbines will be seen just rising above the terrain and vegetation that forms the skyline at the head of the Lough (looking NE to SW). It is considered that they are not particularly conspicuous, are a considerable distance away and read as a background feature that is discrete from the foreground setting. The effect is assessed as moderate-slight, negative and long-term. I inspected the proposed development from this location and consider that the findings of the LVIA in this regard are balanced, objective,

reasonable and proportionate. In my opinion the visual amenity of the lake is defined by the waterbody, the topography and vegetation which encloses the environment and creates a secluded amenity, and the built heritage and amenity features which supplement the facility. In this context, I am satisfied that the temporary appearance of partial blade sets associated with three turbines at a distance of approx. 5km on the skyline and in one restricted area of the complex will not intrude on this setting and will have no material or adverse effect on the Heritage Complex, including views inward or outward. In order to affirm this position, I carried out an inspection from more elevated vantage points both within the complex and from the local road network particularly to the east and north. The additional inspections found the position to be unchanged, with views including both the Complex and the proposed development site extremely limited, screened and distant or not available. I am satisfied that the assessment of effects in the LVIA is correct and that no significant landscape or visual effects on Lough Gur will arise.

Cumulative

17.46. Observers were concerned that the cumulative study was partial, didn't include other windfarms nearby including Garrane Windfarm and that a fixed 20km study area was applied without justification. The applicant responds that cumulative visual impacts are comprehensively assessed in the LVIA informed by a cumulative ZTV and the RSA and this included the 'in-planning' Garrane WF. The LVIA found that cumulative impacts are limited as all of the existing and permitted developments are at distances of over 16km in various directions. In respect of the Garrane WF which is approx. 10km from the PDS, the LVIA found that there would be some visibility from elevated locations to the south such as within the Ballyhoura Range, but as this distance the wind farms appear as separate and discrete features.

17.47. I am satisfied with the applicant's cumulative assessment of landscape and visual effects, that it included all relevant existing, permitted and proposed wind farms and that there is no potential for significant cumulative landscape or visual effects for the reasons given EIAR Section 12.5.11. In respect of the study area of 20km I have satisfied that this is in accordance with WEDG 2006 and dWEDG 2019 and has been justified for the reasons set out in EIAR Section 12.2.5.

Conclusion: Direct and Indirect Effects (Landscape & Visual)

17.48. Overall, I am satisfied that the proposed development is located, sited and designed in accordance with WEDG 2006 and dWEDG 2019. It is located on lands which are designated as a 'preferred area' for wind energy development in the LDP and where it is an Objective to promote the location of wind energy. There is a distinct material absence of sensitive landscape or ecological designations or constraints within the 5km CSA. Within the CSA views are limited and restricted by the lowland plains, absence of elevational or topographical changes, roadside hedgerows and field boundaries as evidenced by the RSA. Within the WSA the proposed development reads as small scale features in distant views with limited potential for cumulative effects.

17.49. Whilst I acknowledge that for some residential receptor's effects will be perceived as significant, I am satisfied that visual residential amenity will be protected by the increased separation distance of 4 x tip height (640m/600m) set out in dWEDG 2019 and that the landscape and visual effects of the proposed development in a lowland rural environment designated as a 'preferred area' for wind energy are acceptable. Having regard to my assessment of the proposed development on landscape and visual effects, it is considered that the main significant direct, indirect and cumulative effect is:

- A **significant indirect cultural visual effect** on Dromin Graveyard and Church Ruins (Recorded Monument (LI039-079002 & li039-079001) as presented by VP10. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

18.0 Archaeology & Cultural Heritage

Issues Raised

18.1. Observers raised concerns in relation to the volume of recorded monuments in the study area, the potential for unrecorded archaeological features and the

suitability of the site for SID. Concerns were raised in relation to cultural heritage and the treatment of RPS and NIAH structures in the LVIA and in relation to potential damage associated with the TDR. Specific concerns were raised in relation to adverse impacts on Lough Gur, Grange Stone Circle and the adequacy of the methodology and mitigation measures proposed. The LA report also raises concerns in relation to the suitability of the site given its location within an area of 'high archaeological density', whilst raising concerns in relation to specific RPS and NIAH Garden Survey records which are possibly omitted from the assessment. The LA also considers that the potential impacts on historic bridges have not been adequately assessed. The OPW raise concerns in relation to visual impacts on the Lough Gur Complex, and impacts associated with the GCR along the R512. It is further suggested that a visual and/or cultural impact assessment is undertaken from vantage points on Knockainey Hill and a verifiable visual impact assessment should be undertaken from National Monuments in Killmallock, Monasternenagh Cistercian Abbey and Disert Oenghusa.

18.2. The DHLGH report opines that records and excavations strongly suggest that the site encompasses a prehistoric (most likely Bronze Age) ritual landscape and that further such assets or other types of archaeological features reflecting a more extensive ritual and burial activity maybe present in the vicinity. It is considered that there is an extremely high potential of direct negative effects on previously unknown sub-surface archaeological sites and that exclusion zones may be necessary at construction and decommissioning stage to ensure the safe preservation in situ of vulnerable heritage assets. Elements of the development may need to be substantively redesigned or omitted. There is also concern that archaeological sites have been treated as individual isolated receptors, with no substantive regard for their landscape context and potential inter-relationships.

18.3. It is considered that the desk study is insufficient to adequately define the baseline archaeological environment. Advance targeted geo-physical survey and test excavation is recommended. If the Commission is minded to grant permission six conditions are recommended which align with Sample Conditions C3, C5 and C6 of the OPR Practice Note PN03 (October 2022).

Examination of the EIAR

Context

18.4. Chapter 14 of the EIAR deals with archaeology and cultural heritage including architectural and wider built heritage. In addition to the site boundary and landholding of the PDS, the study area includes a range of zones in the assessment for the following features: UNESCO World Heritage Sites (30km), National Monuments (10km), Recorded Monuments (3km), Record of Protected Structures (3km) and NIAH Structures (3km). For the GCR and TDR the study area was a c.120m corridor. The assessment methodology is described in Section 14.2 and includes a desk-based assessment of available archaeological, historical, cultural and cartographic sources[86] and field inspections[87]. Licensed test excavations were not included in the study. I note the ACP precedent which the applicant cites to support its position in this regard (ABP-321242-24[88]).

18.5. The international and national legislation, guidance and policy used in the assessment is set out in Section 14.2.2 and includes: The UNESCO World Heritage Convention, 1972, European Convention on the Protection of Archaeological Heritage (Valletta Convention), Council of Europe Convention on the Protection of the Architectural Heritage of Europe (Granada Convention), the National Monuments Acts, the Heritage Acts, Framework and Principles for the Protection of the Archaeological Heritage, DAHG (1999) AND Architectural Heritage Protection Guidelines, DEHLGH. The RPS and NIAH was considered in the desk-based assessment. Determination of the significance of an effect is made in accordance with the EPA 2022 Guidelines[89].

18.6. A statement of Competency (Authority) is included. No difficulties or limitations were encountered during the assessment. Associated Appendices include:

- Appendix 14A – Recorded Monuments within 3km Study Zone

Baseline

[86] As listed in Section 14.2.1
[87] PDS (Jan 2022, July 2022 & April 2025), Substation (May 2024) and GCR (March 2025).
[88] Solar Farm (Harmony Solar Rathkeale Limited), County Limerick.
[89] Information to be contained in Environmental Impact Assessment Reports.

Archaeology

18.7. There are no National Monuments within the EIAR Study area and 34no. National Monuments within 10km of the PDS. Their location is shown in Fig.14-1 and the monuments are listed in Table 14-4. The monuments range from 4.95km NE of T5 to 10.10km E of T15. The examination of the Sites and Monuments Records (SMR) and Record of Monuments and Places (RMP) revealed 340no. recorded monuments within a 3km radius from the location of the proposed turbines. The location of these monuments is shown on Fig. 14-2 (T1-T5) and Fig. 14-3 (T6-T17).

18.8. A discussion of the archaeological heritage background of the site and surrounding landscape across the Mesolithic Period (8000-4000BC), Neolithic Period (4000-2500BC), Bronze Age (2500-500BC), Iron Age (500BC- AD 400), Early Medieval Period (AD 400-1169), and High Medieval Period (AD 1169-1600) is set out across Sections 14.3.1.2.1 to 14.3.1.2.6. There are no recorded Mesolithic or Neolithic[90] sites within the 3km radius study zone. There are (at least) 82 no. recorded archaeological monuments associated with the bronze age period within the 3km radius study zone and these are listed in Table 14-5. There are no definitive recorded sites of the Iron Age within the 3km study area. There are 38 no. ringforts of the Early Medieval Period within the 3km radius study area and these are listed in Table 14-6, in addition 64 no. enclosures of this period are listed in Table 14-7. There are 7no. recorded castles, 9no. churches and 5no. graveyards of the High Medieval Period located within the 3km study area and these are listed in Table 14-8 and 14-9 respectively.

18.9. The SMR and RMP listed 38 no. monuments in proximity to the proposed wind farm (within the PDS or associated blue landholding boundary) and these are shown in Fig. 14-4 and summarised in Sections 14.3.1.3.1 - 14.3.1.3.24. The salient detail, verified by field inspection relative to the components of the proposed development is set out in Table ACH1 below.

18.10. An examination of the Excavations Bulletin[91] (1970-2024) revealed a large number of recorded archaeological sites, with at least eight sites identified during

[90] Possible Neolithic Site (Recorded Monument LI039-179) excavated under licence No. 02E0296 is 2002 noted. (Monument fully excavated).
[91] www.excavations.ie

Bord Gáis Éireanns ‘pipeline to the west’ (BGE) project primarily consisting of *fulachta fiadh*, Bronze Age houses, several pits, postholes or cremation pits (Section 14.3.1.4 refers). A review of the National Museum of Ireland database (NMI) revealed no archaeological artefacts within the landholding boundary. An examination of preliminary artefact research for the North Munster Region (by Finola O’Carroll) records the finding of a bronze flanged axe head in Ballinlee (NMI 1941:1057).

Cultural Heritage

18.11. There are no RPS or NIAH structures within the limits of the redline PDS boundary or the blue line landholding boundary. There are 59no. NIAH structures within the 3km study area of which 8no. are RPS structures. The location of these structures is shown in Fig. 14-5 and they are listed in Table 14-10. The closest structure is 0.64km NE of T5 (NIAH No. 21903127) with others ranging up to 3.03km distant. The PDS is not within a designated archaeological landscape in the LDP. Two vernacular structures (not protected) were identified from an examination of the pre-famine 1st edition OSI map (1840-42) within the PDS and their location is shown in Fig.14-6. ‘Vernacular 1’ is located in the northern section of the site and is described as three small buildings on the footprint of Borrow Pit No.1. This site is not marked on the 2nd Ed (OSI) c.1897 and there is no above ground trace of the buildings evident today. ‘Vernacular 2’ is located in the mid-section of the site and is described as a small farm complex on both editions of 19th century historical mapping. This site is situated on a proposed internal access track and an existing farm is located there today.

18.12. The proposed development is located within eight townlands and these are shown in Table 14-11 together with their Irish name and translation.

Field Inspection

18.13. Field inspections were carried out in January 2022, August 2022, May 2024 and April 2025. The results of the field inspection is discussed in Section 14.3.2 in the context of the baseline environment established by desk study. The salient information relative to the components of the proposed development is summarised in Table ACH1 below:

Table ACH1: Monument Findings of Field Inspection

Component of Proposed Development	EIAR Ref.	Field Inspection Findings	Relationship to Proposed Development
Turbines T1-T3 (inc)	S.14.3.1.3.1 Plate 14-1, 14-14 & 14-15.	Possible location of one recorded barrow (ditch-barrow LI031-151002) was confirmed[92]. Standing Stone revealed c.100m SW of T3. Veracity of antiquity questionable. Not depicted on historic maps.	In midst of four barrow sites LI031-151001 – li031-151004). Ditch barrow LI031-151005 to the SW <200m.
Borrow Pit No.1 & Deposition Area	S.14.3.2.1.1 Plate 14-4, 14-16	Recorded ring barrow (LI031-127) is located E of the deposition area and abuts the site boundary. Field inspection confirmed negative results. No visible remains.	LI031-127 (ring-barrow) abuts PDS to the east.
Temporary Site Compound No.1	S.14.3.2.1.2 Plate 14-5, 14-7	Recorded ring-barrow LI031-114 is located c.100m to the SE. Field inspection confirmed negative results. No previously known features found.	c. 100m to the SE of temporary site compound no.1
Turbines T4 & 5	S 14.3.2.1.3 Plate 14-18	No recorded monuments in the vicinity. No previously unrecorded sites noted.	None in immediate vicinity (T4). Enclosures LI031-195, LI031-116 & li031-084 are located c 200m N (T5).
Temporary Site Compound No.2	S 14.3.2.1.4 Plate 14-19	No recorded monuments in proximity to the site. No previously unrecorded features or sites found.	N/A.
Turbine T6	S 14.3.2.1.5 Plate 14-8, 14-20	Previous excavations associated with 'Pipeline to the West' project revealed several archaeological features (*fulacht fiadh*, cremation pit and other features) c. 140m to the SW of T6. A recorded enclosure (LI039-032) is located c. 190m to the SW of T6 and although denuded is still visible on the ground. No previously unrecorded features found.	Previous (fully excavated) features c. 140m SW of T6. LI039-032 c. 190m SW of T6, outside PDS and associated landholding.
Eirgrid Substation, IPP Substation Compound and Site Compound No.3	S 14.3.2.1.6 Plate 4-6, 4-7 & 14-21	Earthwork LI039-149 (not depicted on historic maps) identified by aerial photography. The Zone of Notification (ZON) extends within PDS. Field inspection revealed no remains on the ground. Suspected no evidence remained prior to planting and if any now destroyed by planting and root activity.	LI039-149 outside PDS, however ZON within PDS and abuts proposed Eirgrid Substation. LI039-133 c. 100m NW of temporary compound No.3. Outside PDS.

[92] Not depicted on historic mapping. Identified by aerial photographs and field inspection.

		Unclassified Barrow (LI039-133). Preserved within existing forestry planting by a no planting zone. No previously unknown features recorded.	
Turbine T7	S 14.3.2.1.7 Plate 14-22	No recorded monuments. No previously unrecorded features found. Two prominent monuments (hillfort LI039-029 and tower house LI039-27002) noted as clearly visible.	None in immediate vicinity.
Turbine T8	S 14.3.2.1.8 Plate 14-9, 14-23	Earthwork LI039-034 is located c. 100m to the N of T8. Field inspection confirmed negative results. No visible remains and no previously unrecorded features found.	LI039-034 (earthwork) c. 100m N.
Turbine T9	S 14.3.2.1.9	No recorded monument in the vicinity. No previously unrecorded features found.	None in immediate vicinity.
Turbine T10	S 14.3.2.1.10 Plate 14-9, 14-25	LI039-134 c. 190m to the SE. Field inspection revealed possible remains. No additional features recorded.	LI039-134 (enclosure) c. 190m SE
Turbines T11 & T12	S 14.3.2.1.11 Plate 14-9, 14-26	LI039-134 c. 130m to the N (T11). Field inspection revealed possible remains. No additional features recorded.	LI039-134 (enclosure) c. 130m N of T11.
Turbine T13	S 14.3.2.1.12 Plate 14-27	No recorded monument in the vicinity. No previously unrecorded features found. Previous excavations associated with 'Pipeline to the West' project revealed several archaeological features including a large cremation pit c. 150m to the S of T13.	Large cremation pit (excavated) c. 150m S of T13.
Turbines T14 & T15	S 14.3.2.1.13 Plate 14-10, 14-11 & 14-28	Enclosure LI039-120 c.50m to the SW of T14. No definitive remains found. Earthwork LI039-121 c. 100m NE of T14 and c.120m W of T15. Confirmed by field inspection. No other unrecorded features noted. Several archaeological sites found and excavated in proximity to T14 during 'Pipeline to the West' project.	LI039-120 (enclosure) c. 50m SW. LI039-121 (earthwork) c.100m NE. (T14) LI039-121 (earthwork) c.120m W. (T15)
Turbines T16 & T17	S 14.3.2.1.14 Plate 14-12, 14-29	LI039-037 c. 60m E of T16 and c. 260m W of T17. Well preserved remains. No previously unrecorded features at this location.	LI039-037 (ringfort) c. 260m W.(T16) LI039-037 (ringfort) c. 260m W. (T17).
Borrow Pit No.2, temporary	S 14.3.2.1.15	Earthwork LI039-035 located to the S of proposed borrow pit with ZON extending into PDS. Confirmed by	LI039-037 (earthwork) located to the S, outside PDS

deposition area and Met Mast	Plate 14-13, 14-30	field inspection. No previously unrecorded features found.	but with ZON extending inside.
Internal Site Access Track & Underground Cabling	S 14.3.2.1.16	New access tracks will be constructed using excavated and floating track techniques depending on ground conditions. Field inspection revealed no previously unknown archaeological or cultural heritage assets.	n/a.

Grid Connection

18.14. Four (4no.) National Monuments within the 120m assessment corridor are set out and described in Section 14.4.2. This includes: Stone Circle -embanked LI032-002, Megalithic Tomb – court tomb LI032-003, Stone Circle LI032-005 and Stone Circle – embanked LI032-004001. These records are all National Monument No. 247 and are situated in grassland approx. 350m to 550m west of Lough Gur. Recorded Monuments within the 120m assessment corridor are set out and described in Section 14.4.3 and this includes six SMR records: Designed Landscape – Folly LI031-117, Gateway LI031-041018, Megalithic Structure LI032-004002, Enclosure LI032-320, Bridge LI023-063002 and Boundary Stone LI014-021 as shown in Fig. 14-7. A review of the Excavations Bulletin (1970 – 2024) archaeological works under licence at eight locations, none of which discovered anything of archaeological interest. These are described at Section 14.4.4. There are eight NIAH structures within the assessment corridor, one of which (Six-Mile Bridge) is a Protected Structure. These structures are shown in Fig. 14-9 and described in Section 14.4.5. Subsequent field inspection confirmed nothing new of archaeological or wider cultural heritage interest.

Turbine Delivery Route

18.15. A desk-top survey was carried out of the TDR at 18 pinch points where temporary works will be carried out to facilitate delivery. These pinch points and the results relative to archaeological and cultural heritage features are set out in Table 14-12. The recorded monuments in proximity to Pinch Points 5, 6, 9, 10, 11 & 17 are noted together with the prediction of no impact. The RPS and NIAH structures in proximity to Pinch Points 2, 10, 11 & 12 are noted together with the prediction of no impact.

Potential Effects

18.16. The EIAR identifies the potential for a range of environmental effects on archaeological, architectural and cultural heritage. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table ACH2 below.

Table ACH2: Summary of potential effects *(Archaeological and Cultural Heritage)*

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	No potential impact would occur.
Construction Phase	*Indirect Effects* - None predicted at Construction Stage. These are assessed at operational stage. *Direct Effects* *National Monuments (In State Care)* - None located within the PDS (or adjacent). There will be no direct effects (including the GCR and TDR). - There is a group of high-status archaeological sites situated between 10m and 45m of the GCR along a c.320m section of the R512 at Grange. LI032-002 to LI032-007 refer. The likelihood of sub-surface features surviving underneath the road is low. Recorded Monuments - 38no. monuments are situated in proximity to the PDS, of which 10no. are located within the site. None are directly situated on the footprint of proposed development and there will be no direct physical effect. - The potential effect to the recently recorded standing stone is classified as 'slight' based on the landowner account that it was pulled from a nearby river, its location outside of the PDS, and it is not recorded on historic OS 19th century maps. - One RPS structure is situated on the GCR – Six Mile Bridge (LI023-063002). Trenching would seriously impact the physical integral fabric of the roadbridge and possible undermine its structural integrity which would be classed as a **significant effect**. A HDD methodology however is proposed. - Enabling works associated with the TDR will not impact LI030-025001. No significant effects are predicted. *Potential for Unknown unrecorded sub-surface archaeological features* - Based on: (1) the large number (over 30) of recorded monuments within proximity to the site, (2) at least 8no. archaeological sites identified within the landholding during the 'Pipeline to the West' project, (3) over 340no. recorded monuments within the 3km radius study zone, (4) significant finds in Co. Limerick in the 19th and early 20th century, and (5) the richness of the land as an attraction for occupation by past settlers, it is considered that there is **significant potential for physical effects to previously unrecorded sub-surface archaeological features**. - Where the GCR crosses the ZON of six recorded monuments and sites associated with the Lough Gur Complex (National Monument No.247) **the potential physical effects are assessed as moderate**. This is based on the limited in-road (trenching) works and the likelihood that the construction and maintenance of the road would have impacted on

	potential sub-surface features. GCR effects elsewhere are considered not significant. - There is one location on the TDR where works extend into a greenfield site. (Pinch Point 15). Archaeological monitoring will be carried out to mitigate any potential impacts. *Protected Structures & NIAH* - No structures within PDS or landholding. No direct effects.(Inc TDR) - A potential impact may occur where the GCR crosses the Sixmile Bridge (Reg.No. 21902305). The **potential impact is classified as significant.** HDD drilling will be undertaken to avoid adverse impacts. *Cultural Heritage Sites* - A single structure is depicted on the 1st Edition pre-famine historic 6" map where the potential for a physical effect may occur. Field inspection revealed no upstanding remains. The effect is assessed as slight.
Operational Phase	*National Monuments (in State Care)* *Lough Gur Complex National Monuments No.247* - Three VRPs were assessed in the LVIA (VP 17-19), with effects assessed as 'moderate-slight'. A site inspection confirmed several sites are not open to the public or are well hidden by 'blockers'. The cultural visual effect is classified as 'slight'. *Killmallock Town* - Four national monuments are located within the town, c.5.km to the south of the PDS. (Kilmallock Abbey, Medieval Mansion, Collegiate Church of SS Peter 7 Paul and Kings Castle/John's Gate). The ZTV and LVIA show that partial view of blades (six turbines) may visible, especially from Kilmallock Abbey. This was confirmed by site inspection. There is no visibility from the interior of any monuments and cultural visual effects are classified as 'slight' *Knights Hospitallers* - National Monument No. 194, located in the small village of Hospital c. 9.5km E of the PDS. ZTV, LVIA and site inspection indicate that a partial view of the blades will be visible from the village. Given distance, the cultural visual effect is assessed as 'slight'. *De Valera's Cottage* - National Monument No.576 c. 5km WSW of the PDS. ZTV data revealed T1-T4 will be theoretically visible, but it was determined that visibility was limited by mature tree surrounding the monument. No LVIA was undertaken. Cultural visual effect is classified as 'slight'. *Monasteranenagh Abbey* - National Monument No. 1717 c.5.3km to the NW of the PDS. ZTV indicated all 17 turbines would be theoretically visible. The site was inspected and found to be in an open pastoral setting with very little 'blockers'. The cultural visual effect is classified as 'moderate'. Disert Oenghusa (Carrigeen) - National Monument No.83 c. 10km WNW of the PDS. ZTV data indicates all 17 turbines will be theoretically visible. Taking distance into account the potential cultural visual effect is classified as 'slight'.

	Recorded Monuments - There are over 38 recorded monuments in proximity to the PDS (Fig. 14-15 refers). Five are upstanding and visible from ground level (ring barrow LI031-114, enclosure LI039-032, ringfort LI039-037, ringfort LI039-135 and earthwork LI039-035. The other monuments are levelled, not noticeable or fully excavated. - Noise, light and shadow flicker were assessed in addition to visual effects in addition to the present state/condition of the monuments and public access to the sites. - There is no public access to any of the recorded monuments and the potential effect is classified as 'slight (upstanding monuments) to 'not significant' (monuments not visible). - It was deemed impracticable to assess the visual effect of each of the c.340 recorded monuments within the 3km radius study area. The use of specified resources, ZTV data and field inspections was relied upon to classify the following effects: ❖ Not significant – levelled monuments, not noticeable or archaeological excavated, ❖ Slight – monuments without public access, ❖ Moderate – sites open to the public but located >1km from the PDS, ❖ **Significant – monuments open to the public and located in the vicinity of the PDS** (Not specified). *Protected Structures and NIAH* *Heritage Structures located in Bruff* - ZTV data and LVIA reveal partial view of blades from the town centre. Taking 'blocker's into account the potential cultural visual effect is classified as ranging from 'slight to moderate'. *Camas House: bell tower/stand, folly (Reg. No. 21903128) and Camas House: Bridge (Reg.No. 21903127)* - Both structures are in close proximity to each other, approx. c.0.7km NE of the PDS. The bell tower/stand, folly is accessible from the public road and the potential cultural visual effect is classified as 'moderate'. Camas House/Bridge is less accessible, and the effect is classified as 'slight'. *Greenpark House (Reg. No. 21904004) and Post Box (Reg.No. 21903920)* - Sited in close proximity to each other c. 1km SE of the PDS. Not open to the public. Effect classified as 'slight'. *Catholic Church of the Holy Trinity (Reg.No. 21903918)* - Open to the public, panoramic setting c. 1km to the S of T12. Effect classified as 'moderate'. *Detached House (Reg.No. 21903919 & Reg.No. 31903914) and Ballynamuddagh House (Reg.No. 21903916)* - Located on private property, not open to the public. Effect classified as 'slight'. *Catholic Church of Saint John the Baptist (Reg.No. 21903904)* - In use and open to the public. ZTV data shows partial visibility. Considering distance c. 3km to the W, effects are assessed as 'slight'. *Castle Levers House (Reg.No. 21903114)*

	- Located c.3km W of PDS. Analysis of ZTV data shows partial visibility. Private property not open to the public. Potential effect is classified as 'slight'.
Decommissioning Phase	No direct impacts. Indirect impacts will be reversed.
Cumulative Effects	Other developments considered in the assessment of cumulative effects are set out in Section 1.4.4 of Vol II, chapter 01 and other windfarms specifically are listed in Table 14-13. - In all cases impacts to the immediate setting of all monuments and built heritage structures are not identified. - Taking into consideration the number and location of existing, permitted and proposed wind farms within a 20km zone, cumulative effects are assessed as 'slight'. - No significant direct cumulative impacts on Cultural Heritage resource is predicted.

Mitigation

18.17. Mitigation Measures are set out in Section 14.7 of EIAR Chapter 14. No significant archaeological effects are predicted at operational phase and no specific mitigation measures are proposed. At decommissioning stage it is considered that potential subsurface archaeological issues will have been resolved. Pre-construction and construction phase mitigation measures include:

- Licensed Geophysical survey of thirteen targeted areas (Fig. 14-16) to be agreed with LCCC Archaeologist, followed by a program of test excavation trenching.
- Archaeological test excavations on the footprints of the core wind farm components with the scope agreed with the LCCC Archaeologist.
- Preservation '*in situ'* or by record (if unrecorded features discovered)
- No development buffer zones, physically demarcated on the ground by the project Archaeologist for all existing recorded monuments with ZONs expanding into the PDS.

Construction Phase Mitigation Measures include:

- Archaeological monitoring of sensitive areas of core wind farm components (following pre-construction survey and test excavations) and including the GCR within ZON of recorded archaeological sites, particularly in the area of Lough Gur and TDR Pinch Point 15,
- Preservation '*in situ'* or by record.

Residual Effects

18.18. At construction stage it is considered that any previously unrecorded sites or features discovered will be preserved '*in situ*' reducing the predicted residual effects to 'not significant', and where this is not possible preservation by archaeological excavation and record will reduce the residual effect to 'slight'. No significant archaeological effects are anticipated during the operational phase of the proposed development. Cultural visual effects on national monuments and protected structures remain as set out in the main assessment which includes significant effects on recorded monuments open to the public and located in the vicinity of the PDS (<1km). Decommissioning phase effects are deemed to be 'not significant'.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

18.19. I have examined, analysed and evaluated Chapter 14 of the EIAR, all of the associated documentation and observations on file in respect of archaeology and cultural heritage. I am satisfied that the applicants understanding of the baseline environment is comprehensive and that they key impacts of likely effects on archaeology and cultural heritage as a consequence of the development have been identified. In my opinion the range of issues which have arisen in the observations and statutory reports received primarily concern the archaeological heritage of the host landscape, the significant potential for unrecorded archaeological features and the visual impacts on cultural heritage including RPS and NIAH structures. The applicant's response is set out in the separate 'response to submissions' documents received in February 2026 and June 2026 (OPW). I address the concerns arising and the applicant's response under the headings below.

Archaeology

18.20. The presence of a significant number of archaeological records within the environment of the subject site, together with the potential for unrecorded sub-surface archaeological remains, was a significant concern raised in the observations and statutory submissions received. The observations received raised concerns that the extent of records indicate that the landscape is one of archaeological significance with the DHLGH opining that it encompasses a prehistoric (most likely Bronze Age) ritual landscape. The landscape is not

designated as one of archaeological importance in the LDP and does not hold a statutory heritage designation and these considerations must be balanced with due regard to the Commissions obligations under the Climate Act and the location of the PDS within an area designated as a 'preferred area' for wind energy in the LDP.

18.21. In my opinion the concerns raised by the observers in terms of archaeology are reflected in the submission received from the DHLGH. This primarily concerns the recorded and unrecorded (potential) archaeological features which may be impacted by the proposed development. This is the central concern of the submissions received.

Recorded Monuments

18.22. The EIAR states that there are 38no. recorded monument in close proximity to the site, of which 10no. are within the proposed development site, but that there will be no indirect or direct effects as none of these monuments are situated on the footprint of the proposed development.

18.23. The DAHG Guidelines (1999) set out principles for the protection of archaeological heritage. They provide that there should always be a presumption in favour of avoiding developmental impacts on the archaeological heritage and that preservation in situ must always be the first option considered. The Guidelines provide that when considering requests for development consent that would involve the removal of archaeological sites or portions of such (including preservation by record), consent authorities must satisfy themselves that the development cannot be re-located, cannot be re-designed and is really necessary. In the circumstances of this case, a concern arises in the context of multiple recorded monuments within or in close proximity to the PDS which are sub-surface. In the absence of any geophysical investigation by the applicant, the DHLGH submit that the exact definition of these sites and the extent of their protective exclusion zones cannot be known and it is difficult to have confidence that preservation in situ can actually be delivered. The DHLGH does not consider that post-consent geophysical survey as proposed by the applicant represents best practice. It is necessary therefore to take a closer look at the proposed elements of the development relative to recorded monuments in order

to consider the position further. The DHLGH draws particular attention to the positioning of specific elements of the proposed wind farm which are a concern in this regard. I therefore consider these elements in the first instance.

Turbine T01

18.24. The location of turbine T01 is a concern as it is located within the midst of a cluster of five barrow sites: LI031-151001-151005. The DHLGH considers that this suggests the turbine is in the middle of a barrow cemetery which could include further barrow sites and other burial or ritual features such as cist burials or urn burials and that this potential has not been explicitly assessed. Fig 14-4 of EIAR Chapter 14 refers. In this regard I am of the view that T01 sits apart from the design of the proposed development in the midst of four recorded monuments (LI031-151001 -151004) with LI031-151005 closely adjoining the PDS to the south. This does not demonstrate mitigation by design and is not consistent with an iterative design process. I am not satisfied that it could not have been relocated or re-designed.

18.25. Section 14.3.1.3.1 of the EIAR states that LI031-151001 – 151004 (Inc) are not depicted on historic mapping and were identified from examination of aerial photographs associated with the Bórd Gáis Éireann 'Pipeline to the West' project. Field inspection confirmed the remains of ditch barrow LI031-151002 (Plate 14-1) and no visible above ground remains of the other three recorded barrows. Accordingly, there is uncertainty as to their exact definition. Section 14.3.1.3.2 states that LI031-151005 is also not depicted on any historic mapping and was identified by aerial photographic survey with field inspection confirming a potential cropmark. Whilst it is located outside the PDS, its ZON extends into the PDS in proximity to T01.

18.26. In the circumstances of T01 I do not consider that the placement of a turbine and associated infrastructure in the midst of 5no. recorded monuments represents best practice. This concern is further heightened by the fact that the exact definition of at least three of these (subsurface) records cannot be confirmed (LI031-5001, 5003 & 5004) never mind the significant potential for unrecorded features which also exists at this location suggesting a location in the middle of a barrow cemetery.

18.27. I note the DHLGH position that the separation distance between proposed development infrastructure and recorded monuments (protective exclusion zones) must be measured from the outermost extent of a relevant site or monument. I agree that in the absence of advance Geophysical Survey and informed test excavation the full extent and character of the monuments (recorded and unrecorded) in proximity to T01, and therefore the necessary protective exclusion zones, cannot be known. In such circumstances there is clear potential for direct impacts on recorded and unrecorded monuments as a result of T01 and its associated infrastructure, which are significant. In response the applicant proposes to proceed with geophysical survey and licensed test excavation and to provide same as further information to the Commission, however this is a RED III application, and the statutory timelines do not allow for a substantial further information request of this material nature.

18.28. Accordingly, in the absence of this information a decision must be made as to whether or not this is a matter which can be left over to be resolved by mitigation at a post-consent stage. In my opinion the balance of evidence here strongly suggests that T01 is located in a position which is likely to result in direct impacts on recorded and unrecorded archaeology. If this is confirmed by post-consent mitigation (which I consider highly likely) in the form of geophysical survey and/or test excavation it is likely to result in a requirement for relocation, redesign or omission of the turbine. In my view it is not appropriate to leave matters of such a material nature over to post-consent stage. It was open to the applicant to address this matter on the basis of field investigation and evidence in the iterative design process, and in my opinion, this is what should have occurred having regard to the extent of constraints which emerged in the desk study and field inspection. The application has not followed best practice in this regard. As a result, there are unknowns and a high degree of uncertainty in relation to the nature and extent of potential direct impacts on recorded and unrecorded archaeology and the potential for significant effects cannot be ruled out. I am therefore of the view that proposed turbine T01 should be omitted. I have no concerns in relation to the access track continuing to serve proposed turbines T02 and T03 given its lesser works, and greater remove from the features concerned. In this regard the mitigation measures proposed are satisfactory.

Standing Stone

18.29. I note that some observers raised concerns in relation to the location of a standing stone to the south of T1 (li031-151006). I note that the providence of this stone is uncertain which anecdotal reports that it was extracted from the river before being placed in its current location. This was not raised by the DHLGH or LCCC report as an asset of concern. In any event both the monument and its ZON are located outside of the PDS and I am satisfied that the archaeological mitigation measures which will be addressed by condition are sufficient to safeguard this record.

Temporary Deposition Area 1

18.30. The DHLGH also raises specific concern with the location of the Deposition Area to the north of Borrow Pit No.1 which may partially incorporate the footprint of ring-barrow LI037-127. In addition, the DHLGH considers that the location of LI031-152 to the north and Mound LI031-126 also suggest that the deposition area is located in the middle of a barrow cemetery which has not been properly assessed. Section 14.3.1.3.5 of the EIAR notes the identification of LI037-127 in 1989 and finds that there are no surface remains visible in recent aerial photography or on field inspection, accordingly the exact definition of this site cannot be known. It is acknowledged from examination of the recorded location of the monument[93] that its western limits may expand within the PDS. Unlike T01, the other records at this location, including LI031-152 and LI031-126 are located outside the PDS and associated landholding. In the circumstances of this case, I note that the development component in question is a temporary deposition area (TDA 1). It is described in Section 4.11.1 of EIAR Chapter 4 (Civil Engineering), Section 4.3.8 of the CEMP (Appendix 2A) and on Dwg.No. 22635-MWP-00-00-DR-C-5418. I note therefrom that preparation will involve the removal of topsoil, particularly to prepare suitable ground for the construction of perimeter containment berms. Accordingly, it is clear that the deposition area will involve excavation works, although limited to the soil overburden. Otherwise, the area will be used temporarily as a material storage area for the management of excess material generated on site, before restoration with the excess material re-

[93] www.excavations.ie

used in landscaping and remediation of the borrow pits. In this regard I am satisfied that excavation works are limited, the deposition area is not a particularly intrusive development and is a temporary facility capable of full restoration. Notwithstanding, the proximity of recorded monument LI037-127 I am satisfied on balance that this record can be adequately safeguarded by post consent geophysical survey, test excavation and monitoring as proposed in the mitigation. I am persuaded in this regard, on the basis that the deposition area can clearly be adjusted post consent to protect this monument and any confirmed protective exclusion zone (if required) and that such adjustment is practicable. Otherwise on the basis that the deposition area is temporary and will be restored post-construction I am satisfied that there will be no impact on the other monuments at this location and which are outside the PDS, including their collective relationship.

Onsite Substation

18.31. The DHLGH also raised concerns in relation to the location of the proposed substation which may (in whole or part) incorporate Earthwork Site LI039-149. Section 14.3.1.3.8 states that the site of this earthwork is located in dense forestry and is not depicted on historic maps and was identified from aerial photography. The applicant states that a field inspection supported by drone survey revealed no trace of the earthwork and opines that it would have been severely impacted if not totally destroyed by the forestry planting process and subsequent root action. Its location was identified by the recorded location for the monument[94] which places it outside the PDS but with its ZON extending into the PDS to the south. Noting that a separate recorded monument LI039-133 with the forestry at this general location, was preserved by the creation of a no planting zone it is opined that there is doubt that the earthwork ever existed as it was not afforded similar such protection at the time. The DHLGH considers that sub-surface remains could survive and be directly impacted by the development.

18.32. In this regard I note that LI039-133 is located within existing dense forestry outside of the PDS (but within the associated landholding). No felling or development works are proposed at this location. It is clear that this location has

[94] www.excavations.ie

been heavily planted, and I agree that a geophysical survey would not be practicable or worthwhile. Whilst I note that the ZON for this monument borders the PDS I note that there is a further buffer within the site to the footprint of physical development works which consist of the Eirgrid Substation to the west and internal access tracks to the south, which offers further safeguarding of the monument. In my opinion, the main site of this recorded monument will not be disturbed by the proposed development, and there is a reasonable argument that it has been compromised by existing forestry planting and root action as opined by the applicant. Given the context of this monument and its separation distance from physical development works, I am satisfied on balance that it can be adequately safeguarded by post consent geophysical survey, test excavation and monitoring as proposed in the mitigation.

Other Elements of the Proposed Development

18.33. Otherwise, I have examined each element of the proposed development relative to the recorded monuments. Table ACH1 refers. In this regard I am satisfied that no concerns arise in relation to T02, T03, T04, T05, T06, T07, T09, T012, T013, Met Mast and Temporary Deposition Area No.2 on the basis that there are no recorded monuments or associated ZONs within the PDS in relation to these elements of the proposed development. On this basis I am satisfied that protective exclusion zones can be maintained, and that the proposed mitigation strategy of post-consent geophysical survey, informed test excavation and monitoring is sufficient to safeguard these monuments and any unrecorded features which may be discovered.

T08, T10 & T11

18.34. In respect of T08 I note the location of earthwork LI039-034 c.100m to the north. Whilst field inspection confirmed no visible results for this monument, and therefore its exact definition cannot be known, I note that this monument is outside the PDS and has a small ZON reflective of the size, class and context of the monument. In respect of T10 & T11 I note their respective positions north and south of LI039-134 by a distance of 190m and 130m respectively. Whilst this monument is located within the PDS, T10 and T11 are safely located outside of the associated ZON with field inspection revealing possible remains and giving

greater certainty to its exact definition. The closest development works to these sites consists of the access tracks which are located outside of the respective ZONs and having regard to all of the aforesaid I am satisfied that the proposed mitigation strategy of post-consent geophysical survey, informed test excavation and monitoring is sufficient to safeguard these monuments and any unrecorded features which may be discovered.

T14 & T15

18.35. In respect of T14 I note the location of LI039-120 (Enclosure) c.50m to the southwest and in very close proximity to this turbine and associated works. Field inspection confirmed no definitive remains of this enclosure and therefore its exact definition is not confirmed. This monument is located on the boundary of the PDS with its ZON falling within the site and the rotor diameter oversail of T14. In this context the close proximity of this monument is a concern in relation to the potential for direct impacts. Whilst I also note the presence of LI039-121 (earthwork) c.100m to the north-east of T14, the relict remains of the earthwork and possible fosse were clearly noticeable on field inspection meaning there is greater certainty to the location of this monument, which is located outside of the PDS. Although the ZON of this monument marginally falls within the PDS it is not located within the footprint of physical development. Also of relevance are the several archaeological sites found to the south of T14 during the BGE project. Although these sites are now fully excavated. I do not consider that the location of T14 is comparable with T01. There is nothing to suggest the same density of archaeological sites, and the nature of the records do not suggest a location in proximity to a barrow cemetery. There is greater certainty as to the location of LI039-121 to the NE and the BGE sites have been fully excavated. What remains is uncertainty in relation to a single record LI0390120 (enclosure). On balance I am satisfied that the proposed mitigation strategy of post-consent geophysical survey, informed test excavation and monitoring is sufficient to safeguard this monument and any unrecorded features which may be discovered in the context of T14 and associated works.

18.36. In relation to T15 I am satisfied that it is sufficiently removed from the aforesaid monuments, with the nearest (LI039-121) approx. 120m, outside the PDS and with its ZON outside the footprint of development, including the access

track serving T15. In addition, this monument was confirmed by field inspection, giving greater surety to its exact definition. In this regard I am satisfied the proposed mitigation strategy of post-consent geophysical survey, informed test excavation and monitoring is sufficient to safeguard these monuments and any unrecorded features which may be discovered.

T16 & 17

18.37. In respect of T16 I note the location of LI039-037 c.60m to the east. Field inspection confirmed well preserved remains of this monument with a clearly defined bank and fosse, accordingly there is greater certainty as to is exact definition. Whilst this monument is located within the PDS, neither the monument nor the ZON are located within the footprint of physical development, although the ZON does fall within the rotor diameter oversail and abuts the access track to T17. Nevertheless, on the basis that there is greater certainty as to the definition of this monument, with its ZON located outside physical development works, I am satisfied that the proposed mitigation strategy of post-consent geophysical survey, informed test excavation and monitoring is sufficient to safeguard this monuments and any unrecorded features which may be discovered in the context of T16 & T17 and their associated works. Without prejudice, I also note the redline boundary of the site facilitates the option of micro-siting T16 if necessary.

Borrow Pit No.2

18.38. In respect of Borrow Pit No.2 I note the location of LI039-035 (earthwork) to the south. Whilst this monument is outside the PDS, I note its ZON comes within the PDS but not the footprint of development. Field inspection confirms a D-shaped area partially overgrown with trees and scrub with the remains of a quarry to the North. Accordingly, this affords a degree of surety as to its exact definition. Notwithstanding, the proximity of recorded monument LI037-127 I am satisfied on balance that this record can be adequately safeguarded by post consent geophysical survey, test excavation and monitoring as proposed in the mitigation. I am persuaded in this regard, on the basis that the borrow pit can clearly be adjusted post consent to protect this monument and any confirmed protective exclusion zone (if required) and that such adjustment is practicable.

Summary

18.39. In summary there are approx. 340no. recorded monuments within the 3km study area, with 38no. in proximity to the PDS and 10no. within the PDS. There are no UNESCO World Heritage Sites within 25km of the PDS and the nearest National Monument is approx. 5km distant. On the basis of the above assessment, I am satisfied that the footprint of the proposed development provides for the safeguarding of recorded monuments and their ZONs on the basis of the iterative design process and the proposed mitigation strategy with the exception of T01. It is recommended that T01 is omitted for the reasons set out above.

18.40. In reaching this position I am satisfied that an appropriate balance has been reached between the need to safeguard archaeological monuments with an emphasis on their preservation in situ, and the pressing need to dial up renewable energy resources with regard to the Commissions obligations under the Climate Act.

Unrecorded Archaeological Features

18.41. In respect of unrecorded sub-surface archaeological features, it is generally accepted that significant potential exists within the PDS. In this regard the applicant proposes a post-consent pre-construction mitigation strategy which proceeds on the basis of geophysical survey, informed test excavation of anomalies discovered in the survey, monitoring and either preservation in situ or by record. The geophysical survey is proposed in thirteen targeted zones which are shown in Fig 14-16 and I note that this does not include TDA 1 or the proposed Onsite Substation. In this regard I note that the DHLGH recommends a condition requiring Geophysical Survey of all greenfield areas of the PDS and I am satisfied that such a condition addresses this omission and is otherwise appropriate in the rich archaeological context of the site. Whilst the potential for the discovery of sub-surface features is significant, I am of the view that the proposed mitigation strategy is appropriate and proportionate.

18.42. I note the additional DHLGH concerns that archaeological sites have been treated as individual isolated receptors, with no substantive regard for their landscape context and potential inter-relationships. The majority of recorded

monuments within the PDS are sub-surface features and they are not visually understood as superstructures (above ground), therefore the proposed development will not affect a visual landscape context or inter-relationship. Indeed, within the CSA the low-land nature of the landscape and screening from roadside and field boundaries also militates against any potential visual inter-relationship between the many recorded monuments, which does not exist. In this regard I am satisfied that the safeguarding of recorded monuments, with a primary focus on their preservation in situ, in accordance with the above assessment (particularly the omission of T01) adequately ensures that the potential inter-relationships of these monuments is not significantly impacted and that they can continue to be understood. I am satisfied that this finding is materially different to my findings below in relation to above surface monuments open to the public within <1km of the PDS.

Lough Gur & Grange Stone Circle

18.43. Adverse impacts on Lough Gur were raised as a significant theme of concern in the submissions received and in the statutory report received from the OPW. Concerns included adverse visual impacts on the landscape and setting of Lough Gur and potential impacts on archaeological features as a result of the GCR on the R512 at the location of Grange Stone Circle. The OPW is not satisfied with the selection of viewpoints in the LVIA from the Lough Gur Complex and specifically requests a photomontage showing development and cumulative effects from the same position as VP21 submitted as part of the Garrane Wind Farm (ACP-323635-25 refers). The OPW also questions the location of the GCR passing through the Lough Gur Zone with a high possibility of archaeological finds and disruption.

18.44. In response the applicant states that the selected viewpoints are an accurate representation of the range of views afforded from within and around the Lough Gur Complex, with viewpoints selected to represent the most open locations, or publicly accessible and frequented sites. In relation to VP21 submitted as part of the proposed Garrane Wind Farm the applicant states that this is taken from an elevated location above Lough Gur accessible by foot and from an increased elevation which is not otherwise visible from the more visited/frequented areas. In relation to cumulative affects with the Garrane Wind Farm, the applicant refers

to the wireframes presented in the LVIA, particularly VP19 which confirms that it will not be possible to see the turbines at Garrane. In relation to the GCR the applicant confirms that route selection was determined through consultation with LCCC, TII, GSI and other utility services. Whilst acknowledging that it passes through the ZON of the Lough Gur Complex, it is considered that trenching within the public road involves a low likelihood of subsurface remains, with the potential impact assessed as moderate with construction phase monitoring.

18.45. In respect of visual amenity considerations, I refer to my findings in respect of LVIA where I concluded that no significant landscape or visual effects will arise. In relation to VP21 submitted as part of the Garrane Wind Farm I am in agreement with the applicant that this VP is not representative. It is taken from an elevated position, accessible only on foot, and depicts a view which is limited and restricted to a specific position. In this regard VP19 of the application LVIA is comparable, albeit taken at a lower level from a path within the complex which is publicly accessible and frequented by visitors. In my opinion VP19 is representative. In my assessment of this VP I found that the temporary appearance of partial blade sets associated with three turbines at a distance of approx. 5km on the skyline and in one restricted area of the complex will not intrude on this setting and will have no material or adverse effect on the Heritage Complex, including views inward or outward. The Commission will note that in order to affirm this position, I carried out an inspection from more elevated vantage points both within the complex (accessible by path) and from the local public road network particularly to the east and north. My additional inspection from the public road to the east and north where at a location above VP21 and did not find that the view represented therein was available. The additional inspections found the position to be unchanged, with views including both the Complex and the proposed development site extremely limited, screened and distant or not available.

18.46. Otherwise, the applicants LVIA considered the impacts on Grange Stone Circle (VP17) and the Lough Gur Wedge Tomb (VP18) within the Lough Gur Complex and determined that there was no potential for visibility from either of these heritage resources, with the potential visual effects assessed as imperceptible. For the reasons set out in Section 17 of this report, I accepted the

findings of the LVIA as verified by site inspection. Accordingly, I am satisfied that there will be no significant effects on the cultural heritage of the Lough Gur Complex or its landscape setting as a result of visual effects from the proposed development, cumulative or other.

18.47. In relation to the passage of the GCR along the R512 and through the Lough Gur Complex ZON, I am in agreement with the applicant that limited trenching works within the public road and where disturbance has already occurred as a result of road construction and other utilities has a very low potential to result in the discovery of previously unrecorded archaeological features. I am satisfied that with licensed archaeological monitoring there will be no significant effects.

RPS/NIAH Structures

18.48. The LA Report includes a report from the LCCC Conservation Officer (CO) (29/10/2025). This report sets out a list of RPS and NIAH Structures including NIAH Garden Survey Sites which the CO considers appear to be omitted from assessment in EIAR Chapter 14. The CO opines that these RPS and NIAH structures should be assessed if they are within the 3km EIAR study area. In respect of NIAH Garden Survey Sites the CO notes that the PDS appears to be partly within the designed landscape of Summer Ville Reg.No. 1561 and recommends that visual impacts on this and the other listed designed landscapes should be assessed. In response the applicant confirms that the RPS and NIAH structures listed by the CO are outside the 3km study area. I am satisfied that this information is correct and that the matter does not require further attention. The applicant does not however address the CO report in relation to NIAH Garden Survey Sites and designed landscapes.

18.49. In respect of the NIAH historic gardens and designed landscapes there is a lack of specific information and assessment in the EIAR. In terms of baseline information, the applicant acknowledges in Section 14.3.1.6 that the NIAH have carried out a nationwide desk-based survey of historic gardens, including the demesnes of large house which is searchable online[95]. The applicant confirms that this was assessed in May 2025. Whilst EIAR Chapter 14 proceeds to identify 59no. NIAH structures within the 3km study area it does not identify the

[95] www.buildingsofireland.ie)

NIAH Garden Survey records within the study area. I have examined all of the NIAH Garden Survey numbers referenced by the CO and I note that all are outside of the 3km study area with the exception of Greenpark House (Garden Survey No. 1565) approx. 1.2km east, Summer Ville (Garden Survey No. 1561) approx. 700m east and Camas House (Garden Survey No. 1556) approx. 200m east. I note that with the exception of Camas House, all of these Garden Survey records are classified as ‘not significant’ by the National Built Heritage Service (NBHS).

18.50. In respect of Greenpark House, the applicant identified and assessed the House as NIAH Reg.No.21904004 but did not explicitly acknowledge the associated NIAH Garden Survey No. 1565. Whilst the applicant did acknowledge that the house is located in an open parkland environment with panoramic views of the surrounding landscape, visual impacts were assessed as ‘slight’ on the house as the property is not open to the public. The visual impact on the gardens and designed landscape was not assessed. This record is approx. 1 km to the SE of the PDS and is not deemed significant by the NBHS.

18.51. In respect of Summer Ville the applicant identified and assessed the Post Box mounted in a rendered wall at the entrance to Summerville House as NIAH Reg.No. 21903920 but did not explicitly acknowledge the associated Garden Survey No. 1561. The visual impacts on the Post Box were assessed as ‘slight’ on the basis that the property is not open to the public. The visual impact on the gardens and designed landscape was not assessed. This record is approx. 900m to the SE of the PDS and is not deemed significant by the NBHS. The CO was concerned that the PDS may include the designed landscape associated with Summer Ville, however I am satisfied that the available aerial photographic and historic map evidence suggests that this is not the case.

18.52. In respect of Camas House the applicant identified and assessed the bell tower/stand/folly as NIAH Reg.No. 21903128 and Camas House: Bridge as NIAH Reg.No. 21903127 but did not explicitly acknowledge the associated Garden Survey No. 1556. The visual impacts on the bell tower/stand/folly were assessed as moderate as it is accessible from the public road, and the effect on Camas House:Bridge was assessed as ‘slight’ as it is less accessible. The visual impact on the gardens and designed landscape was not assessed. This record is

approx. 200m east of the northern section of the PDS. Of concern the Gardens and designed landscape associated with Camas House are deemed ‘significant’ by the NBHS with specific reference given to ornamental gardens, natural water features and parkland. The available aerial photographic evidence and historic mapping associated with this designed landscape evidence that a large extent is included within the PDS.

18.53. The absence of an assessment of cultural heritage visual impacts in the EIAR presents a challenge in determining the potential significance of effects on these designed landscapes. In this regard, the current status of the NIAH Garden Survey is relevant. I note that Phase 1 and Phase 2 of the survey are complete. Phase 1 involved an examination of historical OS mapping to identify sites, and Phase 2 involved a desk-based assessment of condition and survival. It is caveated by a statement that it is not an indication of heritage value of the site and should not be used to justify the importance or merit of the site, with a field survey required to confirm and evaluate heritage value. Phase 3 is ongoing and involves fieldwork and a detailed assessment of each site, but the latest position according to NHBS is that data for counites Donegal and Louth only has been published. Accordingly, the NIAH Garden Survey is not complete and remains a work in progress particularly as regards field work and a detailed assessment of heritage value. In addition, the inclusion of a site on the NIAH does not of itself carry statutory legal protection.

18.54. In respect of Greenpark House Garden Survey No. 1565 and Summerville Garden Survey No. 1561 I note that the proposed development is physically separated from these designed landscapes which are otherwise deemed ‘not significant’ by the NBHS. I am satisfied that the entirety of the available environmental information does not support a finding of significant effects in respect of these designed landscapes. In respect of Camas House the position is somewhat more complicated by the proximity of the record to the PDS, the inclusion of the historic designed landscape within the PDS and the current ‘significant’ rating by NHBS. However, I am influenced by the fact that Camas House with which the designed gardens were associated is now ‘destroyed’ according to the NIAH records for the (Camas House) bell tower/stand (Reg.No. 21903128) and outbuilding/bridge (Reg.No. 21903127) neither of which

reference the demesne or designed gardens as an important feature contributing to their heritage value. The gardens are otherwise not open to or accessible by the public. I otherwise note that the only infrastructure proposed within the historic gardens based on historical mapping is T04 and T05 which are located on improved agricultural grassland and recently planted conifer forestation, neither of which threaten original or surviving features. On this collective basis I do not consider that material considerations exist to support a finding of significant effects and in any event, I am reassured by the fact that the proposed omission of T1 to T5 for separate ornithological reasons will in any event negate any potential significant impacts on this designed landscape and in my opinion, it is sufficient to rest on this position. I otherwise note that the CO did not raise a specific concern in relation to this record.

Architectural Conservation Areas (ACAs)

18.55. In note that the LCCC CO also states that the LVIA should include an assessment of the potential impacts on the Bruff, Kilmallock and Lough Gur Architectural Conservation Areas (ACAs). I have noted these ACAs as designated in Maps 15, 16 & 20 of Volume 3 of the LDP. I am satisfied that the conclusions reached in the LVIA and my assessment of same in respect of Bruff, Kilmallock and Lough Gur pertain to these ACAs and that no significant effects will occur.

OPW concerns

18.56. The OPW raises concerns in relation to the LVIA conclusions in respect of four National Monuments recorded in Killmallock (NMS No. 212, 408, 173 & 680 – c.5.4km from the PDS), Monasternenagh Cistercian Abbey (NMS No. 171 – c.5.35km from the PDS) and Disert Oenghusa (NMS No. 83 c. 10.1km from the PDS). The OPW does not consider the field evidence acceptable in relation to the conclusions reached in the LVIA and recommends that verifiable wireframes and photomontages are specifically prepared for these National Monuments. The applicant responds that the National Monuments at Kilmallock and Monasternenagh Cistercian Abbey were assessed by two experienced archaeologists through a detailed walkover inspection, drone survey and informed by ZTV analysis. The EIAR found that a partial view of the blades

associated with a potential of six turbines would be visible from Kilmallock and the National Monuments at this location, especially Kilmallock Abbey but that visitors would primarily be interested in the interior of the monuments with the cultural visual effect classified as slight. VP8 is representative. Having inspected the subject sites, I am in agreement with this assessment and satisfied that the proposed development will not significantly impact the landscape setting of these National Monuments. In respect of the Abbey at Monasternenagh the EIAR notes that the monument is situated in a very open pastoral landscape with little blockers towards the PDS. In this context the cultural visual effect is classified as 'moderate'. Having inspected the site I am in agreement with this assessment, with the PDS viewed at a distance in excess of 5km and the turbines visible as distant features somewhat mitigated by the lowland environment and intervening screening. Otherwise, I agree with the EIAR that an assessment of visual effects, including cultural visual effects, is not necessary at a distance >10km.

18.57. Finally, I note that the OPW references recently published research of Dr. Patrick Gleeson paraphrasing that it identifies Knockainey as one of the most archaeologically rich cultural landscape locations in Ireland suggesting that it may be one of two 'regia' sites recorded in Ptolemy's 1st century AD Cosmographia (older sources) of Ireland. The OPW suggests that the Commission refer to this published research and opine that a visual or cultural impact assessment is undertaken of the landscape setting of Knockainey Hill in relation to Lough Gur, including consideration of cumulative effects. Whilst I acknowledge this research, it is a commercial product which is not readily accessible, and I have not therefore read it. Notwithstanding, the landscape of the proposed development is designated in the LDP as a 'preferred area' for wind energy and it is not designated as a landscape of archaeological importance or as a UNESCO World Heritage Site. I am satisfied that there is no statutory basis on which to elevate its archaeological status or importance in the absence of a corresponding statutory designation. In relation to the landscape setting of Lough Gur and Knockainey Hill I do not consider that further assessment is necessary. I have already established that the proposed development will not have significant visual or cultural visual effects on Lough Gur. Knockainey Hill is located approx. 4.7km southeast of Lough Gur and

approx. 6.5km east of the development at its closest point. In this context the PDS is removed from the line of sight and setting of these landscape features (to the west and south when viewing north from Knockainey Hill and to the west when looking south from Lough Gur) and I am satisfied that the proposed development (if visible) will partially read as distant features in a peripheral view. In support of this assessment, I would point to VP1 which is taken from the village of Hospital to the east of Knockainey Hill. The wireframes and photomontages for this viewpoint show the turbines visible as partial distant features in westward views. In this context Lough Gur is removed to the north and will be outside the viewshed.

Remaining Matters

18.58. There are 340no. recorded monuments within the 3km EIAR study area. The EIAR deemed that it would be impracticable to visit each record and therefore this was not undertaken. A basis for assessment and determination of operational stage effects is set out in Section 14.6.4.3. of EIAR Chapter 14. This concludes that there will be a significant cultural effect on monuments open to the public and located within <1km of the proposed wind farm. Mitigation measures are not proposed, and therefore the residual effect remains as significant. Whilst I have no difficulty with the basis of the applicant's assessment methodology or determination of effects, a difficulty arises in that the applicant has not identified which recorded monuments exist within <1km of the PDS and has not provided information on which monuments are open to the public. There is therefore, no way to interrogate the EIAR position. Given that the EIAR assesses the operational stage effects for recorded monuments within the PDS as ranging from 'not significant' to 'slight', it is considered reasonable to conclude that the finding of significant effects between the PDS and 1km is based on a conservative worst-case scenario where monuments are above ground and open to the public (if any). In my opinion there is a reasonable basis from the findings of the wider LVIA assessment to conclude that cultural effects will be mitigated by the low land nature of the landscape and the screening effect of roadside vegetation within <1km of the PDS and therefore whilst the finding of 'significant' effects in the EIAR must be accepted on the basis of the

environmental information available, I am satisfied that it is not such that would warrant refusing planning permission.

18.59. Finally, whilst I note the ACP precedent case[96] which the applicant cites as a justification for the deferment of geophysical survey and test excavations to a post-consent stage I am satisfied that this is not directly applicable. The case in question refers to a proposed solar farm, which involves relatively limited works of an intrusive nature and which is certainly not comparable with a wind energy development. In addition, the recommendation of the Inspector and decision of the Commission in respect of that case was made in the context of the case specific considerations arising. For the reasons set out above I am satisfied that it would not be appropriate to rely on post-consent field investigation work in respect of all elements of the proposed development.

Conclusion: Direct and Indirect Effects

18.60. Having regard to my assessment of the proposed development and the environmental information in respect of archaeology and cultural heritage, it is considered that the main significant direct and indirect effects after the application of mitigation measures are:

- A **significant direct effect** on recorded and unrecorded archaeology associated with Turbine T01 as a result of its location within the midst of a cluster of five barrow sites (LI031-151001, LI031-151002, LI031-151003, LI031-151004 & LI031-151005) and possible barrow cemetery as part of a prehistoric ritual landscape which could include further barrow sites and other burial or ritual features. Given the density of archaeological sites, their proximity to T01 and the likelihood of other unrecorded features, it is not considered that archaeological heritage can be protected and preserved in situ by the proposed mitigation measures including post consent archaeological geophysical survey and/or test excavation. This effect can be avoided by the omission of T01.

AND

[96] ABP-321242-24

- **Significant indirect cultural visual effects** on recorded monuments which are open to the public within 1km of the proposed development site. These effects will be mitigated somewhat by the lowland nature of the landscape and intervening screening features (built and natural) however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

19.0 Material Assets - Traffic & Transportation and Built Services/Utilities

Issues Raised

19.1. The following is a summary of the main issues arising:

Material Assets: Traffic and Transportation

- Long duration of the construction period and impacts from construction vehicles would lead to excessive noise, vibration, dust and road safety issues.
- Details on the future restoration and repair of the local road network, including along the proposed TDR, are missing.
- Proposed site accesses, widened road margins, and other general works are excessively close to residential properties and would restrict access to private dwellings, result in pinch points, and lead to road safety / congestion problems.
- Proposed GCR works would lead to traffic safety issues, disruption to road users, impact cultural heritage.
- Lack of legal consent.
- Site investigations have not fully verified if aggregate from onsite borrow pits would be suitable to be used in the construction of the proposed development. Therefore, a risk exists whereby significant numbers of additional deliveries may be required to transport material to the site from offsite locations meaning key sections of the EIAR would be invalid.
- Non-compliance with various technical requirements, including TII Guidelines, thus, the EIAR and CEMP are missing key information.

Material Assets: Built Services and Utilities

- Potential impact on broadband and mobile phone services (loss or disruption of signal).
- High-voltage cables may lead to ‘exclusion strips’ and prevent people from building new homes on this land.
- General telecommunications and aviation safety concerns.
- Presence of a high-pressure gas pipeline could be damaged during construction phase leading to safety issues.

19.1.1. The Applicant provided a response to submissions on 17 February and 24 June 2026, respectively.

Examination of the EIAR

Context

19.2. Chapters 16 and 17 of the EIAR are ‘Material Assets: Traffic and Transportation’ and ‘Material Assets: Built Services’, respectively.

Material Assets: Traffic and Transportation

19.3. Section 16.2 of the EIAR sets out the methodology for this environmental topic. The study area encompasses the road and transport network which is likely to be affected by the proposed development, and includes the main wind farm site, substation site, GCR, TDR and haulage route. Section 16.2.3 of the EIAR outlines the scope of the assessment, which includes the following:

- Existing and expected future road and transport network.
- Existing and predicted future baseline traffic volumes on the surrounding local road network.
- Predicted proposed development construction, operational and decommissioning traffic volumes and likely impacts.
- Proposed mitigation measures.

19.4. The existing baseline traffic volumes on the surrounding local road network have been established from onsite traffic surveys and automatic traffic counter data available on the TII online database for national roads. The associated appendix for this chapter includes: -

- Appendix 16A – Traffic Management Plan (TMP)

Material Assets: Built Services and Utilities

19.5. Chapter 17 covers the sub-headings of aviation, forest resources, television and telecommunications, water and wastewater infrastructure, gas, and waste

management. Section 17.2 of the EIAR sets out the methodology for this environmental topic. Section 17.2.1 lists the relevant legislation, policy and guidance, while Section 17.2.3 outlines the scope of assessment. The study area for material assets encompasses the infrastructure, utilities, and land uses which may be directly or indirectly affected by the proposed development (Section 17.2.2 refers). The following spatial extents have been applied to inform the study area for 'built services': -

- Wind Farm Site Boundary
- Grid Connection Corridor
- Wider Zone of Influence (ZoI)
- Local Settlements and Community Infrastructure

19.6. The associated appendices for this chapter include: -

- Appendix 17A – Ballinlee Wind Farm Aviation Review Statement
- Appendix 17B – Ballinlee Telecommunications Impact Assessment

Baseline

Material Assets: Traffic and Transportation

19.7. The proposed wind farm site and substation is on the south side of the R516 Regional Road, between Croom and Bruff, c. 11km east of the N20 National Primary Road at Croom. The R516 rural road between Croom and Bruff is identified as having typical road carriageway widths of between 4.9m and 5.3m, with local reduced widths of 4.6 metres.

19.8. The R516 includes centreline and hard strip road markings. It is proposed that construction access for the proposed windfarm and substation site, temporary compounds, windfarm collector cable, and associated internal site access tracks, to be from the south side of the R516 (near the north of the site). Public road crossings, with associated accesses, are proposed during construction at two locations on the L1414 and two locations on the L51217.

19.9. Table 16-1 of the EIAR shows existing traffic volumes for the area. The recorded peak traffic hour at each location referenced in the table occurred between the hours 4pm and 6pm. The peak hour traffic volumes were factored based on TII's automatic traffic counter data for further traffic analysis. Table 16-

3 indicates the estimated TII Regional Rural Road Link 2024 AADT Volume/Capacity Ratios, whilst Table 16-4 is the estimated 'Urban and Suburban Road Link Capacity'

19.10. The EIAR notes that the wind turbine abnormal loads would be delivered in consultation with the PA and An Garda Síochána, during off-peak traffic periods. It is predicted that a total of 170 delivery vehicles would be required for the 17 no. turbines. The Applicant acknowledges this could result in temporary delays and disruption for local traffic during the delivery process, albeit at off-peak traffic times and avoiding normal working hours, school-run times, etc.

19.11. It is predicted that the delivery of construction materials would be split roughly 50/50 from the R516 (east of the windfarm and substation site access) and the R516 (west of the windfarm and substation access), but that up to 100% flows in either direction, during specific periods of construction, may occur at certain times.

Material Assets: Built Services and Utilities

19.12. Forestry and Hedgerows: There is c. 12.8km of treelines within the proposed development biodiversity study area and c. 35.4 km of hedgerow. The surrounding land includes pastures and areas mainly used for agriculture.

19.13. Grid Capacity and Electrical Infrastructure: The EirGrid Transmission Development Plan (TDP) outlines several planned reinforcement projects for the Transmission Network in Limerick City and County, including the redevelopment of the existing 220/110kV Killonan substation. Within the grounds of the existing 220/110 kV Killonan substation, there are multiple HV and MV cables. This is similar for the rest of the GCR where there are underground cables. There are also multiple overhead lines along the GCR route and near proposed turbines. Overhead lines may need to be diverted or undergrounded, which would be done with in accordance with the requirements of the distribution network operator.

19.14. Gas: A high-pressure Gas Networks Ireland (GNI) pipeline crosses both the northern and southern sections of the wind farm site boundary (see Figures 17-2, 17-3 and 17-4). There is also medium-pressure distribution pipeline at the northern section of the grid connection route (see Figures 17-5 to 17-8).

19.15. Aviation: Shannon Airport is roughly 30km northwest of the proposed wind farm site. A desk-based review indicates that there are also numerous aerodromes and airfields in the surrounding region (see Figure 17-9).

19.16. Telecommunications: There are four radio links which crossover/are near the proposed development site (see Table 17-3). The radio links which could possibly be impacted by the wind farm development are shown in Figure 17-10. Mobile communication masts in area surrounding the study area are highlighted in Figure 17-12. This includes Vodafone, Three, Eircom and Imagine Communications Ireland.

19.17. Water and Wastewater Infrastructure: There is an existing watermains along the R516, just north of the site, as well as a watermain running beside the L1414 (Figure 17-13 refers). There are also watermains situated underground along the GCR, including the R512, where most of the grid connection would be accommodated. There is no wastewater infrastructure within the proposed windfarm development. However, there is a private wastewater facility near the public road which would be traversed by the GCR. The nearest Wastewater Treatment Plant (WWTP) is in Bruff roughly 3km northeast of the proposed development. The EIAR has been informed by consultation with Uisce Éireann.

19.18. Waste Management: There are several waste collection, treatment, recovery and disposal facilities in the area. Authorised waste facilities in proximity to the site are listed in Table 17-4.

Potential Effects

19.19. The EIAR identifies the potential for a range of environmental effects on Material Assets. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR are summarised in Table MA1 below:

Table MA1: Summary of potential effects (Material Assets)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	The existing natural and built environment would remain unchanged, with none of the proposed construction, demolition or operational activities taking place. Effects on material assets would not occur.
Construction Phase	**Traffic and Transport (Chapter 16)**

	Delivery Volumes, Vehicle Routes and Traffic Management - Delivery of construction materials would be split roughly 50/50 from the R516 (east) and the R516 (west). However, up to 100% flows in either direction may occur during specific periods of construction. - All construction deliveries and construction traffic will access the windfarm and substation site via the proposed site access on the R516 (north of the site) and use the public road crossings, and associated accesses, on the L1414 and on the L51217. - Construction access for the grid connection works along the R516, L8012, L8011, L1412, R512, L1170, L1171 and N24 public roads would be via the existing public road network. - Construction works would increase AADT volumes on the R516 by 77 vehicles, including 25 heavy vehicles, which equates to an AADT increase of up to 2.5%. Peak heavy vehicle traffic volumes on the R516 would be up to 194 vehicles, including up to 142 heavy vehicles (6.2%). - On other existing local, regional and national roads, the proposed construction works would increase AADT volumes by up to 0.7%. Peak heavy vehicle traffic volumes would be up to 1.8%. - Without mitigation, the summary of potential effects for the above is assessed as adverse, slight/moderate, local, and temporary / short-term. **Built Services & Utilities (Chapter 17)** *Forest and Hedgerows* - Trees in a radius of between c. 74m to 97m around each turbine would be removed. - Overall forestry felling of 14.4ha and 1,900m of hedgerow removal will be required (in accordance with a tree felling licence). - The following two areas of conifer plantation felling will be required: o Turbines 4 and 5 and their associated hardstands and access tracks and deposition areas (see Figure 17-14). o Proposed substation, Construction Compound 1 and the access track from the site entrance to the substation and beyond to T6 (see Figure 17-14). - The development would result in a permanent loss of hedgerow and treeline habitat for a length of c.2.8km (1,900m of hedgerows, 922m of treelines). Therefore, without mitigation, it is assessed that there would be an **adverse, significant, local, permanent and direct effect on these habitats.** *Grid Capacity and Electrical Infrastructure* - There are existing overhead power lines in proximity to certain proposed turbines. However, none pass over turbine areas. There are also no other existing electrical services which could be affected during construction works. - The underground GCR would avoid any effects on existing electrical networks. However, the accommodation works for the TDR will require brief disruption to electrical supplies due to moving existing overhead lines. - Therefore, without mitigation, it is assessed that there would be an adverse, not significant, localised, brief / temporary and direct effect on electrical infrastructure and supply. *Gas* - No turbines will encroach upon the main gas pipeline wayleave and required separation distances will be complied with.

	- Without mitigation, it is assessed that there would be no significant adverse effects on gas infrastructure. *Telecommunications* - For the wind farm area, cranes will be temporary and turbines erected gradually (over 24 months). Any potential effects are therefore limited to temporary crane use and turbine construction, which may briefly obstruct radio links, but with no lasting disruption. Without mitigation, it is assessed that for the wind farm are there would be adverse, slight, localised, temporary to short-term and direct. - A survey of underground services along the grid route will be undertaken to identify their location and to design the layout of grid cables to avoid interference with existing services. Without mitigation, it is assessed that for the GCR effects would be adverse, not significant, localised, temporary and direct. - Temporary accommodation works for the TDR may result in brief disruption to existing overhead telecommunication lines. Without mitigation, it is assessed that for the TDR effects would be adverse, not significant, localised, temporary and direct. *Aviation* - The site is well outside controlled airport airspace, with Shannon Airport approximately 32km away. Works will not intrude into recognised flight corridors. - Any interaction with aviation is confined to the temporary use of cranes and turbine construction activities, limited in extent, and reversible. - Without mitigation, it is assessed that effects would be adverse, slight, localised, temporary and direct for aviation. *Water and Wastewater* - It is estimated that approximately 3,000L per day of potable water will be required during peak construction for construction employees. Water will be imported to the site in tanks. - Temporary compounds will provide welfare facilities and an enclosed wastewater management system. Sanitary wastewater will be collected in portable toilets and managed through a licensed waste contractor. - Without mitigation, it is assessed that effects would be adverse, not significant, local, temporary / short-term and direct. *Waste Management* - Construction waste will likely consist of hardcore, concrete, spare steel reinforcement, cable wires, shuttering timber and building materials. - Waste management procedures are included in CEMP. - There will be roughly 321,758m³ of material excavated from the site. - Without mitigation, it is assessed that effects would be adverse, slight, local, temporary to short-term and indirect for waste.
Operational Phase	**Traffic and Transport (Chapter 16)** - Max. of two operational staff required at any one time meaning there would be a negligible operational traffic impact. Occasional traffic only would be generated through routine inspections and maintenance. - Without mitigation, the summary of potential effects is assessed as neutral, imperceptible / not significant, local, and long-term / permanent. **Built Services & Utilities (Chapter 17)** *Forestry and Hedgerows*

	- There would be no significant adverse effects on the local forest and hedgerow resources. *Grid Capacity and Electrical Infrastructure* - The development will provide renewable electricity, displace fossil fuel generation and reduce greenhouse gas emissions in line with CAP25. The effects on electricity generation and grid infrastructure are assessed as **positive, significant, regional, long-term and direct.** *Gas* - There would be no effects on existing gas infrastructure. *Telecommunications* - For the wind farm area, any potential interactions are highly localised to the immediate vicinity of individual turbines. Without mitigation, potential effects are assessed as adverse, slight, localised, long-term and direct. - For the GCR, the grid infrastructure will not impact any existing telecommunications. Therefore, there would be no significant adverse effects. - For the TDR, additional turbine components may need to be delivered from time to time. This may require temporary accommodation works along the delivery route, similar to those during the construction phase. Without mitigation, potential effects are assessed as adverse, not-significant, local, brief / temporary and direct. *Aviation* - By incorporating aviation warning lights within the design of the proposed wind turbines potential effects, without mitigation, are assessed as neutral, imperceptible, localised, direct and long-term. *Water and Wastewater* - Two maintenance personnel will occasionally visit the substation building. The daily average wastewater production is c. 100L per day – which is only on days when staff visit the site. Potable water required is estimated to be c. 20L per day. Without mitigation, potential effects are assessed as neutral, imperceptible, local, long-term and direct for water and wastewater. *Waste Management* - Minimal amounts of solid waste will be generated, collected onsite and then transported to a licenced disposal or recycling facility. Without mitigation, potential effects are assessed as adverse, slight, local, indirect and long-term for waste.
Decommissioning Phase	**Traffic and Transportation (Chapter 16)** - The grid cable and substation will remain a permanent part of the national grid infrastructure (i.e., decommissioning is not expected). Any further proposals at the site during or after the expected 35-year lifespan will be subject to a new planning application. Without mitigation, the summary of potential effects is assessed as adverse, slight, local, temporary / short-term. **Built Services & Utilities (Chapter 17)** *Forest and Hedgerow*

	- Removal of some trees and hedgerows may be required to facilitate the decommissioning phase. Without mitigation, potential effects are assessed as adverse, slight, local, permanent, and direct. *Grid Capacity* - Decommissioning will result in the removal of approximately 76MW of renewable electricity from the grid. Without mitigation, potential effects are assessed as **adverse, significant, regional, permanent and direct**. *Gas & Telecommunications* - *No effects predicted.* *Aviation* - Without mitigation, potential effects are assessed as positive, imperceptible, local, permanent, and direct, as infrastructure removal will follow regulatory requirements and best-practice methods. *Water and Wastewater* - Temporary welfare facilities will be setup during decommissioning. Without mitigation, potential effects are assessed as neutral, imperceptible, local, temporary / short-term and direct. *Waste Management* - Waste will be kept to a minimum with most materials expected to be recycled. Between 85% and 95% of wind turbine components can currently be recycled, however, turbine blades remain the most difficult. Without mitigation, potential effects are assessed as adverse, slight, local, temporary / short-term and indirect.
Cumulative Effects	**Traffic and Transportation (Chapter 16)** - This Chapter comprises TII's predicted traffic growth forecasts, including traffic which would be generated by other developments in the area. The proposed Garrane windfarm is southwest of the proposed development on the east side of the N20. It is envisaged that the turbine delivery periods for this wind farm, and the subject proposal, would not coincide as both are to be delivered to the Port of Foynes. Other construction traffic along the N20 generated by these developments may potentially overlap but would not be significant given the volume of traffic using the road. **Built Services & Utilities (Chapter 17)** - There are no developments in proximity which would cause significant cumulative effects on forestry resources or wastewater infrastructure. - Potential for cumulative effects at existing waste management facilities in terms of capacity if the construction of the proposed wind farm overlaps with other projects (Section 1.4.4 of EIAR refers). Without mitigation, potential effects are assessed as slight, adverse and localised. - The energy produced would, together with other similar renewable energy developments, help to meet local, regional, and national green energy targets.

Mitigation

19.20. The EIAR includes a comprehensive and extensive range of mitigation and monitoring measures in relation to materials assets. The measures are clearly set out Section 16.7 of the EIAR for 'traffic and transportation' and 17.5 for 'built services and utilities', respectively.

19.21. The main mitigation measures for traffic and transportation to are as follows:

Construction Phase

- Pre-construction bridge and road survey will be carried out on the haul routes on the R516, which will be monitored regularly with any damage repaired quickly.
- Any roads sections identified as damaged, after the pre-construction survey, will be reinstated.
- The TMP sets out various traffic management procedures and protocols which will be implemented to assist with safe vehicle movements, minimise disruption and congestion, and protect vulnerable road users. *This includes:*
    - *A stop/go alternating direction temporary traffic management arrangement will be provided facilitate the grid connection construction works. Local access will be maintained.*
    - *Temporary traffic diversions on public roads are proposed for the grid connection works along the L8012 and L8011 public roads, via the R516, R512 and L1412.*
    - *Road pavements would be regularly monitored and reinstated where damage has occurred.*
- The proposed GCR will require a Road Opening License (ROL), prior to the commencement, and the road surface of public roads will be reinstated to the standards required by the Department of Transport.

Operational Phase

- No mitigation required as regular operational traffic will not be generated.

19.22. The main mitigation measures for built services and utilities to are as follows:

Construction Phase

Forestry and Hedgerow

- Replanting at the earliest opportunity after commencement of construction to mitigate for loss and to supplement existing hedgerows.
- Hedgerow planting will use locally sourced species.

- Site layout designed to utilise existing tracks and the development footprint largely targets lower value habitats, such as improved grassland.

Grid

- Undertake a survey of all underground and overhead electrical and utility services along the 110kV grid connection route prior to construction.
- Identify exact locations of live overhead lines, underground cables, and other utilities.
- Ongoing consultation with ESB Networks to ensure safe working practices and compliance with guidelines.
- Staff training and use of protective equipment.

Gas

- Safe codes of practice will be applied to avoid existing gas pipelines.
- No turbines will encroach on the main gas pipeline wayleave, and the pipeline will be outside the electrical safety exclusion zone.

Telecommunications

- Where necessary, removing and re-routing antenna / services to alternative sites.

Aviation

- The proposed development will not impede aircraft. However, the proposed development will still meet IWEA Guidelines for aviation.

Water and Wastewater

- Pre-construction surveys will help to ensure disturbance to existing watermains are avoided.
- Contractor will establish measures to ensure no interruptions to existing services and service/utilities are maintained unless this has been agreed in advance with UÉ or other relevant authorities.
- Works in accordance with UÉ and local authority requirements.

Waste Management

- Chemical, hydrocarbon or other such wastes will be stored in designated areas in appropriate containers within bunds / on spill pallets, as required.
- Waste removed from site by authorised contractors.

Residual Effects

19.23. Table 16-17 of the EIAR sets out the residual effects for traffic and transportation. It concludes that with the implementation of the prescribed mitigation measures there would be no significant adverse residual impacts in terms of traffic volumes, congestion, or road traffic collisions; either individually, or in combination with other existing permitted or proposed developments.

19.24. Table 17-23 of the EIAR sets out the residual effects for built services and utilities. It concludes that with the implementation of the prescribed mitigation measures there would be no significant adverse residual impacts on resources or utility infrastructure; either individually, or in combination with other existing permitted or proposed developments.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

19.25. I have examined, analysed and evaluated Chapters 16 and 17 of the EIAR, all of the associated documentation and observations received in respect of materials assets including traffic and transport, built services and utilities. Observers raise a number of issues in respect of material assets which I address below.

Road Safety, Congestion, Traffic Volumes

19.26. I note the submission made by third parties in relation to additional traffic volumes, and how this may impact the receiving road network. There are particular concerns regarding traffic congestion; road safety / potential impacts on vulnerable road users (walkers, runners, cyclists, equestrians, children travelling to school, etc.); nuisance caused by increased noise, vibration, dust; damage to local roads; and impeding access to residential properties and private dwellings. I note that the concerns are mainly to do with the construction phase and that the 'narrow, local roads' in the area would be unable to safely cater for construction traffic and the predicted volume of heavy vehicles.

19.27. I am satisfied that the Applicant has identified the receiving road network, including rural local roads, which are of varying condition, width, geometry, etc. (i.e., the baseline). The road network is typical of a rural, countryside setting, with a sporadic presence of one-off houses, agricultural uses, and pockets of

commercial forestry. I consider that the EIAR is supported by a thorough and comprehensive Traffic Management Plan. The construction phase is estimated as 24 months. Public road crossings, with associated accesses, are proposed during construction at two locations on the L1414 and two locations on the L51217 as well as two entrances on the private laneway at the end of the L51217. Three main (temporary) construction compounds will serve the site, as well as materials storage depots along c. 24.4km of the public road network for the underground GCR.

19.28. I consider that the proposed site working hours are typical for a development of this kind, (7am to 7pm, Monday to Saturday inclusive), and also for the public road works (7am to 7pm, Monday to Friday inclusive, and 9am to 2pm, Saturdays.). The estimated peak staff numbers are up to 80 construction personnel with c. 60 car and van trips – both to and from the site – each working day. The construction staff for GCR is estimated at 15 to 25 personnel at any one time.

19.29. The Applicant confirms that importation of a total of up to 14,714 loads of construction material, plus the removal of 3,105 loads for the grid connection works (along the public road network to a licensed waste facility) will likely be necessary. I note that all construction materials are intended to be transported using standard heavy vehicle delivery trucks with a capacity of 8m^3 and 20 tonnes for aggregate, and 7m^3 for concrete trucks.

19.30. A total of 170 delivery vehicles is predicted for the 17 turbines in delivery convoys during the night-time (abnormal loads). [However, where the number of turbines is reduced for separate ornithological and archaeological reasons, it can reasonably be assumed that the overall number of loads will also decrease.]. The EIAR states that the proposed borrow pits are expected to provide 99,852m^3 of the aggregate materials needed to construct the overall wind farm development – this equates to 61% of the overall aggregate project requirement.

19.31. In relation to the borrow pits, specifically, I note the observers concerns that site investigations informing the EIAR have followed a flawed methodology and, therefore, should not be relied upon in terms of identifying soil and subsoil conditions. The parties are ultimately saying that the type of aggregate needed

for the construction phase may not be able to be obtained from the proposed onsite borrow pits and that the Applicant should not have factored this in as part of their predicted aggregate sourcing feasibility exercise. This, in turn, it is argued, presents a risk whereby significant numbers of additional construction deliveries may be required to transport material to the site from offsite locations meaning key sections of the EIAR would be invalid, particularly construction traffic volumes.

19.32. As per Section 16 above ('land and soils'), I note that the GI survey work involved digging 24 no. trial pits across the site. This was done using a 3-tonne tracked excavator with a 400mm wide bucket. The trial pits were excavated up to a depth of 2.7m below ground level or until such point the water table was met. The company which undertook the site survey work (Northwest Geotech) has expertise in completing geo-environmental site investigations, utilising machine-dug trial pits to analyse subsurface profiles, soil and rock strata, and compiling this data into comprehensive reports for planning application purposes. Section 8.1.1 of the EIAR also details the competency of the relevant assessors for the land and soils chapter, and I am satisfied that the perquisite level of professional qualifications, experience, and credentials have been provided and are in accordance with the requirements of the EIA Directive (i.e. that the relevant sections of the EIAR have been completed by competent experts). Furthermore, I note that further site surveys were commissioned by the Applicant to verify the information gathered.

19.33. The machine used as part of the SI works would typically have adequate digging capabilities to safely excavate the required depth of trial pit, whilst also allowing for the exposed soil and rock profiles to be properly examined, inspected, and recorded by the geotechnical engineer. For wind farm developments, trial pits are normally undertaken to assess relatively 'near-surface' ground conditions, including soil types, groundwater conditions, rock horizons, and peat depths, where present. I consider the use of a 3-tonne tracker excavator capable of completing such investigations, particularly where access constraints, environmental sensitivities, and softer ground conditions may be met. The tracked configuration would also help to minimise ground

disturbance and soil compaction. The front digging bucket can provide the cutting edge needed to break into a variety of soil and subsoil types, including clay, gravel, shale, rocky ground and wet, moist, boggy terrain.

19.34. Having regard to this, I do not consider that the methodology employed by the applicant is somehow deficient, or that the site survey data presented in the application is misrepresentative. I am satisfied that the Applicant has undertaken thorough and comprehensive field survey work to inform the geology and suitability of the land to provide aggregate for the proposed development. In conclusion, there would not be an unacceptable risk of significant additional numbers of construction-related deliveries arising, in my opinion, in relation to this issue. Whilst my finding in this regard does not depend upon it, I would also note that the omission of T01 to T05 (inc) for separate ornithological and archaeological reasons will proportionately enhance the components of the development constructed using materials won on site, reducing the need for material from off site sources.

GCR

19.35. I also note that TII requested that the Commission satisfy itself that the proposed grid routing provides for the 'optimal' solution. Specifically, TII noted that the proposed 'Garrane' windfarm included a OHL loop in connection and queried why his option was not pursued by the applicant. In response the applicant states that the PDS is located several kilometres from an OHL and would likely have required two substations to be built to facilitate such a connection, with significant additional build out and increased potential for environmental effects and costs. In addition, the power generation capacity of the proposed development (76.5MW) in conjunction with other existing, consented and proposed projects, would represent a serious over subscription on the line likely leading to grid congestion and high levels of foregone wind energy generation. I have otherwise assessed the alternative considered by the applicant and I am satisfied that the responding position and proposed GCR is reasonable, justified and represents an optimum solution.

Built Services and Utilities

19.36. I am satisfied that the Applicant's understanding of the baseline environment for services is comprehensive and that the key impacts regarding likely effects on grid capacity and electrical infrastructure, gas, telecommunications, aviation, water and wastewater and other material assets have been identified.

19.37. The Commission will note the submission received from Gas Networks Ireland (GNI) regarding the presence of a gas transmission pipeline operating at high pressure in proximity to the subject site. I note that GNI did not raise any specific concern regarding this, subject to condition requiring that they be contacted in advance of any site work taking place and for the developer to follow the GNI Code of Practice for the works.

19.38. The Applicant confirmed in their response to the ACP that the proposed condition(s) will be adhered to and also referred to their correspondence issued to GNI regarding the matter sent on 29th January 2026 (see Appendix 1 of the Applicant's response to ACP, dated June 2026).

19.39. Related to this matter is the submission made by the Health and Safety Authority (HSA). The submission indicates that the proposed development lies outside the scope of the COMAH Regulations for preventing and limiting major industrial accidents involving dangerous substances. The Applicant welcomed the submission, noting no further action would be required in terms of the observation made by the HSA.

19.40. In conclusion, I am satisfied that there would be no significant effects arising in terms of material assets (built services and utilities), including the national grid and electrical infrastructure, aviation, telecommunications (broadband, mobile phone coverage, etc.), and water / wastewater infrastructure. This is having regard to the information contained in the EIAR, submissions received from prescribed bodies, and the mitigation and monitoring measures proposed by the Applicant.

Legal Consent/Landowners Issues

19.41. The Commission will note the comments by third parties regarding the Applicant's legal interest in the site and whether requisite lawful entitlement has

been obtained in order to make the planning application. The argument that the proposed development encroaches onto certain third party lands, which are not controlled or owned by the Applicant, and for which legal consent has not been obtained.

19.42. Amongst the concerns is a section of road whereby road improvements are sought near a private property (V35 FK03). The works involve opening up a margin at the front of the house to allow heavy vehicles to turn and manoeuvre safely. The observer in this case states that the existing margin is for private use only, and that the Applicant does not have the necessary legal interest to avail of this land for the purposes of managing traffic flows during the construction phase.

19.43. However, having reviewed the details before me, I do not consider that the information on file casts sufficient doubt regarding the legitimacy of the application's bona fides so as to warrant a refusal. Where a property boundary is required to be legally verified, this can be done under conveyance and post-planning and would be common practice in most typical scenarios where a property rights disagreement arises. I also consider that limited specific property folio details, legal information, or title deeds have been made available or submitted in support of these particular contentions such that permission should be withheld solely for this reason.

19.44. I further note that where there is a dispute in relation to the matter of property rights and landownership, ACP cannot adjudicate on such matters. I would refer the Commission 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 (for which an application is made under S.37E) to carry out any development*". Therefore, in the event permission is granted, there may be other legal considerations that apply, which the developer may need to address outside of the planning system.

19.45. Section 5.13 of the Development Management Guidelines (2007) is also relevant and states that the planning system is not designed as a mechanism for resolving disputes about title to land, or premises, or rights over land. These are ultimately matters for resolution in the Courts. However, the Applicant must

be certain under civil law to ensure that they have all rights in relation to the land for which they intend to implement any grant of planning permission.

Conclusion: Direct and Indirect Effects

19.46. In summary, I have considered this chapter and the submissions relating to materials assets. I am satisfied that potential effects would be avoided, managed, and mitigated by the measures forming part of the proposed development and through suitable site conditions. Having regard to my examination of environmental information, as set out above, I am satisfied that there would not be any unacceptable direct, indirect or cumulative effects on material assets.

20.0 **Air Quality**

Issues Raised

20.1. The following is a summary of the main issues arising:

- Existing air quality may be negatively affected by dust, disturbing soil and movement of construction materials, which could impact human health, including those with breathing issues.
- Higher traffic volumes could lead to increased emissions, including Particulate Matter, from heavy vehicles, diesel fumes, and air pollution in general.
- The existing land use on the site (agriculture) produces excellent quality food with minimal emissions and no air miles. Dust, fumes and pollution from construction traffic and concrete pours / works could impact air quality, threaten crops, damage the natural environment and undermine farming productivity.
- More effective dust suppression measures should be proposed.

20.1.1. The Applicant provided a response to submissions on 17 February 2026 and 24th June 2026, respectively.

Examination of the EIAR

Context

20.2. Chapter 10 of the EIAR provides an assessment of air quality in accordance with the Clean Air for Europe (CAFÉ) Directive. The Directive was published in

2008 and transposed into Irish Legislation by the Air Quality Standards Regulations 2011. The current statutory ambient air quality standards for Ireland are set out in the Ambient Air Quality Standards Regulations, 2022. Section 10.2.2.1 sets out the applicable international standards, policies and guideline in relation to air quality, whilst Section 10.1.4.2 identifies relevant local policy (taken from the Limerick Development Plan 2022-2028).

20.3. The EIAR confirms that existing air quality for the site and its surrounding area was characterised at a local level to establish a baseline. The nature, scale and duration of the construction, operational and decommissioning phases were examined and its potential to affect local air quality assessed. The methodology applied is outlined in Section 10.1.4. The EIAR includes mitigation measures to minimise potential effects. The associated appendices for this chapter include:

- Appendix 2A - Construction Environmental Management Plan
- Appendix 16A - Traffic Management Plan.

Baseline

20.4. The nearest available data from air quality stations to the site is at People's Park, Limerick City Centre, which is c. 20km to the northwest.
The station monitors Particulate Matter (PM10 and PM2.5) and Nitrogen Dioxide (NO2) and is in an Urban Area. The average concentrations, recorded on 25th June 2025, for a 24hr period are as follows:

- NO2-6.69 ug/m3
- PM10 12.77 ug/m3
- PM2.5 - 7.31 ug/m3

20.5. On this date, the air quality index was classified as '1-Good'. The People's Park station updates daily with the calculated Air Quality Index for Health (AQIH). The potential air quality impacts from the construction phase mainly consist of emissions and particulates from construction activity, including carbon dioxide (CO_2), sulphur dioxide (SO_2), nitrogen oxides (NOx), nitrogen dioxide (NO_2), carbon monoxide and (CO) and particulate matter (PM10). When operational, there will be no air emissions from the wind farm development, apart

from those associated with intermittent maintenance and repair vehicles travelling to and from the site.

Potential Effects

20.6. The EIAR identifies the potential for a range of environmental effects on Air Quality. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table AQ1 below.

Table AQ1: Summary of potential effects (Air Quality)

Project Phase	**Potential Direct, Indirect and Cumulative Effects**
Do Nothing	An opportunity to offset Greenhouse Gas Emissions (GHG) from fossil fuel-based energy sources would be lost. Emissions of CO_2, NOx and SO_2 from coal, oil and gas fired power plants would continue resulting in a deterioration in air quality. In a Do-Nothing scenario, there would be an adverse, slight to moderate, and long-term effect should the proposed development not proceed.
Construction Stage	*Dust Emissions* - The most likely effect will be from dust emissions generated by construction works, including earthworks, excavation activities, construction of hardstanding areas and the movement of vehicles on and off site. [Earthworks will primarily involve excavation, haulage, tipping, landscaping and stockpiling.] - For the main wind farm construction works, the total area of site construction works is over 10,000sqm. Therefore, the dust magnitude for earthwork activities associated is classified as *large*. With respect to dust soiling, human health and ecological effects from the main wind farm earthworks, the risk of dust effects prior to mitigation is *low*. - For the grid connection works, total area of site works is over 10,000sqm. Therefore, the dust mitigation for earthwork activities associated within grid connection works can be classified as *large*. With respect to dust soiling and human health the risk of dust effects from earthworks, prior to mitigation, is considered *medium*. - With respect to ecological effects from the grid connection works the risk of dust effects from earthworks, prior to mitigation, is considered *low*. - Without mitigation, the impact on air quality from dust emissions is assessed as adverse, imperceptible / not significant, temporary to short-term and direct for dust sensitive receptors. *Vehicle Emissions* - Exhaust emissions from construction and delivery vehicles are unlikely to have an adverse effect on local air quality and will not have a significant effect on local, regional or national air quality standards. This is due to the scale of the works, high levels of dispersion, and the limited duration of works, respectively. - Without mitigation, the impact on air quality from construction stage traffic is assessed as adverse, imperceptible, local, short-term and direct.
Operational Phase	- No significant adverse effects to air quality expected.
Decommissioning Phase	- Dust emissions during the decommissioning phase will be lower than the construction phase as there is no real need for excavation.

Cumulative Effects	- No significant cumulative effects on air quality predicted during the construction or decommissioning stages. - Given the presence of other renewable energy projects in the wider area, such as solar farms and wind energy developments, a slight cumulative positive effect on air quality is anticipated overall as these projects will contribute to the displacement of fossil fuels.

Mitigation

20.7. The EIAR includes a comprehensive and extensive range of mitigation and monitoring measures in relation to air quality. This Chapter assesses the potential effects of the project to ensure that appropriate mitigation measures will limit any potentially significant impacts in relation to this environmental topic. Where significant effects on air quality are predicted, mitigation has been incorporated into the project. The mitigation measures seek to avoid, reduce or offset potential significant residual effects.

20.8. I consider the mitigation measures and related procedures to be detailed and thorough and note that they have been designed to address specific potential impacts on various dust and emissions sensitive receptors. The measures are clearly set out Section 10.5 of the EIAR. They are also included in the CEMP (Appendix 2A) and Traffic Management Plan (TMP) (Appendix 16A). Some of the main mitigation measures and procedures proposed include:

Construction Phase

Dust Generation

- Water will be used as a dust suppressant (e.g. a water bowser to spray access tracks and crane hardstanding areas during any extended dry periods).
- All loads entering and leaving the site will be covered during dry periods. Vehicle speeds will be controlled, particularly when passing over access tracks and crane hardstanding areas.
- Wheel wash facilities at site entrance(s) to remove material collected by vehicles when entering or leaving the site and, thus, preventing its deposition on public roads.
- Implementation of a Stockpiling Management Plan.

Construction Traffic Emissions

- Regular maintenance of plant and equipment. No idling of engines permitted.

- Implementation of the TMP to minimise congestion.
- Majority of aggregate will be obtained from onsite borrow pits, which will reduce the number of delivery vehicles to the site.

Residual Effects

20.9. Table 10-26 sets out the residual effect on air quality for the construction phase, whilst Table 10-27 does the same for the decommissioning phase. In summary, no significant adverse residual effects are predicted during the construction, operation and decommissioning phases, subject to mitigation measures being applied.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

20.10. I have examined, analysed and evaluated Chapter 10 of the EIAR, all of the associated documentation and observations on file in respect of air quality. I am satisfied that they key impacts in respect of the likely effects on air quality as a consequence of the development have been identified. Observers raise a number of issues in respect of air quality which I address below.

20.11. The air quality in the vicinity of the proposed development is considered typical of a rural environment. The air quality index was recently recorded as '1-Good' at the nearest air quality station (People's Park, Limerick City Centre), which is roughly 20km to the northwest (25th June 2025). Table AQ1 above provides a summary of potential effects. However, I note that even in the absence of mitigation, likely effects in terms of air quality are not predicted as significant.

20.12. Section 10.3.3 of the EIAR addresses dust sensitivity for the receiving environment. I note that the main area of the proposed wind farm site, which includes the individual wind turbines, substation and borrow pits, is the likely primary source of dust for during the construction phase. Figure 10-3 shows the location and distance of each wind turbine in relation to the nearest dwelling. In addition, other areas, such as deposition areas and temporary construction compounds (also a potential source of dust) are shown in Figure 10-4.

20.13. I note that a single property is within 50m of a wind farm construction works area. The temporary deposition area in the north of the site is shown as 41m away from this residential receptor. Furthermore, the northern borrow pit is c. 114m from this property. This information is depicted on Figure 10-4. The graphic also shows one receptor roughly 55m south of the proposed southern borrow pit. The closest receptors to all other major construction areas are over 200m away. Having regard to this – i.e., the relatively low number of nearby dust sensitive receptors –, I note that the EIAR has confirmed that the worst-case sensitivity for the receiving environment for dust soiling is deemed as 'low'.

20.14. I consider that dust emissions would also be generated by the accommodation works required for the temporary turbine delivery route. The turbine components are proposed be delivered to the site via Foynes Port, on the River Shannon, and then along the N69, N18, M20, N20 and R-516, before reaching the site. To facilitate this, a new temporary access track will be constructed – mainly on agricultural lands – approximately 3.3km southeast of Croom. However, as the route will be built in short sections, small in scale, and temporary in duration, no significant dust effects are likely to occur, in my view.

20.15. I note that construction traffic impacts, including those arising from HGV movements, material deliveries, and grid connection works, are assessed in Chapter 16 of the EIAR (Traffic and Transportation). The effects arising are proposed to be controlled / managed through the TMP (Appendix 16A). Therefore, the CEMP and TMP will work together to help ensure that construction activities and associated traffic volumes are coordinated and managed in such a way to effectively control dust and vehicular emissions, road cleanliness, and, thus, minimise effects on nearby sensitive receptors.

20.16. I note that the air quality assessment undertaken as part of the EIAR is predicated on a health-protective framework which considers the population as a whole. This includes those who may be more sensitive to poorer or degraded air quality, such as children, the elderly, and individuals with underlying health conditions (for example, respiratory illnesses or asthma). However, adherence to the air quality standards and protocols set out under 10.2.2.1 of the EIAR will help to ensure that all members of the community, including vulnerable persons, are protected.

20.17. In summary and having regard to the proposed mitigation strategy to reduce and offset the effects of dust and vehicle emissions, I am satisfied that significant residual effects in terms of reduced air quality are unlikely. I also consider that, given these control measures, the potential for dust and airborne emissions to disperse and deposit on farming land, resulting in harmful or significant adverse effects on the natural environment or agricultural productivity is remote and would not be anticipated.

Conclusion: Direct and Indirect Effects

20.18. Having regard to my examination of the environmental information in respect of air quality it is considered that subject to implementation of the full suite if mitigation measures, no significant adverse effects will arise. The development will have a positive slight long term indirect effect on air quality at a national level at operational stage with the nett reduction in greenhouse gas emissions over the operational lifetime of the project.

21.0 **Climate**

Issues Raised

21.1. The following is a summary of the main issues arising:

- Increased carbon footprint and emissions from concrete production, traffic, clearance of vegetation and construction activities.
- The EIAR carbon accounting relies on inaccurate assumptions and underestimates the likely overall emissions by the proposed development.
- The site is in an area with poor access to wind energy resources, which raises concerns re: the project's renewable energy credentials.

21.2. The Applicant provided a response to submissions on 17 February and 24 June 2026, respectively.

Examination of the EIAR

Context

21.3. Chapter 11 of the EIAR provides an assessment of the proposed development in terms of potential effects on climate. It also considers the effects of climate change on the proposed development. The EIAR provides an estimate

of the GHG emissions associated with the manufacture, construction and decommissioning of the wind farm and the contribution it would likely make in reducing emissions (which would otherwise be produced by fossil fuels). The purpose of this is to determine a whole-of-life 'carbon balance', together with an understanding of the likely 'emissions payback' period. The payback period calculated by the Applicant is 0.8 years.

21.4. Chapter 11 has been completed in accordance with the document 'Calculating Carbon Savings from Wind Farms on Scottish Peat Lands (University of Aberdeen and the Macauley Institute 2008)' and 'Wind Farms and Carbon Savings (Scottish Natural Heritage, 2003)'. A full list of guidelines and standards which have been used as part of the methodology employed to prepare this Chapter is outlined under Section 11.2.1 of the EIAR. The associated appendices for this chapter include:

- Appendix 2A: CEMP
- Appendix 9B: Flood Risk Assessment
- Appendix 11A: Carbon Calculator

Baseline

21.5. The wind farm site is located in a rural area of east Limerick. It is largely characterised by agricultural holdings and one-off residential properties. There are some small areas of forestry plantation both within the site and on neighbouring properties.

21.6. There is no peat within the majority of the subject lands, and I note that the GSI mapping system does not show any. However, the Applicant, during their site walkover observed a small area of peat in the northeastern corner of the site. Further site investigations found small patches of peat at T1, T2, and T4, with a depth of c. 0.8m, 0.25m, and 0.3mm respectively. The application estimates that the amount of peat to be excavated stands at roughly 4,351m^3. I note that the Applicant's carbon calculation makes explicit reference to this, including the type of peatland which would be removed, its average depth on the site, its dry content by weight, and the estimated carbon

accumulation attributed by bog plants. [See Appendix 11A of the EIAR for further details.]

Potential Effects

21.7. The EIAR identifies the potential for a range of environmental effects on climate. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table C1 below:

Table C1: Summary of potential effects *(Climate)*

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	An opportunity to offset Greenhouse Gas Emissions (GHG) from fossil fuel-based energy sources would be lost. The proportion of Ireland's electricity mix through fossil fuel electricity generation would be higher, and this could jeopardise Ireland's ability to meet its long-term emissions reduction targets.
Construction Phase	*GHG Emissions* - Estimates of the required construction phase materials include: 167,592m³ granular material (some of which will be available form an onsite source), Steel reinforcement (2,882 tonnes), Precast concrete beams for bridge supports and joint bays along the grid connection route, and Concrete (35,586m³). - Clear felling of forestry and hedgerows required for accommodation works, turbine access tracks, hard standings and the substation. *Climate* - Consideration given to project vulnerability to climate impacts, including the risk of effects such as flooding, warm/cold weather events, storms. - Without mitigation, the impact from climate change on the proposed development during construction is assessed as adverse, not significant, temporary and direct.
Operational Phase	*Carbon Savings and Losses from the Wind Farm* - Once operational, the electricity generated by the wind farm will displace electricity which would otherwise have been produced by fossil fuels. - Carbon loss due to the manufacturing of wind turbines and other components required for the operational phase. However, carbon savings would significantly outweigh this over time (see Appendix 11A). - The calculations show 86,046 of CO_2 equivalent losses over the 35-year lifespan. - However, the remaining 34 years of operation will mean the wind farm would be directly responsible for significant carbon saving. It will save approximately 87,956 tonnes CO2 per year with a total of 3,078,460 tonnes over the development lifetime. - Without mitigation, it is assessed there would be a long-term, moderate, positive effect. *Climate Change on the Proposed Development* *Flood Risk*

	- The proposed substation and majority of turbines are in Flood Zone C (low risk probability flooding). However, some turbines are in Flood Zone A/B where there is high to medium probability of flooding, prior to mitigation. The effects of flood risk are likely to be adverse, not significant, long term and direct. *Increased Temperature and Extreme Weather* - May lead to the temperature of certain materials increasing, thus, affecting their integrity and robustness. However, most materials have a wide service temperate range / tolerance meaning the effects would have a medium likelihood, with a negligible adverse effect, and would not be significant. *Overall* - Without mitigation, the overall effects of climate change is assessed as adverse, not significant, long term and direct.
Decommissioning Phase	The lifecycle assessment of turbines includes the decommissioning phase and payback period, which is estimated as 8 months. - The decommissioning plan will ensure that waste is diverted from landfill and recycled in line with the most recent, relevant guidelines at the time of decommissioning.
Cumulative Effects	Individual cumulative projects do not require separate GHG assessments since all emissions contribute to the same global receptor (IEMA 2020b). The proposed development would reduce fossil fuel use and, thus, over time lead to net emissions savings.

Mitigation

21.8. The EIAR includes a comprehensive and extensive range of mitigation and monitoring measures in relation to climate. The measures are clearly set out Section 11.4.4 of the EIAR. I note that the embodied carbon of materials and construction activities would be the primary source of climate impact associated with the construction phase. The main measures to reduce this impact are as follows:

Construction Phase

- The construction programme promotes reuse and recycling opportunities.
- The replacement, where feasible, of concrete containing Portland cement with an alternative low carbon substitute, as per the Climate Action Plan.
- A suitably competent contractor will be appointed to undertake waste audits, detailing resource recovery best practice and identifying materials which can be reused/recycled;
- Materials will be reused on site within the new build areas where possible;

- All plant and machinery will be well-maintained and inspected regularly.
- No idling of vehicle or machines onsite.

Decommissioning Phase

- The wind turbines are expected to have a lifespan of 35 years. Following end-of-life, the turbines may be replaced, subject to planning permission being obtained. Alternatively, the site may be fully decommissioned, with the exception of the electricity substation and site tracks and drainage.
- Turbine foundations will also likely remain in place (underground) and along with hardstands will be allowed to revegetate naturally. Leaving the turbine foundations and hardstands in-situ is a more environmentally prudent option.
- A detailed decommissioning plan will be agreed in advance of works taking place with the PA. The plan will include mitigation measures, as per the IEMA GHG Management Hierarchy (IEMA 2020b).

Residual Effects

21.9. Table 11-12 sets out the residual effects for climate for the construction and operational phases. In summary, no significant adverse residual effects are predicted during the construction, operation and decommissioning phases, subject to mitigation measures being applied. The overall climate impact for the project would likely be positive, in my opinion, as the wind farm would make a valuable contribution in the long-term in terms of helping Ireland meet its emission reduction targets, as set out in the Climate Action and Low Carbon Development (Amendment) Act, 2021.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

21.10. I have examined, analysed and evaluated Chapter 11 of the EIAR, all of the associated documentation and observations on file in respect of climate. I am satisfied that the key impacts in respect of the likely effects on climate as a consequence of the development have been identified. Observers raised a number of issues in respect of climate which I address below.

Carbon Footprint

21.11. Several observations raise concerns that the proposed development may potentially lead to an increased carbon footprint and GHG emissions from

related concrete production, increased traffic volumes (mainly works phase), clearance of vegetation, and various other construction activities.

21.12. In assessing this issue, the Commission will be aware that the entire life cycle of the project must be considered and assessed in terms of its overall lifespan for embodied carbon, operational carbon savings, decommissioning, and the site restoration phase. This information is set out in Chapters 10 and 11 of the EIAR.

21.13. I note also that the Applicant clearly acknowledges that concrete, steel, and other materials (e.g., fibreglass, carbon fibre, iron, etc) will be used in building the wind farm facility and lead to the release of embodied carbon during the manufacturing and construction phase. These materials are explicitly identified in Section 11.4.1 ('Assessment of Impacts', 'Construction Phase') and Table 11-10 ('Source and Construction Phase Embodied Emissions'). They are also taken into the account in the carbon calculations set out in Appendix 11A of the EIAR. I accept that such materials are, by their nature, carbon intensive. However, they are required for structural integrity, safety, durability, and to help ensure that the project can reach its intended end-of-life cycle. They are therefore a critical and fundamental requirement for a development of this type.

21.14. The methodology employed is predicated on the document entitled 'Calculating Carbon Savings from Wind Farms on Scottish Peat Lands (University of Aberdeen and the Macauley Institute 2008)' and 'Wind Farms and Carbon Savings (Scottish Natural Heritage, 2003)'. This 'carbon calculator' is primarily used by the Scottish Government but is also recognised as best practice here in Ireland in the absence of other formalised guidance.

21.15. The calculations indicate that an initial carbon cost would be borne by the project, which would be typically expected for largescale developments of this type. However, this would be quickly offset, soon after the project becomes operational, once it begins to produce clean, emissions' free energy – which would be the case for several decades post-construction. It is not uncommon for wind farms to save millions of tonnes of carbon dioxide each

year, notwithstanding the upfront impact and carbon toll incurred by the earlier manufacturing and construction works phase.

21.16. I note that GHG emissions through the loss c. 14.4ha of forestry and 1,578m of hedgerow have been included in EIAR calculations. There is also an estimated peat volume of roughly 4,351m^3 proposed to be dug out and excavated near the northeastern corner of the site. The total embodied emissions for the construction phase equate to 21,413.9 tonnes CO2eq – or, put differently, 0.003% of the Ireland's 2030 GHG emissions budget for its total annualised embodied carbon emissions.

21.17. The project has an output capacity of 76MW and an expected electricity production of c. 233 GWh per annum. The lifecycle payback period is estimated at 0.8 years. And while these figures may vary somewhat with the potential omission of turbines from the project – as ultimately recommended by this report – what is not in doubt, in my opinion, is that the upfront carbon used in the initial stages of the project would be significantly outweighed by the millions of tonnes of emissions saved once the wind farm has commenced operation.

21.18. I am also satisfied that the EIAR includes adequate mitigation in terms of construction phase emissions and that embodied carbon materials are addressed within this chapter of the EIAR (Chapter 11). The measures include optimisation of material quantities by detailed design, the reuse of excavated materials onsite, sourcing of materials locally, where possible, to reduce transport emissions, a range of efficient construction management practices and minimising waste generation by adherence to best practice procedures.

21.19. In summary, I do not agree with the contention that the EIAR is predicated on carbon accounting which relies on inaccurate assumptions or that the application has somehow underestimated the likely overall emissions which would be generated by the proposal. I consider the methodology employed by the Applicant to be robust, compliant with relevant guidance, and that it provides a reasonable estimate of the potential (and positive) climate impacts associated with the proposed development.

Wind Resource

21.20. Some submissions argue that site is in an area with poor access to wind energy resources, and that this raises a concern over the renewable energy credentials of the project.

21.21. I note that the EIAR confirms that the site is in area of the country where the predicted mean wind speeds at the proposed development are approximately 7.5 – 7.6m/s. This information is shown on the Sustainable Energy Authority of Ireland's (SEAI) Wind Atlas. [The Irish Wind Atlas is produced by SEAI and illustrates average wind speeds for the overall country. It is therefore a useful tool in determining and predicting energy potential for new wind farm installations.]

21.22. I note that SEAI guidance states that open and clear sites with an average wind speed of 8m/s or more at 80m above ground are ideal for wind farms. Therefore, the subject site has slightly less, but still favourable, wind conditions. And while 8 m/s remains the optimum baseline, modern wind turbine technology has opened up 'less windy' sites for development allowing for strong energy production to be attained.

21.23. I note also that the proposed wind farm site is in a location designated as 'Preferred Area' for wind energy under the County Development Plan (Map 9.1 of the CDP 'Wind Energy Locations'). Objective CAF O30 of the CDP is also relevant in this regard. It seeks *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' (emphasis added).

21.24. Given the relatively open and clear nature of the landscape, the existing use of the land (mainly agriculture), and the comparatively good wind speeds which are available, it is considered that the proposed development is consistent with Section 9.4 of the CDP ('renewable energy') and that the proposed development has strong renewable energy potential.

21.25. In addition to this, I note that whilst a consistently high average wind speed is an important consideration in selecting a location for a wind farm, a developer

must consider other relevant site suitability criteria when determining the viability of such projects. This includes, for example, proximity/access to the grid, compliance with planning policy, avoidance of environmentally sensitive sites and designations (e.g., European Sites), proximity to residential dwellings, site access and local road infrastructure, the receiving landscape and factors relating to visual impact, amongst other criteria.

21.26. Therefore, wind speed alone is not the only consideration, and a holistic, multi-criteria assessment is required to ensure the long-term viability and suitability of a site for new wind farms. In this regard, I note that the Applicant has duly undertaken a thorough 'site selection and alternatives considered' review as part of the EIA process, as required by the EIA Directive.

Conclusion: Direct and Indirect Effects

21.27. In summary, I have considered this chapter and the submissions relating to climate. I am satisfied that potential effects would be avoided, managed, and mitigated by the measures forming part of the proposed development and through suitable site conditions. Having regard to my examination of environmental information, as set out above, I am satisfied that there would not be any significant adverse direct, indirect or cumulative effects, that the proposed development would have a positive effect on climate, and would deliver a net reduction in greenhouse gas emissions over its operational lifetime.

22.0 Major Accidents and Emergencies

Issues Raised

22.1. The Observers raised concerns in relation operational and mechanical risks (blade throw, fires and oil leakage) and in relation to the proximity of the proposed development to a high pressure GNI pipeline.

Examination of the EIAR

Context

22.2. The EIAR does not provide a specific Chapter dealing with 'Major Accidents & Emergencies', rather this environmental topic is addressed across EIAR

Chapters 8 (Land & Soils), 9 (Water), 11 (Climate), 16 Material Assets (Traffic & Transport) and 17 Material Assets (Built Services & Utilities).

Baseline

22.3. The EIAR relies on the baseline environmental as described in the aforesaid EIAR environmental topic chapters, primarily as set out in Section 8.3 of EIAR Chapter 8 (Land & Soils). Of note, there are no licenced waste facilities or historic landfills on or within the immediate environs of the site, and there are no IPCC licences granted within or near the wind farm site. There is no recorded landslide within or in proximity to the site and the GSI Landslide Susceptibility Map classifies the area as ‘”low” and “low (inferred)”. In terms of geohazards there are no karstic features or faults at the wind farm site.

Potential Effects

22.4. An assessment of the vulnerability of the proposed development in relation to major accidents and disasters, and the likelihood of the proposed development o cause an increased risk of major accidents and disasters is set out in Section 8.4.6 of EIAR Chapter 8. Examples of major accidents which are considered to have potential to significantly impact on the proposed development include fire, explosion, traffic collisions, contamination and pollution. Examples of natural disasters include earthquakes, flooding, tsunamis, lighting strikes, hurricanes or any other extreme event. The potential increased risk of such events occurring as a result of climate change, sauch as sea-level rise and increased occurrence of extreme weather events was also considered.

22.5. A scoping exercise determined that a detailed Peat Landslide Hazard and Risk Assessment was not required for the site (the peat risk ranking is zero). A detailed Flood Risk Assessment (FRA) (EIAR, Vol. III, Appendix 9D) was carried out to identify the fluvial flooding risk from the Morningstar River and its tributaries. This included a hydraulic model to predict flood extents and levels at this site which informed mitigation by design to reduce the level of risk to the development. This included the design flood level for the substation (0.1% AEP MRFS flood level plus 500mm freeboard), for the 17no. turbines (1% AEP MRFS flood level plus 300mm freeboard), conveyance measures along access roads, with design heights that allow extreme exceedance flood events to pass over.

22.6. Section 8.4.6 of EIAR Chapter 8 concludes that there is a low risk for the proposed development to cause a major accident or disaster and no increased risk to the development from a major accident or disaster.

22.7. Section 16.9 of EIAR Chapter 16 (Material Assets – Traffic & Transport) considers the risk of major accidents and disasters as a result of traffic volumes generated by the proposed construction works. This section concludes that the risk of collisions will be minimised by the Traffic Management Plan, with the risk occurrence low and the significance of any effect imperceptible.

22.8. Section 17.7 of EIAR Chapter 17 (Material Assets - Built Services & Utilities) considers the risk of major accidents which could have significant adverse effects on the environment associated with gas infrastructure, the electricity grid, aviation and telecommunications. The EIAR acknowledges a high pressure GNI pipeline which crosses both the northern and southern sections of the PDS. It confirms that GNI have been consulted and that all works in proximity to pipelines will be undertaken in strict compliance with GNI requirements, set back distances will be maintained, crossing works will be supervised ensuring that the risk of accidental strike or leakage is minimised. In terms of the electricity grid works will be carried out in accordance with ESB protocols by authorised personnel in compliance with HSA and ESB safety codes eliminating the risk of electrocution or grid disruption. In terms of Aviation, the site is not within a designated airport safeguarding zone and is not of a height or nature likely to pose a risk to aviation safety. No significant effects are predicted. There are no critical broadband or telecommunications assets within the development footprint and scoping consultation with providers did not identify any issues.

Mitigation

22.9. Section 8.5.5. of EIAR Chapter 8 addresses mitigation of the risk of major accidents and disasters. It states that incidents such as landslides or technological disasters can result in liabilities such as contaminated soil, loss of infrastructure and loss of life and that proactive risk management reduces the potential for an incident to occur. Risk management measures are included in the CEMP (EIAR, Vol.III, Appendix 2A) which sets out an Emergency Response Procedure to be adopted in the event of an emergency including contamination,

health and safety and environmental protection. Otherwise, mitigation against the risk of major accidents and/or disasters is embedded through the design.

22.10. The applicant proposes to manage the traffic associated with the proposed development by means of a TMP (Appendix 16A) to mitigate the risk to public safety and/or of major accident or collision.

Residual Effects

22.11. As no significant effects are predicted it is concluded that there will be no significant residual effects as a result of the proposed development or its vulnerability to risks of major accidents and/or natural disasters.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

22.12. I have examined, analysed and evaluated EIAR Chapters 8, 9, 10, 11, 16 and 17, all associated documentation and observations on file in the context of Major Accidents and Natural Disasters. I am satisfied that the subject development does not give rise to the risk of significant environmental effects because of its vulnerability to major accidents or natural disasters. The development site is stable, with zero predicted risk of landslide and flood risk can be managed. The risk of lighting is low and turbines are removed from nearest residential receptors. Risk of fire and electrical faults are low and can be managed by on site arrangements to comply with health & safety through the CEMP and specifically the site safety emergency plan and emergency response plan (EMP12).

22.13. In relation to the safety concerns raised in relation to the high pressure GNI gas pipeline I can confirm that both GNI and the HSA were consulted in the statutory consultation process. GNI provided a statutory response dated 6th March 2026 which confirms that it has no comment or objection to the proposed development and recommending a condition requiring advance liaison with GNI and compliance with GNI & HSA Code of Practice documents. In response the applicant confirms its acceptance of these conditions. The HSA (09/03/2026) confirmed that the proposed development was outside of its regulations and it has no observations to make.

Conclusion: Direct and Indirect Effects (Major Accidents and Natural Disaster)

22.14. Having regard to the aforesaid, I am satisfied that no significant adverse environmental effects will arise from the proposed development or its vulnerability to risks of major accidents and/or natural disaster.

23.0 Environmental Topic – Interaction of Effects

Issues Raised

23.1. No issues were raised in respect of interaction of effects.

Examination of the EIAR

Context

23.2. Chapters 5 to 17 of the EIAR identify the potential significant environmental effects that may occur in relation to the respective environmental topics, this includes the interactions between specific environmental aspects and effects which is already addressed within each of the individual environmental topic chapters of the EIAR. Chapter 18 evaluates the potential interaction of impacts. Chapter 19 sets out a Schedule of Mitigation Measures. The methodology is described in Section 18.1.1.

23.3. A summary matrix of interactions is provided in Table 18-1.

Potential Effects

23.4. In terms of population and human health there is potential for construction stage interactions with other aspects such as traffic and transport, water, air quality, noise and vibration. The interactive effects are predicted to be short term and insignificant. At operational stage there is potential for some long-term interactions with landscape and visual effects, shadow flicker, noise and vibration with effects assessed as long term and insignificant.

23.5. In terms of biodiversity there is potential for construction stage interactions with other aspects such as land and soils, water, air quality, traffic and transport, noise and vibration with effects assessed as short term and insignificant. There are no predicted interactive effects at operational stage. In terms of ornithology there is potential for construction stage interactions with other aspects such as traffic and transport, water, noise and vibration with the overall significance

assessed as minor and not significant. At operational stage potential interactions with biodiversity and water quality are considered minor and not significant.

23.6. Otherwise, the main potential for construction stage impacts is between land and soils, water, air quality, archaeology and cultural heritage. At operational stage the main potential for other interactive effects is between landscape and visual with archaeology and cultural heritage and shadow flicker. The significance of the interaction of effects ranges from insignificant and not significant to moderate.

23.7. No potential significant adverse effects are identified as a result of interactions between effects and no additional mitigation measures are proposed.

Residual Effects

23.8. No significant residual effects are identified as a consequence of the interaction of environmental factors.

Analysis, Evaluation and Assessment: Direct and Indirect (Effects)

23.9. I have examined, analysed and evaluated Chapter 18 of the EIAR. I am satisfied that the main interactions have been identified and assessed and that there is no potential for any significant, direct, indirect or cumulative effects arising from the interaction of impacts, effects or environmental factors as a result of the proposed development.

Conclusion: Direct and Indirect Effects

23.10. Having regard to the foregoing, I am satisfied that no significant adverse direct, indirect or cumulative environmental effects will arise from the interaction of impacts.

24.0 **Reasoned Conclusions**

24.1. Having regard to the examination of environmental information contained above, and in particular to the EIAR and the submission of the Planning Authority, prescribed bodies and observers in the course of the application, it is considered that the main significant direct and indirect effects on the proposed development on the environment, with the implementation of proposed mitigation measures are:

Population and Human Health & Noise:

- A **temporary significant (noise) effect** during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable.

Biodiversity

- A **short term significant residual effect** at a local geographic scale as a result of habitat loss until such times as the newly planted and translocated habitats (Areas 2, 4 & 5) in the HSMP are established (1-5 & 5-10 years). This will be mitigated by the omission of turbines T1 to T5 in the northern section of the site, however short-term significant residual effects at a local geographic scale will remain. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing planning permission and is acceptable.

Ornithology

- A **significant mortality effect** on Whooper Swan as a result of collision risk associated with turbines T1 to T5 (Inc) in the northern section of the site as a result of their location in currently favoured feeding areas of the Lough Gur population. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative, inadequately investigated and over reliant on other reactive

mitigation measures contrary to best practice. This effect can be avoided and the collision risk eliminated by the omission of said turbines T1 to T5 (Inc).

- A **significant displacement effect** on Whooper Swan as a result of the location of turbines T1 to T5 in currently favoured feedings areas associated with the Loug Gur population and unknown displacement responses into new feedings areas. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative, inadequately investigated and over reliant on other reactive mitigation measures contrary to best practice. This effect can be avoided by the omission of said turbines T1 to T5.

Landscape & Visual

- A **significant indirect cultural visual effect** on Dromin Graveyard and Church Ruins (Recorded Monument (LI039-079002 & li039-079001) as presented by VP10. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

Archaeology and Cultural Heritage

- A **significant direct effect on recorded and unrecorded archaeology** associated with Turbine T1 as a result of its location within the midst of a cluster of five barrow sites (LI031-151001, LI031-151002, LI031-151003, LI031-151004 & LI031-151005) and possible barrow cemetery as part of a prehistoric ritual landscape which could include further barrow sites and other burial or ritual features. Given the density of archaeological sites, their proximity to T1 and the likelihood of other unrecorded features, it is not considered that archaeological heritage can be protected and preserved in situ by the proposed mitigation

measures including post consent archaeological geophysical survey and/or test excavation. This effect can be avoided by the omission of T1.

- **Significant indirect cultural visual effects** on recorded monuments which are open to the public within 1km of the proposed development site. These effects will be mitigated somewhat by the lowland nature of the landscape and intervening screening features (built and natural) however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable**.**

25.0 **Appropriate Assessment**

Screening Determination

Significant Effects Cannot be Excluded

25.1. In accordance with Section 177U of the Planning and Development Act 2000 (as amended) and on the basis of the information considered in this AA screening, I conclude that it is not possible to exclude that the proposed development alone will give rise to significant effects on the Lower River Shannon SAC (Site Code: 002165) and the River Shannon and River Fergus Estuaries SPA (Site Code: 004077) in view of the sites conservation objectives and a number of qualifying interests of those sites. It is therefore determined that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act, 2000 (as amended)] of the proposed development is required.

Appropriate Assessment Conclusion: Integrity Test

25.2. In screening the need for Appropriate Assessment, it was determined that the proposed development could result in significant effects on Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA

(004077) in view of the conservation objectives of those sites and that Appropriate Assessment under the provisions of S177U was required.

25.3. Following an examination, analysis and evaluation of the NIS, all associated material submitted, and taking into account observations on nature conservation, I consider that adverse effects on site integrity of the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects.

25.4. My conclusion is based on the following:

- Detailed assessment of construction, operational and decommissioning impacts.
- The respective site-specific conservation objectives, targets, attributes, QI's and SCI's of the respective European Sites as detailed and assessed in my Stage 2 AA as appended to this report (Appendix B).
- The proposed development will not affect the attainment of conservation objectives for the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077), or prevent or delay the restoration of favourable conservation condition for Coastal lagoons [1150], Atlantic Salt Meadows [1330], Mediterranean salt meadows [1410], Salicornia and other annuals colonising mud and sand [1310], Sea lamprey [1095] and Otter [1355] of the Lower River Shannon SAC (Site Code: 002165).
- Effectiveness of embedded project design and mitigation measures proposed in relation to water quality, the spread of invasive species, displacement and disturbance (Otter) which are primarily captured within the CEMP which will govern the construction of the project under the supervision of an appropriately qualified Ecological Clerk of Works.

26.0 **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.

DRAFT ORDER

Reasons and Considerations

The Commission 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 Commission had regard to the following:

European, national, regional and local planning, energy, climate and other policy of relevance, including in particular the following:

European Policy/Legislation including**:**

- 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 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 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 Policy and Guidance 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.
- Project Ireland 2040: National Planning Framework ("NPF"), First Revision of the NPF;
- National Development Plan 2021-2030
- The objectives and targets of the National Biodiversity Action Plan 2023-2030;
- Policy Statement on Security of Electricity Supply (November 2021);
- Wind Energy Guidelines: Guidelines for Planning Authorities 2006 and the draft guidelines published in 2019.

Regional and Local Planning Policy, including in particular:

- Regional Spatial Economic Strategy for the Southern Region 2020-2032;
- Limerick Development Plan 2022-2028 (As Varied);

- Other relevant national policy and guidance documents.
- The location, nature, scale and layout of the proposed development.
- The pattern of development within the area and context of the receiving environment.
- 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 range of mitigation measures set out in the Environmental Impact Assessment Report.
- The range of mitigation measures set out in the Natura Impact Statement.
- Measures proposed for the construction, operation and decommissioning of the development.
- The submissions and observations received in relation to the application.

- The Inspector's report and recommendation, including the examination, analysis and evaluation undertaken in relation to appropriate assessment and environmental impact assessment.

Appropriate Assessment Stage 1 Screening Determination

The Commission considered the Screening Report for Appropriate Assessment, the Natura Impact Statement and all the other relevant submissions and carried out both an appropriate assessment screening exercise and an appropriate assessment in relation to the potential effects of the proposed development on designated European Sites. The Commission agreed with and adopted the screening assessment and conclusion carried out in the Inspector's Report that the following European Sites in respect of which the proposed development has the potential to have a significant effect are Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) in view of those sites conservation objectives.

Appropriate Assessment Stage 2 Conclusion

The Commission considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the submissions and observations on file, and the Inspector's assessment. The Commission completed and appropriate assessment of the implications of the proposed development for the European sites for which potential to have a significant effect had been identified, in view of the site's conservation objectives. The Commission considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Commission considered, in particular, the following:

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

In completing the Appropriate Assessment, the Commission 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 conclusions, the Commission was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites Conservation Objectives.

Environmental Impact Assessment

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

- The nature, scale and extent of the proposed development,
- The environmental impact assessment report and associated documentation submitted in support of the application,
- The submissions from the Planning Authority, prescribed bodies and observers, and
- The Inspector's Report.

The Commission considered the environmental impact assessment report adequately considers alternatives to the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment.

The Commission agreed with the examination, set out in the Inspector's Report , of the information contained in the environmental impact assessment report and submissions made in the course of the application.

The Commission considered, and agreed with the Inspectors reasoned conclusions, that the main significant direct and indirect effects of the proposed development on the environment are as follows:

Population and Human Health & Noise:

- A **temporary significant (noise) effect** during standard daytime working hours as a result of peak construction stage delivery traffic at nearby residential noise sensitive receptors. This effect will be mitigated somewhat by the limited one-week duration of peak delivery traffic and general noise control, reduction and abatement measures in accordance with BS5228, however significant residual

effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing permission for the development and is acceptable.

Biodiversity

- A **short term significant residual effect** at a local geographic scale as a result of habitat loss until such times as the newly planted and translocated habitats (Area 2, 4 & 5) in the HSMP are established (1-5 & 5-10 years). This will be mitigated by the omission of turbines T1 to T5 in the northern section of the site, however short-term significant residual effects at a local geographic scale will remain. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that this temporary effect is not sufficient to warrant refusing planning permission and is acceptable.

Ornithology

- A **significant mortality effect** on Whooper Swan as a result of collision risk associated with turbines T1 to T5 (Inc) in the northern section of the site as a result of their location in currently favoured feeding areas of the Lough Gur population. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative, inadequately investigated and over reliant on other reactive mitigation measures contrary to best practice. This effect can be avoided and the collision risk eliminated by the omission of said turbines T1 to T5 (Inc).
- A **significant displacement effect** on Whooper Swan as a result of the location of turbines T1 to T5 in currently favoured feedings areas associated with the Loug Gur population and unknown displacement responses into new feedings areas. It is not considered that this effect can be mitigated by the implementation of the Whooper Swan Management Area (WSMA), which is speculative,

inadequately investigated and over reliant on other reactive mitigation measures contrary to best practice. This effect can be avoided by the omission of said turbines T1 to T5.

Landscape & Visual

- A **significant indirect cultural visual effect** on Dromin Graveyard and Church Ruins (Recorded Monument (LI039-079002 & li039-079001) as presented by VP10. Notwithstanding this, having regard to the pressing national need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

Archaeology and Cultural Heritage

- A **significant direct effect on recorded and unrecorded archaeology** associated with Turbine T01 as a result of its location within the midst of a cluster of five barrow sites (LI031-151001, LI031-151002, LI031-151003, LI031-151004 & LI031-151005) and possible barrow cemetery as part of a prehistoric ritual landscape which could include further barrow sites and other burial or ritual features. Given the density of archaeological sites, their proximity to T1 and the likelihood of other unrecorded features, it is not considered that archaeological heritage can be protected and preserved in situ by the proposed mitigation measures including post consent archaeological geophysical survey and/or test excavation. This effect can be avoided by the omission of T1.

- **Significant indirect cultural visual effects** on recorded monuments which are open to the public within 1km of the proposed development site. These effects will be mitigated somewhat by the lowland nature of the landscape and intervening screening features (built and natural) however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to

dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable**.**

The Commission completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed, as set out in the Environmental Impact Assessment Report, and, subject to compliance with the conditions set out herein, the effects on the environment of the proposed development by itself and cumulatively with other development in the vicinity would be acceptable. In doing so the Commission adopted the report and conclusions of the reporting Inspector.

Proper Planning and Sustainable Development

It is considered that, subject to the material contraventions and compliance with the conditions set out below, the proposed development would be in accordance with European, national, and regional renewable energy policies and with the provisions of the Limerick Development Plan 2022-2028 (As Varied) and would be consistent with the obligations of the Climate Action Plan 2024 and 2025. It would not seriously injure the visual or residential amenities of the area or otherwise of property in the vicinity or have an unacceptable impact on the character of the landscape, would not have a significant adverse impact on ecology, biodiversity, hydrology or hydrogeology, would be acceptable in terms of traffic impacts and 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 Commission noted that the Development Management Standards set out in Section 11.7.2.1 of the Limerick Development Plan, 2022-2028 (as varied) (“LDP”) 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 fixed night-time noise limit not exceeding 43dB(A). The LDP has a lower fixed noise limit for night-time noise not exceeding 38dB(A) L_{90} or 5dB(A) above background noise levels, whichever is the greater.

As such the proposed development can be considered to comprise a material contravention of the LDP given that the predicted operational noise levels of the proposed development will not accord with the development management standards of the LDP. However, the noise levels will comply with the night-time levels set out in WEDG 2006 which is the appropriate Section 29 Ministerial Guidelines for windfarm developments.

The Commission also noted the provisions of Objective EH O39 of the LDP in relation to the protection of the setting of archaeological monuments which states that it is an objective of the Council to ensure that no development shall have a negative impact on the character or setting of an archaeological monument. The Commission agreed with the Inspectors reasoned conclusions, that the main significant direct and indirect effects of the proposed development on the environment included a significant indirect cultural visual effect on Dromin Graveyard and Church Ruins (Recorded Monument (LI039-079002 & li039-079001) as presented by VP10, and significant indirect cultural visual effects on recorded monuments which are open to the public within 1km of the proposed development site.

As such the proposed development can also be considered to comprise a material contravention of the LDP given that the main significant direct and indirect effects of the proposed development will have a negative impact on the character and setting of archaeological monuments.

The Commission 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*.'

The Commission also noted that the LDP supports the development of renewable energy in the County, under renewable energy 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."*

And 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'."*

On the basis of the above, and noting the conclusions reached in the Inspectors report that the proposed development is located in a 'preferred area' for wind energy, accords with the proper planning and sustainable development and that environmental effects would be acceptable, the Commission was satisfied that, notwithstanding the material contraventions in relation to noise contained in the Development Management Standards, Section 11.7.2.1 of the LDP, and in relation to archaeological monuments contained in Objective EH O39 of the LDP, it is appropriate for the Commission 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 LDP as well as national and regional policy support for onshore wind energy, and the obligations placed on the Commission under Section 15 of the Climate Action and Low Carbon Development Act, 2015, as amended. In conclusion on this matter, the Commission was satisfied that the proposed development is of strategic and national importance and is in accordance with the proper planning and sustainable development for the area.

27.0 **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.a Turbines referenced as T1 to T5 (Inclusive), together with associated hardstands and access tracks and the Whooper Swan Management Area (WSMA) – (*Area 1 of the Habitat & Species Management Plan (HSMP)*) in the northern section of the proposed development, shall be omitted from the development hereby permitted.

For clarity, the permitted wind farm shall relate to twelve wind turbines only (T6 - T17, all infrastructure in the southern section of the proposed development site and Borrow Pit No.1, the associated Temporary Deposition Area, the GCR and Areas 2-5 (inclusive) of the Habitat and Species Management Plan (HSMP) in the northern section of the proposed development site (and the necessary access arrangements serving same)).

b. 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 Whooper Swan (T1-T5 (inc)) and to safeguard and preserve recorded and unrecorded archaeology (T1).

3. The extraction of rock, aggregate or associated materials from the borrow pits and/or turbine foundations shall be carried out by excavation, breaking or ripping only. Blasting or the use of explosives is not permitted.

Reason: In the interests of clarity.

4. 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 – 160m/150 (T6 only)
- Hub Height – 92m/82m (T6 only)
- Rotor Diameter – 136m

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.

5. 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.

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 Natura Impact Statement (NIS) shall be implemented.

Reason: To protect the integrity of European sites.

8. The mitigation measures contained in the submitted Environmental Impact Assessment Report (EIAR) shall be implemented.

Reason: To protect the environment.

9. In advance of commencement the applicant shall submit to the planning authority a complete schedule of all mitigation measures. This shall identify who is responsible for the implementation of these measures and a timescale for implementation. The schedule of mitigation measures shall include the following additional requirements for agreement with the planning authority:

a. Pre-construction checks of all potential bat roost features (trees to be felled) within the proposed development site in the form of endoscope surveys.

b. The requirements of Condition No.10.

c. The requirements of Condition No. 20.b and 20.c

d. The Construction and Environmental Management Plan (CEMP) shall be updated to include the location of any and all archaeological or cultural heritage constraints identified in EIAR Chapter 15 or in the archaeological investigations required by Conditions No. 21 and 22 of this Order. The CEMP shall clearly describe all identified likely archaeological impacts (direct and indirect) and all mitigation measures during all phases of site preparation and construction activity.

Reason: To protect the environment and the integrity of European sites.

10. A 10metre wide strip of land running parallel to the main channels C1/31 and a 5 metre wide strip of land running parallel to the channels C1/31/4, C1/31/4/2/1, C1/31/5, CI/31/6, C1,31/1/1, CI/31/5/1, C1/31/5/1/4, CI/31/5/1/3, C1/31/5/1/2, C1/31/5/1/1 and C1/31/7 shall be provided to facilitate access and maintenance activities by the Office of Public Works. These areas shall be accessible to mechanical plant and should not be landscaped, paved or otherwise developed in a manner that would prevent access.

Reason: To cater for orderly development and prevent flooding.

11. The applicant shall notify Gas Networks Ireland prior to the commencement of any site works. All works shall be carried out in full compliance with the Gas Networks Ireland Code of Practice for Working in the Vicinity of the

Transmission Network and the Health & Safety Authority Code of Practice for Avoiding Danger from Underground Services.

Reason: To cater for orderly development, in the interests of public safety and to mitigate the risk of a major accident.

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 existing noise sensitive locations, shall not exceed:

- For the daytime period 7am to 11pm, in quiet environments, where background noise is less than 30dB(A)L90 T10, a maximum noise level of 40dB(A)L90 T10,
- For the daytime period 7am to 11pm, 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 11pm to 7am, 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 Complaints Protocol which outlines procedures to be followed in the event of a justified* complaint relating to noise from the windfarm. The NCMP shall include a detailed methodology for all sound measurements including analysis for Tonal and Amplitude Modulation (AM) characteristics.

Reason: In order to protect the amenities of existing noise sensitive properties in the vicinity of the development.

*(Note - *A justified complaint would typically relate to a noise that, on their review, the relevant Planning Authority considers likely to be sufficiently audible or significant, and attributable to the specific wind farm under consideration - ARWTN, 2026)*

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.a Prior to the commencement of development a Stage 1/2 Road Safety Audit, in compliance with the TII Publication 'Road Safety Audit GE-STY-01024' shall be submitted for the written approval of the Planning Authority. The Audit shall consider the proposed development site, grid connection route and turbine delivery route.

b. Upon completion of the development and prior to the wind farm coming into full operation a Stage 3 Road Safety Audit shall be submitted for the written agreement of the Planning Authority. The RSA shall be in compliance with the TII Publication 'Road Safety Audit GE-SIT-01024'. The Audit Team shall be independent in line with the standard.

Reason: In the interests of traffic safety.

15.a. Prior to the commencement of development the applicant shall submit a pavement condition survey of all haulage/delivery route(s), incorporating a report on any structures (i.e. bridges and culverts), for the written agreement of the Planning Authority.

b. A post condition survey of the haulage route shall be submitted for the written agreement of the Planning Authority upon completion of the development and prior to the wind farm coming into full operation.

c. At all site entrances the area between the new realigned front boundary and the road edge shall be excavated and backfilled with 200mm of clean stone, 150mm of compacted Clause 804 or similar granular material and sealed.

d. No surface water shall be allowed to discharge onto adjoining properties or the public road.

Reason: To cater for orderly development and in the interests of traffic safety.

16. Upon completion of the development and prior to the wind farm coming into full operation, certification shall be submitted from suitably qualified consulting engineers, that the surface water/SUDs has been constructed in accordance with the design specification.

Reason: To cater for orderly development, prevent flooding and protect water quality.

17. Site development 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.

18. 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. There shall be no stacking of vehicles on the R516 Regional Road or local roads;

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 culvert and river crossings.

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.**

19. Prior to the commencement of any works associated with the development hereby permitted, the developer shall submit an updated 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, temporary parking areas, 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.

20.a. 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.

b. Prior to the commencement of the development, the applicant shall submit for the written agreement of the Planning Authority, in consultation with Uisce Éireann, a Downstream Drinking Water Protection Plan. This plan shall identify the River Maigue abstraction at Adare Water Treatment Plan as a sensitive receptor and demonstrate how the proposed construction stage will not give rise to a deterioration in water quality and shall include liaison arrangements with the Adare Water Treatment Plant in the event of a potential risk to water supply.

c. The CEMP and SWMP shall be updated prior to the commencement of development to include the downstream River Maigue abstraction at Adare Water Treatment Plant as a sensitive receptor and Uisce Éireann shall be added to the list of authorities in Section 7.2 of the CEMP to be notified in the event of an environmental incident.

Reason: To protect the public water and wastewater facilities.

21.a. Prior to the commencement of development 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. In advance of any site preparation works or groundworks, including site investigation works/topsoil stripping/site clearance and/or construction works the developer shall submit an archaeological impact assessment report for the written agreement of the planning authority, following consultation with the Department of Housing, Local Government and Heritage (DHLGH).

b. The Archaeological Geophysical Survey shall be carried out under licence or consent from National Monuments Service (as applies) and in accordance with an approved method statement. Having completed the work, the archaeologist shall submit a written report to the Department of Housing, Local Government and Heritage and the Planning Authority describing the results of the Archaeological Geophysical Survey.

c. The archaeologist shall liaise with the Department of Housing, Local Government and Heritage 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.

d. 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, reservation in-situ, preservation by record (archaeological excavation) and/or monitoring may be required.

e. Any further archaeological mitigation requirements specified by the planning authority, following consultation with the Department of Housing, Local Government and Heritage, shall be complied with by the developer.

f. 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.

Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.

22.a. A suitably qualified archaeologist shall be retained to advise on and establish appropriate Exclusion Zones around the external-most elements of vulnerable Heritage Assets located within the development site (as identified in Chapter

14 of the EIAR or by any subsequent investigations associated with the project).

b. 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 Department of Housing, Local Government and Heritage and the planning authority.

c. 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.

Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.

23. 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 14 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.

Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.

24. The planning authority and the Department of Housing, Local Government and Heritage 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.

25.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 in WGS-84 format 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.

26. 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.

27. 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.

28. 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.

29. 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

30. 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.

Paul Kelly
Senior Planning Inspector
9th September 2026

Appendix 1: AA Screening Determination
Test for likely significant effects (ACP-323780-25)

Screening for Appropriate Assessment Test for likely significant effects	
Step 1: Description of the project and local site characteristics **Case File: ACP-323780-25**	
Brief description of project	Strategic (Windfarm) Infrastructure Development – Application for approval under Section 37E of the PDA, 2000 (as amended). The application is subject to the provisions of the RED III Directive (EU/2023/2413). A 10-year permission and an operational period of no less than 35-years from the date of overall commissioning of the entire wind farm is sought for the construction of 17no. turbines with a tip height of 160m and 160m (T6 only), 1no. permanent Met Mast (92m height), 1 no. on site electrical substation (110kV) and Grid Connection over a route of 27.7km connecting to the existing Kilonan 220/110kV substation. See Section 3.0 of the Inspectors Report.
Brief description of development site characteristics and potential impact mechanisms	The site comprises privately owned property, the majority of which is managed for agriculture at varying levels of intensity with hedgerows and drainage ditches throughout. There are some tracts of commercial forestry within the site and on adjacent and nearby lands. The topography of the site is generally flat at 53m OD. No peat is mapped on the GSI maps, but a small area was noted in the northeastern corner during site investigations. The PDS contains an extensive drainage network which directs and channels surface runoff into a series of slow-moving low-gradient streams which ultimately discharge to the Morningstar River. The system is interconnected with the River Maigue network. The subject site has an overall area of 255ha. The nearest European sites include Glen Bog SAC (Site Code: 001430), which is approx. 5km to the NE and Tory Hill SAC (Site Code: 00439) which is approx.

	9km to the NW. The PDS has a weak hydrological connection to the River Shannon SAC (Site Code: 002165)[97] and the River Shannon and River Fergus Estuaries SPA (Site Code:004077)[98]. The main impact mechanisms are sediment and/or hydrocarbon contamination and water quality impacts.
Screening report	Yes. Prepared by Woodrow (APEM Group)
Natura Impact Statement	Yes. Prepared by Woodrow (APEM Group)
Relevant submissions	Observers raised concerns in relation to proximity to Lough Gur (pNHA), downstream hydrological impacts on Lower River Shannon SAC, River Blackwater SAC and SPA's including the River Blackwater SPA. Potential impacts on Atlantic Salmon and Bats were mentioned in the submissions. A concern was also raised that the GCR was not considered in the applicants AA Screening Report or NIS. The DHLGH did not make a submission in respect of nature conservation. The Local Authority questioned the absence of reference to the Whooper Swan Management Area in the NIS mitigation measures and otherwise opined that the recommended mitigation measures (in the NIS) should be included as a condition of permission and that pre-construction surveys for otter and amphibians are essential.

Additional Information: N/A

Step 2. Identification of relevant European sites using the Source-pathway-receptor model

The applicants Appropriate Assessment Screening Report (AASR) identified a Zone of Influence (ZOI) for the proposed development based on a Source-Pathway-Receptor (SPR) model. Methodology followed DoEHLG (2010), CIEEM (2018) and OPR (2021) guidance. A precautionary approach was followed. The criteria used to identify potential pathways is set out in Section 2.2.1 of the AASR and includes catchment data, groundwater and bedrock information, air and land connectivity and the key indicators used to assess the potential for significant effects included loss or alteration of habitat, habitat/species fragmentation, disturbance and/or displacement, changes in population density and changes in water quality and resource. The ecological baseline was informed by a desk study which considered the resources listed in Section 2.1.1 and site visits which included the field surveys (habitats, mammals, birds, aquatic ecology) listed in Section 2.1.2. In-combination effects were considered and no limitations were encountered.

[97] c.24.2rkm and 5.3rkm (GCR)
[98] c.36.9rkm and 12.6rkm (GCR)

This process resulted in the identification of 5 no. European Sites with potential connectivity to the proposed development and includes the 4 Special Areas of Conservation (SACs) and 1 Special Protection Areas (SPA) identified in Table 1 of the AASR. Of these 5no. sites the following SACs were screened out for further consideration on the basis that there is no ecological, hydrological or landscape connectivity between these SACs and the proposed development:

- Glen Bog SAC (Site Code 001430). This site is c5km to the east of the proposed development site (PDS) and c2.3km east of the GCR.
- Tory Hill SAC (Site Code 000439). This site is c7.6km northwest of the PDS and c8km northwest of the GCR.
- Ballyhoura Mountains SAC (Site Code 002036). This site is c13.7km south of the PDS and c18.1km south of the GCR.

I am satisfied that the sites excluded from further consideration in the applicants AASR is reasonable on the basis that there is no pathway for effects and no ecological justification for their further consideration having regard to their Qualifying Interests (QI). These sites are designated for QI habitats: Alluvial Forests, grasslands and scrublands, orchid sites, fens and wet and dry heaths. In the absence of ecological or hydraulic connectivity I am satisfied that there is no potential for landscape connectivity over the stated separation distances given the nature of the emissions associated with the proposed development and including dust.

The following SAC and SPA were screened in for further consideration on the basis of the likely significant effects (LSE) identified in Table 2:

- Lower River Shannon SAC (Site Code 002165) on the basis of water quality, habitat loss, habitat reduction, disturbance and mortality effects as a result of a (weak) hydrological connection. This site is c24.2rkm (river kilometers) from the PDS and c5.3rkm from the GCR.
- River Shannon and River Fergus Estuaries SPA (004077) on the basis of water quality changes as a result of a (weak) hydrological connection. This site is c36.9rkm from the PDS and c12.6rkm from the GCR.

I note that the applicant considers that the hydrological link between the PDS and these sites is ‘weak’ and has brought these sites forward for further consideration on the basis of the precautionary principle.

Otherwise, I note that the applicant does not consider the following sites to fall within the ZOI of the PDS: Curraghchase Woods SAC (Site Code:000174), Askeaton Fen Complex SAC (Site Code: 002279), Barrigone SAC (Site Code: 000432), Moanour Mountain SAC (Site Code: 002257), Carrigeenamronety Hill SAC (002307), Blackwater River (Cork/Waterford) SAC (Site Code: 002170), Galtee Mountains SAC (Site Code: 000646), and Slievefelim to Silvermines Mountains SPA (Site Code: 004165). These sites range from 16km to 31km from the PDS and at this distance and in the absence of any ecological connection or pathway for effects I am satisfied that there is no ecological reasons for their consideration in AA Screening.

I am satisfied that there are no other sites with any possible ecological connection or pathway to the proposed development site. Whilst observers raised a concern in relation to the Blackwater River (Cork/Waterford) SAC (002170), this site is 15km south of the PDS at its nearest point and is not hydrologically connected to this river system or its tributaries. The Blackwater Callows SPA

(004094) is 40km to the SE of the PDS and there is no ecological connection with this site. I am satisfied that there is no ecological justification for the further consideration of these sites.

European Site (code)	**Qualifying interests[1] Link to conservation objectives (NPWS, date)**	**Distance from proposed development (km)**	**Ecological connections[2]**	**Consider further in screening[3] Y/N**
Lower River Shannon SAC (002165)	▪ Freshwater Pearl Mussel [1029], ▪ Sea Lamprey [1095], ▪ Brook Lamprey [1096], ▪ River Lamprey [1099], ▪ Atlantic Salmon (only in fresh water) [1106], ▪ Sandbanks which are slightly covered by sea water all the time [1110], ▪ Estuaries [1130], ▪ Mudflats and sandflats not covered by seawater at low tide [1140], ▪ *Coastal lagoons [1150], ▪ Large shallow inlets and bays [1160], ▪ Reefs [1170], ▪ Perennial vegetation of stony banks [1220], ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], ▪ Salicornia and other annuals colonizing mud and sand [1310], ▪ Atlantic salt meadows [1330], ▪ Bottlenose Dolphin [1349], ▪ Otter [1355], ▪ Mediterranean salt meadows [1410], ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260], ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils [6410], ▪ *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* [91E0].	c. 24.2 rkm from the PDS c.5.3 rkm from the GCR	Weak hydrological connection between the PDS and this European site via the River Maigue network over a hydrological distance of 24.2 rkm. The GCR also intersects four hydrologically connected watercourses and extends to within 190m of the River Groody at its point of termination (5.3rkm upstream of the SAC).	**Yes.**

	** indicates a priority habitat under the Habitats Directive.* https://www.npws.ie/protected-sites/sac/002165 NPWS August 2012			
River Shannon and River Fergus Estuaries SPA (004077)	▪ Cormorant (breeding + wintering) [A017], ▪ Whooper Swan (wintering) [A038], ▪ Light-bellied Brent Goose (wintering) [A046], ▪ Shelduck (wintering) [A048], ▪ Wigeon (wintering) [A855], ▪ Teal (wintering) [A052], ▪ Pintail (wintering) [A054], ▪ Shoveler (wintering) [A857], ▪ Scaup (wintering) [A062], ▪ Ringed Plover (wintering) [A137], ▪ Golden Plover (wintering) [A140], ▪ Grey Plover (wintering) [A141], ▪ Lapwing (wintering) [A142], ▪ Knot (wintering) [A143], ▪ Dunlin (wintering) [A149], ▪ Black-tailed Godwit (wintering) [A156], ▪ Bar-tailed Godwit (wintering) [A157], ▪ Curlew (wintering) [A160], ▪ Redshank (wintering) [A162], ▪ Greenshank (wintering) [A164], ▪ Black-headed Gull (wintering) [A179], ▪ Wetlands and Waterbirds [A999]. https://www.npws.ie/protected-sites/spa/004077 NPWS September 2012	c.36.9 rkm from the PDS. c.12.6 rkm from the GCR.	Weak hydrological connection between the PDS and this European site via the River Maigue network over a hydrological distance of 36.9 rkm. The GCR also intersects four hydrologically connected watercourses and extends to within 190m of the River Groody at its point of termination (12.6 rkm upstream of the SAC).	**Yes.**
Step 3. Describe the likely effects of the project (if any, alone <u>or</u> in combination) on European Sites				

The proposed development site and the GCR are hydrologically linked to the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. This connection is indirect via the River Maigue network and ranges over an upstream rkm[99] distance of 24.2 rkm to 36.9 rkm for the PDS and 5.3 rkm to 12.6rkm for the GCR. The potential impacts generated by construction and operation of the wind farm include impacts on habitats & species as a result of a degradation in water quality associated with a pollution/contamination event and disturbance/displacement effects (otter).

Sources of impact and likely significant effects are detailed in the Table below.

AA Screening matrix

Site name Qualifying interests	**Possibility of significant effects (alone) in view of the conservation objectives of the site***	
	Impacts	**Effects**
Lower River Shannon SAC (002165) ▪ Freshwater Pearl Mussel [1029], ▪ Sea Lamprey [1095], ▪ Brook Lamprey [1096], ▪ River Lamprey [1099], ▪ Atlantic Salmon (only in fresh water) [1106], ▪ Sandbanks which are slightly covered by sea water all the time [1110], ▪ Estuaries [1130], ▪ Mudflats and sandflats not covered by seawater at low tide [1140], ▪ *Coastal lagoons [1150], ▪ Large shallow inlets and bays [1160], ▪ Reefs [1170], ▪ Perennial vegetation of stony banks [1220], ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], ▪ Salicornia and other annuals colonizing mud and sand [1310], ▪ Atlantic salt meadows [1330], ▪ Bottlenose Dolphin [1349],	Direct: The terrestrial ranges for Otter can also extend outside of SAC boundaries and this species was recorded during field surveys in the Morningstar River. There is potential for direct effects on this QI species during construction and from increased human activity. Indirect: The PDS is hydrologically connected to this SAC via the Maigue River network, which includes drain locations, watercourses and the Morningstar River. There is potential therefore for indirect impacts on the SAC and its QI habitats and species (aquatic interests) as a result of pollution of watercourses with suspended solids (silt, sediment), nutrients and hydrocarbons primarily during construction works and/or the spread of invasive species.	Potential for effects on QI habitats, or suitable habitats for QI species, via a deterioration in water quality leading to habitat loss, degradation and/or reduction. Potential for effects on aquatic QI species, Otter and their supporting habitats via a deterioration in water quality leading to mortality or population reduction. Potential for ex-situ mortality, disturbance or displacement effects on QI Species Otter.

[99] River Kilometres

▪ Otter [1355], ▪ Mediterranean salt meadows [1410], ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260], ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils [6410], ▪ *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* [91E0]. * *indicates a priority habitat under the Habitats Directive.*		
	Likelihood of significant effects from proposed development (alone): **Yes.**	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? **N/A**	
River Shannon and River Fergus Estuaries SPA (004077) ▪ Cormorant (breeding + wintering) [A017], ▪ Whooper Swan (wintering) [A038], ▪ Light-bellied Brent Goose (wintering) [A046], ▪ Shelduck (wintering) [A048], ▪ Wigeon (wintering) [A855], ▪ Teal (wintering) [A052], ▪ Pintail (wintering) [A054], ▪ Shoveler (wintering) [A857], ▪ Scaup (wintering) [A062], ▪ Ringed Plover (wintering) [A137], ▪ Golden Plover (wintering) [A140],	Direct: None. Indirect: The PDS is hydrologically connected to this SPA via the Maigue River network, which includes drain locations, watercourses and the Morningstar River. There is potential therefore for indirect impacts on the SPA, its SCI species and supporting habitats as a result of pollution of watercourses via suspended solids (silt, sediment), nutrients and hydrocarbons primarily during construction works.	Potential for effects on SCI species, or suitable habitats for SCI species including food sources, via a deterioration in water quality leading to a reduction in prey abundance and reproductive impairments.

▪ Grey Plover (wintering) [A141], ▪ Lapwing (wintering) [A142], ▪ Knot (wintering) [A143], ▪ Dunlin (wintering) [A149], ▪ Black-tailed Godwit (wintering) [A156], ▪ Bar-tailed Godwit (wintering) [A157], ▪ Curlew (wintering) [A160], ▪ Redshank (wintering) [A162], ▪ Greenshank (wintering) [A164], ▪ Black-headed Gull (wintering) [A179], ▪ Wetlands and Waterbirds [A999].		
	Likelihood of significant effects from proposed development (alone): **Yes.**	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? **N/A**	

Additional Comments

I have sought input in this case from an external independent Ornithologist, Natural Research (Projects) Ltd who have produced a technical report (May 2026) which provides a technical note on Ornithology to inform the Appropriate Assessment process ("NRAA Report"). This technical note considers only potential effects of the proposed development on the River Shannon and River Fergus Estuaries SPA. The report finds that the Applicants AASR contains information on the nature, size and location of the Proposed Development, all infrastructure elements and the likely effects during all phases of the proposal, the SPR model used and the sensitivities of the ecological receptors. With this information it is satisfied that the Applicant has correctly identified the potential for significant effects upon one European Site and that Appropriate Assessment is required. The findings of the NRAA Report support the findings of the Applicants AASR and my own findings in relation to the River Shannon and River Fergus Estuaries SPA (004077). The NRAA Report is appended in full as Appendix C to this report.

Lough Gur is a proposed National Heritage Area (NHA), and whilst observers raised concerns in relation to potential adverse impacts, it is not a European site and it is not considered in the AA process. Bats are also not a QI of a European Site which has been screened for Stage 2 AA, and therefore this matter is addressed in the Biodiversity Section of my EIA.

The Local Authority raised AA concerns in relation to the Whooper Swan, however the Whooper Swan population in this case is a non-designated population associated with Lough Gur (NHA). It is not an SCI of an SPA screened in for further consideration in this Stage 2 AA process and it is therefore addressed in the Ornithology section of my EIA.

I am satisfied that the GCR was considered in the applicants AASR and this is clearly evident throughout the AASR in the 'receiving environment', 'identification of European Sites', Table 1 (potential connectivity) and Table 2 (assessment of likely significant effects).
Step 4 Conclude if the proposed development could result in likely significant effects on a European site
Based on the information provided in the screening report, site visit, review of conservation objectives and supporting documents, I consider that in the absence of mitigation measures beyond best practice construction methods, the proposed development has the potential to result in significant effects on the Lower River Shannon SAC (002165) and the River Shannon and River Fergus Estuaries SPA (004077). Therefore, I conclude that it is not possible to exclude the possibility that proposed development alone would result significant effects on the Lower River Shannon SAC (002165) and the River Shannon and River Fergus Estuaries SPA (004077) from effects associated with a deterioration in water quality, disturbance or displacement. An appropriate assessment is required on the basis of the possible effects of the project 'alone'. Further assessment in combination with other plans and projects is not required at screening stage.

Screening Determination
Significant effects cannot be excluded

In accordance with Section 177U of the Planning and Development Act 2000 (as amended) and on the basis of the information considered in this AA screening, I conclude that it is not possible to exclude that the proposed development alone will give rise to significant effects on the Lower River Shannon SAC (002165) and the River Shannon and River Fergus Estuaries SPA (004077) in view of the sites conservation objectives and a number of qualifying interests of those sites.

It is therefore determined that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act, 2000 (as amended)] of the proposed development is required.

Paul Kelly
Senior Planning Inspector
9th September 2026

Appendix 2: Appropriate Assessment (ACP-323780-25)

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

Taking account of the preceding screening determination, the following is an appropriate assessment of the implications of the proposed wind farm development in view of the relevant conservation objectives of on Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) based on scientific information provided by the applicant.

The information relied upon includes the following:

- Natura Impact Statement, September 2025 prepared by Woodrow APEM Group Ltd.
- EIAR Prepared by Woodrow (APEM Group)
- I have sought input in this case from an external independent Ornithologist, Natural Research (Projects) Ltd who have produced a technical report (May 2026) which provides a technical note on Ornithology to inform the Appropriate Assessment process ("NRAA Report"). The NRAA Report is appended in full as Appendix C to this report.

I am satisfied that the information provided is adequate to allow for Appropriate Assessment. I am satisfied that all aspects of the project which could result in significant effects are considered and assessed in the updated NIS and mitigation measures designed to avoid or reduce any adverse effects on site integrity are included and assessed for effectiveness.

Submissions/observations

Observers raised concerns in relation to proximity to Lough Gur (pNHA), downstream hydrological impacts on Lower River Shannon SAC, River Blackwater SAC and SPA's including the River Blackwater SPA. Potential impacts on Atlantic Salmon and Bats were mentioned in the submissions. A concern was also raised that the GCR was not considered in the applicants AA Screening Report or NIS. Lough Gur is a proposed National Heritage Area, therefore it is not a European site and it is not considered in the AA process. Bats are not a QI of a European Site which has been screened for Stage 2 AA, and therefore this matter is addressed in the Biodiversity Section of my EIA. The River Blackwater SAC and SPA were screened out for further consideration for the reasons given in my Stage 1 AA Screening Report. I am satisfied that the GCR was considered in the applicants AASR and NIS, together with the TDR.

The **DHLGH** did not make any comments in relation to nature conservation.

Limerick City and County Council

The Local Authority questioned the absence of reference to the Whooper Swan Management Area in the NIS mitigation measures and otherwise opined that the recommended mitigation measures (in the NIS) should be included as a condition of permission and that pre-construction surveys for otter and amphibians are essential. The Whooper Swan population in this case is a non-designated population associated with Lough Gur. It is not an SCI of an SPA screened in for further consideration in this Stage 2 AA process and it is therefore addressed in the Ornithology section of my EIA.

Lower River Shannon SAC (002165):

Summary of Key issues that could give rise to adverse effects (from screening stage):

i. **Potential for effects on QI habitats, or suitable habitats for QI species, via a deterioration in water quality leading to habitat loss, degradation and/or reduction.**

ii. **Potential for effects on aquatic QI species, Otter and their supporting habitats via a deterioration in water quality leading to mortality or population reduction.**

iii. **Potential for ex-situ disturbance or displacement effects on QI Species Otter**

See Section 5 and Table 1 of the NIS

Qualifying Interest features likely to be affected	**Conservation Objectives** Targets and attributes (summary)	**Potential adverse effects**	**Mitigation measures** (summary) Section 6.3 and Table 2 of the NIS.
Brook Lamprey *(Lampetra planer) [1096]*	To maintain the favourable conservation condition of Brook Lamprey in the Lower River Shannon SAC Access to all watercourses down to first order streams, at least 3 age/size groups present, mean catchment juvenile density at least 2/m2, no decline in extent and distribution of spawning beds, and more than 50% sample sites positive.	Direct: None Indirect: Long-term deterioration in water quality could reduce the extent and quality of burrowing habitat, ultimately affecting recruitment and population viability. Species recorded in watercourses within ZOI. Tributaries generally exhibited degraded conditions with elevated nutrients and low dissolved oxygen. A further deterioration would adversely affect juvenile survival.	Construction Phase water quality measures as set out in Section 6.3.1.1 of the NIS and included in the CEMP (Appendix 2A) and SWMP (Appendix 2E). Operational Phase water quality measures as set out in Section 6.3.2.1 of the NIS.
River Lamprey *(Lampetra fluviatilis) [1099]*	To maintain the favourable conservation condition of River Lamprey in the Lower River Shannon SAC Access to all watercourses down to	Indirect. As above (for Brook Lamprey).	As above.

	first order streams, at least 3 age/size groups present, mean catchment juvenile density at least 2/m2, no decline in extent and distribution of spawning beds, and more than 50% sample sites positive.		
Sea Lamprey (*Petromyzon marinus) [1095]*	To restore the favourable conservation condition of Sea Lamprey in the Lower River Shannon SAC Distribution greater than 75% of main stem length of rivers accessible from estuary, at least 3 age/size groups present, juvenile density at least 1/m2, no decline in extent and distribution of spawning beds, and more than 505 of sample sites positive.	Indirect. As above (for Brook Lamprey).	As above.
Atlantic Salmon *Salmo salar (only in fresh water*) *[1106]*	To restore the favourable conservation condition of Salmon in the Lower River Shannon SAC 100% of river channels down to second order accessible from estuary, conservation limit for each system consistently exceeded, maintain or exceed 0+ fry mean catchment-wide abundance threshold value, no significant decline in out migrating smolt abundance, no decline in number	Indirect: High levels of suspended solids can affect the feeding and health of individual species affecting the composition of riverbed substrate reducing fry survival and abundance. Nutrients that can result in eutrophication and reduced dissolved oxygen can adversely affect all life stages of Salmon. Small amounts of debris entering a section of river important for vulnerable like stages of Salmon can have deleterious effects	As above.

	and distribution of spawning redds due to anthropogenic causes, and at least Q4 at all sites sampled by EPA.	on the survival of juveniles. Species recorded in watercourses within ZOI. Tributaries generally exhibited degraded conditions with elevated nutrients and low dissolved oxygen. A further deterioration would adversely affect juvenile survival.	
Otter *(Lutra lutra) [1355]*	To restore the favourable conservation condition of Otter in the Lower River Shannon SAC No significant decline in distribution, terrestrial habitat, marine habitat, freshwater habitat, lake/lagoon habitat, couching sites and holts, fish biomass available and no significant increase in barriers to connectivity.	Direct: Water quality impacts and construction activities could temporarily reduce the availability of riparian habitat, reduce available territory or hinder habitat connectivity for otter. Indirect: a fish kill as a result of an extreme pollution event could have a deleterious effect on otter by reducing fish biomass and overall prey availability. PAHs that persist in water and sediment at toxic levels may biomagnify through the food web potentially leading to sub-lethal effects in Otter.	As above for Water Quality. Construction Phase Otter Protection measures as set out in Section 6.3.1.2 of the NIS and included in the CEMP (Appendix 2A). Operational Phase Otter Protection measures as set out in Section 6.3.2.1 of the NIS.
Bottlenose Dolphin *(Tursiops truncatus) [1349]*	To maintain the favourable conservation condition of Bottlenose Dolphin in the Lower River Shannon SAC Species range should not be restricted by artificial barriers, critical areas should be maintained in a	Indirect: In the event of an extreme and uncontrolled release, a hydrocarbon spill could reach the estuary and persist in estuarine waters at acute or chronically toxic levels. Impacts could include reduced prey availability and potential sub-lethal	As above for Water Quality.

	natural condition, and human activities should occur at levels that do not adversely affect the bottle nose dolphin population at the site.	effects via biomagnification.	
Estuaries *[1130]*	To maintain the favourable conservation condition of Estuaries in the Lower River Shannon SAC Permanent habitat area stable or increasing, specified intertidal and subtidal community types conserved in a natural condition.	Indirect: Potential water quality impacts could include increases in suspended sediment, nutrient enrichment and hydrocarbon contamination. This could alter the dynamism of the estuaries, promote colonization and spread of negative indicator species or further alter plant community dynamics promoting the dominance of hardier species.	As above for Water Quality.
Mudflats and sandflats not covered by seawater at low tide *[1140]*	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Lower River Shannon SAC Permanent habitat area stable or increasing, specified intertidal community types conserved in a natural condition.	Indirect: An extreme and uncontrolled event may result in nutrient enriched runoff indirectly altering saltmarsh and mudflat habitats in the estuaries through macroalgal growth.	As above for Water Quality.
*Coastal lagoons *[1150]*	To restore the favourable conservation condition of Coastal lagoons in the Lower River Shannon SAC Area stable, no decline in distribution,	As above for Estuaries.	As above for Water Quality.

	salinity & hydrological regime and water quality within natural ranges, appropriate hydrological connections, Macrophyte colonisation to maximum depth of lagoons, maintain plant & animal species and negative indicator species under control.		
Reefs [1170]	To maintain the favourable conservation condition of Reefs in the Lower River Shannon SAC Distribution of reefs stable, permanent habitat area stable, specified intertidal and subtidal community types conserved in a natural condition	As above for Estuaries.	As above for Water Quality.
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae) [1330]*	To restore the favourable conservation condition of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in the Lower River Shannon SAC Habitat area stable or increasing, no decline or change in habitat distribution, maintain natural circulation of sediments and organic matter, maintain creek and pan structure, maintain natural tidal regime, maintain range of coastal habitats inc.	As above for Mudflats and Sandflats.	As above for Water Quality.

	transitional zones, maintain structural variation within sward, maintain more than 90% of saltmarsh area vegetated, maintain range of sub-communities, and no significant expansion of common cordgrass.		
Mediterranean salt meadows *(Juncetalia maritimi) [1410]*	To restore the favourable conservation condition of Mediterranean salt meadows (Juncetalia maritimi) in the Lower River Shannon SAC. Habitat area increasing, no decline or change in distribution, maintain natural circulation of sediments and organic matter, maintain/restore creek and pan structure, maintain natural tidal regime, maintain range of coastal habitats inc. transitional zones, maintain structural variation within sward, maintain more than 90% of area outside creeks vegetated, maintain range of sub-communities with typical species, and no significant expansion of cordgrass.	As above for Mudflats and Sandflats.	As above for Water Quality.
Salicornia and other annuals colonizing mud and sand *[1310]*	To maintain the favourable conservation condition of	As above for Mudflats and Sandflats.	As above for Water Quality.

	Salicornia and other annuals colonizing mud and sand in the Lower River Shannon SAC Area stable or increasing, no decline or change in distribution, physical and vegetation structure maintained, no significant expansion of common cordgrass.		
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation *[3260]*	To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the Lower River Shannon SAC. Habitat area stable or increasing, no decline in distribution, maintain appropriate hydrological, natural tidal and freshwater seepage regimes, the substratum should be dominated by the particle size ranges appropriate to the habitat sub-type, concentration of nutrients in water column should be sufficiently low to prevent changes in species composition or habitat condition, typical species of the relevant habitat sub-type should be present and in good condition, area of active floodplain at	Direct: A significant pollution event could introduce excessive levels of sediment and associated nutrients promoting algal growth and more tolerant macrophytes, ultimately reducing habitat area, altering vegetation composition, and diminishing habitat range. Habitat Quality could be negatively impacted by the spread of invasive plant species.	As above for Water Quality. Construction Phase Invasive Alien Plant Species measures as set out in Section 6.3.1.3 of the NIS and included in the CEMP (Appendix 2A) and SWMP (Appendix 2E). Operational Phase water quality measures as set out in Section 6.3.2.1 of the NIS.

	and upstream of habitat should be maintained, and area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained.		
Other QI's	**Not at Risk**	**Rationale for Exclusion:**	
Freshwater Pearl Mussel (*Margaritifera margaritifera) [1029]*	To restore the favourable conservation condition of Freshwater Pearl Mussel in the Lower River Shannon SAC	Reason for exclusion not specified by the applicant. However, I note that the SSCO for this species applies to the Cloon River, Co. Clare only (Map. 15 of SSCO document refers). The project has no hydrological connectivity with the Cloon River population and therefore there is no pathway for effects.	
*Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae) [91E0]*	To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the Lower River Shannon SAC.	The Reason for exclusion is not specified by the applicant. However, I note that the CO Supporting Document for this habitat states that the principal communities within this SAC are small, narrow stands upstream of Limerick and in the upper reaches of tributaries. The proposed development is located 25km south of Limerick and there is no pathway for effects.	
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) *[6410]*	To maintain the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae) in the Lower River Shannon SAC.	Not specified by the applicant. I note that these habitats occur by the freshwater rivers Shannon, Fergus, Feale, Mulkear, Kilmastulla and Cloon River. These rivers are either not hydrologically connected to the PDS, or include habitats located significantly up stream (such as Worldsend, R. Shannon) and therefore I am satisfied that there is no pathway for effects.	
Perennial vegetation of stony banks *[1220]*	To maintain the favourable conservation condition of Perennial vegetation of stony	Not specified by the applicant. I note from the SSCO Supporting Document (*Coastal Habitats*) that this habitat is found at or above the mean high water spring tide on shingle beaches. They are mostly affected by marine processes and human disturbance. The current extent of habitat is	

	banks in the Lower River Shannon SAC.	unmapped and unknown however the distribution of shingle beaches is presented in Appendix I. They are at the outer mouth of the estuary with the closest c.75km from the PDS. I am satisfied that there is no ecological risk or pathway for effects.
Vegetated sea cliffs of the Atlantic and Baltic coasts *[1230]*	To maintain the favourable conservation condition of Vegetated sea cliffs in the Lower River Shannon SAC	Not specified by the applicant. The distribution of this habitat is shown on a map in Appendix XIII of the SSCO Supporting Document (*Coastal Habitats*) and they are concentrated at the mouth of the Shannon. The closest is approx. 55km from the PDS with the majority >75km from the PDS. I am satisfied that there is no ecological risk or pathway for effects.
Sandbanks which are slightly covered by sea water all the time *[1110]*	To maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time in the Lower River Shannon SAC	Not specified by the applicant. The distribution of this habitat is shown on a map (Fig.4) of the SSCO Supporting Document (Marine *Habitats*). The closest is >75km from the PDS. I am satisfied that there is no ecological risk or pathway for effects.
Large shallow inlets and bays *[1160]*	To maintain the favourable conservation condition of Large shallow inlets and bays in the Lower River Shannon SAC	Not specified by the applicant. The distribution of this habitat is shown on a map (Fig.1) of the SSCO Supporting Document (Marine *Habitats*). The closest is >60km from the PDS. I am satisfied that there is no ecological risk or pathway for effects.

No other QIs were excluded in addition to those described as not at risk above.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

i. **Potential for effects on QI habitats, or suitable habitats for QI species, via a deterioration in water quality leading to habitat loss, degradation and/or reduction.**

ii. **Potential for effects on aquatic QI species, Otter and their supporting habitats via a deterioration in water quality leading to mortality or population reduction.**

In terms of Estuarine Habitats and Species, the freshwater reaches of the River Maigue transition to estuarine waters at the HWM at the boundary of this SAC c.24.2 rkm downstream of the PDS. The River Groody which runs c.190m adjacent to where the GCR terminates discharges into the SAC c. 5.3rkm downstream. In the absence of mitigation, potential water quality impacts in the estuary could

include increases in suspended sediment, nutrient enrichment and hydrocarbon contamination which could promote the colonization and spread of negative indicator species, alter plant community dynamics or promote macroalgal growth affecting QI (estuarine) habitats and reducing prey availability for QI species Bottlenose Dolphin. Given the weak hydrological connection, the likelihood of such effects manifesting is considered low. In terms of nutrients and hydrocarbons significant effects are considered unlikely unless in an extreme and uncontrolled event.

In terms of Freshwater Habitats and Species, the PDS contains an extensive drainage network that channels much of the surface run off into a series of 1st and 2nd order streams which discharge to the Morningstar River[100] which is a part of the wider River Maigue[101] network draining to a sub-estuary north of Adare. Field visits determined that the majority of streams draining the PDS are slow, low gradient stream dominated by poor or glide habitat with poor ecological conditions recorded apart from two sites on the Morningstar River which were moderate[102]. This broadly conforms with EPA Q value assessments (2023) and IFI data (2008-2021). Salmon and lamprey species were recorded at one site, upstream of the PDS. Suitable salmon spawning and nursery habitat was limited and observed upstream. Potential water quality impacts in the freshwater reaches upstream of the HWM include increased suspended solids, sedimentation, nutrient enrichment, hydrocarbons and water quality deterioration. A significant pollution event introducing excessive levels of sediment and associated nutrients could reduce QI habitat area, alter vegetation composition and diminish habitat range and habitat quality could be impacted by the spread of invasive plant species (*watercourses of plain to montane levels*). Severe pollution in the lower reaches of rivers can prevent upstream migration, kill downstream migrants and eliminate entire populations of QI species river lamprey. Fine sediment can compromise spawning redds and a long-term deterioration in water quality can reduce the extent and quality of burrowing habitat affecting recruitment and population viability. Similarly, QI species Atlantic Salmon require high levels of water quality to complete their life cycle and suspended solids can affect feeding and health and spawning redds. Small amounts of debris can affect habitat availability and quality and the survival of juveniles. Whilst tributaries generally exhibited degraded conditions, the presence of juvenile salmon and lamprey was confirmed, and any further deterioration could adversely affect juvenile survival of both species. The main potential water quality impacts for QI species Otter are associated with an extreme pollution event and indirect impacts such as a fish kill which could reduce fish biomass and overall prey availability with persistent PAHs potentially leading to sub-lethal effects. However, it is considered unlikely that the SAC population extents to the PDS or has functional connectivity with the local population.

Mitigation Measures and Conditions

The focus of the proposed mitigation measures is to prevent pollutants and silt/sediment, hydrocarbons etc entering surface waters and receiving watercourses. This is to be achieved via a detailed and comprehensive suite of integrated mitigation measures which are detailed in the NIS and within the project Construction and Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP). Measures are comprehensive and are summarised in Section 15 of my EIA in respect of Water and include:

- A site surface water management system to attenuate runoff, guard against erosion and safeguard downstream water quality and including the use of interceptor drains, swales, check dams, silt fences, silt traps, settlement ponds.
- Strict water quality protection and breakout prevention measures including sandbags, silt traps, 10m buffer from construction works, 50m buffer from watercourses, weather monitoring.

[100] EPA Code: IE_SH_24M020800
[101] EPA Code:IE_SH_24M010500
[102] Based on macroinvertebrate assemblages, EPA scheme and WFD intercalibration

- In terms of HDD only non-toxic biodegradable drilling fluids will be used, with bunded containment and sealed tanks for fluid returns, immediate spill response protocols and continuous monitoring.
- Deposition areas will be enclosed, with silt fencing and controlled with a SUDs. Controls include reseeding and cover for stripped areas, dewatering, cementitious waters and refuelling.

All mitigation measures are included in the CEMP and SWMP and will be supervised and managed by an Environmental Clerk of Works (ECoW). An Emergency Response Plan (ERP) is also included.

In terms of Invasive Species, measures are outlined in the Species and Habitat Management Plan (SHMP) and include method statements, wash-down and disinfection, checks, containment, treatment and/or disposal in line with best practice.

I am satisfied that this SAC was included on an ultra-precautionary basis and a very conservative position. In my opinion the risk to the SAC as a result of the proposed development is negligible associated with a weak hydrological connection between the PDS and this European site via the River Maigue network over a hydrological distance of 24.2 rkm. Whilst the GCR intersects four hydrologically connected watercourses and extends to within 190m of the River Groody at its point of termination it is also 5.3rkm upstream of the SAC at its closest point, and works are limited, contained within the existing road line and informed by method statements with HDD works using inert drilling fluids. I am satisfied that both use of the TDR itself and the minor accommodation works, have no potential for adverse effects.

I am satisfied that the preventative measures which are aimed at interrupting the source-pathway-receptor model are targeted at the key threats to QI habitats and Species, including in an extreme pollution event and/or accidental spillage, and that by arresting these pathways or reducing possible effects to a non-significant level, adverse effects can be prevented. I am satisfied that the measures proposed are adequate, practicable, conditionable and enforceable and will be effective in ensuring that the attributes required to maintain the favourable conservation condition of Estuaries [1130], Mudflats and Sandflats not covered by seawater at low tide [1140], Reefs [1170], Watercourses of plain to montane levels with the Rancunculion fluitantis [3260], Brook lamprey [1096], River lamprey [1099], Atlantic salmon [1106] and common Bottlenose Dolphin [1349] and to restore the favourable condition for Coastal lagoons [1150], Atlantic Salt Meadows [1330], Mediterranean salt meadows [1410], Salicornia and other annuals colonising mud and sand [1310], Sea lamprey [1095] and Otter [1355] will not be adversely affected and that the proposed development will not prevent or delay the attainment or maintenance of the conservation objectives.

iii. Potential for ex-situ disturbance or displacement effects on QI Species Otter

No holts or resting places were observed during site visits, but frequent otter activity was observed along the Morningstar River. It is noted that males can range up to 19.3km, particularly following the death of a conspecific but it is considered unlikely that the SAC population extends as far as the PDS given the hydrological distance of 24.2rkm and the extent of riparian habitat between the SAC and the PDS. Soil sealing or riparian habitat loss could reduce available territory whilst construction works may hinder habitat connectivity or result in disturbance.

Mitigation measures and conditions

Whilst ecological connectivity with the SAC population is considered unlikely due to the distances involved and extent of intervening river corridor habitat, mitigation measures are included on a precautionary basis. Measures include:

- Pre-construction surveys in accordance with TII guidance

- Where a holt is found, exclusion or timing restrictions will be implemented in consultation with NPWS
- No works within 150m of otter holts (if confirmed) with breeding females or cubs, no wheeled or tracked vehicles within 20m of active, non-breeding otter holts and no light works within 15m of active, non-breeding holts.
- Control of light spill and daylight working hours (primarily)
- 10m riparian buffers will protect habitat connectivity

As stated above I am satisfied that this SAC was included on an ultra-precautionary basis. I am satisfied that the location of the proposed development is not ecologically important to the SAC population given the hydrological separation distance, availability and extent of alternative suitable intervening riparian habitat. Having regard to same, the limited extent of project works which involve riparian habitat, and the findings of the baseline survey, it is considered that the proposed project will not result in any material reduction in otter habitat or loss of couching or resting sites. In relation to disturbance, otter is predominantly crepuscular in nature and it is anticipated that the daytime construction activities will minimise potential disturbance related impacts to this species, with any disturbance impacts short term in nature on the local population and mitigated with lighting controls.

I am satisfied that the measures proposed are adequate, practicable, conditionable and enforceable and will be effective in ensuring that the attributes required to restore the favourable condition for Otter will not be adversely affected and that the proposed development will not prevent or delay the attainment or maintenance of the conservation objectives.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the NIS (Section 7 refers). The proposed grid connection has been assessed as part of the overall project. Works associated with the TDR are minor with no potential to contribute to effects (significant or in-combination). It is considered that potential in-combination effects are limited to hydrological/geohydrological pathways and water quality impacts.

Projects with potential to result in in-combination effects are outlined in Table 3. This includes projects in close proximity to the River Maigue network and which are within c 30rkm of the SAC and areas downstream of the River Groody and existing windfarms within the same hydrological catchment. The NIS established that the likelihood of in-combination effects on this SAC is primarily associated with the Knockshavno, Ballycar and Oatfield windfarms on the northern side of the Shannon Estuary and the proposed Garrane Wind Farm. Where construction coincides, in the absence of best practice control and mitigation measures these wind farm projects have potential for in-combination effects on water quality within the estuary. When distance, mitigation measures and the potential to stagger construction phases is taken into account it is considered that any potential effect is slight and would not occur at a magnitude that could result in a perceptible impact.

Having regard to all of the above said I am satisfied that the potential in-combination effects have been robustly assessed in the NIS and that there is no potential for in-combination effects on the Lower River Shannon SAC.

Findings and conclusions

The applicant determined that following the implementation of mitigation measures the construction, operation and decommissioning of the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Lower River Shannon SAC. Impacts would be temporary in

nature and mitigation measures are described to prevent silt runoff, other construction related pollutants (Hydrocarbons, cementitious materials, HDD fluids), riparian habitat loss and disturbance. Pre-constructions surveys, supervision and monitoring measures are proposed. I am satisfied that the mitigation measures proposed to prevent such effects have been assessed as effective and can be implemented and conditioned if permission is granted.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site integrity

The proposed development will not affect the attainment of the Conservation Objectives of the Lower River Shannon SAC. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

River Shannon and River Fergus Estuaries SPA (004077):

Summary of Key issues that could give rise to adverse effects (from screening stage):

i. **Potential for effects on SCI species, or suitable habitats for SCI species including food sources, via a deterioration in water quality leading to a reduction in prey abundance and reproductive impairments.**

See Section 6.2 of the NIS

Qualifying Interest features likely to be affected	**Conservation Objectives** Targets and attributes (summary)	**Potential adverse effects**	**Mitigation measures** (summary) Section 6.3 of the NIS
Cormorant *(Phalacrocorax carbo) [A017]*	To maintain the favourable conservation condition of Cormorant in the River Shannon and River Fergus Estuaries SPA	Direct: None Indirect: The PDS is hydrologically connected to this SPA via the Maigue River network, which includes drain locations, watercourses and the Morningstar River. There is potential therefore for indirect impacts on the SPA, its SCI species and supporting habitats as a result of pollution of watercourses via suspended solids (silt, sediment), nutrients and hydrocarbons primarily during construction works.	Construction Phase water quality measures as set out in Section 6.3.1.1 of the NIS and included in the CEMP (Appendix 2A) and SWMP (Appendix 2E). Operational Phase water quality measures as set out in Section 6.3.2.1 of the NIS.

Whooper Swan *(Cygnus cygnus) [A038]*	To maintain the favourable conservation condition of Whooper Swan in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Light-bellied Brent Goose *(Branta bernicla hrota) [A046]*	To maintain the favourable conservation condition of Light-bellied Brent Goose in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Shelduck *(Tadorna tadorna) [A048]*	To maintain the favourable conservation condition of Shelduck in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Wigeon *(Anas penelope) [A050]*	To maintain the favourable conservation condition of Wigeon in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Teal *(Anas crecca) [A052*]	To maintain the favourable conservation condition of Teal in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Pintail *(Anas acuta) [A054]*	To maintain the favourable conservation condition of Pintail in the River Shannon and River	As above for Cormorant.	As above.

	Fergus Estuaries SPA.		
Shoveler *(Anas clypeata) [A056]*	To maintain the favourable conservation condition of Shoveler in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Scaup *(Aythya marila) [A062]*	To maintain the favourable conservation condition of Scaup in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Ringed Plover *(Charadrius hiaticula) [A137]*	To maintain the favourable conservation condition of Ringed Plover in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Golden Plover *(Pluvialis apricaria) [A140]*	To maintain the favourable conservation condition of Golden Plover in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Grey Plover *(Pluvialis squatarola) [A141]*	To maintain the favourable conservation condition of Grey Plover in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Lapwing *(Vanellus vanellus) [A142]*	To maintain the favourable conservation condition of Lapwing in the	As above for Cormorant.	As above.

	River Shannon and River Fergus Estuaries SPA.		
Knot (Calidris canutus) [A143]	To maintain the favourable conservation condition of Knot in the River Shannon and River Fergus Estuaries SPA	As above for Cormorant.	As above.
Dunlin (Calidris alpina) [A149]	To maintain the favourable conservation condition of Dunlin in the River Shannon and River Fergus Estuaries SPA	As above for Cormorant.	As above.
Black-Tailed Godwit (Limosa limosa) [A156]	To maintain the favourable conservation condition of Black-tailed Godwit in the River Shannon and River Fergus Estuaries SPA	As above for Cormorant.	As above.
Bar-tailed Godwit *(Limosa lapponica) [A157]*	To maintain the favourable conservation condition of Bar-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Curlew *(Numenius arquata) [A160]*	To maintain the favourable conservation condition of Curlew in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.

Redshank *(Tringa totanus) [A162]*	To maintain the favourable conservation condition of Redshank in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Greenshank *(Tringa nebularia) [A164]*	To maintain the favourable conservation condition of Greenshank in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Black-headed Gull *(Chroicocephalus ridibundus) [A179]*	To maintain the favourable conservation condition of Black-headed Gull in the River Shannon and River Fergus Estuaries SPA.	As above for Cormorant.	As above.
Wetlands and Waterbirds *[A999]*	To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	As above for Cormorant.	As above.
Other QI's	**Not at Risk**	**Rationale for Exclusion:**	
N/A. No QI species were excluded.			
No other QIs were excluded. The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.			

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

I have sought input in this case from an external independent Ornithologist, Natural Research (Projects) Ltd who have produced a technical report (May 2026) which provides a technical note on Ornithology to inform the Appropriate Assessment process ("NRAA Report"). I concur with the findings of the NRAA Report and therefore I am adopting same in the assessment section of this report, before providing my own findings and conclusions. The NRAA Report is appended in full as Appendix C to this report.

Section 14-16 of the NRAA report includes a summary of the NIS. It notes that the NIS focuses on potential impacts as a result of water quality impacts, particularly from sediment, hydrocarbons and contaminated runoff, considered most likely during construction and decommissioning, but also possible during the operational phase. Effects from airborne particles, disturbance and artificial light are discounted on the basis of distance. The potential effects on SCI species are assessed and focus mainly on impacts of water quality changes on feeding and roosting opportunities. Due to the distance between the proposed development and the SPA it was considered that there was no potential for any direct effects on SPA linked SCIs.

Mitigation Measures

Water Quality Mitigation Measures are as set out above for the Lower River Shannon SAC.

The NRAA notes that mitigation measures mainly focus on water quality protection measures to be implemented through all phases of the development due to the proximity of the Morningstar River and hydrological connection to the SPA with measures included in the CEMP, SWMP and EIAR Chapter 9. The NRAA specifically notes measures to protect watercourses from sediment and pollutants, avoidance of watercourses by vehicles, strict measures to be implemented during HDD with only non-toxic biodegradable drilling fluids used. Measures to avoid pollution incidents associated with cement trucks, refuelling, HDD break-out or frac-out are also noted together with measures to prevent the spread of invasive species.

The NRAA confirms that the NIS has provided adequate information regarding the baseline conditions and follows correct guidance and legislation to identify and evaluate impacts and determine their significance. It is satisfied that the proposed development will not directly affect any SCI of the SPA. It specifically notes that the project site sits well beyond the 5km threshold of the core winter foraging range for Whooper Swan[103] and confirms that the Whooper Swan population roosting at Lough Gur and feeding near the site is distinct from the SPA population. The NRAA Report finds that although certain SPA SCI species were recorded at the project site, these individuals are unlikely to belong to the SPA population and that regular connectivity with the PDS is highly improbable given the geographic separation of over 20km.

The NRAA Report considers that the mitigation measures proposed, including in the CEMP, will be effective in preventing sediment and pollutants reaching the SPA during all phases of the proposed development and that any adverse effects on the SCI species of the SPA and the integrity of the site, will be excluded.

In-combination effects

The NRAA Report addresses in-combination effects in Section 25 and 26. It considers that with mitigations measures in place, there is no potential for any other plan or project to adversely affect the integrity of the European Site in combination with the proposed development.

[103] SNH 2016

Findings and conclusions

Based on the information provided and otherwise available, I am satisfied that adverse effects arising from the proposed development can be excluded for the River Shannon and River Fergus Estuaries SPA.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site Integrity

The proposed development will not affect the attainment of the Conservation Objectives of the River Shannon and River Fergus Estuaries SPA. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Appropriate Assessment Conclusion: Integrity Test

In screening the need for Appropriate Assessment, it was determined that the proposed development could result in significant effects on Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) in view of the conservation objectives of those sites and that Appropriate Assessment under the provisions of S177U was required.

Following an examination, analysis and evaluation of the NIS, all associated material submitted, and taking into account observations on nature conservation, I consider that adverse effects on site integrity of the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077) can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects.

My conclusion is based on the following:

- Detailed assessment of construction, operational and decommissioning impacts.
- The respective site-specific conservation objectives, targets, attributes, QI's and SCI's of the respective European Sites as detailed and assessed in my Stage 2 AA as appended to this report (Appendix 2).
- The proposed development will not affect the attainment of conservation objectives for the Lower River Shannon SAC (002165) and River Shannon and River Fergus Estuaries SPA (004077), or prevent or delay the restoration of favourable conservation condition for Coastal lagoons [1150], Atlantic Salt Meadows [1330], Mediterranean salt meadows [1410], Salicornia and other annuals colonising mud and sand [1310], Sea lamprey [1095] and Otter [1355] of the Lower River Shannon SAC (Site Code: 002165).
- Effectiveness of embedded project design and mitigation measures proposed in relation to water quality, the spread of invasive species, displacement and disturbance (Otter) which are primarily captured within the CEMP which will govern the construction of the project under the supervision of an appropriately qualified Ecological Clerk of Works.

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Paul Kelly
Senior Planning Inspector
9th September 2026

Appendix A: Submissions received in respect of ACP-323780-25

1. Aaron & Pat O'Donnell
2. Adrian Barrett
3. Aidan and Michelle Lynch
4. Aidan and Tina Murphy
5. Aidan McCarthy
6. Aidan Moloney
7. Aine Barry
8. Aine Scanlan
9. Alice Fraher
10. Alice Hennessy
11. Alice Reynolds
12. Andrew Daly
13. Anna & Joe Shinnors
14. Anne & Aisling & Caragh O'donnell
15. Anne Marie O'Malley
16. Anne Marie O'Regan
17. Anne Riordan
18. Annemarie & Tommy Brady
19. Anthony and Bernadette Daly
20. Anthony O'Riordan
21. Aoife Gale
22. Athlacca National School
23. Audrey Cummins
24. Bette Browne
25. Breda Tierney
26. Brendan & Siobhan Meany
27. Brian and Siobhan Finn
28. Brian Dooley
29. Brian Thompson
30. Brian Tierney
31. Brid & Michael Foster
32. Brid O'Brien-May & Family
33. Bridie O'Shea
34. Brigid Hayes
35. Bruff GAA Club co Maura Finn
36. Bruff Grange Meanus Community Council CLG
37. Bruff_Dromin_Athlacca_Ballinlee Community_Action_Group
38. Bruree Charleville Effin Wind Farm Action Group
39. Carol O'Riordan
40. Casey Nyhan
41. Cathal Mac Gerailt & Noelle Heffernan
42. Catherine & Noel Heffernan
157. Jonathan Switzer
158. Joseph and Marie Guiney
159. Joseph Keating
160. Joseph Ring
161. Josephine Clifford
162. Josephine O'Leary
163. Karen and Gerard Murnane
164. Karen Hopkins
165. Karen Ryan
166. Karol O'Regan
167. Kate Hayes (BGM Childcare Committee)
168. Kate Hayes and Colum McCarthy
169. Kathriona O'Connell
170. Kay O Connell
171. Kelly Ann Sheehan
172. Kevin Doran
173. Leo Lane
174. Lewis Donworth
175. Liam Og Moloney
176. Lilian Gardiner
177. Linda McCarthy
178. Linda Roche
179. Lisa and Robert Eustace - Helen and John Enright - Valerie Odonnell
180. Lisa Enright
181. Lorraine Mc Carthy
182. Lough Gur Development
183. Louise Roche
184. Luke Barry
185. Lynda Sheehan
186. Mairead and Michael Woulfe
187. Majella Daly
188. Malachy Moloney
189. Margaret Allen
190. Margaret Ryan
191. Maria Cronin
192. Marie-Clare Power and John Richmond
193. Marion Mulqueen
194. Marion O'Brien and others
195. Mark Nagle
196. Martin & Maryse Sheehan
197. Martina and William Maloney
198. Mary & Suzanne Lombard
199. Mary & Tom Bulfin

43. Catherine Birrane and Daniel (Dan) Birrane
44. Catherine Lynch
45. Catriona O'Connor
46. Chloe Breen
47. Christine Hogan
48. Christopher Walsh
49. Cian Mulqueen
50. Ciara Dempsey
51. Claire Daly.
52. Claire O'Connor-Hornibrook
53. Claire Weekes
54. Clare Cronin
55. Cllr John O'Donoghue
56. Cllr. Brigid Teefy
57. Colette Butler
58. Collette Cooney
59. Collette Lavery
60. Colman & Anna Fraher
61. Con Sheehan
62. Conor Dooley
63. Conor O'Regan
64. Coolcappa Community Action Group
65. Craig Ryan
66. Croom Community Development Association (Patricia Ryan)
67. Damian and Miriam Schmid
68. Damien Ryan
69. Darren and Sandra Maloney
70. David & Carla Douglas
71. David Mulqueen
72. Davy and Claire Ryan
73. Debbie Carroll
74. Deborah and Martin Begley
75. Deirdre Canty
76. Deirdre Fraher
77. Deirdre Murphy
78. Denise Donworth
79. Denise Hanley Barrett
80. Dermot Horan
81. Dermot McCarthy
82. Diana Williams
83. Dolores Scannell
84. Dominic Ryan & Giannel D'Andrea
85. Doreen Farrell
86. Dromin Athlacca Community Childcare Ltd (Letitia English)
87. Dromin Athlacca GAA
200. Mary and Christy O'Connor
201. Mary and Francis Moloney
202. Mary and Joseph Lenihan
203. Mary Broughton
204. Mary Claire Cronin
205. Mary McEniry O'Riordan
206. Mary O'Keefe
207. Mary O'Malley and Joe Sweeney
208. Mary O'Neill
209. Mary Sheehan
210. Matthew Llyod
211. Maura & Paul Finn
212. Maurice & Betty Geary
213. Michael & Caoimhe Cronin
214. Michael and Mary Ryan
215. Michael L and Niamh Dooley
216. Michael Ryan & Suzi Kendall Ryan
217. Michael Ryan
218. Michael, Karen and Heelan Family
219. Michelle Browne
220. Michelle Cottam
221. Michelle Dempsey
222. Mick & Edel O'Hara
223. Mike and Madeline O'Rourke
224. Mike Fitzgerald
225. Mollie Lloyd
226. Morgan Boohan
227. Muireann Callaghan
228. Muireann Murphy
229. Neil & Ide Hogan
230. Niall and Cathal McCarthy
231. Niall and Patricia Brosnan
232. Nicholas and Cassie O'Carroll
233. Nicola & Sean Smith
234. Noel Byrnes
235. Noel Ryan
236. Nollaig and Tom Coleman
237. Noreen O'Shea Sheehan
238. Nuala Egan
239. Oisin Mulqueen
240. Oliver O'Leary
241. Olivia Nestor
242. Orla Davern & Ger O'Riordan
243. Pat & Maria O'Neill
244. Pat and Aine o'Connor
245. Pat and Dolores Corkery
246. Pat Hayes (1)
247. Pat Hayes

88. Eco Advocacy
89. Eddie Corkery
90. Edel Barrett & Tweddle Family
91. Edel Foster
92. Edel Maher
93. Edward & Aoife O'Regan
94. Eileen and Billy Irwin
95. Eithne Thompson
96. Elaine & Seamus McKenna
97. Eleanor and Maurice Lyons
98. Eliza O'Grady Lloyd
99. Elizabeth Barry
100. Emmett Murphy
101. Eoin and Evelyn Noonan
102. Eric & Angela Tobin
103. Esther Sheehan
104. Evan Mulcahy and Zoe Ryan
105. Evie Rhatigan
106. Fionnuala Moloney
107. Francis Brooke
108. Francis O'Dwyer
109. Garry and Eibhlín Leonard
110. Gearoid O'Leary and Tina Gammell
111. Geoff Dooley
112. Geraldine Dooley
113. Gerard O'Riordan
114. Gerard O'Rourke & Marie O Connor
115. Heather Costello
116. Helen Murphy
117. Iain O'Donnell
118. Ian Dooley
119. Isobel Tierney
120. Ita Lynch
121. Jack & Mary Ryan
122. Jack and Samantha Oshea
123. Jacki Hehir, Don Moloney, Faye & Louis Moloney
124. James and Caitriona O'Regan
125. James and Sarah Bagnell
126. James Clifford & Sarah Ahern
127. James Cottam
128. James Healy
129. James Nagle
130. James O'Riordan
131. James, Jack and Aoife O'Neill
132. Jane Howe
133. Janet Power
134. Jeaicí Mac Gearailt
248. Pat McCarthy
249. Pat O'Neill
250. Patricia Barry
251. Patricia Coleman
252. Patricia Hennessy
253. Patricia Mulqueen
254. Patricia Ryan
255. Patrick and Margaret O'Gorman
256. Patrick Barrett
257. Patrick Hannon
258. Patrick Lloyd
259. Patrick Moloney (Agent Emer Barrett)
260. Patrick O'Donnell
261. Patrick O'Donovan T.D
262. Patrick Reynolds
263. Patrick Scanlan
264. Paul Leonard
265. Philomena Madden
266. Rachel O'Keeffe
267. Richard Leonard
268. Richard O'Donoghue TD
269. Rita Keating
270. Robbie Moloney
271. Roger Mulqueen
272. Roisin Keating
273. Roisin Madden
274. Rose Murphy
275. Rose O'Riordan
276. Ruairi Tierney
277. Sandra Gardiner
278. Sarah Clifford and George Shinnors
279. Sarah Molony
280. Scoil Dean Cussen NS co Lucy Barry (Chairperson)
281. Seamus Clifford
282. Seamus Hourigan
283. Sean Nyhan
284. Senator Joanne Collins & Cllr PJ Carey
285. Shane Gale
286. Shanie Ryan
287. Sheila & Denis Broderick
288. Síle Orlandi
289. Sinead Gunning
290. Sinead Ryan
291. Siobhan Keenaghan
292. Sue O_Donnell
293. Suzanne Bennett

135. Jean and Paddy Lyons
136. Jerry and Breda Garvey
137. Jim and Eileen McManus
138. Joanne Hehir
139. Joe & Ciara Hennessy
140. John & Mary Clifford
141. John and Claire Murnane
142. John and Maria Meehan
143. John and Marie McCarthy
144. John Anthony and Elaine Moran
145. John Barrett
146. John Hopkins
147. John Irwin
148. John Joe Ryan
149. JOHN MOLONEY
150. John Mulqueen
151. John Murphy
152. John O'Brien
153. John O'Riordan and Valerie O'Donovan
154. John Quirke
155. John Tierney
156. Jonathan Switzer, Ciara Leonard & Luke Switzer
294. The Dooley Family
295. Thomas & Catherine Fuller
296. Thomas and Aisling Westropp Bennett
297. Tiernan Ryan
298. Tim, Orla, Kelly, Jasmin & Sophie Ahern
299. Timmy Murphy
300. Toco Welding
301. Tom Corkery
302. Tom Tierney
303. Tony & Mary Dillon
304. Tony and Jean Gale
305. Trevor and Elaine Begley
306. Vinnie Cronin
307. Vivienne and Robert Richmond
308. William & Laura Meade
309. Willie and Cora Bulfin

Appendix B:
Consideration of Conditions recommended by Limerick City & County Council and Prescribed Bodies.

Limerick City & County Council	Included/Excluded in Schedule of Conditions
1. Prior to commencement of development the following shall be submitted for the written agreement of the Planning Authority: (a) Drawings to include detailed locations of the proposed entrances for the wind farm, the locations highlighted on the submitted EIAR do not indicate the exact location of the entrances. (b) Drawings to clearly demonstrate the full and relevant sightlines and stopping sight distances for all 9 number proposed site entrances, in plan form and to scale, onto a topographical survey with sufficient detail and background mapping. The clear sightline triangle should be assessed from a distance of 3.0 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility. (c) Highlight on the Site Layout Plan any boundaries that may belong to adjacent landowners that will require setback to achieve the sightlines required. These boundaries shall be shown setback and shall be highlighted and labelled on the revised drawing. Written consent from the relevant landowner to setback and maintain any boundaries outside the ownership of the applicant shall be submitted along with supporting folios and maps to demonstrate ownership. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	Excluded. These matters were provided in the application particulars and are addressed in my assessment.
2. In relation to the grid connection Route, prior to commencement of development the following shall be submitted for the written agreement of the Planning Authority: (a) Provide detailed Site-specific drawings for all Joint chamber/ communication chambers/ link chambers, including: (i). Plan views and cross-sections with dimensions, (ii). Communication chambers and associated infrastructure, and (iii). All elements within the public road corridor. Existing and proposed.	2.a-c (inc) Excluded. I am satisfied that these matters are addressed in the submitted methodologies and/or are governed by the Road Opening Licence process outside of the planning code.

(b) Drawings must be specific to each jointing location. (c) Joint chambers shall be relocated off the public road and positioned within adjacent wind turbine farmland. (d) Provide site specific details for all culvert / river crossings with construction methodologies. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	(d) Included in CMP (No.18) & CTMP (No.19) condition.
3. (a) A Stage 1/2 Road Safety Audit, in compliance with the TII Publication 'Road Safety Audit GE-STY-01024', shall be submitted for the written approval of the Planning Authority prior to commencement of development. (b) A Stage 3 Road Safety Audit shall be submitted upon completion of the development prior to the wind farm coming into full operation. The RSA must be in compliance with the TII Publication 'Road Safety Audit GE-SIT-01024'. The Audit Team must be independent in line with the standard. (c) The developer shall address all problems raised with the Stage 1, 2 and 3 Audits in full and shall submit revised Site Layout Plans to include the recommendations of the Audits, which must be clearly labelled to assist consideration by the Planning Authority. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	Included. Condition No.14 refers.
4. (a) The developer shall apply to Limerick City and County Council for an 'Abnormal Load Permit' to transport the wind turbine components prior to the commencement of the development and include any amendments required to junctions/roundabouts, traffic islands, signage, road edge strengthening and tree trimming. (b) The Applicant shall submit a pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works for the written agreement with the Planning Authority prior to the commencement of the development. Any works required to Limerick City and County Councils roads, bridges and culverts will require a Road Opening Licence. These works shall be agreed will Limerick City and County Councils Road Section prior to any works carried out to the roads, bridges and culverts. All costs associated with these works shall be borne by the Applicant. (c) A Site-Specific Temporary Traffic Management Plan (TTMP) identifying all construction sites, temporary parking areas and delivery routes for various types of material and structural units shall be submitted for the written agreement with the Planning Authority prior to the commencement of the development. (d) At proposed access points, the Applicant is to reinstate the area of ground between the road edge and the realigned front boundary to prevent any road safety issues occurring. This treatment is to allow for drainage of surface water from the	(4a) Excluded. This concerns matters outside the planning code. The CTMP condition (No.19) in the schedule of conditions is otherwise considered sufficient. (4.b) Included. Condition No.15 refers. (4.c) Included. Condition No.19 refers. (4.d) Included. Condition 15.c refers.

roadway and is to protect the edge of the road from becoming damaged and breaking up over time. The area between the new boundary and the road edge to be excavated and backfilled with 200mm of clean stone, 150mm of compacted Cl 804 or similar granular material, and seal. The Applicant shall submit photographic evidence for written agreement of the Planning Authority to clearly demonstrate that this has been achieved. (e) The Applicant shall be made aware that any works to our road network including junctions and works required along the public road for a connection grid will require a Road Opening Licence (ROL). (f) The Applicant shall provide details of the lift plan required for the installation of jointing chambers if precast is the approved option. (g) The Applicant shall provide a percolation test results for the locations of the jointing chambers. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	(4.e) Excluded. Outside the Planning Code. As above. As above.
5. (a) 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 prior to the commencement of the development. (b) 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. **Reason - In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	Included. Condition No.15 refers.
6. (a) The Applicants Consulting Engineers shall submit certification for the Surface Water/SuDs Specification that it has been constructed as designed upon completion of the development. (b) All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road. (c) All surface water run-off from the public road, which flows into the site, shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City & County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	(6.a) Included. Condition No.16 refers. (6.b.) Included. Condition No.15.d refers. (6.c) excluded. Condition No.15.d is sufficient.
7. (a) During construction of the proposed development, the following shall apply- i. No work shall take place on site outside the hours of 8.oo a.m. to 8.oo p.m. Monday to Friday and 8.oo a.m. to 4.00 p.m.	Excluded. ACP standard condition (No.17) applies. Other matters sufficiently addressed by CMP

Saturday, or on Sundays or public holidays, unless otherwise agreed in writing by the Planning Authority. ii. No surface water run-off shall be discharged onto public roads, foul sewers or adjacent property. iii. Adequate car parking facilities shall be provided on site for all workers and visitors. iv. Deliveries shall be off peak. v. No stacking of vehicles is permitted on the R.516 Regional Road or adjacent local roads. **Reason - To protect the residential amenities of the area in the interest of proper planning and sustainable development.**	(No.18) and CTMP condition (No.19).
8. The wheels and underside of all construction traffic leaving the site shall be cleaned, as required, to prevent soiling of public roads. A wheel washing facility, including water jets or other approved cleansing method shall be provided close to the site exit. In the event that any public roads become soiled by construction traffic from the site, these roads shall be cleaned immediately. **Reason - In the interest of the proper planning and sustainable development of the area, road safety and to protect the amenity of the area.**	As above.
9. Prior to commencement of development, a revised Construction Management and Delivery Plan for the construction of the development shall be submitted and agreed in writing with Planning Authority, which shall include a Site-Specific Temporary Traffic Management Plan TTMP, (plan shall also be in drawing format). This is to give advance warning to road users on the public road being made aware that there is a construction site ahead. **Reason- In the interests of public safety and residential amenity.**	Included. Condition No.19 refers.
10. (a) No temporary storage of materials that would appreciably impact important flood flow routes or result in loss of flood storage that would increase flood risk to existing property either upstream or downstream of the development shall be stockpiled within Flood Zone A and/ or B. (b) Any development within Flood Zone A and B (such as access roads) shall be constructed with flood resilient materials. (c) Access roads shall be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage occurs. **Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.**	Excluded. The embedded design and mitigation measures set out in the application are sufficient in this regard.
11. The developer shall appoint a licensable archaeologist who shall apply for a licence to manage all archaeological mitigation required by the Planning Authority, inter alia to advise on all redesign, to monitor all site investigations, excavation works and all ground disturbance associated with the development, to carry out advance archaeological excavations. The name of the archaeologist shall be submitted within one month of the grant of planning permission or at any	Excluded. The conditions recommended by the DHLGH have been included (No.21 – 24 (inc)) which address these matters.

time before that date, accompanied by a site specific letter from the archaeologist certifying that they have applied for a licence. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains that may exist within the site.**	
12. (a) The developer shall appoint a licensable archaeologist who shall apply for a licence to manage all archaeological mitigation required by the Planning Authority, inter alia to advise on all redesign, to monitor all site investigations, excavation works and all ground disturbance associated with the development, to carry out advance archaeological excavations. The name of the archaeologist shall be submitted within one month of the grant of planning permission or at any time before that date, accompanied by a site specific letter from the archaeologist certifying that they have applied for a licence. (b) Within one month of the grant of planning permission, or before, as indicated in the submitted mitigation strategy, a licensed geophysical survey shall be undertaken across the entire site within Co. Limerick. The survey shall employ the system or a combination of systems of survey to amass the best results and the report shall lay out the reasons for this methodology. The results of this survey shall be submitted for the written agreement of the Planning Authority prior to commencement of development. In the event that there are further definitively recognisable monuments established during the survey, redesign and buffer areas may be required. (c) Buffers of 25m shall be established from the outer known edge of all of the Recorded Monuments, and the known monuments and a revised drawing indicating these buffers shall be submitted for the written agreement of the Planning Authority prior to commencement of development. The drawing shall show the outer circumference of the individual site and a 25m buffer which mirrors this line which shall be annotated. These buffers shall be maintained in perpetuity and within it no deep rooted planting, landscaping, soil disturbance, or subsequent exempted development shall occur. These buffered shall be physically established prior to the commencement of construction and shall be a fence with driven post and rails with appropriate signage and their construction shall be supervised and certified by the appointed archaeologist. Details of same shall be submitted for the written agreement of the Planning Authority prior to commencement of development. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.** (c) A schedule of licensed archaeological test trenching, as indicated in the mitigation strategy, shall be undertaken in consultation with the Planning Authority. Test trenching shall be informed by the results of the non-invasive geophysical survey but also including a representative sample of the site. The preliminary results of this archaeological test trenching shall be submitted for the written agreement of the Planning Authority on completion of site works. Further mitigation may be required at this point either redesign or advance excavation	As above.

and this shall be agreed in consultation with the Planning Authority. The final report of the test trenching, in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service shall be submitted within 6 months. (d) Following the survey and test trenching there may be a requirement for advance archaeological excavation if redesign is not an option or practicable. If enabling works have commenced on the overall site, then areas for advance excavation shall be fenced off with an adequate working buffer. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.**	
13. All areas requiring advance archaeological excavation shall be carried out well in advance of construction in that area. The developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.**	As above.
14. Licensed archaeological monitoring shall be in place for all ground disturbance associated with the development, this includes but is not limited to landscaping, tree planting, drainage, hardstand, access routes. Any private arrangements for construction compounds or storage that arise shall be assessed archaeologically and monitored. Areas to be monitored along the 26km route to the grid connection shall be agreed in advance, but, at a minimum, will contain all zones of notification along the route. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.**	As above.
15. The appointed archaeologist shall: (a) Submit on completion of the ground works a report detailing the results of the licensed archaeological monitoring works to the Department of Housing, Local Government & Heritage and the Planning Authority. The report shall contain a drawing showing the exact extent of the area that was archaeologically monitored certified by the archaeologist. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. In the event that the development is phased, interim reports shall be submitted at each stage showing the area monitored and giving preliminary results.	As above.

(b) Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Development Applications Unit, National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority Archaeologist shall be informed immediately. The developer shall be prepared to be advised by the National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority with regard to any necessary mitigating action. (c) Should an archaeological excavation be required then the following shall apply: the developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority. **Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.**	
16. Prior to the commencement of development, a revised EIAR (Chapter 14 -Archaeology and Cultural Heritage) shall be submitted for the written agreement of the Planning Authority. This shall include: (a) An assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site, the Protected Structures omitted from the submitted EIAR Chapter 14, including key views within the Bruff, Lough Gur and Kilmallock Architectural Conservation Areas and neighbouring NIAH Historic Gardens and Designed Landscape site (in particular Summer Ville Reg. No. 1561). Revised proposals, including drawings, to eliminate any potential impacts on same shall also be submitted. (b) Details of any mitigation measures proposed regarding existing architectural heritage constraints along the Grid Connection and/ or Turbine Delivery Route (including Ferry Bridge, RPS. Reg. No. 257, and Sixmile Bridge, RPS Reg. No. 455). **Reason: In order to establish an accurate record of the impacts of this development and in the interest of the protection of architectural heritage in accordance with the provisions of the Architectural Heritage Protection Guidelines for Planning Authorities.**	Excluded. I have addressed these matters in my assessment of archaeology and cultural heritage and consider that there no conditionable matters arising.
17. Prior to commencement of development, the developer shall submit for the written agreement of the Planning Authority a detailed Construction Management Plan, including a monitoring regime. The Plan shall make provision for inclusion of all relevant mitigation proposed in the	Included. Condition No.18 refers. Unless stated hereunder.

Environmental Impact Statement and Natura Impact Statement and shall in any event ensure that its scope extends to the following parameters: (a) surface water management during construction to control runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in the rivers and the tributaries and watercourses of their catchments or other waters within and adjoining the site including groundwater in accordance with best practice, (b) detail of treatment of stockpiled material arising from excavation during construction, management of peat storage and disposal, (c) dust minimisation including dust potentially generated from vehicles, measures to include appropriately located wheel wash facilities and appropriate good practice in the covering of laden and unladen vehicles, (d) management of public roads in the vicinity so that they are kept free of soil, clay, gravel, mud or other debris and general site management to the satisfaction of the planning authorities, (e) provision of detailed plans for all temporary facilities, (f) preparation of a formal Project Construction and Demolition Waste Management Plan, and (g) control of adverse noise and disturbance by reference to construction working hours, noise limits and traffic management arrangements. A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be kept for inspection by the relevant planning authorities. The developer shall satisfy the requirements of the planning authority in relation to measures to be proposed to prevent pollution run-off into water courses. The development shall thereafter be implemented in accordance with the agreed details. **Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations.**	(a) Excluded. EIAR mitigation measures are sufficient.
18. All mitigation and enhancement measures set out in the submitted Environmental Impact Statement and Natura Impact Statement and Construction Environmental Management Plan shall be implemented and adhered to. The following measures shall also be implemented: • Vegetation removal should include timing of works wound bird nesting season and in the case of suitable trees peak bat activity season • Pre removal endoscope surveys for bats should be undertaken prior to tree felling and soft felling should be practiced • Post construction carcass searches for bats and birds using detection dogs should be employed to provide an accurate representation of fatalities across the site. The reports/ data should be submitted to the relevant enforcement office at the standard frequency	Included. Condition No.7, 8 & 9 refers. Unless otherwise stated hereunder. Included. Condition No.9.a refers. N.b included in proposed EIAR monitoring measures.

• External lighting at substations compounds etc to be sensor controlled to prevent light spill • Bridges on site new and old to be designed in wildlife friendly manner, nest boxes bat boxes to be included • Biosecurity when working in or near watercourses to be strictly adhered to. • Prudent to apply strict daylight working hours regime when working on or near watercourses • Any areas in which cattle poaching or where open access direct to streams/waterbodies should be fenced off and alternative drinking facilities provided. **Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations**	
19. (a) Prior to commencement of development, the developer shall submit the technical specification of the final selected turbines for the written agreement of the Planning Authority including details of the potential for audible tones. (b) The sound power of the final wind turbines selected shall not be greater at any wind speed than the candidate turbines identified in the noise assessment in the submitted EIAR. (c) In the event of a noise complaint the Planning Authority shall have access to wind farm operational data. Details to be agreed in writing with the Planning Authority prior to commencement of development. (d) In the event of the Planning Authority notifying the operator of a complaint regarding noise levels and/ or special audible characteristics, the operator shall engage a suitably qualified independent acoustic engineer to prepare a noise monitoring protocol to be agreed in writing with the Planning Authority within a specified timeframe. In the event of a complaint, operational data shall be provided on request to the Planning Authority and the discretion provided to require temporary switching on and off of turbines during hours specified by the Planning Authority, to allow for testing to take place for noise monitoring purposes. **Reason - To protect the residential amenities and in the interest of proper planning and sustainable development of the area.**	Excluded. Standard ACP condition is included as Condition No.12.
20.(a) All watercourses running through project lands be fenced, cattle access removed, and alternative drinking points be provided. Riparian planting is particularly important for river thermal regimes in light of future climate change predications. IFI therefore request that where possible, riparian planting is established or enhanced, particularly over pools and glides. (b) Settlement ponds shall be maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging. In constructing and designing silt traps particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt during intense precipitation events where the trap may become hydraulically overloaded. It	Excluded. EIAR mitigation measures are sufficient.

is essential that theyare located with good access to facilitate monitoring sampling and maintenance. (c) Any instream works will 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. **Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations**.	
21. Prior to commencement of development, the developer shall submit the following for the written agreement of the Planning Authority: (a) A revised Chapter 13 of the EIAR to address mapping error as follows: a. Include the locations of all wind turbines, including T9, in line with its Irish Transverse Mercator (ITM) geographic coordinates. A table and map outlining same shall be submitted. (b) A revised background noise survey for the southeast of the study area shall be prepared in consultation with and in line with the requirements of the Environment Section of Limerick City and County Council. (c) A revision of noise limits for day-time in line with the Wind Energy Development Guidelines (2006) and night-time noise limits in line with the Limerick Development Plan 2022-2028. (d)An investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics. (e) Should construction or decommissioning last for a period of six months or longer, a day-time limit of 55 dB LAeq,1hr shall be adopted at noise sensitive buildings. (f) Measures for automated turbine shut down to eliminate shadow flicker at any nearby dwelling, including for the period of time it takes for the blades to stop rotating after turbines are shut-down. **Reason - To protect the residential amenities and in the interest of proper planning and sustainable development of the area.**	Excluded. I have addressed these matters in my assessment of noise & vibration. I am satisfied that the mitigation measures in the EIAR are adequate. ACP standard condition No's 12 & 13 otherwise refers.
Department of Housing, Local Government and Heritage (DHLGH)	**Included/Excluded in Schedule of Conditions**
1. All mitigation measures in relation to archaeology and cultural heritage as set out in Chapter 14 of the EIAR (Laurence Dunne Archaeology; date September 2025) shall be implemented in full, except as may otherwise be required in order to comply with the conditions of this Order.	Included. Condition No. 7, 8 & 9 refers.
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	Included. Condition No.21 refers.

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 National Monuments Service (as applies) and in accordance with an approved method statement. Having completed the work, the archaeologist shall submit a written report to the Department and the Planning Authority describing the results of the Archaeological Geophysical Survey. b. The archaeologist shall liaise with the 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. 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, reservation 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 Department, 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. A suitably qualified archaeologist shall be retained to advise on, and establish appropriate Exclusion Zones around the external-most elements of vulnerable Heritage Assets located within the development site (as identified in Chapter 14 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 Department 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.	Included. Condition No.22 refers.
4. 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.	Included. Condition No. 9.d refers.

5. 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 14 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.	Included. Condition No.23 refers.
6. The planning authority and the 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.**	Included. Condition No.24 refers.
Department of Defence (DoD)	**Included/Excluded in Schedule of Conditions**
1. 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. 2. Obstacle lighting may be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment. 3. 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. 4. In the event of negative impacts on future military radar systems, the owner will engage with the Department of Defence and will provide suitable mitigations as soon as practical.	Included. Condition No.25 refers.
Gas Networks Ireland (GNI)	**Included/Excluded in Schedule of Conditions**
1. Contact Gas Networks Ireland in advance of any siteworks by email at DIG@gasnetworks.ie or by phone at 1800 42 77 47; and 2. Carry out all works in full compliance with the ‘GNI Code of Practice for Working in the Vicinity of the Transmission Network’ & 'HSA Code of Practice for Avoiding Danger from Underground Services'.	Included. Condition No.11 refers.

Health Service Executive (HSE)	Included/Excluded in Schedule of Conditions
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 Exceptionally work outside these hours at the express permission of the Planning Authority **This recommendation is made in the interest of the protection of Public Health.**	Excluded. Standard ACP condition No. 17 refers. It is considered that there is no reason to depart from standard.
a) All drinking water and water used for the preparation of food in the temporaryconstruction compounds should meet the requirements of S.I. No. 122/2014 -European Union (Drinking Water) Regulations 2014, b) There should be no direct emission to ground or surface water of any foul wastewater, All waste water should be contained and taken off site to a licensed treatment facility. c) Site drainage should ensure the protection of surface and ground water during the construction phase. These are detailed in the CEMP and the NEHS has no additional comments d) The dust monitoring is a monthly average standard. Compliance with standard can incorporate short periods of very high levels of dust deposition followed by low levels and still be compliant. It is therefore important that dust minimisation is continually implemented, and any complaints are investigated and responded to.	Excluded. Outside the planning code or sufficiently addressed in EIAR mitigation measures.
Irish Aviation Authority (IAA)	**Included/Excluded in Schedule of Conditions**
In the event of planning permission being granted, the applicant should be conditioned to contact the Irish Aviation Authority to: 1. agree an aeronautical obstacle warning light scheme for the wind farm development, 2. provide as-constructed coordinates in WGS-84 format together with ground and tip height elevations at each wind turbine location, and: 3. Notify Shannon Airport Authority, AirNav Ireland and the Authority of intention to commence crane operations 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.	Included. Condition No.25 refers.
Office of Public Works (OPW)	**Included/Excluded in Schedule of Conditions**
A 10 Metre wide strip of land running parallel to the main channels C1/31 and a 5 Metre wide strip of land running parallel to the channels C1/31/4, C1/31/4/2/1, C1/31/5, CI/31/6, C1,31/1/1, CI/31/5/1, C1/31/5/1/4, CI/31/5/1/3, C1/31/5/1/2, C1/31/5/1/1 and C1/31/7 should be provided to facilitate access and maintenance activities by this office in the	Included. Condition No.10 refers.

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	
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) are required to cross watercourses as part of the development or on proposed or existing access roads to serve or access the development; you should be aware that these require consent from the Commissioners of Public Works. This is a requirement of Section 50 of the Arterial Drainage Act of 1945 as amended.	Excluded. Outside the Planning Code.
Transport Infrastructure Ireland (TII)	**Included/Excluded in Schedule of Conditions**
The applicant/developer should consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul routes traverse to ascertain any operational requirements such as delivery timetabling, etc. and to ensure that the strategic function of the national road network is maintained.	Included. Condition No.19 refers.
TII requests referral of all proposals agreed between the road authorities, PPP Concessions and MMaRC Companies and the applicant impacting on national roads. Mitigation measures identified by the applicant should be included as conditions in any decision to grant permission. Where temporary works within any MMaRC Contract Boundary are required to facilitate the transport of any abnormal loads to site, the applicant/developer shall contact thirdpartyworks@tii.ie in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place.	Excluded. Outside the planning code.
In the interests of clarification, any proposed works to the national road network to facilitate turbine component delivery to site shall comply with TII Publications and shall be subject to Road Safety Audit as appropriate. Works should ensure the ongoing safety for all road users and prior to any development necessary licenses, approvals or agreements with the local road authorities shall be in place. All national road and ancillary overground/underground assets shall be subject to proper undamaged reinstatement and properly certified to the relevant standards in accordance with the assets' functions together with any working widths/depths which they require. Any damage caused to the pavement of the existing national road due to the turning movement of abnormal ‘length’ loads (eg. tearing of the surface course) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the Road Authority prior to the commencement of any development on site.	Included. Condition No.14 refers. Excluded. Governed by Abnormal Load Permit process. As above.
With specific reference to national road structures on any proposed haul route, all structures should be checked by the applicant/developer to confirm that all the structures can accommodate the proposed loading associated with the delivery of development components to site where the weight	Included. Conditions No.15, 18 and 19 refer. Abnormal Load Permit process otherwise applies.

of the delivery vehicle and load exceeds that permissible under the Road Traffic Regulations. While an abnormal load is defined as anything above 46 tonnes and below 180 tonnes, any load above 180 tonnes, represents an 'Exceptional Abnormal Load' ('EAL'). All structures to be crossed will need a full structural assessment by the developer in accordance with TII Publications AM-STR-06048 to verify that they can sustain any 'EAL' load safely and without any damage. Reference should be made to Department of Transport Circular RW18 of 2024 ('Exceptional Abnormal Loads') in that regard. Full details of the transportation of all Abnormal Loads and all 'Exceptional Abnormal Loads' associated with the subject development shall be agreed with all planning and road authorities along all proposed haul routes prior to the commencement of any development.	
Uisce Éireánn (UE)	**Included/Excluded in Schedule of Conditions**
Prior to the commencement of development, the applicant shall submit for written agreement of the Planning Authority, in consultation with Uisce Éireann, a Downstream Drinking Water Protection Plan. This plan shall identify the River Maigue abstraction at Adare Water Treatment Plant as a sensitive receptor and demonstrate how the proposed construction activities will not give rise to deterioration in water quality for this abstraction point.	Included. Condition No. 20.b refers.
It is noted in Section 9.5.1 of the EIAR that surface water monitoring to include Turbidity, pH/EC and colour will be undertaken daily upstream and downstream of the works areas and where required, at the outlets from settlement ponds. The developer shall implement this surface water monitoring programme for the duration of the construction phase of the project. This shall include: a. Monitoring of parameters (e.g. Turbidity, pH/EC, colour and suspended solids) upstream and downstream of the site discharge points b. Establishment of trigger levels for action c. Increased monitoring frequency during periods of heavy rainfall and high-risk construction activities	Excluded. Included in Mitigation measures.
The developer shall agree a notification protocol with Uisce Éireann prior to construction. This shall include, but not limited to: • UÉ to be added to the list of authorities to be notified in the event of an environmental incident as per Section 7.2 of CEMP, given the presence of the downstream drinking water abstraction point on the River Maigue. • Liaison with the Adare Water Treatment Plant in the event of any potential risk to water supplY	Included. Condition No.20.c refers.
High-risk construction activities (e.g. excavation, soil disturbance, concrete pouring etc.) shall be prohibited during period of heavy rainfall or when Met Éireann rainfall warnings	Excluded. Included in proposed mitigation measures.

are in place (Yellow or higher) in order to minimise sediment mobilisation and pollutant transport to receiving waters.	
Given the presence of the downstream drinking water receptor, the CEMP and SWMP shall be updated prior to the commencement of construction to identify the downstream Adare abstraction as a sensitive receptor, and include any additional mitigation measures (where required) to protect downstream water quality.	Included. Condition No. 20.c refers.
The mitigation measures to protect surface water quality outlined within Chapter 9 of the EIAR, Construction Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP) shall be strictly implemented for the duration of the construction, operation and decommissioning of the project.	Included. Condition No.7, 8 and 9 refers.
The Grid Connection Route crossing important and strategic Uisce Éireann infrastructure. The applicant / developer shall obtain a Confirmation of Feasibility from Uisce Éireann, through engagement with Diversions@water, for a schedule of crossings and safe separation distances from Uisce Éireann infrastructure along the route the proposed grid connection, prior to commencement of works for this element of the proposed development.	Excluded. Outside the Planning Code.

Appendix C:

External Consultant Report to Inspector – Technical Note on Ornithology to Inform Appropriate Assessment

2026

Ballinlee Windfarm

Technical Note on Ornithology to Inform the Appropriate Assessment

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May 2026

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Contents

Consideration of the Likely Significant Effects on a European Site ..... **Error! Bookmark not defined.**

Article 6 (3) of the Habitats Directive..... **Error! Bookmark not defined.**

Screening for Appropriate Assessment..... 448

Screening recommendation..... 449

Summary of the Natura Impact Statement..... 450

Adequacy of scientific information to inform the Appropriate Assessment..... 452

BALLINLEE WINDFARM (ACP-323780-26)

TECHNICAL NOTE ON ORNITHOLOGY TO INFORM THE APPROPRIATE ASSESSMENT

Consideration of the Likely Significant Effects on a European Site

Article 6 (3) of the Habitats Directive

1. This section considers the requirements of Article 6 (3) of the Habitats Directive as related to Appropriate Assessment (AA) of a project under part XAB of the Planning and Development Act (as amended).

2. This section does not comprise the AA itself but serves to assist the Inspector and the Coimisiún in their assessment.

Screening for Appropriate Assessment

3. Article 6 (3) states that "*Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives."*

4. Therefore, it must be established by the competent national authorities that the project will not adversely affect the integrity of any European site forming the Natura 2000 network.

5. The project is not directly connected with, or necessary to the management of any European site and consequently is subject to the Appropriate Assessment Screening process. There is no part of the Proposed Development that lies within a European site.

6. The AA screening report prepared by the ecological consultant considers two European sites, one Special Protection Area (SPA) and one Special Area of Conservation (SAC), due to proximity and possible ecological connections with the Proposed Development and the two European sites.

7. All elements of the Proposed Development are considered, including the wind farm site, the Turbine Delivery Route (TDR), the Grid Connection Route (GCR) and a new clear span bridge across the Morningstar River. Various sources of information were consulted including relevant

national and European legislation and regulatory documents, waterbird information held by BTO and the National Parks and Wildlife Service (NPWS) and field survey results.

8. The Source-Pathway-Receptor (SPR) model was applied with reference to the nature, size and location of the projects, the sensitivities of the ecological receptors and the potential for in-combination effects.

9. It was concluded that, in the absence of mitigation, a likely significant effect cannot not be definitively excluded for the following European sites in view of their conservation objectives.

    - Lower River Shannon SAC 2165 (Site Code 002165)
    - River Shannon and River Fergus Estuaries SPA (Site Code 004077)

10. This technical note considers only potential effects of the proposed development on the River Shannon and River Fergus Estuaries SPA. The Lower River Shannon SAC will be considered further by ACP.

11. Contaminants entering watercourses connected to a European site and affecting water quality are identified as the main potential impact mechanism. These include airborne dust, sediment, hydrocarbons and contaminated run off (including HDD drilling fluid). The potential for contamination is considered highest during the construction and decommissioning phases with the potential for pollution events during the operational phase. These could contribute to overall sediment and nutrient load and have implications on water quality and habitat conditions in the Shannon Estuary. This may, in turn, have an impact on the qualifying habitats and species of this European site affecting species that are sensitive changes in water quality, and indirect loss of foraging/roosting habitat through sedimentation or invasive alien plant species.

12. The Applicant considers that, despite what is considered to be a weak hydrological link between the Proposed Development and the European site, impacts resulting from a pollution event could lead to adverse effects undermining the objectives of this European Site.

<u>Screening recommendation</u>

13. The AA screening report contains information on the nature, size and location of the Proposed Development, all infrastructure elements and the likely effects during all phases of the proposal, the SPR model used and the sensitivities of the ecological receptors. With this information I am

satisfied that the Applicant has correctly identified the potential for significant effects upon one European Site and that Appropriate Assessment is required.

Summary of the Natura Impact Statement

14. The assessments undertaken in the NIS focus on the impacts on qualifying interests of potential water quality impacts, particularly from airborne dust, sediment, hydrocarbons and contaminated runoff entering watercourses connected to the Shannon Estuary (NIS Table 1). This is considered most likely during the construction and decommissioning phases of the Proposed Development with the possibility of pollution events occurring during the operational phase. Two invasive plant species, listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations were recorded during surveys of the Study Area. Other potential effects on qualifying interests such as airborne particles, disturbance and artificial light are discounted based on the distance from the European site concerned.

15. The relevant Special Conservation Interest (SCI) species for the SPA are provided and the potential impacts during each development phase are presented. The potential effects on these SCI species are assessed, focussing mainly on impacts of water quality changes on feeding and roosting opportunities. The SCI species potentially affected are 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.

16. Due to the distance between the proposed development and the SPA there was not considered to be the potential for any direct effects on SPA-linked SCIs.

17. Mitigation measures mainly focus on water quality protection measures to be implemented throughout all phases of the development due to the proximity of the Morningstar River and its hydrological connection to the SPA. Mitigation measures are also provided within the Construction Environment Management Plan (CEMP), Surface Water Management Plan and in Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

Construction Phase Mitigation

18. A number of mitigation measures are described to protect watercourses from sediment and pollutants during construction following standard best practice for construction site management. These include measures to intercept clean water and take it away from works, measures to intercept and slow down water to allow sediment to settle and avoidance of

watercourses by vehicles. Strict water quality protection measures are to be implemented during horizontal directional drilling with only non-toxic biodegradable drilling fluids to be used.

19. Other measures to avoid pollution incidents include washout of cement trucks and refuelling occurring away from watercourses and absorbent mats used. Regular inspections of equipment and measures will be undertaken with an ECoW and Environmental Manager present on site.

20. Detailed mitigation measures for HDD drilling are provided including measures to be taken if a breakout or frac-out occurs to prevent bentonite clay from entering watercourses.

21. Measures area also provided to prevent the spread of invasive plant species, in this instance Japanese knotweed and *Gunnera* sp. that were identified during ecological surveys.

Operational Phase Mitigation

22. Operational phase mitigation measures include retention of the Surface Water Management Plan, maintenance of silt collection measures, maintenance of tracks and hard standings, removal of effluent from the control centre and a 2m riparian setback along the Morningstar River.

Decommissioning Phase Mitigation

23. As described for the construction phase with updates to reflect good practice at the time.

Efficacy of Mitigation

24. Following a detailed assessment, the applicant determined that, with the provision of the described mitigation measures during the construction, operation and decommissioning phases of the project, the integrity of the River Shannon and River Fergus Estuaries SPA will not be affected by the proposed works.

In-combination Effects

25. An assessment of in-combination effects is provided. Potential Associated/Connected impacts and Additive/Incremental impacts are identified. The TDR was the only associated impact discussed and was not considered to have the potential to contribute to the effects of the proposed development.

26. Potential additive impacts that were identified included seven wind farms within 20 km of the proposed development, a solar farm, a bridge, an electricity substation, five dwelling houses and some farm buildings. The conclusions reached on in-combination effects are reliant on robust mitigation measures being in place for other projects. With these measures in place, it is

considered that there is no potential for any other plan or project to adversely affect the integrity of the European Site in combination with the proposed development.

Adequacy of scientific information to inform the Appropriate Assessment

27. I have reviewed the NIS and I am satisfied that the Applicant has provided adequate information regarding the baseline conditions and follows the correct guidance and legislation to identify and evaluate impacts and determine their significance to the integrity of the River Shannon and River Fergus Estuaries SPA.

28. I am satisfied that the proposed development will not directly affect any Special Conservation Interests (SCIs) of the River Shannon and River Fergus Estuaries SPA. NatureScot guidance (Scottish Natural Heritage (SNH). (2016) - *Assessing Connectivity with Special Protection Areas (SPAs) – Guidance, version 3. NatureScot.*) identifies a core wintering foraging range of under 5 km from roost sites for whooper swan. Because the project sits well beyond this 5 km threshold, the whooper swan population roosting at Lough Gur and feeding near the project site is distinct from the SPA population.

29. Although certain SCI species were recorded at the project site, these individuals are unlikely to belong to the SPA population. Regular connectivity with the SPA is highly improbable given the geographic separation of over 20 km.

30. A hydrological connection between the proposed development and the SPA is identified in the NIS and reductions in water quality have the potential to result in adverse effects on site integrity. A number of mitigation measures to reduce the risk of pollution are presented for the construction, operational and decommissioning phases and are provided in a CEMP as well as the NIS.

31. The information presented in the NIS conforms to the best available scientific information and follows relevant guidance and legislation, I am satisfied that the information provided will allow the Coimisiún to reach complete, precise and definitive findings as part of the Appropriate Assessment of the implications of the proposed development on the integrity of the River Shannon and River Fergus Estuaries SPA.

32. I consider that the mitigation measures proposed in the CEMP will be effective in preventing sediment and pollutants reaching the SPA during all phases of the proposed development. Any

adverse effects on the SCI species of the SPA, and therefore the integrity of the site, will be excluded.

Appendix D:

External Consultant Report to Inspector – Examination and Analysis of EIAR Chapter 7 (Ornithology) to inform the EIA

2026

Ballinlee Windfarm

Examination and Analysis of EIAR Chapter 7 (Ornithology) to inform the EIA

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Contents

Issues Raised 458

Examination of the Environmental Impact Assessment Report 458

Context 458

Baseline 460

Potential Effects 462

Mitigation 473

Embedded Mitigation 473

Construction Phase Mitigation Measures 473

Operational Phase Mitigation Measures 474

Decommissioning Phase Mitigation Measures 475

Monitoring 476

Residual Effects 477

Construction Phase 478

Operational Phase 478

Decommissioning Phase 478

Analysis, Evaluation and Assessment: Direct and Indirect Effects 478

Collision Risk Modelling 479

Whooper swan flight activity from vantage point surveys 482

Whooper Swan Feeding Distribution and Roost Surveys 487

Whooper Swan Management Plan (Mitigation) 488

Survey Effort 489

Wetland Function 490

Curlew 490

EIAR, cumulative effects and other concerns in submissions 491

Appropriate Assessment 491

Conclusions: ..... **Error! Bookmark not defined.**

BALLINLEE WINDFARM (ACP-323780-26)
EXAMINATION AND ANALYSIS OF EIAR CHAPTER 7 (ORNITHOLOGY) TO INFORM THE EIA

Issues Raised

1. Parties to the appeal raised a number of issues which are detailed below:

    - Survey Effort
    - Collision Risk
    - Mitigation, particularly the Whooper Swan Management Plan (WSMP)
    - Wetland function, particularly in regard to whooper swan feeding areas
    - Other issues relating to whooper swan
    - Curlew
    - General concerns with EIAR including cumulative effects and effects on other bird species
    - Appropriate Assessment

Examination of the Environmental Impact Assessment Report

<u>Context</u>

2. Chapter 7 of the Environmental Impact Assessment (EIA) Report examines the potential effects of the Proposed Development on birds. The assessment has been informed by key European legislation, namely the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU, the EU Habitats Directive 92/43/EEC, the EU Birds Directive 2009/147/EC and the Nature Restoration Regulation (EU) 2024/1264. Other relevant national legislation documents are also referenced as being considered.

3. Other plans and policies that have been considered include national and local Biodiversity Action Plans and guidance referred to includes that provided by NatureScot, the Chartered Institute of Ecology and Environmental Management (CIEEM) and the National Parks and Wildlife Service (NPWS). A Statement of Competencies is included.

4. Associated Figures and Appendices are:

- Appendix 7A: Statement of Competencies
- Appendix 7B: Baseline Ornithology Report
- Appendix 7C: Collision Risk Modelling Report
- Appendix 7D: Whooper Swan Management Plan (WSMP)
- Figure 7-1: Overview of the proposed Ballinlee Wind Farm
- Figure 7-2: Overview of Development Boundary and Ornithological Study Areas
- Figure 7-3: VP locations and associated viewsheds for Year 2
- Figure 7-4: VP locations and associated viewsheds for Year 3
- Figure 7-5: Whooper swan foraging locations and roost site
- Figure 7-6: Designated sites within 20 km of the Development
- Figure 7-7: Projected flight lines from VP watches illustrating SW-NE trend
- Figure7-8: Proposed whooper swan management plan lands

5. The chapter details the methods used to establish the bird populations within the Site and surroundings including a desk study, the results of baseline surveys and the process used to determine the sensitivity of the bird populations present. The ways in which birds might be affected (directly or indirectly) by the construction, operation and decommissioning of the Proposed Development are assessed, prior to and after the application of any required mitigation measures.

6. As part of the desk study the following sources were used to gather existing ornithological information within the study area:

- NPWS Designations Viewer
- Environmental Protection Agency (EPA) hydrological maps
- I-WeBS data
- National Biodiversity Centre database
- Bird Sensitivity mapping tool to wind energy (BirdWatch Ireland)
- National Bird Atlas Records
- National Hen Harrier Survey Results 2002 (NPWS)
- Peer-reviewed literature on distributions of breeding barn owl and merlin and wintering waterbirds including whooper swan.

7. The survey methodologies utilised are detailed in Section 7.2.8. These included Vantage Point watches, breeding bird surveys, crepuscular/dusk surveys, breeding raptor surveys, barn owl surveys, winter walkover surveys, wintering waterbird surveys, hen harrier roost surveys, whooper swan surveys and whooper swan bioacoustics surveys. Further information on survey methodology and results is found in Appendix 7B: Baseline Ornithology Report. Reference is made to the adherence of the NatureScot guidance 'Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms' when devising survey methodology.

8. A statement of limitations is included in Section 7.2.10. Some limitations are described including:

    - A lack of access into a very small proportion of the core study area during surveys;
    - A gap in viewshed coverage in Year 1 with an additional Vantage Point (VP) added in Year 2 & 3 to plug this gap;
    - 30 hours of VP watches were carried out in the breeding season of Year 1; 36 hours are recommended in NatureScot guidance;
    - Variation in survey routes between years of survey.

<u>Baseline</u>

9. Baseline conditions are presented in Section 7.3 of the EIA Report (Existing Receiving Environment). A Natura Impact Statement (NIS) has been provided and in accordance with Environmental Protection Agency (EPA) advice this section of the EIA Report provides summary findings only in relation to effects on European Sites. One Special Protection Area (SPA) was identified as being within the Zone of Influence (ZOI) of the Site; the River Shannon and River Fergus Estuaries SPA, as presented in Table 7-4. The NatureScot guidance, 'Assessing Connectivity with Special Protection Areas' was used to inform the NIS.

10. Two nationally designated sites of ornithological significance were also identified as being within the ZOI of the site:

    - Lough Gur proposed Natural Heritage Area (pNHA)
    - Herbertstown Fen pNHA

11. Section 7.3.2 summarises findings from all surveys and describes the target species present with a description of their presence and abundance including any incidences of breeding or roosting. These species descriptions also include information on the conservation status of each species in a national context along with some information on significance associated with the Proposed Development. Table 7-5 also summarises the ornithological activity recorded in each season from VP watches.

12. Target species recorded were mute swan, whooper swan, brent goose, greylag goose, pink-footed goose, mallard, teal, common sandpiper, curlew, dunlin, golden plover, jack snipe, lapwing, snipe, woodcock, whimbrel, coot, cormorant, grey heron, little egret, little grebe, moorhen, black-headed gull, common gull, great black-backed gull, herring gull, lesser black-backed gull, barn owl, buzzard, hen harrier, kestrel, long-eared owl, merlin, peregrine, sparrowhawk, white-tailed eagle, swift, stock dove and red-listed and amber-listed passerines.

13. The results of collision risk modelling are presented in Section 7.3.3 with Table 7-6 presenting the target species flight activity within the Collision Risk Zone and Table 7-7 detailing collision rates for each species. Figures for predicted annual collisions after applying avoidance rates are given for the following species; golden plover, buzzard, kestrel, lapwing, black-headed gull, lesser black-backed gull, mallard, cormorant, grey heron, sparrowhawk, peregrine, snipe and whooper swan. The NatureScot collision risk model is stated as being used with NatureScot avoidance rates used to inform this. Further information on collision risk modelling is given in Appendix 7C: Collision Risk Modelling Report.

14. Important Ornithological Features (IOF) have been identified in Section 7.4 using CIEEM guidance. Rationale is given for including or omitting each of the target species as an IOF.

15. The following protected sites and species have been scoped into the assessment and are considered to be an IOF.

High Sensitivity

- River Shannon and River Fergus Estuaries SPA
- Lough Gur pNHA
- Whooper swan (wintering), (Annex 1: EU Birds Directive)
- Golden plover (wintering), (Annex 1: EU Birds Directive)
- Little Egret (all seasons), (Annex 1: EU Birds Directive)

- Peregrine (all seasons), (Annex 1: EU Birds Directive)

Medium Sensitivity

- Curlew (BoCCI Red Listed)
- Lapwing (BoCCI Red Listed)
- Snipe (BoCCI Red Listed)
- Kestrel (BoCCI Red Listed)
- Meadow Pipit (BoCCI Red Listed)

Low Sensitivity

- Mute Swan (Lower Conservation Concern)
- Mallard (Lower Conservation Concern)
- Teal (Lower Conservation Concern)
- Cormorant (Lower Conservation Concern)
- Grey heron (Lower Conservation Concern)
- Black-headed gull (Lower Conservation Concern)
- Lesser black-backed gull (Lower Conservation Concern)
- Buzzard (Lower Conservation Concern)
- Long-eared owl (Lower Conservation Concern)
- Sparrowhawk (Lower Conservation Concern)

Potential Effects

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing Phase	The baseline conditions of the Development would continue and the ecological value of the area for birds would be expected to remain broadly comparable with current conditions in the short term. Notes that a failure to transition to renewable energy carries an implicit risk of long-term ecological degradation at a broader scale.

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
Construction Phase	*Waterfowl - mute swan, mallard and teal* These waterfowl species were regularly present within the core study area including breeding by mute swan. *Direct Habitat Loss & Disturbance* Drainage ditch habitat loss is calculated at 1.3km, representing a loss of marginal foraging and nesting habitat for waterfowl though this habitat is considered to be of low ecological value at the site level and alternative habitat is available in the wider landscape. The proposed clear span bridge design will avoid direct habitat loss at the Morningstar River Crossing. Any disturbance would be temporary during the construction period and could lead to short-term displacement and reduction in breeding success or altered behaviour. *Significance of Effect* The loss of drainage ditch habitat is considered a **low-level effect** given the availability of alternative habitats and the low numbers of waterfowl using these features. Disturbance to waterfowl is assessed as **minor and localised adverse with impacts reversible post-construction**. In Table 7-10 predicted effects are described as **Negligible to minor – no adverse effect on integrity.** *Whooper swan (non-breeding season)* Surveys over three non-breeding seasons confirm regular use of Camas South area by up to 50 whooper swans, and along with the Ballycullane area these birds are considered to be functionally connected to the roost at Lough Gur pNHA and represent a locally important wintering population. *Direct Habitat Loss & Disturbance* Construction activities fall within the sensitivity distance thresholds given for this species and disturbance from these activities has the potential to cause short-term disruption to feeding swans at Camas South, representing a direct disturbance effect during the construction period. Displacement in the Camas South area is considered likely during construction and may lead to longer flights, and associated additional energy expenditure, to alternative feeding areas. It is considered that disturbance could reduce feeding efficiency and alter local site use patterns for up to two non-breeding seasons. *Significance of Effect* Direct disturbance effects are anticipated on whooper swans foraging at Camas South in combination with indirect displacement to alternative feeding areas. Construction-phase disturbance is assessed as a **moderate adverse effect at a County/Regional scale in the absence of mitigation**. In Table 7-10 predicted effects are described as **moderate, locally significant without mitigation and not significant with the WSMP in place**. *Curlew (non-breeding season)* The maximum flock size recorded within the core study area was 24 birds which is given as being equivalent to 0.06% of the national non-breeding population. *Direct Habitat Loss & Disturbance* Construction activities have the potential to cause displacement to foraging and roosting birds at distances of 250-500m and therefore habitat availability may be temporarily reduced. Birds may be displaced in to less favourable areas with associated consequences for foraging efficiency and energy budgets. *Significance of Effect*

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Given the low numbers recorded, the localised and temporary nature of site use and the availability of suitable alternative habitats it is considered that any displacement is expected to be **short-term and reversible and is therefore assessed as minor adverse at the local scale.** In Table 7-10 predicted effects are described as **Minor, local**. <u>*Golden Plover (non-breeding season)*</u> Within the core study area, the highest count recorded was of 130 birds in flight and this is used to inform a precautionary worst-case displacement scenario, representing approximately 0.14% of a national non-breeding population of 92,060 birds. Two flocks were recorded using the core study area for roosting or feeding with the largest being 80 birds. *Direct Habitat Loss and Disturbance* Golden plover has high site fidelity to traditional feeding grounds and is sensitive to disturbance during non-breeding activity with a maximum disturbance buffer of 500m given. Therefore, it is considered construction activity may cause temporary behavioural disruption or displacement with not all surrounding farmland functionally equivalent and any disturbance having consequences for foraging efficiency and energy budgets. However, it was considered that site use was low with only two flocks were recorded using the core study area for foraging or roosting over three non-breeding periods. *Significance of Effect* As there was considered to be limited use of the site for foraging and roosting and other suitable alternative habitat available any displacement is expected to be **short-term and reversible and is therefore assessed as minor adverse at the local scale**. In Table 7-10 predicted effects are described as **Minor-moderate local**. <u>*Lapwing (non-breeding)*</u> Whilst birds were recorded regularly in flight through the core study area use of the area for foraging and roosting during the non-breeding period was considered to be limited and no breeding was recorded. *Direct Habitat Loss and Disturbance* Lapwing are considered sensitive to disturbance during the non-breeding period and a maximum disturbance buffer of 500m is given. Construction activities may cause temporary behavioural disruption or displacement though Pearce-Higgins *et al.* (2012) found no significant adverse effects of wind farms on lapwing during construction. *Significance of Effect* As there was considered to be limited use of the site for foraging and roosting and other suitable alternative habitat available any displacement is expected to be **short-term and reversible and is therefore assessed as minor adverse at the local scale**. In Table 7-10 predicted effects are described as **Minor local**. <u>*Snipe (non-breeding)*</u> Up to 23 individuals were recorded during the non-breeding season. No evidence of breeding was recorded. *Direct Habitat Loss and Disturbance* Snipe are a BoCCI red-listed species in Ireland and are considered sensitive to disturbance during the non-breeding period and a maximum disturbance buffer of 500m is given as being commonly applied to wader species although references are given that indicate that actual behavioural disruption occurs within c.100m of human activity or construction. *Significance of Effect* It is considered that temporary disruption or displacement may be caused by construction activity. However, due to the low numbers involved, the dispersed usage in the area and the availability of suitable habitat in adjacent areas it is considered that displaced individuals are expected to relocate locally. The effect is therefore considered **short-term, reversible and minor adverse at the local scale**. In Table 7-10 predicted effects are described as **Minor local**.

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Other waterbirds (All seasons) Cormorant, grey heron and little egret were recorded in low numbers within the core study area, primarily within the non-breeding season. There was considered to be no evidence of reliance on the proposed development area for foraging, roosting or nesting. All species were most frequently encountered commuting along river corridors. *Direct Habitat Loss and Disturbance* These species are considered to be generally tolerant of moderate human activity with a disturbance distance given of 100-200m. Construction activities may cause temporary behavioural disruption or displacement. Potential effects on water quality and loss or modification of feeding areas could reduce foraging opportunities. *Significance of Effect* Cormorant and grey heron: It is considered that given the low numbers, dispersed use of the proposed Development site and the availability of alternative habitat nearby, any effects are expected to be **short-term and reversible and are therefore assessed as minor adverse at the local scale.** Little Egret: It is considered that given the low numbers, largely transitory use of the proposed Development site and the availability of alternative habitat nearby, any effects are expected to be **short-term and reversible and are therefore assessed as minor adverse at the local scale.** In Table 7-10 predicted effects on all species are described as **Minor-not significant.** *Gulls (All seasons)* Lesser black-backed gull and black-headed gull were recorded within the core study area. There was considered to be no evidence that either species bred or roosted within 5km of the proposed Development with birds either foraging opportunistically or transiting through the area. *Direct Habitat Loss and Disturbance* These species are considered to be generally tolerant of human activity with a disturbance distance given of 300m. Any construction phase disturbance is considered to be temporary and reversible due to the species mobility, generalist behaviour and low dependency on the proposed Development site. *Significance of Effect* For both species any effects are expected to be **temporary and reversible and are therefore assessed as minor adverse at the local scale.** In Table 7-10 predicted effects on both species are described as **Negligible – not significant** *Buzzard (All seasons)* Buzzard was recorded nesting in tow locations within the core study area with another nest within the 2 km study area. *Direct Habitat Loss and Disturbance* A disturbance buffer distance of 300m is given and it is considered that there is the potential for temporary displacement of two breeding pairs across the 24-month construction period. It is considered that due to the adaptability of the species and the availability of similar habitats in the wider area that any effects are expected to be temporary and reversible once construction is complete. *Significance of Effect* The potential displacement of breeding territories is considered temporary and reversible once construction activities have ceased due to the widespread availability of similar habitats in the wider area and the species' adaptability. Potential displacement of up to two breeding territories is assessed **as minor adverse at the local scale.** In Table 7-10 predicted effects are described as **Negligible – not significant.** *Kestrel (All seasons)*

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Observed regularly in the breeding and non-breeding seasons, no nest locations were identified but some territorial activity was observed indicating possible breeding. *Direct Habitat Loss and Disturbance* A disturbance buffer distance of 200-300m is given and it is considered that construction activities may temporarily alter hunting or territorial behaviour although no lasting effects are anticipated. *Significance of Effect* Temporary displacement and potential disruption of hunting or territorial behaviour is assessed as a **minor adverse at the local scale**. In Table 7-10 predicted effects are described as **Negligible – not significant.** <u>*Long-eared owl (All seasons)*</u> Confirmed breeding at a site 300m outside of core study area *Direct Habitat Loss and Disturbance* During construction a 300 m exclusion buffer will be placed around known roosting and foraging areas, the nest location is over 1km from the nearest proposed turbine location. *Significance of Effect* Temporary disturbance may result in short-term avoidance of adjacent habitat but **no significant long-term effects are anticipated** and it is assessed as **minor adverse at the local scale**. In Table 7-10 predicted effects are described as **Negligible – not significant.** <u>*Peregrine (All seasons)*</u> No breeding recorded within 5km of the proposed Development with the only birds being those transiting or hunting at altitude over the site. *Direct Habitat Loss and Disturbance* No confirmed use of the core study area. *Significance of Effect* **No construction-related disturbance or potential effects are expected**. In Table 7-10 predicted effects are described as **Negligible – not significant.** <u>*Passerines (All seasons)*</u> Meadow pipit was the only red-listed BoCCI species recorded with the following, amber-listed species also present; goldcrest, greenfinch, house martin, house sparrow, linnet, sand martin, skylark, starling, swallow and willow warbler. Goldcrest, house sparrow, linnet, skylark, starling, swallow, and willow warbler were confirmed to have bred within the core study area. *Direct Habitat Loss and Disturbance* Figures are given for the amount of various habitats that will be permanently lost within the Development Boundary (Grassland: 33.4ha, Hedgerows: 1.9km, Treelines: 922.3m, Drainage ditches: 1.3km, Mixed broadleaf/conifer woodland: 1.1ha, Immature woodland: 1.8ha). This represents the removal or permanent alteration of habitats used by passerine species within the core study area. Construction activities are considered to have the potential to cause temporary displacement, reduced breeding success or nest abandonment. The scale is this is considered to be influenced by habitat structure, proximity of the construction and the sensitivity of each species. *Significance of Effect* It is considered that populations are likely to recover fully post-construction and overall, the proposed Development is **unlikely to result in significant long-term effects on breeding passerine populations within the core study area.** In Table 7-10 predicted effects for all passerine species are described as **Negligible – not significant.**

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
Operational Phase	<u>*Waterfowl-mute swan, mallard and Teal*</u> *Disturbance and Displacement* It is considered that all three species are likely to habituate to operational infrastructure and potential impacts are likely to arise from turbine presence and associated disturbance and temporary displacement. Routine maintenance activities are considered to be negligible compared with existing land management activities. Sustained displacement is not anticipated as baseline surveys indicate majority of functionally used habitats lie outside the turbine footprint. Proposed turbine locations are not directly adjacent to mute swan nest locations and long-term displacement considered unlikely. It is considered that Teal and Mallard will exhibit moderate habituation to the proposed Development over time. *Significance of Effect* In absence of mitigation operational activities may cause temporary displacement of local populations of mute swan, mallard and teal and therefore there is considered to be an **indirect, adverse and minor effect at a local geographic scale.** *Collision Risk* The CRM predicted a collision rate of 0.17 mallard per annum, which equates to 6.14 individuals over the life of the development. This is considered to be negligible at both local and county scales. CRM not undertaken for mute swan or teal due to low flight frequency and height of many observations being below the turbine envelope. *Significance of Effect* In absence of mitigation, potential direct impact from collision with turbine blades are predicted to be extremely low for local populations of mallard, mute swan and teal. As such, there is considered to be an **indirect, adverse and negligible effect at the local scale.** In Table 7-10 predicted operational effects are described as **negligible to minor – not significant**. <u>*Whooper swan (non-breeding season)*</u> *Disturbance and Displacement* Disturbance may arise from operational turbines and routine maintenance; however, it is considered that routine maintenance activities are negligible compared with existing land management activities. Displacement is expected to be spatially limited, primarily affecting fields near turbine T3. The local whooper swan population adjusted their use of the site in response to prevailing wind direction and associated commuting efficiency with the Ballycullane area used during periods of strong southerly winds. Predicted levels of operational turbine noise are considered to be below thresholds associated with sustained avoidance and it is considered that suitable alternative foraging habitat remains available. *Significance of Effect* In the absence of mitigation, disturbance and displacement effects are considered **moderate adverse at a local scale, due to partial loss of foraging opportunity within the turbine envelope and potential energetic costs associated with altered site use**. *Collision Risk* The CRM predicted a collision rate of 0.22 whooper swans per annum in the non-breeding season of 2022/2023 and 0.55 whooper swans in the non-breeding season of 2023/2024. which equates to 7.7 and 19.2 individuals respectively over the life of the development. For the 2023/2024 breeding season a behaviourally adjusted CRM was applied, utilising additional flight activity estimated from behavioural observations, flight speed measurements and bioacoustics data to account for movements not observed during standard vantage point watches- i. e during the hours of darkness. Collision rates exceed a low-risk threshold of 0.05 birds/year but are considered to be low relative to national and regional populations. "CRM assumptions prioritise observed use patterns over macro-avoidance (99.5%, Band,2024), which would otherwise imply substantial habitat loss. Micro-avoidance remains less well quantified (Mackie, 2025), introducing some uncertainty in close-range turbine interactions". Operational-phase-

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	monitoring at comparable wind farms, e.g. the Thanet Offshore Wind Farm (UK) and Carrownagowan Wind Farm (Ireland) indicate that over time birds generally exhibit higher avoidance rates than those predicted by the CRM. *Significance of Effect* In the absence of mitigation, collision risk is considered low and **not significant at a local scale**, based on predicted mortality rates, observed avoidance behaviour, and evidence from operational-phase monitoring at comparable wind farms. In Table 7-10 predicted operational effects are described as **moderate, locally significant without mitigation** and **not significant with the implementation of the WSMP**. <u>*Curlew (non-breeding season)*</u> *Disturbance and Displacement* Disturbance distances exhibited by curlew of up to 250-500m are given. No breeding birds were recorded. Turbine operation is considered the primary potential disturbance pathway while human maintenance activity is considered negligible. Operational longer term than construction but most potential foraging outside immediate turbine envelope. Displacement expected to be spatially limited. *Significance of Effect* In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of local non-breeding curlew. As such, there is an **indirect, adverse, and minor effect at a local scale**. *Collision Risk* Most flight activity was considered to be of low altitude and therefore no collision risk modelling was undertaken. *Significance of Effect* In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of turbines. As such, there is considered to be an **indirect, adverse, and minor effect on non-breeding curlew at a local geographical scale.** In Table 7-10 predicted operational effects are described as **minor local**. <u>*Golden Plover (non-breeding season)*</u> *Disturbance and Displacement* Golden plovers are considered sensitive to disturbance and may avoid areas within 300-500m of turbines. Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is negligible compared with existing land management activities. Displacement expected to be spatially limited. *Significance of Effect* In the absence of mitigation, operational-phase activities may cause temporary behavioural avoidance of turbines. As such, there is considered to be an **indirect, adverse, and minor effect on golden plover**. *Collision Risk* The CRM predicted a collision rate of 3.25 per annum representing 0.0035% of the national population. It was considered that most flights were recorded outside the rotor-swept zone and potential interactions were low. *Significance of Effect* In the absence of mitigation, operational-phase collision risk for local golden plover is considered to be extremely low. As such, there is an **indirect, adverse, and negligible effect at a local scale**. In Table 7-10 predicted operational effects are described as **negligible to minor-moderate local**. <u>*Lapwing (non-breeding)*</u>

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Disturbance and Displacement Non-breeding lapwing are considered sensitive to disturbance and may avoid areas within 300-500m of turbines. Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Displacement expected to be spatially limited as most suitable lapwing foraging areas lie outside the turbine envelope. *Significance of Effect* In the absence of mitigation, operational-phase activities may result in temporary behavioural avoidance and minor displacement of lapwing. As such, there is considered to be **an indirect, adverse, and minor effect at a local geographical scale**. *Collision Risk* The CRM predicted a collision rate of 0.77 per annum equating to 27 individuals over the 35-year operational lifespan, representing 0.00077% of the national population. *Significance of Effect* Mortality at this scale is considered to be **negligible at local and national scales.** In the absence of mitigation, potential collision with turbines is predicted to result in an **indirect, adverse, and minor effect at a local scale**. In Table 7-10 predicted operational effects are described as **minor local**. <u>*Snipe (non-breeding)*</u> *Disturbance and Displacement* Disturbance may arise from operational turbines and routine maintenance; however, it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Displacement is expected to be spatially limited as most suitable snipe foraging areas lie outside the turbine envelope and there is extensive alternative habitat in the wider area. *Significance of Effect* In the absence of mitigation, temporary behavioural avoidance and displacement of snipe is assessed as **negligible and not significant at the local geographical scale**. *Collision Risk* The CRM predicted a collision rate of 0.06 per annum equating to 1.95 individuals over the 35-year operational lifespan, representing 0.0004% of the national non-breeding population. Collision risk is considered to be negligible. *Significance of Effect* In the absence of mitigation, collision-related mortality is considered to be **negligible and not significant at the local geographic scale**. *Habitat loss* Permanent habitat loss includes 33.4 ha of grassland and 1.3km of drainage ditches along with a temporary habitat loss of 51.4m of lowland river features. This is considered to represent a measurable loss within the core study area but minor in the context of the wider landscape. *Significance of Effect* In the absence of mitigation, the effect of permanent habitat loss on snipe is considered to be **minor and not significant at the local geographical scale**. In Table 7-10 predicted operational effects are described as **minor local**.

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Other waterbirds (All seasons) *Disturbance and Displacement* Disturbance to cormorant, grey heron and little egret may arise from operational turbines and routine maintenance, however it is considered that disturbance caused by routine maintenance activities is minor compared with existing land management activities. Most flight activity was considered to be primarily commuting flights along river corridors and away from operational activity. Any displacement is expected to be temporary due to low densities of these species and availability of functional habitat. *Significance of Effect* In the absence of mitigation, temporary behavioural avoidance and displacement are assessed as **adverse, minor and not significant at the local geographical scale**. *Collision Risk* Collision rates are considered to be low for all three species: • Cormorant: 0.27 collisions per year equating to 9.6 individuals over 35 years which is considered to be a negligible fraction of the national population. • Grey heron: 0.14 collisions per year equating to 4.8 individuals over 35 years, it is considered low flight heights further reduce risk. • Little egret: Not modelled due to low levels of flight activity. *Significance of Effect* In the absence of mitigation, collision-related mortality is considered to be **negligible and not significant at the local geographical scale**. *Water Quality* No permanent alteration to water flow or clarity, which can affect prey availability, are anticipated. *Significance of Effect* In the absence of mitigation, operational-phase effects on prey availability due to water quality changes are considered to be **negligible and not significant at the local geographical scale**. In Table 7-10 predicted operational effects are described as **minor – not significant** *Gulls (All seasons)* *Disturbance and Displacement* Black-headed gull and lesser black-backed gull were recorded; no breeding or loafing was recorded with all records relating to foraging birds or flight activity. Both species are considered to be moderately sensitive to disturbance but are described as being highly mobile, behaviourally flexible and capable of habituating to operational infrastructure. Most potential foraging habitat lies outside the turbine envelope and alternative habitat is abundant in the wider area. Operational activities may cause temporary behavioural avoidance, typically to within 300m of turbines. *Significance of Effect* In the absence of mitigation, operational-phase disturbance may cause temporary behavioural avoidance. As such, there is considered to be an **indirect, adverse and negligible effect on both species at the local geographical scale**. *Collision Risk* For black-headed gull the CRM predicted a collision rate of 1.87 per annum equating to 16.45 individuals over the 35-year operational lifespan, representing 0.014% of the national non-breeding population. For lesser black-backed gull the CRM predicted a collision rate of 2.59 per annum equating to 12.25 individuals over the 35-year operational lifespan, representing 0.055% of the national non-breeding population. *Significance of Effect*

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	In the absence of mitigation, collision risk is predicted to be minimal. As such, there is considered to be **a direct, adverse and negligible effect on black-headed gull and lesser black-backed gull at the local geographical scale**. *Water Quality* Water quality may be altered through run off or accidental pollution which could temporarily reduce prey availability. The development is designed to retain functional hydrological connectivity and aquatic habitat quality; the volume and frequency of disturbance are considered minimal. *Significance of Effect* In the absence of mitigation there is potential for short-term, localised changes in water quality. As such, there is considered to be **an indirect, adverse and negligible effect on local waterbird populations at the local geographical scale**. In Table 7-10 predicted operational effects are described as **negligible – not significant** <u>*Raptors (All seasons)*</u> *Disturbance and Displacement* The raptor species concerned vary in their sensitivity to disturbance. Buzzard and kestrel are considered to be generally tolerant of moderate human activity and have demonstrated the capacity to habituate to wind farms over time. Peregrine, long-eared owl and barn owl are considered to be more sensitive particularly during the breeding season and sparrowhawk is moderately sensitive. Buzzard, kestrel and sparrowhawk were recorded breeding recorded within or near the core study area with long-eared owl likely just outside the core study area. Barn owl and peregrine nest further than 5km away. No species were recorded nesting within the proposed development footprint. Other raptor species were considered to be highly mobile and use habitats across the wider landscape. *Significance of Effect* In the absence of mitigation, temporary behavioural changes or minor avoidance may occur, but these are reversible. As such, there is considered to be **an indirect, adverse and minor effect on raptors including long-eared owl at the local geographic scale**. *Collision Risk* Undertaken for buzzard, kestrel, sparrowhawk and peregrine. Predicted annual collision risk were low in all cases being less than 0.1% of national breeding populations. Not undertaken for long-eared owl, merlin, peregrine and white-tailed eagle due to low flight activity and flights either recorded over or under turbine envelope. *Significance of Effect* In the absence of mitigation, temporary behavioural changes or minor avoidance may occur, but these are reversible. As such, there is considered to be an **indirect, adverse and minor effect on raptors at the local geographical scale**. *Lighting Effects* Operational lighting is limited and low intensity and all raptor species concerned are considered to be highly mobile and able to avoid illuminated areas. No nests are located immediately adjacent to illuminated infrastructure. Alternative hunting and commuting routes remain available. No behavioural changes or displacement expected. *Significance of Effect* In the absence of mitigation, operational-phase lighting may cause minor, temporary behavioural avoidance by raptors at a local scale. This is considered to be as an **indirect, adverse and minor effect, reversible once birds habituate or avoid illuminated areas**. *Noise Effects*

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Turbine noise is considered to be of low amplitude and frequency and raptor species are considered to be unlikely to be displaced from core foraging or commuting routes. Birds are predicted to habituate to the presence of turbines over time. *Significance of Effect* In the absence of mitigation, it is considered that operational-phase noise may cause minor, temporary behaviour avoidance at a local scale. This is assessed as an **indirect, adverse and minor effect, reversible once birds adjust to turbine operation**. In Table 7-10 predicted operational effects are described as **negligible – not significant** *Passerines (All seasons)* *Disturbance and Displacement* Operational turbines and routine maintenance may cause localised behavioural responses in passerines. Any temporary displacement or disruption in movement is expected to be limited due to most species flying below rotor height and breeding territories and foraging occurring mostly outside the immediate turbine envelope. *Significance of Effect* In the absence of mitigation, operational-phase disturbance and temporary displacement may occur in passerines. This is considered to be an **indirect, adverse and negligible effect at a local geographical scale.** *Collision Risk* Passerines generally show low susceptibility to collision with turbines and no collision modelling was required. Potential for collision mortality considered negligible. *Significance of Effect* In the absence of mitigation, the potential for collision-related mortality in passerines during operation is considered **negligible at a local geographical scale**. In Table 7-10 predicted operational effects are described as **negligible – not significant**
Decommissioning Phase	Effects are anticipated to be broadly similar in nature to construction phase though of generally reduced magnitude and duration. As decommissioning is likely to occur at least 35 years after the original baseline surveys the effects will require reassessment against updated baseline conditions.
Proposed Grid Connection Route	The GDR is not assessed separately to the main windfarm. Activities will be restricted to the existing road network
Turbine Delivery Route	The TDR is not assessed separately to the main windfarm. Activities may involve vegetation trimming which is accounted for as a direct effect. This is also considered relevant for a temporary access track required for turbine delivery.
Designated Sites	A separate Technical Note has been prepared in relation to predicted effects on the River Shannon and River Fergus Estuaries SPA.
Cumulative	A 20 km study radius was used to identify other developments where overlapping effects may arise. The 20 Km radius was consistent with guidance provided in the Wind Energy Development Guidelines (2006) and the Draft Wind Energy Guidelines (2019). Cumulative effects were identified where impacts were the same as those identified for the development, i.e. direct habitat loss, disturbance and displacement, collision risk and indirect effects via water quality changes. Permanent habitat loss was only considered to be potentially cumulative if other developments occur within 300 m of the proposed Development and any disturbance or displacement effects are expected to be spatially limited to 300 m. Table 7-11 describes all operational, permitted and proposed wind farms within 20 km of the proposed Development. It was considered that cumulative effects due to disturbance or habitat loss were unlikely as they were all located over 300 m away. Spatial separation of turbines and low predicted CRM values were considered to indicate **negligible** cumulative collision risk and with the implementation of the WSMP, SuDS and standard construction mitigation it is considered that any cumulative water quality effects are likely to be **minor and not significant**.

Table 1. Summary of Potential Effects (Birds).

Project Phase	Potential Direct, Indirect and Cumulative Effects
	Table 7-12 describes all other major developments within 10km of the proposed Development that could contribute to cumulative effects via water quality. Projects that had been completed since 2019 or were not yet completed or under construction and in the same hydrological catchment areas were included. As all other developments were more than 300m away and localised habitat impacts do not overlap with the proposed Development all cumulative effects were considered to be **negligible**. Any cumulative water quality effects are considered **minor and reversible**.

Mitigation

Embedded Mitigation

16. Embedded mitigation measures described include the development layout which has been designed to minimise the potential impact on IOFs, particularly whooper swan, with turbines sited to avoid key flight lines, core foraging areas and known roost locations to reduce the risk of displacement and collision. A table is provided (Table 7-13) detailing various changes in design and the reasons for these changes.

17. As well as benefitting whooper swans these changes are also considered to have secondary benefits for other species such as foraging golden plover and lapwing.

18. Placement of infrastructure designed to follow existing filed boundaries and avoid high-value habitats such as hedgerows and wetlands where possible to minimise direct habitat loss and fragmentation.

Construction Phase Mitigation Measures

19. Appendix 7D: Whooper Swan Management Plan details mitigation and monitoring during the construction phase of the development to avoid displacement of whooper swans from foraging habitats. During the construction phase, monitoring is considered critical to capture behaviour and habitat use of this species when disturbed by construction activities and ensure enhanced habitats are functional and used by swans. This is expected to provide a robust reference for adaptive management and operational-phase monitoring.

20. A number of mitigation measures during construction are described, these include:

- Habitat Enhancement at Camas South will be completed prior to construction to allow swans to become habituated to new habitat;
- Deterrence measures within 200m of turbines if swans are recorded feeding there prior to construction;
- Scrub removal and drainage works completed in enhancement fields prior to October arrival of swans;
- Vegetation removal either completed outside the breeding season or pre-clearance checks carried out by a qualified ecologist;
- Buffer zones of 300 m maintained around feeding swans within which no high noise or high movement construction activities permitted. 300m buffer at lower end of 200-600m buffer recommended by NatureScot but given as being supported by empirical studies (e.g. Fijn *et al*., 2012);
- No heavy construction works to occur on turbines T1, T2, T4 & T5 during winter period with no construction work at all on T3 during this period. Light works will be carried out on T1, T2, T4 & T5 during this period;
- Seasonal exclusion zones around core swan foraging areas will be in place between 1 October and 31 March each year. These buffer zones will extend at least 300 m from active foraging fields and temporary screening and noise suppression measures will be applied. Work will be scheduled to prioritise what are considered to be periods of least swan activity;
- Measures will be reviewed every three months.

Operational Phase Mitigation Measures

21. A programme of habitat management, turbine operation mitigation, deterrence and monitoring is described in accordance with the WSMP. Adaptive management used to ensure mitigation remains responsive to swan behaviour, habitat condition and turbine interaction over time. Contingency measures including curtailment and additional deterrents will be deployed if necessary.

Habitat Management at Camas South

22. Grazing/cutting to maintain a sward height of 5-10cm and application of slurry/lime to enhance foraging in the enhancement area. This area will also be closed to grazing between 15th October and 31 March. Monitoring undertaken of sward composition with remedial action taken if necessary.

23. Enhancement measures designed to support a minimum of 2,112 ± 245 swan days based on five years of survey data.

24. Wetland areas maintained and monitored to ensure damp ground over winter period and prevent excessive poaching. Soil fertility tested and amended if necessary.

25. Turbine-adjacent fields made less suitable for foraging by reseeding with less palatable grasses or by mechanical means, nutrients not applied in these fields after 1st October.

26. Physical deterrents deployed where swans are observed near turbines and used until grasses become unpalatable.

27. Hedgerow management and access controlled to ensure visual connectivity over enhancement area and adjacent foraging areas.

Turbine Operation Mitigation

28. Targeted curtailment protocol at T1, T2, T3 & T4, these are the turbines considered to be closest to areas of highest swan activity. Full curtailment of turbines T1 to T4 in first winter of operation to allow swans to habituate to the presence of the turbines. In future years curtailment is focussed on high-risk zones (e.g. T3) and implement a dynamic curtailment protocol based on real-time observations of activity, proximity, time of day (roost fights at dawn and dusk), weather (low visibility or crosswinds) and flight direction (within proximity of turbines).

Decommissioning Phase Mitigation Measures

29. Decommissioning is considered to have the potential to cause short-term disturbance to wintering whooper swans. The approach aims to minimise disturbance, protect key habitats and ensure any residual impacts are mitigated. Most concrete infrastructure will remain in place limiting disturbance. Similar mitigation measures will be employed to those implemented during construction (Section 7.2.2).

30. A Decommissioning Plan will be drafted prior to any work being undertaken detailing protection measures for IOFs including limitations on working corridor, minimised effects on vegetation, protection of water quality and protection of breeding and foraging species. Pre-decommissioning surveys undertaken to identify IOFs that may be affected.

Monitoring

Construction Phase Monitoring

31. Will mirror operational monitoring where possible to establish baselines and measure short-term effects.

32. Whooper swan monitoring will consist of displacement monitoring (biweekly road transects between October and March), flock scan behaviour surveys (sampling of flock behaviour to assess perception of disturbance and foraging efficiency), dropping density surveys (monthly mapping of swan droppings to assess use and avoidance of areas) and field quality assessments (monthly assessment of habitat suitability).

33. Golden plover monitoring will consist of ad-hoc flock counts and behaviour scans between October and March. Flock size, activity and any displacement recorded with target fields identified from baseline surveys.

Collision Risk Monitoring (Pre-Operational Baseline)

34. Monthly vantage point surveys will be undertaken at dawn/dusk to capture flight lines, altitude and interaction with turbines to record early response to turbines.

Construction Reporting and Review

35. Construction Phase Mitigation and Monitoring Report submitted at end of each winter season during construction including swan usage data, behavioural trends, evidence of displacement/effectiveness of deterrents, field condition, golden plover activity and changes and recommendations for any adaptive management.

36. Construction-phase findings will inform operational-phase monitoring strategy.

Operational Phase Monitoring

37. Monitoring activities will be carried out between October and March and will include; fortnightly surveys to monitor distribution and abundance, monthly vantage point surveys to record flight lines, heights and interactions with turbines, monthly dropping density surveys and habitat condition monitoring to assess sward and wetland areas.

38. Monitoring carried out in accordance with Table 7.3 of the WSMP, criteria for initiation of adaptive management or curtailment are as follows:

- Swan Mortality Threshold: Over one collision in one winter triggers a review and over two triggers curtailment.
- Site use decline: Over 30% reduction in mean flock size or swan-days compared to baseline triggers review and sustained decline over two winters triggers enhancement or curtailment.
- Behavioural change: Less than 10% swan-days in enhanced fields or over 25% alert/disturbed behaviour triggers corrective action.
- Collision Risk Modelling: Over 0.05 birds/year collision rate triggers strengthened curtailment protocols.

Collision Risk Modelling

39. Carcass searches following NatureScot (2019) guidance at standard intervals and annual review of collision risk mitigation through integration of monitoring and modelling. Collision risk modelling updated based on flight behaviour and mortality data.

Operational Reporting and Review

40. Annual reporting with cumulative reviews at Years 1, 2, 3, 5, 10 and 15 post-construction in line with NatureScot guidance and WSMP.

41. Annual reports will include summaries of mitigation and monitoring activities including swan usage and behavioural data from receptor and control sites, habitat condition and management outcomes, deterrence actions and turbine curtailment and collision monitoring results.

42. Cumulative reviews will assess mitigation performance, detect trends or risks and guide updates to protocols.

Residual Effects

43. Residual effects of construction, operational and decommissioning are assessed taking into consideration embedded and additional mitigation measures. The magnitude, duration,

reversibility, reversibility and spatial scale and significance of each effect are evaluated at both the local and population level.

Construction Phase

44. Temporary residual effects are described on habitats such as habitat loss and degradation (including temporary construction compounds) until compensatory planting becomes established. Other temporary residual effects described include reversible residual effects on soil and vegetation structure. Effects are described as being minimised on riparian and wetland habitats using protective measures.

45. Residual effects of the construction phase on all bird species are considered to be between negligible and moderate and not significant in all cases.

Operational Phase

46. Habitat quality will be maintained and improved in the long term during the operational phase ensuring ecological connectivity and foraging and movement of birds and reducing risk of displacement. In the operational phase it is considered that residual effects on habitats are minor beneficial at the local scale.

47. Residual effects of the operational phase on all bird species are considered to be between negligible and moderate and not significant in all cases.

Decommissioning Phase

48. Some temporary disturbance and vegetation clearance will occur but habitat reinstatement and management will restore ecological function and connectivity. Residual effects considered minor adverse and temporary at the local scale.

49. Residual effects of the decommissioning phase on all bird species are considered to be not significant in all cases.

Analysis, Evaluation and Assessment: Direct and Indirect Effects

50. We have examined, analysed and evaluated Chapter 7 of the EIA Report (Ornithology) including all associated appendices and figures and have provided our professional opinion as

to the adequacy of the information before the Inspector and the Coimisiún to undertake an Environmental Impact Assessment in relation to impacts on Ornithology.

51. Although comprehensive bird surveys have been undertaken over a total of three years there are errors in the way flight survey data has been collected and collision risk modelling undertaken. This has implications regarding potential effects of the Proposed Development on whooper swan.

Collision Risk Modelling

52. The statement in Appendix 7C that "*VP watches have been undertaken over three years. As per NatureScot guidance, the CRM analysis was undertaken for Years 2 and 3, the two most recent consecutive years*" is technically inaccurate. While NatureScot (2025)[104] guidance establishes a minimum requirement of two years of data, it does not mandate the exclusion of additional valid data.

53. In fact, NatureScot (2024)[105] guidance and Band *et al.* (2007)[106] emphasise the importance of capturing natural variation. Excluding Year 1 from a valid three-year dataset reduces the representativeness of the baseline and the ability to accurately calculate mean activity and standard deviation. By excluding Year 1 without justification, the applicant has prioritised a 'minimum' compliance approach over a robust, evidence-based assessment. Using all available data (three years instead of two) promotes greater confidence in the results and increases the transparency of the calculations and would provide a more comprehensive assessment of the site's importance.

The Principle of Independence

54. To ensure a robust baseline for Collision Risk Modelling, Vantage Point (VP) watches must be conducted as a series of independent samples. The primary objective is to gather a representative dataset of bird flight activity that accounts for natural fluctuations in behaviour

[104] NatureScot. (2025). Recommended bird survey methods to inform impact assessment of onshore wind farms. Available at https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms

[105] NatureScot. (2024). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. Available at https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms

[106] Band, W., Madders, M. & Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In de Lucas, M, Janss, G.F.E. & Ferrer, M. (Eds.) Birds and Wind Farms: Risk assessment and Mitigation, pp. 259 - 275. Quercus, Madrid.

and shifting environmental conditions. However, the current methodology exhibits substantial temporal clustering, which is particularly evident in the Year 2 data. By concentrating survey effort into single days or narrow time windows, the Applicant has introduced a significant temporal bias that undermines the validity of the findings.

55. Survey schedules should ensure that different areas of a site are recorded at various times to maintain spatial and temporal integrity. Instead, the use of simultaneous observations across the site has resulted in compressed sampling bias. This approach severely limits the number of unique environmental windows sampled, thereby reducing data diversity. For example, during Year 2, the Applicant frequently sampled site conditions on only one day per month, effectively excluding the biological variation present in the remaining twenty-nine days (see Table 4 below).

56. Furthermore, the reliance on the total number of survey hours is not a representative metric of effort. A high volume of hours cannot compensate for a fundamental lack of independence. Because the survey effort was condensed into a few unique days, it failed to capture the necessary diurnal and environmental diversity required for a professional assessment. Consequently, the reported "low activity" may be an artifact of sampling bias rather than an accurate reflection of site usage.

57. Ultimately, a collision risk model built on clustered data is less reliable than one informed by strictly independent, stratified samples. By undertaking back-to-back 3-hour watches on the same day, surveyors recorded only a single cluster of observations. This snapshot approach (sampling only one weather state and one set of biological conditions) directly contradicts NatureScot guidance, which explicitly states that watches must be designed to form a representative sample of bird activity over time.

Density Estimation

58. It is unclear how the Applicant has calculated breeding season and non-breeding season estimates of bird density, as these cannot be replicated from the information given in Appendix 7B and 7C.

59. Furthermore, Appendix 7C describes two methods of weighting bird density estimates but does not indicate which, if any, has been used.

60. For example, Table 2 provides whooper swan flight activity data extracted from Appendix 7B: Table A6.23 for the 2022-23 non-breeding season, i.e., Year 2 of survey.

Table 2. Summary of whooper swan flight activity during Year 2 of survey. Data are in seconds of flight activity.						
Season	**VP No.**	**0-20m**	**20- 50m**	**50- 100m**	**100-180m**	**>180m**
Non- breeding 2022-23	1	0	1487	1800	0	0
	2	0	2478	4339	0	0
	3	0	0	360	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0
	6	0	0	0	0	0
	7	0	0	0	0	0
	Totals	**0**	**3965**	**6499**	**0**	**0**

61. Table 3 calculates the mean whooper swan density (i.e., birds per km^2) for the Year 2 non-breeding season. The mean has been weighted by effort and by turbine. As can be seen none of the three density estimates matches those given in Appendix 7C: Table 5.

Table 3. Density estimates for whooper swan during the Year 2 non-breeding season.										
VP No.	**Area visible (km^2)**	**Effort (hrs)**	**Total duration of flight activity (s)**	**Density (birds/km^2)**	**Effort (km^{2}hr)**	**Weight**	**Effort weighted density (birds/km^2)**	**No. of turbines**	**Weight**	**Turbine weighted density (birds/km^2)**
1	0.95	36.00	3287	0.0267	34.20	0.130	0.0035	2	0.118	0.0031
2	0.92	36.00	6817	0.0572	33.12	0.126	0.0072	1	0.059	0.0034
3	0.86	36.00	360	0.0032	30.96	0.118	0.0004	2	0.118	0.0004
4	0.98	36.00	0	0.0000	35.28	0.135	0.0000	2	0.118	0.0000
5	1.79	36.00	0	0.0000	64.44	0.246	0.0000	5	0.294	0.0000
6	0.82	36.00	0	0.0000	29.52	0.113	0.0000	1	0.059	0.0000
7	0.96	36.00	0	0.0000	34.56	0.132	0.0000	4	0.235	0.0000
Mean density (birds/km^2)				**0.0124**			**0.0111**			**0.0069**
Density given in Appendix 7C: Table 5				**0.0051**						

62. The internal inconsistency between the flight logs in Appendix 7B and the density estimates in Appendix 7C renders the collision risk modelling fundamentally unreliable.

63. The Applicant's methodology is not presented in full and these findings raise concerns regarding the integrity of the entire dataset. Without clear, replicable calculations provided by the Applicant, the density estimates and subsequent collision risk outputs remain unverified and should be treated with a high degree of caution.

64. It is important to note that this appraisal and the resulting discrepancies identified in the density calculations were based solely on data for whooper swan during the Year 2 non-breeding season, presented in Appendix 7B.

Whooper swan flight activity from vantage point surveys

Representativeness of survey effort

65. As discussed in the Collision Risk Modelling section according to NatureScot guidance VP watches should be designed to form a representative sample of bird activity over time. However, in Year 2 there is a high level of temporal clustering, and this is particularly apparent when examining the flight activity surveys (and recording of whooper swans) carried out in the non-breeding period of 2022/2023.

66. Seven VPs provided flight activity data for Years 2 and 3. The viewshed analysis shown in Figure A4.1 (Appendix 7B) shows total coverage with no visible gaps. NatureScot guidance advocates that when selecting VPs the aim is to achieve maximum visibility using the minimum number of points. Whilst a single VP could technically cover the northern sector, and a combination of two VPs could cover the southern sector; no justification is given for the high degree of overlap.

67. Data collection methods during the 2022/2023 non-breeding season were problematic. Up to four observers performed simultaneous VP watches despite having nearly identical viewsheds. As discussed in the collision risk modelling section this redundancy complicates the accurate recording of all target species, particularly whooper swan.

68. VP locations 1, 2 & 3 cover the 500m buffer area around Turbines 1 to 5, the area closest to Camas South, a known feeding area for whooper swans that roost at Lough Gur pNHA and therefore an important area for recording flight activity of these birds to and from their roosting area but also more locally between feeding areas.

69. Between October and March 2022/2023, surveys were conducted simultaneously by three observers at VPs 1–3 on every survey day, as detailed in Table 4. For example, on 12

December 2022, observers GM, TT, and TR commenced their first watches nearly simultaneously (07:30, 07:37, and 07:30, respectively), with a second round of coordinated surveys starting at 11:00.

Table 4. Summary of VP effort during Year 2. Data extracted from Appendix 7B: Table 5.1.

Season	Date	VP1	VP2	VP3	VP4	VP5	VP6	VP7	Grand Total
Year 2 Non-breeding	05/10/2022	6.00	6.00	6.00	-	-	-	-	18.00
	10/10/2022	-	-	-	6.00	6.00	6.00	6.00	24.00
	07/11/2022	-	-	-	6.00	6.00	6.00	6.00	24.00
	15/11/2022	6.00	6.00	6.00	-	-	-	-	18.00
	01/12/2022	-	-	-	6.00	6.00	6.00	6.00	24.00
	12/12/2022	6.00	6.00	6.00	-	-	-	-	18.00
	06/01/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	10/01/2023	6.00	6.00	6.00	-	-	-	-	18.00
	07/02/2023	-	-	-	-	6.00	-	-	6.00
	08/02/2023	-	-	-	6.00	-	6.00	6.00	18.00
	09/02/2023	6.00	6.00	6.00	-	-	-	-	18.00
	07/03/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	08/03/2023	6.00	6.00	6.00	-	-	-	-	18.00
Year 2 Non breeding Totals		**36.00**	**36.00**	**36.00**	**36.00**	**36.00**	**36.00**	**36.00**	**252.00**
Year 2 Breeding	07/04/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	11/04/2023	6.00	6.00	6.00	-	-	-	-	18.00
	04/05/2023	6.00	6.00	6.00	-	-	-	-	18.00
	05/05/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	06/06/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	15/06/2023	6.00	6.00	6.00	-	-	-	-	18.00
	06/07/2023	-	-	-	6.00	6.00	6.00	6.00	24.00
	10/07/2023	6.00	6.00	6.00					18.00
	04/08/2023	-	-	-	6.00	6.00	6.00	6.00	24.00

	08/08/2023	6.00	6.00	6.00	-	-	-	-	18.00
Year 2 Breeding Totals		**30.00**	**30.00**	**30.00**	**30.00**	**30.00**	**30.00**	**30.00**	**210.00**

70. The Applicant states in Appendix 7B that surveyors remained in contact to prevent double counting, effectively "passing" observed birds between viewsheds. However, the raw data contradicts the claim that birds were passed between viewsheds. For example, on 12 December 2022, flight WS06 originated in the VP3 observation zone and concluded in the VP2 observation zone (as defined in Appendix 7C: Figure 1), yet the record is attributed solely to VP2 (Appendix 7B: Table A6.23). Similarly, on 10 January 2023, flight WS14 crossed from VP2 into VP1 but was only attributed to VP2.

71. Crucially, none of these flights were tracked across multiple vantage points, leaving it unclear how these transitions were handled within the CRM. Further discrepancies are evident in records such as flight WS13; this flight is attributed to VP1 despite falling entirely outside the VP1 "observation zone" shown in Appendix 7C (Figure 1), even though it remains within the broader VP1 "viewshed" shown in Appendix 7B (Figure A4.1). Such inconsistencies make it impossible to determine whether valid flight data has been erroneously excluded from the CRM.

72. The absence of overlapping records for these flights appears to be an artefact of the Applicant retrospectively clipping viewshed extents to ensure spatial independence. While intended to avoid double counting, this post-survey processing has effectively fragmented continuous flight paths. By artificially restricting a flight to a single, clipped observation zone, the Applicant fails to account for the bird's full duration and trajectory across the site. This methodology leads to a systematic underestimation of "time at risk" and, consequently, *produces unreliable collision mortality figures.*

Collection of dawn and dusk flight activity data

73. NatureScot guidance[1] on recommended bird survey methods states that for development sites potentially affecting geese or swans flying to or from roost sites, "*observations should be conducted one hour before dawn to one hour after dawn... and one hour before dusk to one hour after dusk*". For development sites near feeding areas or those intercepting flights between feeding sites, "*observations should be conducted throughout the day"*. These represent specific flight activity surveys intended to inform the Collision Risk Model; they require 36 hours of observation per non-breeding period and must be conducted in addition to, and independent of, the standard 72 hours of annual VP surveys.

74. Whooper swan flight activity peaks during dawn and dusk as birds fly to and from their roosting and feeding sites. Identifying these movements was therefore a critical objective; however, the necessary dawn and dusk vantage point watches were not conducted to address this.

75. The standard VP watches rarely coincided with dawn or dusk periods. This is presented in Figures 1 and 2 which show the temporal spread of vantage point watches at VPs 1, 2 and 3 in Years 2 and 3 (the years used for the CRM) including dawn and dusk periods.

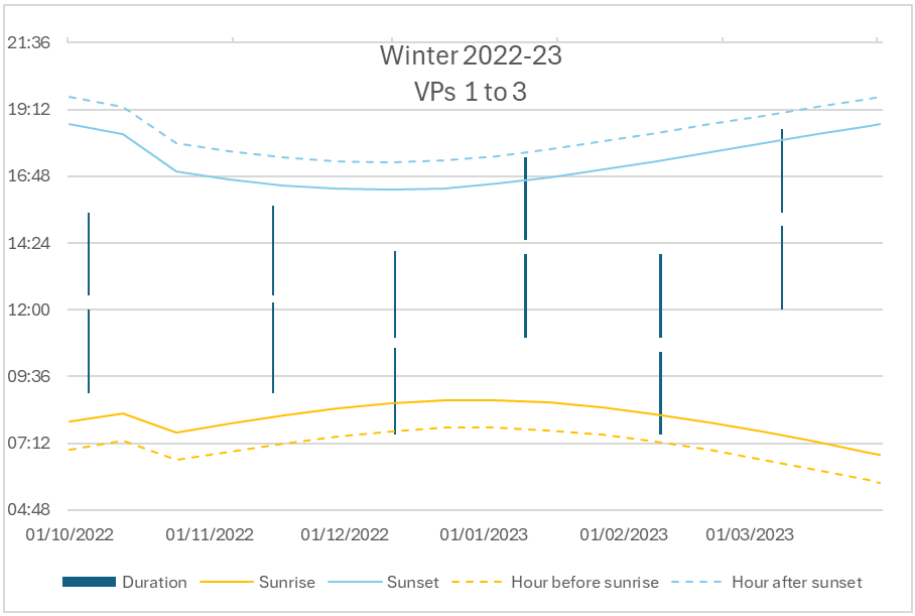


Figure 1: Temporal spread of vantage point surveys from VPs 1, 2 and 3 in Winter 2022/2023

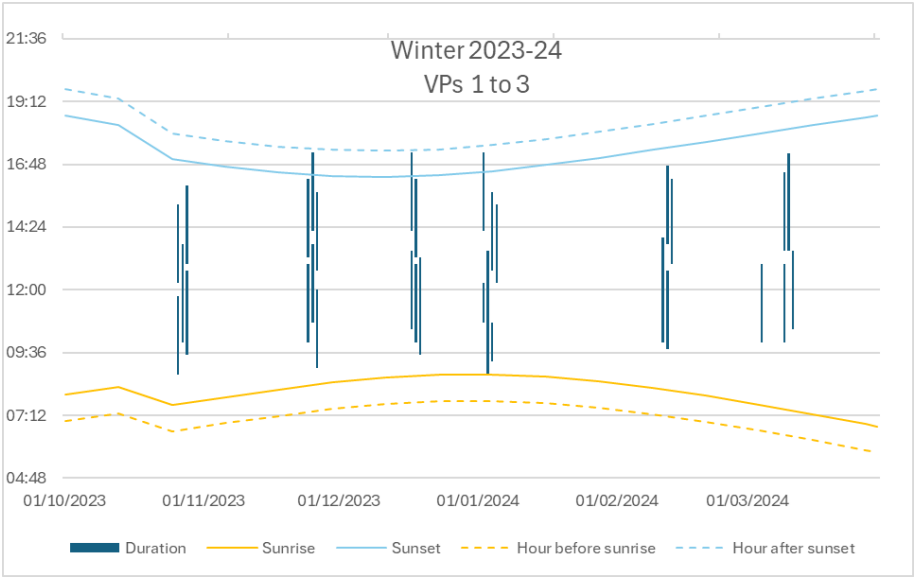


Figure 2: Temporal spread of vantage point surveys from VPs 1, 2 and 3 in Winter 2023/2024

76. A review of the Applicant's survey timing for VPs 1 to 3 across both Winter 2022–23 and Winter 2023–24 confirms a failure to monitor critical peak activity periods. In the Winter 2022–23 season, survey effort was biased toward mid-day hours (typically 09:30 to 15:30), with October, November, January and March surveys completely missing the dawn window, and October, November, December and February surveys concluding prior to sunset. While the subsequent Winter 2023–24 season shows a higher density of survey intervals, the data reveals persistent deficiencies. Key dawn windows were entirely omitted, while vital dusk activity was unrecorded across November, December and January, and omitted in October, February and March. Across both winter periods, the survey methodology failed to isolate the primary dawn/dusk windows required to record whooper swan movements between roosting and feeding sites, invalidating the baseline flight activity assessment.

77. During the 2023/2024 winter season, bioacoustics monitoring recorded 48% of all detections between 00:00 and 01:00, indicating significant nocturnal activity by whooper swans. To account for this, the Applicant used "inferred" flight data within the Year 3 Collision Risk Model. However, the Applicant fails to provide a clear methodology or logical basis for these revised mortality figures, stating only that they were estimated from "*behavioural observations, flight speed measurements, and bioacoustics data*". Consequently, there is no way to verify if this approach is robust or appropriate. This is particularly concerning given the high volume of activity recorded near the Proposed Development during the hours of darkness.

78. Bioacoustics surveys recorded "*high levels of activity*" in the Rathcannon Pond area. Although this site is not in immediate proximity to the Proposed Development, it may be used more frequently during nocturnal hours. Crucially, the movements between this location and other roosting or feeding areas remain poorly understood.

79. It is our professional opinion that the Applicant did not adequately follow relevant NatureScot guidance regarding the recording of whooper swan flight activity during the crucial dawn and dusk periods. These periods are essential for capturing birds in transit between their roost site at Lough Gur and favoured feeding grounds at South Camas. Furthermore, bioacoustics monitoring indicates significant nocturnal swan activity involving unknown flightpaths. While "inferred" flight data was used to calculate additional collision risk, the Applicant provided no methodology or reasoning for its derivation; moreover, this data relies on inadequate vantage point surveys and unverified assumptions of "*known flight corridor usage*." Crucially, it cannot

be assumed that swans follow identical flightpaths at night, especially given the high levels of nocturnal activity recorded in the Rathcannon Pond area.

80. Therefore, the level of flight activity at dawn and dusk is likely to have been underrepresented and any collision risk figures are likely to have been underestimated.

Whooper Swan Feeding Distribution and Roost Surveys

81. Whilst effort has been made to record the feeding distribution of whooper swans from dedicated whooper swan surveys, wintering waterbird surveys and winter walkover surveys these are not adequately presented within Appendix 7B. There are no figures presenting the results of the Year 2 waterbird surveys or any whooper swan surveys in Appendix 7B with this data only presented as 'swan-days' from all surveys in the mitigation strategy in Appendix 7D. This also contains data from the winter of 2020/2021 which is not described within Appendix 7B. It is unclear whether any flights were recorded during these surveys through the study area as they are not presented in a table or figure within Appendix 7B and it is also unclear which "Year 3 behavioural data" was included in the adjusted collision risk modelling for Year 3.

82. In Appendix 7B the whooper swan roost surveys are described as flight speed surveys and a total of 18 flights are noted as being recorded. There are, however, no figures given to show the flight paths and how they relate to the layout of the Proposed Development, a fundamental reason for carrying out surveys of this nature. It is also not clear how these flight speeds were used when calculating the Year 3 CRM figures. If the flight speed between Lough Gur and their feeding areas is used then this is not representative of the section of flight that would pass through the development when they are approaching and leaving their feeding grounds at Camas South. These sections of flight are likely be slower than when they are in direct transit between areas and therefore birds would potentially be spending longer within the turbine area.

83. Given that these surveys were designed to record movements between Lough Gur, Ballycullane and Camas South it is not clear how many of these flights were recorded in proximity to the Proposed Development given that Ballycullane is in an entirely different direction.

84. In Figure 4 of Appendix 7D "projected flight lines from VP surveys" are presented. It appears that there are more flights shown here than in Figures A6.4437, A6.4438 and A6.6660 of

Appendix 7B which present whooper swan flights from VP surveys but without further information these cannot be properly examined.

Whooper Swan Management Plan (Mitigation)

85. The Whooper Swan Management Plan (WSMP) includes various mitigation measures intended to minimise the potential impact of the Proposed Development on the local whooper swan population.

86. The mitigation strategy centres on field enhancement to provide safe feeding areas within the 1 km corridor between the turbine arrays (Turbines 1-3 and Turbines 4-5). As discussed, the baseline data on whooper swan flight activity that underpins the mitigation measures is not adequate and therefore the risk of collision is potentially greater than documented in the EIA Report chapter.

87. While several measures are planned to enhance these fields alongside deterrents to discourage birds from turbine locations, it cannot be assumed that the swans will adapt to these areas. Crucially, feeding distribution surveys over the past four winter periods have recorded no swan activity in these specific fields.

88. In Section 4.0 of Appendix 7D, the applicant admits a lack of data regarding sward heights, reseeding history, grass mixes and field management, instead assuming that fields nearest the river are preferred for their surface water retention. Consequently, the proposed grassland management measures ignore local conditions and the established preferences of the resident whooper swan population. Without understanding current feeding conditions both on-site and in the surrounding area, there is no guarantee that these "enhanced" fields will be more attractive to the swans than the neighbouring fields they currently frequent.

89. Therefore, one must consider the possibility that displaced birds will relocate to similar fields south and west of their current preferred feeding grounds. In this scenario, their most likely flightpath to Lough Gur would lead them directly through the locations of T1–T3, resulting in an elevated collision risk.

90. The outcomes of the WSMP are far from certain. By the report's own admission, the strategy is somewhat experimental, stating that "*While the visual acuity and landscape awareness of whooper swans is reasoned as proficient, post-construction monitoring… will verify whether*

turbine curtailment measures may be required as well as to refine and demonstrate the extent of mitigation efficacy".

91. While various precautionary measures including deterrents, curtailment and monitoring are proposed for different phases of the development, this strategy remains reactive rather than preventative. This approach underscores the underlying uncertainty of the mitigation plan, particularly regarding the effectiveness of creating alternative feeding areas. Although evidence has been given that a disturbance buffer of under 600m may be appropriate in some instances we are of the opinion that, given the uncertainty involved and the experimental approach taken, this more precautionary disturbance distance should have been used when devising the mitigation strategy.

92. Fundamentally, this mitigation strategy relies on baseline flight activity data that is not representative of whooper swan movements. Since NatureScot guidance for capturing the movements of roosting swans was not followed, any assumptions regarding flight corridors and subsequent collision risks are technically unsound.

93. Robust application of the mitigation hierarchy is impossible without comprehensive baseline information. The Applicant admits to a lack of site-specific habitat data, such as sward heights and field management history, yet proceeds to assume that river-adjacent fields can serve as successful alternative feeding areas. Without understanding the current feeding preferences of the habituated swan population, the claim that these "enhancements" will successfully relocate birds away from the turbine array is speculative and unsupported by evidence.

94. The foundation of the mitigation hierarchy is the avoidance of significant environmental impacts at the design stage. Rather than demonstrating that the Proposed Development layout avoids critical flight corridors and feeding grounds, there is a reliance on the birds' assumed "visual acuity" to navigate a hazardous environment. This approach prioritises reactive curtailment, turning turbines off only after a risk is detected, over the preventative measure of proper turbine siting, representing a fundamental departure from established EIA best practice.

<u>Survey Effort</u>

95. As noted in the survey limitations section, the Breeding Bird Survey effort for Years 1 and 2 was inadequate; the 500m buffer was either entirely omitted (Year 1) or significantly under-surveyed (Year 2) by pre-designated transects. Following NatureScot (2025)[104] guidance, these

surveys should prioritise lowland waders and are not intended to provide a representative sample of all passerine species. Adopting the methodology described in Gilbert *et al.* (1998)[107] for surveying lowland breeding waders would be more appropriate. Nevertheless, based on the Year 3 data, desk studies, and vantage point results, there is currently no evidence to suggest that waders breed within the 500m buffer.

96. Other breeding season survey methodologies appear to be broadly appropriate across the three-year study period. Specifically, survey for breeding raptor, barn owl and crepuscular species followed correct guidance on methodology and effort, particularly given the paucity of suitable habitat.

97. Non-breeding season distribution and abundance surveys included winter walkover surveys, wintering waterbird surveys and targeted whooper swan surveys. While the winter walkover surveys suffered from gaps in coverage during Years 1 and 2, relying on the same restricted routes as the breeding season walkovers and failing to occur monthly, the combined data from all three survey types provides sufficient coverage of species and areas of interest within the study area and its surroundings.

Wetland Function

98. Any hydrological changes that occur during construction and operation that reduce the amount of surface water in fields along the floodplain may potentially have a detrimental effect on feeding whooper swans.

Curlew

99. A comprehensive desk study found that while curlew historically nested in the area, the nearest extant breeding pairs are now over 20 km away. Although the survey coverage within the 500m buffer was inadequate for waders during Years 1 and 2 (as noted in the Survey Effort section), the combined results of the desk study, vantage point surveys, and Year 3 breeding bird surveys suggest that curlew do not breed within the study area. Any occasional records of curlew calling in the area during the summer months would not constitute a

[107] Gilbert, G., Gibbons, D.W., & Evans, J. (1998) *Bird Monitoring Methods: A Manual of Techniques for UK Key Species.* The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

breeding record with non-breeding or failed breeding birds often using grassland habitats solely for foraging.

EIAR, cumulative effects and other concerns in submissions

100. After thorough scrutiny of the chapter and associated appendices we are of the opinion that effects on a number of species that were included in submissions are likely to be not significant due to a combination of at least one of the following; their lower conservation concern, no evidence of breeding or roosting in the study area or a low incidence of occurrence within the study area. These are rook, grey heron, kestrel, buzzard, herring gull, barn owl, short-eared owl, little egret, common crane, corncrake, white-tailed eagle, hen harrier, sparrowhawk and peregrine.

101. There is no onus on the Applicant, as one submission proposes, to include other windfarms in a cumulative assessment that may or may not be within an assumed migratory flightpath of whooper swans during their migration to and from Iceland.

102. An assessment of cumulative effects has been undertaken in conjunction with other wind farms within 20 km and other developments within 10 km. This assessment has been undertaken using relevant guidance, our only concern would be that the outcomes predicted for whooper swan used in the cumulative assessment are unsound.

Appropriate Assessment

103. There are comments in submissions regarding mitigation for whooper swan and the requirements of Article 6 (3) of the EU Habitats Directive. There is, however, no evidence of any connectivity with any European Site, the nearest being almost 20 km away.

Conclusions

104. The potential impacts on the whooper swan population have been underrepresented, leading to a collision risk estimate that is likely to be an underestimate of the actual risk. This stems from several fundamental departures from NatureScot guidance (2017) and established best practice.

105. Primarily, the Applicant failed to conduct dedicated dawn and dusk VP watches. Given the Site's location between known roosting and feeding areas, these time-specific windows are

critical; without them, the daily commuting flight paths through the Proposed Development remain largely unquantified. Additionally, the baseline data is compromised by temporal bias. In Year 2, multiple VPs were often conducted on the same day rather than being spread across diverse diurnal and environmental conditions. There are also concerns about how flights have been treated within the CRM when viewsheds overlap.

106. There is also a lack of information pertaining to the CRM itself, as it remains unclear how bioacoustics data at Rathcannon Pond was integrated. The failure to investigate flight connectivity between this pond and other local feeding areas suggests an underestimation of whooper swan flight activity.

107. Despite these deficiencies in the flight activity surveys, the broader suite of winter ornithological work provides a better picture of site usage. Results from other surveys conducted over the three-year period, specifically the winter walkover surveys and wintering wildfowl surveys, consistently indicate that whooper swans do not regularly utilise the southern turbine array, containing Turbines 6 to 17. Whilst VP watches are designed to capture relevant data for collision risk modelling, walkover and wildfowl surveys are far better for determining the distribution and abundance across the wider area. These results suggest that primary swan activity is concentrated in the north; therefore, the risk of collision in the southern area is not likely to be significant.

108. The mitigation strategy for whooper swan is based on inadequate data regarding flight paths and collision risk. It also hinges on a speculative assumption that whooper swans will use “enhanced” fields within the development boundary. It is our opinion that local conditions have not been sufficiently investigated when devising a management plan to make these fields more attractive to local whooper swans. Other alternative outcomes where swans may be displaced elsewhere have not been fully explored.

109. The mitigation strategy relies on various precautionary measures that are reactive rather than preventative underscoring the uncertainty of the mitigation plan and represents a fundamental departure from the mitigation hierarchy where significant impacts should be avoided at the design stage.

110. We have concerns regarding effects on whooper swan during all phases of the development but particularly during operation when we are of the opinion that collision mortality has been underestimated and the flight paths of birds through the Site, particularly at night, have not been fully understood.

111. Despite concerns over the robustness of the flight activity surveys, the three-year dataset suggests that no species of high conservation concern, other than whooper swan, regularly use the Site. Other species, listed on Annex 1 of the Birds Directive or are red-listed BoCCI species, were recorded infrequently and showed no evidence of breeding or roosting within the study area. Therefore, it is reasonable to assume that effects on these species would be negligible.

112. Nonetheless, the dataset indicates that the whooper swan is the only species of high conservation concern regularly using the site. The Proposed Development could be made compatible with the conservation objectives for whooper swan if the wind farm design is modified to remove the highest-risk infrastructure. The total removal of Turbines 1, 2, 3, 4, and 5 is necessary to eliminate the primary collision risk. The remaining turbines (6 to 17) are sufficiently distant from known feeding areas at Camas South to avoid direct flight paths between feeding and roosting areas.

113. While the c.1 km separation between Rathcannon Pond and the southern cluster warrants a degree of caution, the lack of recorded feeding/usage suggests that automated curtailment is not currently justified. Instead, a targeted post-construction monitoring programme should be implemented to validate swan flight paths around the pond area. Provided the northern five turbines are removed and monitoring is enforced to the south, the Proposed Development would likely avoid a significant effect on the local whooper swan population.

114. The measures detailed in the WSMP would not be required as these were devised to mitigate the effects of Turbines 1 to 5 which would not be present.

115. Therefore, if turbines 1 to 5 were removed and monitoring measures were in place we are of the opinion that the Proposed Development would not pose a risk to the local whooper swan population and that all effects would be not significant.