An Coimisiún Pleanála

Inspector's Report

ACP-323783-25

Development	10 year permission for 14 turbine wind farm.
Location	Located within the townlands of Carrowreagh East, Cloondrinagh, Cloonkett, Burrenfadda, Shessiv, Craghera and Glenconaun More.
Planning Authority	Clare County Council
Applicant(s)	Cloonkett Green Energy
Type of Application	Permission under 37 E of the Planning and Development Act 2000, as amended – Strategic Infrastructure Development – RED III
Prescribed Bodies	Health Service Executive Department of Transport Department of Housing, Local Government and Heritage AirNav Ireland Transport Infrastructure Ireland Geological Survey Ireland

	Department of Defence
	Irish Aviation Authority
Observers	See Appendix 3
Date of Oral Hearing	N/a
Date of Site Inspection	16th -17th June 2026
Lead Inspector	Alaine Clarke
Inspector	Yolande McMahon

Contents

1.0 Introduction and Pre-Application Consultation 5

2.0 Site Location and Description 5

3.0 Proposed Development 7

4.0 Planning History 14

5.0 Chief Executives Report – Clare County Council 15

6.0 Prescribed Bodies Observations 19

7.0 Third Party Observations 26

8.0 Applicant's Response 34

9.0 Policy Context 45

10.0 Planning Assessment 63

10.1. Introduction 63

10.2. Section 15 of Climate Action & Low Carbon Development Act 2015, as amended 64

10.3. Principle of the Development 65

10.4. Residential Amenity 68

10.5. Other Matters 72

11.0 Environmental Impact Assessment 74

11.6. Assessment of Likely Significant Effects 80

11.7. Population and Human Health 81

11.8. Biodiversity 91

11.9. Biodiversity (Birds) 113

11.10. Water (Hydrology and Hydrogeology) 132

11.11. Land and Soil 159

11.12. Air (incl. Noise and Vibration) 167

11.13. Climate 178
11.14. Material Assets (Telecommunications and Aviation) 184
11.15. Material Assets (Traffic) 204
11.16. Archaeology, Architectural & Cultural Heritage 214
11.17. Landscape 222
11.18. Major Accidents and Natural Disasters 240
11.19. Interactions 241
11.20. Reasoned Conclusion 242
12.0 Appropriate Assessment (AA) 244
12.1. Screening Determination 244
12.2. Appropriate Assessment Conclusion (Integrity Test) 244
13.0 Recommendation 246
14.0 Reasons and Considerations (Draft Order) 246
Appendix 1: Appropriate Assessment Screening 255
Appendix 2: Appropriate Assessment 262
Appendix 3: List of Third-Party Observers 291
Appendix 4: Summary of Conditions Sought by Prescribed Bodies 292
Appendix 5: Specialist Report, prepared by Donncha Madden, Inspectorate Ecologist 296
Appendix 6: Technical Note, prepared by Finbarr Quigley, Inspectorate Environmental Scientist 297
Appendix 7: Specialist Report, prepared by ERM 298
Appendix 8: Specialist Report, prepared by Sagnetia Aviation 300

1.0 Introduction and Pre-Application Consultation

1.1. An Bord Pleanála received a written request on the 20th July 2023 from the prospective applicant to enter into pre-application consultations under Section 37B of the Planning and Development Act 2000, as amended, in relation to a proposed wind farm in County Clare. Planning reference number ABP-317616-23 relates.

1.2. Three online pre-application meetings took place between the prospective applicant and the Commission's representatives on the 5th October 2023, the 4th March 2025 and the 17th July 2025. A formal request to close the pre-application consultation was received by the Commission on 22nd August 2026.

1.3. ACP confirmed, on the 17th September 2025, that it was of the opinion that the proposed development falls within the scope of paragraphs 37A (2) (a), (b) and (c) of the Planning and Development Act 2000, as amended, and as such would be strategic infrastructure within the meaning of Section 37A of the Act.

1.4. **Completeness Check**

1.4.1. As this is a RED III planning application the applicant was required, under Section 37JA (a) of the Planning and Development Act 2000, as amended, to include all the information required to process the application. On the 3rd November 2025 the Commission confirmed that the application included all the necessary information in order to process the application (completeness check).

1.5. **Submission of Application**

1.5.1. The planning application was lodged with the Commission on the 29th September 2025.

2.0 Site Location and Description

2.1. The site is located in west County Clare, within the townlands of Carrowreagh East, Cloondrinagh, Cloonkett, Burrenfadda, Shessiv, Craghera, and Glenconaun More. It is located approx. 19km south-west of Ennis, approx. 20km north-east of Kilrush and approx. 14km west of Shannon Airport. The road network surrounding the site comprises of a number of local roads, namely the L2072 which runs along the north of the site, the L6239 along the southern boundary; the L2128 to the east; the L2130

to the west and the L6239 which runs through the centre of the site. The nearest motorway to the site is the M18, located c. 22km east; the closest national road is the N68, c. 3.2 km to the north of the site.

2.2. Within the wider area, particularly to the north/north-west of the site, the landscape is more elevated upland with extensive bogland. There are a number of existing wind farm developments within this area including Glenmore, Letteragh, Kiltumper, Booltiagh and Cahermurphy. The area to the east, south-east and south-west is dominated by the Shannon Estuary, which is located c.5km from the site.

2.3. The site is located within a sparsely populated rural area, with one-off rural housing and agricultural structures being the predominant uses. These are located along private laneways or along the local road network surrounding the site. There are a number of small settlements and rural villages within proximity of the site – these include Cranny village, located c. 2km north-east of the site which includes Cranny National School; and Kildysart village, c.3.5km to the south-east.

2.4. The proposed wind farm is located in a lowland site ranging from approx. 50-100 m altitude above sea level. The majority of the main study area consists of peatland habitats of varying conditions including actively cutover raised bog, re-vegetating cutover and turf banks, several intact raised bog remnants, and heathlands. The remainder of the site consists of commercial conifer plantation woodland with extensive drainage (planted previously on peatland substrates), semi-natural and intensely managed improved agricultural grasslands and scrub mosaics. The rural landscape surrounding the study area is dominated by intensely managed agricultural land. The site contains a large number of narrow access tracks which are utilised to gain access to private dwellings and agricultural lands.

2.5. The overall site area is stated to be 366.85 hectares.

2.6. The proposed Grid Connection (GC) is located within the site and includes lands in the townlands of Carrowreagh East, Cloondrinagh and Burrenfada.

2.7. The Turbine Delivery Route (TDR) travels from the Port of Entry (either Foynes or Galway Port) to Junction 12 between the M18 Motorway and the N85 National Road, via the N68 and L-6180 to the proposed wind farm site entrance on the L2072 local road.

3.0 **Proposed Development**

3.1. The application comprises:

- Construction of 14 no. wind turbines with a blade tip height of 150m, a hub height of 82m and a rotor diameter of 136 m.
- Construction of permanent turbine foundations and crane pad hardstanding areas and associated drainage;
- Construction of 9.51 km of new internal access tracks and associated drainage infrastructure;
- Upgrading of 1.43 km of existing tracks and associated drainage infrastructure;
- Creation of 1 no. new access, and upgrading of 1 no. existing agricultural accesses on the Local Road L2072 to serve as construction and operation accesses to the Proposed Wind Farm Site;
- Creation of 2 no. new accesses on the Local Road L6239 to serve as construction and operation accesses to the Proposed Wind Farm Site;
- 1 no. WFD watercourse crossing comprising a new clear span bridge to replace an existing ford crossing within the Proposed Wind Farm site;
- Installation of new pipe and box culverts within the wind farm site where proposed infrastructure crosses existing drains including the replacement of an existing culvert at TDR Node 8 with a new box culvert;
- All associated drainage and sediment control including interceptor drains, cross drains, sediment ponds and swales;
- Construction of 1 no. permanent onsite 220 kV electrical substation and associated compound including:
    - o Welfare facilities;
    - o Electrical infrastructure;
    - o Parking;
    - o Wastewater holding tank;

o Rainwater harvesting tank;

o Security fencing;

Overhead lines (OHL) and associated infrastructure to facilitate a loop-in connection with an existing 220 kV overhead line.

- All associated infrastructure, services and site works including excavation, earthworks, peat and spoil management;
- Development of 5 no. on-site construction borrow pits with a combined footprint of 5.15 hectares and associated access and drainage infrastructure which will also act as a peat /spoil deposition areas;
- Creation of dedicated peat and spoil deposition areas and berms for the management of peat and spoil within the Site;
- 2 no. temporary construction compounds and associated ancillary infrastructure including parking;
- Forestry felling of 8.40 ha (84,047 m2) to facilitate construction and operation of the Proposed Development;
- Installation of underground medium voltage electrical and communication cabling between the proposed turbines and the proposed on-site substation;
- Erection of 1 no. permanent meteorological mast to a height of 100 m above ground level with a 4 m lightning pole on top;
- Temporary accommodation works along the Proposed Turbine Delivery Route (TDR) to facilitate turbine component deliveries at two locations within the townlands of Ballyduneen and Carrowreagh West, and other minor temporary accommodation works within the public road corridor;
- Biodiversity enhancement measures within the Proposed Biodiversity Management and Enhancement Plan Lands.

3.2. Certain temporary accommodation works associated with the TDR and passing opportunities along the local road network are subject to the EIA, but planning permission is not being sought for these works within the current application. The works will be sought separately with the local authority through road opening license as necessary.

3.3. The Turbine Delivery Route (TDR) travels from the Port of Entry (either Foynes or Galway Port) to Junction 12 between the M18 Motorway and the N85 National Road, via the N68 and L-6180 to the proposed wind farm site entrance on the L2072 local road.

3.4. A substation transformer unit will be transported to site and categorised as an Abnormal load, with a permit sought for this movement. This load will follow the same route to the site as the TDR.

3.5. The application seeks a 10-year permission and an operational period of 40 years.

3.6. The application is accompanied by the following documentation:

- an EIAR, prepared by Fehily Tomoney and Company, including:
- Appendix 2.1 – Construction and Environmental Management Plan (CEMP)
- Appendix 9.5 – Biodiversity Management & Enhancement Plan (BMEP)
- Appendix 9.6 - Aquatic Habitat Management and Enhancement Plan (AHMEP)
- Appendix 10.1 – Peat Stability and Geotechnical Assessment Report (GAR)
- Appendix 11.1 – Surface Water Management Plan (SWMP)
- Appendix 11.2 – Water Framework Directive Assessment Report
- Appendix 11.3 – Site Specific Flood Risk Assessment Report
- Appendix 16.1 – Cloonkett Wind Farm Aviation Review Statement
- Appendix 16.2 - Electromagnetic Interference (EMI) Impact Assessment
    - Photomontages
    - an Appropriate Assessment Screening and Natura Impact Statement, prepared by APEM Group Woodrow,
    - a Planning Statement,
    - an Application Form,
    - copies of public notices,
    - letters of Consent,

- details of pre-application consultation,
- drawings,
- names and addresses of landowners,
- letters to prescribed bodies,

3.6.1. A table detailing the proposed development relative to the following local characteristics is provided below in Table 3.1:

- Townland
- Existing habitat description
- Slope profile
- Peat depth
- Nearest residential receptor
- Nearest archaeological monument
- Habitat constraint level.

Table 3.1: Proposed Development Context							
Turbine	**Electoral divisions**	**Ex. Land use (Fossitt Level III Habitats)**	**Slope* (degrees)**	**Peat Depth (m)^**	**Nearest Residential Receptor (m)****	**Nearest archaeological monument**	**Habitat Constraint Level**
T1	Killadysert	Cutover raised bog	2	6.65m (T1 will be piled)	518 (to south-east Involved landowner)	Earthwork (CL059-018---) c.580m to southwest	Moderate
T2	Killadysert	Cutover raised bog	2	3.20	561 (same property as T1)	Earthwork (CL059-018----) c.860m to southwest	Moderate/Low
T3	Kilfiddane	Wet grassland	8	0.00	618 (to north-west	Ringfort (CL059-005----) c.830m to northwest	Low
T4	Killadysert	Improved agricultural grassland	5	0.00	610 (to north-east)	Earthwork (CL059-018----) c.1,200 m to west	Low
T5	Killadysert	Cutover raised bog	3	2.65	620 (to north-west) Same property as T4	Earthwork (CL059-018----) 1,630 m to west	Moderate
T6	Killadysert	Cutover raised bog	2	3.80	618 (to south-east)	Earthwork (CL059-018----) c.1,925 m to west	Moderate-Low
T7	Killadysert	Cutover raised bog	2	1.70	620 (to north-west)	Ringfort (CL059-008----) c.1,880 m to northeast	Moderate-Low

T8	Killadysert	Improved agricultural grassland	2	0.00	615 (to north)	Ringfort (CL059-008----) c.1,470 m to northeast	Low
T9	Killadysert	Cutover raised bog	2	1.10	750 (to south)	Ringfort (CL059-008----) c.1,560 m to northeast	Moderate
T10	Killadysert	Wet grassland	2	2.55	706 (to south-east)	Ringfort (CL059-008----) c.1,530 m to north	Low
T11	Killadysert	Cutover raised bog	2	1.90	734 (to north-east)	Ringfort (CL059-008----) c.1,210 m to north	Moderate
T12	Killadysert	Conifer plantation	5	1.60	618 (to north-west (same property as T8)	Ringfort (CL059-008----) c.980 m to northeast	Moderate-Low
T13	Killadysert	Dry calcareous and neutral grassland	3	1.50	620 (to south-east)	Ringfort (CL059-008----) c.1,190 m to north	Moderate-low
T14	Killadysert	Raised bog mosaic	2	0.95	625 (to south)	Ringfort (CL059-008----) c.1,110 m to the northeast	High-Moderate
Construction Compound 1 (West)		Improved agricultural grassland	3	1.15		Ringfort (CL059-005----) c.620 m to northwest	
Construction compound 2 (East)		Improved agricultural grassland	2	0.20			
Substation	Kilfiddane	Improved agricultural grassland and agricultural wet grassland.	8	0.00		Ringfort (CL059-005----) c.350 m to northwest	

Borrow Pits (4)	Cloonkett Townland	Gorse (3) Pasture field (1)	n/a	n/a		Earthwork (CL059-018----) c.260 m to west	Low
Borrow Pit	Burrenfadda Townland	Grass/gorse	n/a	n/		Ringfort (CL059-006----) c.490 m to northwest	Low
TDR Node	Carrowreagh West		n/a	n/a		Ringfort (CL058-037----) c.1,020 m to southeast	
TDR Node	Ballyduneen		n/a	n/a		Ringfort (CL049-022----) c.380 m to northeast	

* Source: Chapter 10 Soils, Geology and Hydrogeology of EIAR, Table 10-14 Summary of peat probe survey findings at key infrastructure locations

^ Source: Chapter 10 Soils, Geology and Hydrogeology of EIAR, Table 10-14; Peat Depth Map Figure 10-15

** Source Volume 4 EIAR Figures, Figure 2.4 Properties within 2km of Turbines

Source Electoral Divisions – Volume 4, Figure 6.1

4.0 Planning History

4.1. Pre-planning Consultations

- ABP-317616-23. Three pre-planning meetings took place for the subject application; on 5th October 2023 in respect of 17 no. turbines; on 4th March 2025 and 17th July 2025, with a revised layout of 14 no. wind turbines. A decision was made on 17th September 2025 that the proposed development constituted a Strategic Infrastructure Development within the meaning of Section 37A of the Act.

4.1.1. Subject site and adjacent land

P.A. Ref. 2460213 Permission granted to alter and extend the existing cottage and 2-storey extension to the side of the existing cottage.

4.1.2. Current Wind Farm Applications (within 20km of site)

ACP 318525-23 – Normal Planning Appeal

- Cahermurphy II
- 10 no. wind turbines
- Located c. 12km north-west of application site

ACP 324155 – RED III Application, made directly to ACP

- Cahermurphy West Wind Farm
- 8 no. wind turbines proposed
- Located c.12 km north-west of application site.

Note: In the event that the Cahermurphy II (318525) and Cahermurphy West (324155) applications are both granted permission, only one development will be implemented (Section 2.2.7 of the Response to Observations report for Ref 324155 refers).

ACP Ref.: PL06.501735 – Normal Planning Appeal

- Refused by Clare County Council July 2026 for 6 no. reasons.
- 1 no. wind turbine with a blade tip height of 150m, on-site substation.
- Proposal is located approx. 18 km to the northwest of the application site.

ACP Ref. 500605 – Normal Planning Appeal

- Refused by Clare County Council December 2025 for 8 no. reasons.

- 5 no. wind turbines, on site permanent 38kV substation.
- Located c. 18.37 km to the north-west of the application site.

ACP 323152-25 – Normal Planning Appeal

- Refused by Clare County Council July 2025 for 4 no. reasons.
- 3 no. wind turbines and 38kV substation.
- Located c. 18.8 km to the west.

Other development

ACP 324156: SID Section 182

- SID 110 kV grid connection to national grid at existing 110 Kv Moneypoint substation, Co Clare
- Lodged on 23/03/2026.
- Located c. 6.94 km to the west of the site.

4.1.3. **Relevant Wind Farm and Other Development within surrounding area**

4.1.4. There are a number of operational, consented and unconsented wind farm developments within 20km of the proposed development, and these are shown on the tables at Section 2.3.5 of Chapter 2 of the EIAR. In addition to Section 2.3.5, I have carried out a planning search of proposed wind farms that have been submitted/appealed to the Commission since the application was lodged (i.e. from September 2025-present) within 20km of the proposed development and these are set out above in section 4.1.2 of this report.

5.0 Chief Executives Report – Clare County Council

5.1. Introduction

5.1.1. The Chief Executives Report (CE report) on the Cloonkett Wind Farm, dated 28th November 2025, was prepared in accordance with Section 37E (4) of the Planning and Development Act 2000, as amended. The report was circulated at the December 2025 Monthly Meeting of Clare County Council. An extract from the minutes stated that the CE report was approved, after being proposed by Cllr. M. Shannon, seconded by Cllr. Lynch and agreed by the members present at the meeting.

5.1.2. The views of the county council on the effects of the proposed development on the environment and the proper planning and sustainable development of the area of the authority are set out in the CE report, and are summarised in the table below:

Table 5.1: Chief Executive's Report for the proposed Cloonkett Wind Farm – Clare County Council
Introduction • Description of proposal, site location, planning policy context (national, regional and local); and relevant planning history provided.
Planning Policy Context
Clare Wind Energy Strategy (WES) • Existing WES in existence since 2009. It remains the relevant strategy until such time as the 2006 WEDG are updated. • Site is within the Shannon Estuary Landscape Character Area, designated as 'acceptable in principle' for wind energy development, which can accommodate medium to large scale windfarms. • 'WES Nine Acceptable in Principle' areas considered suitable for wind farm development. Projects must avoid visual clutter; be in line with the Planning Guidelines in terms of siting layout and environmental studies, provide a Habitat Directive Assessment if required. Target wind energy generation from 'Acceptable in Principle' areas is 150MW. • Shannon Estuary Landscape Character Type (LCT) has some capacity for large to small wind farms. LCT in the WES is Farmed Lowland Ridges, corresponds to 'Hills and Flat farmland' in the Planning Guidelines. • Overall sensitivity to wind farm development is considered medium to low. • The cumulative advice from the 2006 Guidelines is acceptable depending on appropriate siting and design. • From a planning policy perspective, the development as proposed would be in compliance with the designations set out in the current CDP and associated WES noting also European, national and regional level policy objectives with respect to renewable energy. • The existing Section 28 Guidelines do not account for advancements in turbine technology re height and scale of turbines.

- Existing and permitted windfarm development in the West Clare area (figure 3 of submission is a concern regarding potential ad hoc approach and implications for the cumulative assessment.
- Notwithstanding the designations in the WES, the proposal is considered to lead to a proliferation of turbines at this location.
- Objective 11.47 of the CDP seeks to encourage/favour proposals for renewable energy developments to meet renewable energy targets, facilitate a reduction in CO2 emissions and promote a low carbon economy.

Visual Amenity

- The site is located within a 'settled landscape' designation where Objective CDP 14.2 applies.
- The landscape type here is similar to that identified in the departmental Guidelines as 'Mountain Moorland' or 'Transitional Marginal Landscapes' – given the typical extensive areas of continuous unenclosed ground, larger wind energy developments may be accommodated.
- Viewpoints of note include localised impacts at Gortglass Lake, views along the L2072 and L6038; the visual impact would be significant.
- Long-range montages noted, including across the estuary in Co Limerick –the development will constitute a prominent feature in the landscape and alter the character of same in particular when viewed from the estuary – the photomontage from Ballysteen Pier is noted in this regard.
- The proposal would significantly alter the overall character and appearance of this landscape, both locally and over greater distances from houses, roads and amenity locations (in particular Gortglass).

Residential Amenity

- The analysis in terms of shadow flicker and noise in the EIAR with some exceedances of both is noted.
- Mitigation measures noted, however concern in respect of reliance on mitigation measures to address impacts of shadow flicker and noise to local properties.
- Recommended that full details of the mitigation measures are clarified before permission is granted and how same will be implemented in order to address any concerns arising from local residents at the operational stage.

Traffic

- Main traffic implications are during the construction period.
- Serious concerns regarding the impact on the local road network serving the site, which are currently poor in terms of capacity and width.
- Any road closures will have a knock-on impact on the wider road network with regard to diversions/and use of other roads that may not have the capacity for the level of traffic generated, referencing the L2072, L6180.
- Recommended conditions in the event of a grant of permission regarding road opening licences (ROL), clerk of works, applicants to bear costs, reinstatement of roads, road closures, pre-condition and post-works survey, route delivery to be agreed, a bond for road remediation works.

Natural Heritage – Freshwater Pearl Mussel (FWPM)

- Freshwater Pearl Mussel (FWPM) – One SAC in Clare with a FPM population – Cloon River system, is currently at unfavourable conservation status. Absence of juveniles and a rarity of small mussels throughout the Cloon where suitable habitat is found.
- Population is failing due to the deterioration in habitat quality - evident from the high levels of siltation and macrophyte growth. Also, climate change, impacts of low flows and ongoing catchment drainage.
- CDP Objective 15.17 is a specific objective for protection of the species:
- Cloonkett Wind farm will be located directly within the Cloon FPM catchment. Drainage from the site by the Carrowreagh and Cloonkett streams can potentially have an impact on the area occupied by the highest densities of this species in the River Cloon.
- While no mussels were recorded from the streams within the site boundary, a precautionary approach assumes their presence immediately downstream on both streams. This is on the basis of a positive eDNA results.
- Results of field surveys clearly demonstrate that the Cloon catchment is not currently achieving favourable conservation status. Difficult to determine how a development which proposes the clearance and removal of soil and peat substrate together with rock for access roads and hardstand areas, new bridge over the Carrowreagh East stream will allow for population to be 'restored' to favourable Conservation Status in the future.

Avi Fauna (including Hen Harrier)

- Notes proximity to both Glenconaun, Cloonkett blanket bogs, Gortglass Lough and Cloonsnachta Lough. Both lakes are designated pNHA's. Many avian species moving between the lakes and the River Shannon and River Fergus Estuaries SPA throughout the year, including both wintering/migratory and breeding bird species. References the importance of these lakes for Arctic Char. The assessment considers there is no Source-Pathway Receptor connectivity identified and therefore the sites and their features are not considered further.
- Both male and female Hen Harrier recorded a combined 65 times through the 3 years of surveys, results conclude that as hen harrier nest was not found the area is suitable for development. However, hen harrier can fail to successfully breed on any given year for a number of reasons. There is increasing pressure on this species due to proliferation of wind farms in West Clare. In-combination and cumulative effect on this species has not been assessed in the context of it being a protected raptor.

Conclusion

- The proposal is broadly supported by the designations of the existing WES and CDP. Concerns in respect of the visual impact of this development due to number of turbines and spatial extent of the development.
- Serious concerns on carrying capacity of the road network by reason of the extent of vehicle movements proposed.
    - Impacts on residential amenity highlighted noting CDP 11.47 which seeks to strike an appropriate balance between facilitating renewable and protecting residential amenity.
- Impact on natural heritage also a concern.
- Should permission be granted appropriate conditions recommended.

6.0 Prescribed Bodies Observations

6.1. There were eight submissions received from prescribed bodies which are summarised below in table 6.1 below:

Table 6.1: Summary of Prescribed Bodies Observations
Department of Housing, Local Government and Heritage (Development Application Units, DAU)
Archaeology • No advance archaeological investigations have been carried out to inform the EIAR, other than a walkover survey. • Advance archaeological test excavation should be carried out in advance to determine if previously unknown sub-surface archaeological features or deposits are present. This can be addressed by condition. • Conditions should align with OPR Practice Note PN03: Planning Conditions. • Recommend conditions relating to the mitigation measures, Construction Environmental Management Plan (CEMP), suitably qualified archaeologist, final archaeology report to the Planning Authority and National Monuments Service.
Nature Conservation: <u>Birds:</u> • The ecological value of the bird assemblage is undervalued in the EIAR; • The conclusion in the EIAR that impacts on hen harrier will be negligible requires further assessment. Dawn/dusk surveys and nest search effort were not sufficient; • Further assessment required for impact on kestrel; • Insufficient survey data to inform collision-risk and disturbance assessments for barn owl, merlin, sparrowhawk, short-eared owl and white-tailed eagle; • The Development may cause a barrier effect and increase collision risk for waterfowl and waders travelling between the Cloonkett/Glenconaunmore wetland habitats and Gortglass/Cloonsnaghta Loughs. Geese and swan sensitivity is not reflected in the impact conclusions. <u>Freshwater Pearl Mussel (FWPM)</u> • EIAR indicates that several habitats are assessed as being of national importance, including wet grassland, active raised bog and transition mire and quaking bog – highly sensitive to hydrological alteration, peat disturbance and construction activities. Proposed development is close to intact bog remnants, drains and tributaries which form part of the hydrological network linked to the Cloon River and downstream FWPM habitat.

- Survey work carried out as part of the project provides invaluable information on FWPM distribution in the Cloon River and the Cloonkett tributary and is broadly in line with the projected population estimates in ongoing decline. The Cloon River had several reaches of good quality habitat, but silt (plumes), excess macrophytes and excess filamentous algae were recorded in all reaches.
- The development has the potential to:
    - Alter the hydrological regime of the catchment.
    - Increase sediment losses to the river
    - Increase nutrient losses to the river
    - Further intensify land use within the catchment
- Insufficient data and analyses presented on:
- Potential hydrological impacts from the permanent loss of peatland habitat and exposure, compaction and dewatering of peat.
- The mobilisation of sediment associated with the construction, operation and decommissioning of the wind farm over the lifetime of the development.
- The efficacy of the proposed mitigation measures to prevent alteration of the hydrological functioning and pollution of the Cloon, in particular with fine sediment and nutrients has not been demonstrated.
- Potential impacts on the suitable habitat extent and condition attributes cannot have been fully assessed. Potential impacts on the population attributes have not been fully assessed. The NIS does not make certain that the project will not adversely affect the integrity of that site.
- The proposed development presents a significant risk to the FWPM in the Lower River Shannon SAC, has potential to prevent the achievement of its conservation objective (to restore) and therefore adverse impacts on the integrity of the site.

<u>Bats</u>

- No assessment has been provided on potential disturbance to the Lesser Horseshoe Bat (Annex II species) maternity roost, displacement from foraging routes, or changes to connectivity between the roost and key habitats. Further clarification should be sought.

- Concerned of proximity of proposal to linear features of key commuting and foraging corridors; inadequate species-specific buffer zones or a clear avoidance strategy for these high-use flight routes.
- The absence of detailed operational mitigation.
- EIAR acknowledges limitations in bat survey coverage, including restricted access to several land parcels within the 500 metre buffer, may have resulted in an underestimation of bat activity. Further survey work may be required.
- All bat-related mitigation measures should be fully described within the CEMP.

Mammals

- Red Squirrel and Pine Marten surveys were not completed due to access constraints. Clarification recommended on how mammal impacts have been assessed in the absence of complete baseline data.

Other

- Survey limitations may render some of the EIAR's conclusions uncertain.
- No comprehensive decommissioning plan with the application. Insufficient information has been provided to conclude that decommissioning will not adversely affect the environment or European sites.

Department of Transport

Road Network:

- Development and especially the connection cables to national grid may effect regional and local road network; ability to maintain road, including if power needs to be interrupted, and cost of same.
- May affect stability of road. Calls for a constructability assessment on legacy roads and bog roads.
- Future ability of road to accommodate additional services.
- Refers to Circular RW 07 of 2025 and the 'Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets.

Optimal Solution to Grid Route

- Having regard to the measures identified in CAP24, there is a requirement that the Board establish that the routing proposed represents the 'optimal solution'.
- Examine all available technologies including both Overhead Line (OHL) and Underground Cable (UGC) options (or combinations of both) and route options

other than the routing of cables along the public road. Consider connection point closer to the wind farm.

Conditions Recommended

- Agree route for HV cables, optimal solution route, traffic management and road opening licence, appropriate standards, cables and joint bay structure to be laid off carriageway where feasible.
- High/ medium voltage transmission underground cables should not be sited on or attached to existing road structures, masonry bridges/ culverts and the like.
- Record location of cables.
- Replace culverts and climate proof.

Transport Infrastructure Ireland (TII)

- The applicant/developer should consult with all PPP Companies, Motorway Maintenance and Renewal Contracts (MMaRC) Contractors and road authorities over which the haul routes traverse to ascertain any operational requirements.
- In assessing works to the N68/L2158 junction consider: temporary works, safety barrier, reinstatement, road safety audit, design standards.
- Recommend conditions including in relation to abnormal loads, compliance with TII publications and Road Safety Audit.
- Permit may be required if transporting abnormal load.
- No grid connection works are taking place which directly impact the national road network.
- 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).
- Policy: NSO 2 of the NPF, 'Enhanced Regional Accessibility'. Section 28 Guidelines 'Spatial Planning and National Roads Guidelines for PAs.
- Any Greenway or Active Travel proposals in the vicinity, consult with Clare County Council.

Department of Defence (DoD)

Air Navigation and Radar

- Require and set out specifications in relation to illumination of turbines. If negative impacts on future military radar systems arise, the owner will engage the DoD.

AirNav Ireland

Shannon Airport

- Windfarm falls within the Shannon Airport Runway 06 Instrument Landing System coverage area: require a complete assessment on (1) Windfarm effects on ILS 06 guidance signals (2) Windfarm effects on ILS 06 flight calibration; and should include windfarm structures computer modelling and associated signal effects computer simulations, if deemed necessary.

Irish Aviation Authority (IAA)

Conditions Recommended:

- Agree aeronautical obstacle warning light scheme;
- Provide as-constructed coordinates;
- Notify Shannon Airport Authority, AirNav Ireland and the Authority of intention to commence crane operations.

Shannon Airport

Safety:

- Part of responsibility is to safeguard airport / aerodrome and services. Wind turbines at this location may have implications for the operations of the communication, navigation and surveillance systems used by Air Nav Ireland for the separation and safety of aircraft. May also have implications for the flight paths of aircraft.
- This development will have no impact on the aerodrome Obstacle Limitation Surfaces (OLS). The development is not within the protection areas as per our safeguarding maps. As there is no penetration of the aerodrome OLS surfaces, it is unlikely that there will be any Annex 14 OLS impacts due to the proposed wind farm.
- Support request from AirNav Ireland

Recommend Conditions:

- Engage with IAA re requirement to be included in the Air Navigation Obstacle Dataset and comply with standards re obstacles.
- During the construction phase of any development, any crane activity on the site must be pre-approved.

National Environmental Health Service Executive (HSE) Submission
• Population and Human Health - Main considerations (i.e. noise, shadow flicker, air quality, ground and surface water) have been identified in the assessment. • The HSE 'Position paper on wind turbines and public health' has been withdrawn and is under review. • Noise - consider if there is a duty to incorporate the likelihood of a private nuisance into decision making, take account of most up-to-date scientific knowledge on noise assessment, advice on reporting of changes to noise environment, querying application of noise limits, application of noise creiteria for low background environments and evaluation criteria. • Mitigation measures should be implemented that reduce the change in the night-time noise environment. • No requirement for additional noise mitigation measures during the construction phase. • Construction hours should be limited to prevent sleep disturbance; • Soils Geology and Hydrogeology and Hydrology and Water Quality – concur with conclusions that there is adequate protection of surface and ground water during construction and operation, if mitigation is implemented. • Shadow Flicker – proposed zero shadow flicker identified should be conditioned if permission is granted. • CEMP – considered detailed with adequate protection of public and environmental health during construction phase if all mitigation measures implemented. • Additional considerations recommended regarding drinking water, ground/surface water, site drainage, dust monitoring.
Geological Survey of Ireland (GSI)
Data sources: • Refers to available GSI data; includes Scoping correspondence from Oct. 2023.

7.0 Third Party Observations

7.1. There were 47 third party submissions received, see Appendix 3 for a list of those that made a submission. Table 7.1 below summarises the principal issues raised in the submissions.

Table 7.1: Summary of Third-Party Observations

Population and Human Health

- Serious concerns for the mental and physical health of residents, including stress, sleep disturbance, headaches, anxiety, depression and cognitive issues due to the proposed development, referencing persistent noise and shadow flicker.

Shadow Flicker:

- Shadow Flicker will occur given orientation and proximity to homes, might exceed recommended thresholds and during summer will result in continuous shadowing. Lack of mapping of shadow flicker zones.

Noise:

- Significant concerns arise with respect to noise nuisance, noise pollution, aerodynamic noise and amplitude modulation.
- Multiple turbines will generate continuous noise, including low-frequency sound and infrasound that can travel considerable distances. Particularly intrusive at night-time, leading to disrupted sleep, leading to health decline.
- Observer (Noel King) raises concerns regarding noise monitoring location, prevailing wind and location of his house/neighbour's. His house is not mapped on Figure 2.4. It is predicted that one of the highest noise levels during construction is near T14 which is a cause for concern.

Residential Amenity & Property Values

- Residential amenity will be affected due to proximity to residential properties. Observers raise specific concerns some with maps detailing location of their home relative to turbines.
- Will devalue residential property due to proximity to wind farm. Significant financial implications for property owners. Turbines will sterilise land making it impossible for anyone to get future planning permission.

- The siting of large turbines in close proximity to homes raises concerns relating to excessive noise, shadow flicker, visual dominance, related health concerns, construction-phase traffic, dust, and disturbance.
- Observers raise concerns over distance/set-back to turbines.
- Red flashing lights from turbines at nighttime would negatively impact residential amenities and enjoyment of night sky.

Local Community, Businesses, Tourism

- The proposed development is planned in very close proximity to rural villages. This raises significant concerns for people living in these communities.
- Several submissions raise concerns regarding proximity of the proposed development to their farms. Also, agri-tourism will be harmed by proposal.
- Gortglass Lough is a popular angling and recreational lake and is regularly stocked with fish. Any decline in water quality could impact fisheries, tourism.
- The presence of wind turbines will compromise the natural setting and could pose safety risks for those using the lake.
- Very close to Wild Atlantic Way, village of Kildysart is home to Cahercon, multi-million Euro development, with plans for a 5-star hotel, considered more beneficial to the area than a wind farm. Tourism needs to be protected.
- Impact on scenic and recreational area: located close to lakes which are pNHA's. Lake is promoted by the Estuary Way. Area not mentioned as an area for amenity or as a scenic location.
- Operates a retreat business on Gortglass Lake (yoga/wellness) and the visual and noise impacts will undermine business.

Biodiversity

- General concerns regarding avian ecology including impacts on hen harrier, marsh harrier, curlew, merlin, barn owls; survey coverage and survey effort and a lack of flightline mapping, barrier effect analysis and cumulative collision risk assessment.
- Concern for impact on the FWPM and associated catchment.
- Area of exceptional environmental sensitivity with habitats of ecological value of national importance. Supports a diverse range of protected species –

including Lesser horseshoe Bat, and Marsh Fritillary butterfly. Further assessment is considered necessary.

- Risk of long-term irreversible environmental damage including peat slippage and landslide risk, water contamination from sediment and concrete leachate.
- The ecological and hydrological interconnections between the peatlands, Gortglass Lough, and downstream designated habitats mean that any disturbance within the proposed site carries significant risk of cumulative and long-term damage.
- Survey coverage for bat activity is incomplete, no quantitative risk modelling and mitigation measures lack detail or enforceability. The risk of collision, displacement, and habitat fragmentation remains high.
- Concern for impact, including a threat of displacement and disturbance, on mammals. Fragmentation of wildlife corridors is unacceptable.
- Concern of loss of forestry and associated impacts.
- Cumulative ecological pressure from multiple windfarms must be considered.

Natura 2000 Sites

- Issues raised include inadequate assessment of impacts on the Lower River Shannon SAC, concern for impact on the FWPM, concerns for impacts on birds, incomplete survey coverage and effort to assess avian baseline or impacts; Lack of flightline mapping, barrier effect analysis and cumulative collision risk assessment. Concerns for impacts on (amongst others) hen harrier and curlew.
- The NIS fails to establish, beyond reasonable scientific doubt, that: peat disturbance will not lead to sedimentation of downstream watercourses; groundwater pathways will not be altered by proposal, surface water runoff will not affect protected habitats. Inadequate hydrological modelling and the absence of detailed peat stability assessment contravene the requirements of Article 6(3) of the Habitats Directive.
- The NIS approach is mitigation-led, Under Article 6(3) and People Over Wind, this is insufficient to avoid AA or to sustain a no adverse effects conclusion.

Water

- Gortglass Lough and Cloonsnaghta Lough are sensitive freshwater bodies supporting diverse ecological communities. The EIAR does not sufficiently address potential risks.
- River draining the Cloonkett bog feeds into Gortglass Lough; any sediment, chemical, or pollutant runoff from turbine construction, peat disturbance, or maintenance will flow directly into the drinking-water catchment.
- The absence of a drinking-water risk assessment is a material flaw. Required to prevent deterioration of surface-water quality at public abstraction points.
- No mention of Kildysart/Coolmeen Group water scheme in the EIAR. Gortglass Lough is the water source for 1200 homes. The lake is spring fed with the groundwater emerging under natural pressure, this type of system is very sensitive to surface disturbances.
- There are also many wells that are not included in the EIAR, many of these are within 1km of the nearest turbine.
- Construction and operation of turbines could lead to increased runoff, soil erosion, and sedimentation, potentially affecting water quality.
- Turbine blade erosion and microplastic pollution, microplastics could enter public water supply.

Peatland Impacts

- Proposal on deep blanket peat that drains via surface and subsurface flows into tributaries leading to Gortglass Lough and Lower River Shannon SAC. Any peat excavation, drainage or silt disturbance poses a direct threat. No peat stability model, no quantitative hydrological assessment, and no downstream sediment or nutrient transport model, citing Derrybrien Wind Farm (C-215/06; C-261/18), where poor peat management led to catastrophic slope failure and EU infringement fines.

Traffic and Transport

- Disturbance caused by construction process. Local roads not suitable for heavy traffic or large vehicles required for construction and turbine transport. Road never tarred or resurfaced.
- Inadequate access routes and poor road conditions. Local roads are narrow, winding and already in poor condition.

• Increased HGV traffic poses safety risks to residents, farmers etc. May cause further deterioration and long-term damage to local infrastructure. No realistic strategy put forward to address these issues.
Aviation Safety
• Recently IAA and Shannon Air Group submissions on wind farm applications flagged concerns that the safe operation of radar infrastructure at Woodcock Hill, Meelick may be compromised by a wind farm in the area. Passenger safety may be at risk. • Concerns with regard to obstacle lighting, aeronautical hazard analysis, consultation with IAA needed. • Site lies in a region where low-level aviation including Coast Guard rescue operations is common; agricultural aviation routes occur; occasional helicopter flight paths. Concern around radar infrastructure disturbance; potential obstacles on rescue-flight routes and lighting glare potentially hazardous to night operations.
Telecommunications
• Potential risk of disturbance of broadband and television as a result of the proposed development.
Archaeology, Architectural & Cultural Heritage
• Crannog and fort at Gortglass Lough island do not seem to have been identified or mentioned in the EIAR. • Subsurface archaeological features would not have been detected through the desktop analysis and field-walking. Excavation poses a risk of disturbing unrecorded settlement activity. • EIAR concludes imperceptible effects. This does not account for cumulative visual intrusion on heritage settings and approaches; the cultural heritage assessment is incomplete.
Landscape and Visual Amenity
• The turbines would dominate the landscape especially from Gortglass Lough and views across the lake and surrounding bogland. Will diminish the scenic and recreational value of the lakes.

- The area currently has a tranquil, unspoilt rural character in upland rural landscape with open panoramic views. Industrial structures of this scale, height and density conflict with Clare CDP policies protecting the landscape, water-based amenities, and rural character.
- Visual Impact Statement is superficial, based on limited and selectively chosen viewpoints, fails to provide any realistic photomontages from key public vantage points. Would cause permanent and irreversible landscape degradation.
- Excessive heights are disproportionate to the rural setting. Visually intrusive and out of character with the area, irreversible alteration of scenic rural vistas.
- Photomontages provided do not reflect worst-case visibility or cumulative scenarios and therefore fail to meet accepted visual assessment standards; impact from Kildysart village.
- No meaningful viewpoint taken within a 5km radius of the east side of the proposed windfarm.
- VP10 L2072 at Tonlegee gives a stark representation where nearly all of the turbines are exposed.
- EIAR Landscape and Visual Impact Assessment omits any assessment from the perspective of Gortglass Lough.
- Consider that landscape characteristics are that of Medium-High sensitivity landscapes, not low-sensitivity “working landscapes”. The EIAR downplays this sensitivity to justify turbine height and density.
- Under EPA EIA Guidelines 2022 and GLVI A3, a Substantial-moderate effect is significant unless compelling mitigation or design response is shown. None is provided for several moderate effects.
- The photomontage book confirms a significant adverse effect for high-value public receptors.
- The LVIA undervalues Gortglass Lough as merely a pleasant view. Sensitivity is high, not medium.
- Night-time cumulative effects and aviation lighting have not been presented.
- The omission of long-established houses from receptor mapping further undermines viewpoint selection and significance judgements.

Lack of Public Consultation

- Insufficient public consultation - consultation was limited, lacking transparency and meaningful engagement.
- Standards of public participation under Irish law and the Aarhus Convention not met.

Cumulative Impacts

- Referencing volume of windfarms/turbines in West Clare, there is an excessive burden on local communities increasing noise, visual intrusion and stress.
- The cumulative environmental and social impacts would be significant, lasting, and entirely inappropriate for this rural, ecologically sensitive region.

Planning Policy

- The planning statement omits environmental and public health safeguards, mis-characterises the site's sensitivity, overlooks hydrological link to a public water reservoir and fails to engage with Annex I birds, Freshwater Pearl Mussel, peat stability and visual policy constraints.
- The National Planning Framework and Climate Action Plan objectives to expand renewable electricity are conditional on protecting biodiversity, water and landscape assets. The Clare CDP supports renewables only where compatible with these protections. The preconditions for acceptability are not satisfied.
- Conflicts with Clare CDP 2023-2029 on various policy objectives (biodiversity, landscape, scenic routes, residential amenity)
- Application is premature pending publication of mapping associated with Renewable Energy Directive III.
- The Clare CDP is not informed by properly constituted statutory guidelines. The 2006 wind guidelines are outdated and were not subjected to SEA.
- The development fails SPPR2 of the 2019 Draft WEDG's. No reference to the Wind Turbine Regulation Bill 2025 – more protective measures.

Legal Interest/Turbary Rights

- Querying continued access to turbary rights at:
  - Glenconaun More;
  - Craghera Bog, and use of Craghera bog road;
  - At Dan O'Connell's which is a right of way;

• Proposed Eastern entrance is an access to bog land plots.
Mapping/Survey deficiencies
• Application mapping based on outdated OS maps that fail to show numerous residential properties and prejudices public participation. • Key assessments of noise, shadow flicker, residential amenity and visual impact are invalid. • Site maps must include all dwellings within 100 m of site boundary. • EIA/NIS not publicly available - current proposal is lacking publicly available hydrology, peat stability studies, ecological surveys, aviation safety assessments.
Application Process / Case Law
• ACP must consider the proper planning and sustainable development of the area, environmental protection, and the safeguarding of residential amenities. The proposal fails to meet these obligations setting out reasons. • Various case law referenced throughout the submissions: People Over Wind, Sweetman (C-258/11), Derrybrien; Sliabh Luachra Wind Farm and West Clare Wind Farm, O'Grianna v An Bord Pleanala [2014] IEHC 632. • Grid connection and off-site enabling works must be assessed cumulatively for EIA and AA purposes. • Application drawings do not comply with Planning & Development Regulations. • Application lacks information on the disposal of wastewater and evidence as to the suitability of the site. • The 10-year permission is being sought without any explanation or reasons, conflicts with timeline in the CEMP and RED III concept of accelerated development.
Recommended conditions in event of a grant of permission
• Reduction in number of turbines/height/rotor diameter. • Increased setback distances from all dwellings. • Comprehensive conditions on peat/soil management, hydrology monitoring, and restoration of bog/peatland, including carbon-release risk mitigation. • Strict working hours condition; • Noise and shadow flicker monitoring.

7.2. Oral Hearing Request

7.2.1. The Commission decided, by Direction dated 26th August 2026, that an oral hearing was not warranted in relation to the subject case, as it was considered that there was sufficient written evidence on file to enable an assessment of issues raised.

8.0 Applicant's Response

8.1. Introduction

8.1.1. The applicant was invited by the Commission to make a submission on the observations received in relation to the application. A response was received from the applicant on the 27th February 2026 addressing the issues raised by Prescribed bodies and third-party submissions.

8.2. Response to Prescribed Bodies

8.2.1. A summary of the response to prescribed bodies is set out in Table 8.1 below.

Table 8.1: Responses to Prescribed Bodies
Clare County Council
• Planning Policy- The Wind Energy Development Guidelines (2006 WEDG) remain valid. The 4 X tip height setback provision has been applied for visual amenity purposes from nearest residential receptors, proposed under the 2019 WEDG. The proposed turbines would only be classed as small to mid-range in height by today's standards. Refers to the Clare County development policy for wind energy development and justification for proposal in context of the EIAR LVIA chapter.
• Visual Amenity - points to the Clare Wind Energy Strategy where the landscape containing the site and most of the central study area is classified as 'Acceptable in Principle' for wind energy development. • Considers that CDP14.2 objective was written with rural buildings and structures in mind and not intended to specifically relate to wind energy development.
• Visual Impact - concerns raised have been thoroughly assessed in the EIAR, and the associated visual impact assessment appendices. In all cases the effects were assessed and found to be not significant.

• Shadow flicker: refers to the EIAR, following mitigation, shadow flicker levels at all receptors within the study area will be reduced to negligible levels, and as such would not result in significant effects.
• Noise – EIAR shows predicted operational noise levels are above the daytime noise limit at 16 locations. During the night-time period, the noise criteria is exceeded at one location. The proposed wind turbines have sound optimised modes of operation which generate reduced noise levels to allow the daytime and night-time noise limits to be met at all noise sensitive locations at 6m/s, 7m/s and 8m/s where the modelling predicted that the operational noise is marginally exceeded.
• Traffic – addressed in the EIAR and CEMP. Likely to result in a slight to moderate short-term negative impact on the existing road network during the construction phase. Mitigation proposed. • Traffic and Transportation Impact Assessment examined local road network re. capacity, width, structural condition etc. Included a TDR assessment with swept path analysis, a 'passing opportunities' report and identified optimal haul routes to be used. • Traffic movements significantly less than typically expected for this type of development due to volume of site won aggregate from on-site borrow pits, and peat and spoil management plan. • Road closures – only 1 temporary closure required. Necessary consent, diversions and signage will be put in place. Welcomes conditions relating to road opening licences, road reinstatement, road closures, bridges/culverts/pipelines, turbine deliveries and bonds. • Quarry sourced materials - EIAR sets out local quarries and haul routes for construction stage, with feedback from the Council's roads department informing the haul routes for the final design.
• Freshwater Pearl Mussel (FWPM)– refers to constraints-led avoidance approach, the EIAR, SuDS treatment system, SWMP, Peat Stability and Geotechnical Assessment, CEMP, NIS etc. Summarises mitigation measures to hydrology. The measures would directly address the dominant pressures on FWPM: fine sediment, nutrients, hydrological flashiness and riparian degradation. They will improve water quality and stability in the tributaries entering the Cloon River.

- Avi-fauna – referring to Hen Harrier and survey effort, based on the best available scientific evidence, it is unlikely that hen harriers have attempted to breed within 3 km (min.) of the proposed development in the last 10-20 years, with sufficient regularity, or any part of the 2 km turbine buffer to be considered a traditional hen harrier breeding site. The site is beyond the zone of influence of any pairs, most probably breeding > 5-6 km away to the north of the site. Any ecological importance that the landscape encompassing the proposed development has for hen harriers is as a foraging habitat, outside the breeding season. Direct and indirect impacts to roosing hen harrier can be ruled out.

- Avi-fauna – Cumulative impact was considered in the EIAR, the potential for likely significant effects due to operational habitat loss, barrier effects, disturbance or collision risk on hen harriers can be excluded, both alone and in-combination with other projects.

Department of Housing, Local Government and Heritage (Development Application Units, DAU)

Archaeology

- Would accept a condition of planning to carry out preconstruction archaeological test excavations.

Birds:

- Refers to the EIAR and NIS for full ornithological details.
- Justifying avian assemblage interpretation based on recorded surveys.
- The Site, and 2 km turbine buffer, are of relatively low importance in terms of wintering waterbird populations; reflected by low levels of wetland birds activity recorded, and the limited availability of suitable habitats.
- Detailing survey effort in respect of wintering waterbirds and individual species, concluding that proposed development will not adversely affect River Shannon and River Fergus Estuaries SPA populations
- The utilisation of Gortglass Lough and Cloonsnaghta Lough by waterbirds will not be affected by the proposed development due to small number of birds.
- Neither whimbrel nor Mallard considered an important ecological feature Additional assessment provided in respect of mallard. No likely significant effects anticipated.
- Refer to Clare Co Co. Response with respect to hen harrier. Setting out findings of collision risk presented in the EIAR, which remains valid and robust.

- The predicted collision risk estimates presented for kestrel in the EIAR are unrealistically high. Provision of net boxes included as mitigation (per EIAR).
- Survey limitations - it is considered that sufficient data was collected over the three-year survey period to identify any ornithological constraints that may arise from the proposed development. There was no deficiency in the survey effort employed to inform the collision risk assessment.
- Referring to EIAR, no likely significant effects are anticipated for barn owls, and no further impact assessment was required. Sparrowhawk and short-eared owl were not considered an important ecological feature. White-tailed eagle was scoped out.
- Wintering waterfowl and barrier effect – see response to Clare Co. Co.

Freshwater Pearl Mussel (FWPM)

- Refers to EIAR and NIS for risk assessment and hydrological impacts. Sets out embedded design measures and mitigation measures. Sets out peatland restoration and enhancement measures. Hydrological impacts associated with permanent peat loss, exposure, compaction and dewatering were fully assessed, integrated into the design, and supported by detailed mitigation, monitoring and enhancement measures. The development will not adversely affect the downstream FWPM habitat in the River Cloon nor the integrity of the Lower River Shannon SAC.
- Referring to EIAR and NIS, assessment of sediment pathways were examined in detail. Restating mitigation measures and setting out enhancement measures.
- The NIS and EIAR established the baseline and assessment criteria needed to evaluate impacts on habitat and population attributes. The NIS and EIAR fully describes and assesses the hydrological regime and pollution pathways, assesses potential impacts on all relevant FPM habitat and population attributes, and provides enforceable, monitored, mitigation measures

Bats

- The EIAR provides a detailed assessment of hedgerows, treelines and watercourses within the Study Area. Species-specific bat buffer distances are presented in the EIAR based on the proposed turbine design and feature height. Avoidance of high-value bat features was incorporated through the constraints-led design process.
- With respect to lesser-horseshoe bat, minimal vegetation removal combined with curtailment represents the most appropriate mitigation for turbines in this location (T03). Robust assessment undertaken.

- Detailing enhancement measures set out in the EIAR.
- Operational bat mitigation measures are set out in the EIAR, including low-wind-speed curtailment, feathering below cut-in speed, and enhanced mitigation at turbines T03 and T13. Additional detail is provided within the Bat Species Conservation Plan (EIAR Section 9.10.5), outlining seasonal operating windows and relevant wind-speed bands.
- The EIAR reflects an extensive multi-season bat survey programme. Bat activity monitoring is ongoing.

Mammals

- Detailing survey efforts for otter and badger. Limitations of access for red squirrel and pine martin, however mitigation measures address this, referring to the EIAR.

Other

- All Construction and Operational Mitigation measures are contained in the EIAR and NIS.
- The contractor will produce a detailed and site-specific Decommissioning Plan prior to the commencement of decommissioning. This is considered industry best practice.

Department of Transport

- There are no grid connection cables proposed in the public roads.

Transport Infrastructure Ireland (TII)

- Conditions recommended relating to the temporary works on the N68/L2158 are accepted by the applicant.
- The transformer that forms part of the substation will not be of a weight which would meet the 'Exceptional Abnormal Loads' threshold. Refers to the EIAR which assesses the likely route of the Abnormal Loads required to be delivered to site, and to the Traffic Management Plan. Abnormal loads will require an abnormal load permit prior to delivery and will be delivered mostly at night time. A structural survey shall be carried out to determine suitability of the existing roads to carry the loading, where necessary.
- A pre-condition survey of haul routes, consisting of a video survey and photographs shall be carried out.
- Damage caused to roads shall be repaired.

AirNav Ireland, Irish Aviation Authority (IAA), Shannon Airport &

Department of Defence
• The EIAR provides an assessment of the elements requested by AirNav Ireland. The report confirms that no mitigations are required for communication and navigations systems due to the proposed development, and that there will be no residual impact. It is highly unlikely that there would be any impact on the inspection/calibration test flights. • Agrees to engage FCSL, to complete an assessment on potential impacts on signals and flight calibration. This assessment will be forwarded to AirNav Ireland for review. • Agrees to engage with Shannon Airport Authority, AirNav Ireland and IAA prior to commencement, to confirm the proposed development would have no impact on Obstacle Limitation Surfaces, Instrument Flight Procedures, Communications, Navigation and Surveillance (CNS) equipment or the safety of flight operations at Shannon Airport and that turbines be included in the IAA Aeronautical Electronic Obstacle Data Sets. • Agrees to implementation of an aeronautical obstacle warning light scheme for the wind farm development and to provide as-constructed coordinates in WGS-84 format together with ground (AOD in meters), and tip height elevations at each wind turbine location, and notification of crane operations.
National Environmental Health Service Executive (HSE)
• The World Health Organisation (WHO) noise guidelines were considered in Chapter 8 of the EIAR. • Assessment of operational wind turbine noise against the levels presented in the 2018 WHO document is not considered to be appropriate or in accordance with best practice. This is in accordance with accepted industry practice. • Information is also provided in the response on the following: • 2006 WEDGs & Low Background Noise Criteria • Assessment of Noise by Relative Level; BS4142 for Wind farm Operation • Predicted Operational Noise from the Transformer; Absolute noise limit.
Geological Survey of Ireland (GSI)
• No response provided.

8.3. Response to Third Parties

8.3.1. A summary of the applicant response to third party submissions is set out in Table 8.2 below.

Table 8.2: Response to Third Party Issues
Population and Human Health
Shadow Flicker: • Similar shadow flicker concerns raised by Clare County Council, response in Section 2.2.4.1 of applicant's report. • Comprehensive mapping of shadow flicker zones can be found in Figure 12.1, Vol III of the submitted EIAR. Noise • Low frequency noise and amplitude modulation are discussed in Section 8.2 of Chapter 8 of the EIAR. • Concerns regarding noise pollution during the operational phase and mitigation measures are discussed in Section 2.2.4.1 of response. • Mitigation measures proposed for both Shadow Flicker and Noise are fully described in the EIAR and known to work.
Residential Amenity & Property Values
• EIAR describes the visual impact assessment that was carried out in compliance with industry best practice and found no significant effects even from the closest local roads to the site which are flanked by numerous residential receptors. • The Draft Revised WEDGs recommends for four times (x4) tip height setback of turbines from nearest residential receptors and has been applied for the proposed development. See response to Clare Co. Co. • The purpose of the red lighting at night-time is used only for identification purposes and will not impact on the amenity of the area. • Based on the available national and international literature, the proposed location would not impact on the property values in the area. • Concerns relating to three no. residential properties which claim to be left out of the mapping and assessments – applicant has responded to these (Frank Ranalow, Noel King, Rita O'Dea; also response to John Hehir submission provided.
Health

- Referring to the EIAR, the proposed development is not expected to have significant effects on Human Health.
- See response to Clare Co. Co. regarding noise and response to HSE regarding low-frequency noise exposure.
- The noise model prepared for the proposed development has accounted for the propagation factors that influence the spread of sound, such as ground effects, in accordance with international standards.
- Regarding traffic, dust and air quality during construction and decommissioning, mitigation measures address concerns in the EIAR, resulting in slight to moderate residual impacts which will be localised, temporary in nature.

Local Community, Business, Tourism

- Gortglass Lough and Clonsnaughta Lough: there are no designated walking routes around the lakes. There will be some adverse effects on visual amenity when looking northwards across these two; the turbines represent a backdrop feature that does not obscure foreground views across the lakes.
- Regarding recreational activities on Gortglass Lough - no hydrological connection.
- Visual effects on 'Tourism, Recreational and Heritage Features' are assessed within the LVIA. The range of visual effects for this type of visual receptor only range between 'Slight' and 'Imperceptible'.
- The proposed wind turbines are set back almost 5km from the nearest shores of Shannon Estuary and will have little or no intervisibility visibility with the proposed turbines. Related visual effects range between 'Slight' and 'Imperceptible'.
- There are no notable sized settlements within close proximity to the site. The nearest settlement is Kildysart from which there is no intervisibility with the proposed turbines. 8 of the 27 representative viewpoints are from settlements: the visual effects range between 'Slight' and 'Imperceptible' from all of them.

Biodiversity & Natura 2000 Sites

- Refer to responses to Clare Co. Co. and DAU regarding impact to bats and freshwater pearl mussel; refers to enhancement measures and mitigation measures outlined in the EIAR and NIS.
- The wildlife value of commercial plantations is considered of lower local value. They can provide shelter, connectivity for species, notably bats. The impacts and significance of effect are assessed on a species-by-species basis in the EIAR.

- With respect to habitat fragmentation and a range of species - reference to approach for mitigation by avoidance through embedded design and proposed extensive habitat restoration and enhancement measures.
- With respect to avian ecology - refer to responses to Clare Co. Co. and DAU. Refers to EIAR, re embedded mitigation measures for biodiversity.
- Regarding impact on sensitive peatland ecosystem, freshwater habitats, and watercourses: Constraints assessment and habitat surveys were carried out to inform the layout and incorporate mitigation by design.
- Points to mitigation measures to protect water quality and associated habitat functionality within the site. To mitigate for residual impacts specifically in relation to peatland habitat, 72.38 ha of peatland restoration.

Water

- Gortglass Lake has been screened out of the Water Framework Directive Assessment on the basis of a lack of hydrological connection. The nature and composition of the bedrock geology indicates that there is limited connectively between the site and the Lower River Shannon SAC and Gortglass Lough.
- Proposed development is not expected to cause interference with domestic wells in the area, due to large offset distances to known wells, relatively shallow depths of excavation and temporary short-term nature of dewatering.
- Groundwater monitoring will be undertaken to assess any potential effects during the construction works.
- The effects on hydrology and water quality will be mitigated with measures detailed EIAR including SWMP, drainage design and SuDS best practice and prevention of sediment mobilisation/settlement.

Peatland Impacts

- Peat depths at the proposed development were assessed through a comprehensive program of peat probes and supplemented by trial pits and rotary core boreholes which allows the assessment to adequately determine ground and groundwater conditions for the purposes of this development.
- A robust peat stability assessment was undertaken, referring to the EIAR. Results indicate a ‘Negligible and Insignificant’ risk of peat landslide for the site.

• Best practice mitigation included to prevent slope failure in EIAR and CEMP. Post mitigation effect on the underlying geological and hydrogeological receptors is 'Negligible and insignificant'. • Foundations will be founded on a suitable bearing stratum. Any excavations requiring depths of 3-5m will utilize engineered fill. This approach mitigates any risk of subsidence. The sole exception is Turbine T01, where peat depths reached 6.65m; here, a piled foundation solution will be used. • There is no viable source-pathway-receptor linkage between the peatlands within the site and Gortglass or Cloonsnaghta Loughs.
Traffic and Transport
• See Response to Clare Co. Co. and prescribed bodies. • Refers to Chapter 13 of the EIAR, including mitigation measures. The construction phase is not considered to have a significant effect on Human Health in relation to traffic due to the proposed mitigation measures. • There are no likely significant impacts on the receiving environment in relation to traffic and transportation, is likely to result in a slight to moderate short-term negative impact on existing road network during construction phase.
Aviation Safety
• Refer to EIAR and responses to AirNav submission.
Telecommunications
• A detailed assessment on potential impacts on telecommunications set out in Chapter 16 of the EIAR. Mitigation measures result in interference being unlikely.
Archaeology, Architectural & Cultural Heritage
• There are no recorded monuments (or crannog) recorded on the national monuments service public website. All recorded monuments and structures within the study area have been assessed in the EIAR. The proposed development will not result in any significant direct effects on any known cultural heritage constraints.
Landscape & Visual Amenity
• See response to Clare Co. Co. • In accordance with Clare CDP the receiving landscape is in the most common 'settled' landscape classification area. This Landscape Character Area is not classified as being of high value or sensitivity and has associated policies that seek to

support the established rural economy rather than provide a high degree of protection to the landscape. • The Wind Energy Strategy for County Clare identifies that the proposed development is in an area deemed 'Acceptable in Principle' for wind energy development. • There are also no scenic designations (scenic routes / views) within 5km of the site.
Lack of Public Consultation
• The applicant refutes comments regarding lack of consultation. Community engagement began in 2023. Community Liaison Officer engaged with residents directly door-to-door, monitored a dedicated telephone number and email. • Website for the proposed development www.cloonkettgreenenergy.ie was set up as a central information hub for the project. • Consultations took place with a number of stakeholders; comments and feedback were incorporated into the project design iterations and assessments.
Cumulative Impacts
• EIAR sets out the approach to Cumulative Impact Assessment. Proposed projects in the zone of influence of the project are cumulatively assessed.
Planning Policy
• Chapter 4 the EIAR sets out the objectives of the Clare CDP which informed the design and siting of the proposed development. • Chapter 9 Biodiversity of the EIAR follows guidance from the Chartered Institute of Ecology and Environmental Management in terms of biodiversity enhancement. • A Biodiversity Management Enhancement Plan (BMEP) and a Freshwater Peal Mussel Management Plan were prepared to support the application. • The National Territory Mapping for Renewables is not a material consideration. The site is appropriately designated for wind energy development. • The Clare CDP has been subject to Strategic Environmental Assessment and is the statutory plan that ACP must have regard to. • The 2006 WEDG remain valid/relevant. • The 2019 WEDG have not been adopted and will be subject to change. The proposal complies with and goes beyond the requirements of the 2006 Guidelines in respect of set back from residential receptors and minimising shadow flicker.
Legal Interest/Turbary Rights

• All turbary plots and related existing access tracks have been avoided, and no wind farm infrastructure will impede access to them.
Mapping/Survey deficiencies
• The OSI mapping used within the submitted EIAR was the latest dataset available from Taillte Éireann.
Application Process
• Various provisions of Section 34 of the Act are not applicable as the application for permission for development was made under Section 37E of the Act. • The application is in compliance with Articles 22 and 23 of the Planning Regulations. The Application Complete and Valid by ACP. • The drawing scales submitted were agreed with ACP.

9.0 Policy Context

9.1. European Policy

9.1.1. Revised Renewable Energy Directive (REDIII)

9.1.2. RED III was transposed into Irish Legislation by way of 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%. It sets the course for a rapid acceleration of renewable energy deployment, while taking into account other policy considerations such as multiple use of land. It requires a massive scale-up of renewables projects, driving demand for inter alia wind energy.

9.1.3. European Wind Power Action Plan

9.1.4. Wind energy is renewable, abundantly available in the EU and secure. The EU target of at least 42.5% of renewables by 2030 will require the installed capacity to grow from 204 GW in 2022 to more than 500 GW in 2030. Globally, annual wind capacity additions should reach at least 329 GW per year until 2030 to achieve net-zero emissions by 2050, more than quadrupling today's deployment levels (75 GW).

9.1.5. The Action Plan sets out measures that should be urgently taken to achieve this objective. It is structured into six main pillars of concerted action by the European Commission, Member States and the industry:

(i) acceleration of deployment through increased predictability and faster permitting;

(ii) improved auction design;

(iii) access to finance;

(iv) creating a fair and competitive international environment;

(v) skills;

(vi) industry engagement and Member State commitments.

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

9.1.7. This plan was prepared in response to the Russian invasion of Ukraine and focuses on the need to end the EU's dependence on Russian fossil fuels and to tackle the climate crisis. The plan 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 and includes the accelerated rollout of renewable energy.

9.1.8. **European Green Deal 2020**

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

9.2. **Legislative, National and Regional Policy Context**

9.2.1. **Climate Action and Low Carbon Development Act 2015, as amended 2021**

9.2.2. 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

9.2.3. **Climate Action Plan 2024 (CAP24) and 2025 (CAP25)**

9.2.4. 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.

9.2.5. To meet its targets and obligations CAP 24 sets a course for Ireland to halve emissions by 2030 and reach net-zero no later than 2050. In terms of the electricity sector a 75% reduction in emissions based on 2018 levels is required by 2030 and CAP 24 provides that central to achieving this is the strategic increase in the share of renewable electricity to 80% by 2030 including ambitious targets of deploying 9GW of onshore wind, 8GW of solar power and at least 5GW from offshore wind projects. CAP 2025 was published on 15th April, 2025. It re-affirms the previous commitment to increase the share of renewable electricity generation to 50% by 2025 and 80% by 2030 including solar targets of up to 5GWs by 2025 and 8 GWs by 2030.

9.2.6. The consultation phase to inform the preparation of the next update to the Climate Action Plan closed in August 2026 and the publication of the Plan is awaited. In this regard, the Commissioners should satisfy themselves of its status at the time of making a decision.

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

9.2.8. 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.

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

9.2.10. 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.

9.2.11. **Project Ireland 2040: National Planning Framework First Revision, April 2025 (NPF) and the National Development Plan (NDP 2018-2027) and NDP review 2025**

9.2.12. 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 form 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.

9.2.13. 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 3,302MW, for solar PV or 43% 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.

9.2.14. **National Biodiversity Action Plan 2023-2030 (NBAP)**

9.2.15. 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.

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

9.2.17. Under the first EU Directive 2009/28/EC18 (RED) in 2009, member countries of the European Union were obliged to draft and submit to the European Commission National Renewable Action Plans (NREAPs) outlining pathway which will allow them to meet their 2020 renewable energy, energy efficiency and GHG cuts targets. Ireland 2020 electricity target- 42.5% of electricity demand met by electricity generated from renewable energy sources

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

9.2.19. Ireland signed and ratified the Council of Europe's European Landscape Convention (ELC) in 2002 which came into effect on 1 March 2004. It obliges Ireland to implement policy changes and objectives concerning the management, protection

and planning of the landscape. The National Landscape Strategy is intended to ensure compliance with the ELC and to establish principles for protecting and enhancing it while positively managing its change. It is a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions.

9.2.20. The objectives of this Strategy are to establish and implement through a series of actions, policies aimed at understanding, protecting, managing and planning our landscape. It sets out specific measures to integrate and embed landscape considerations in all sectors which influence the landscape and improve and enhance the quality of decision-making by those who have an impact on it.

9.2.21. **Regional Spatial & Economic Strategy for the Southern Region 2020-2032 (RSES)**

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

9.2.23. It is an objective, RPO 96, to support the sustainable development, maintenance and upgrading of electricity and gas network grid infrastructure to integrate renewable energy sources and ensure our national and regional energy system remains safe, secure and ready to meet increased demand as the regional economy grows.

9.2.24. It is an objective, RPO 99 – Renewable Wind Energy, to support the sustainable development of wind energy at appropriate locations.

9.2.25. It is an objective, RPO 100, to support the integration of indigenous renewable energy production and grid injection.

9.2.26. It is an objective, RPO 219 New Energy Infrastructure to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable

and timely manner and that capacity is available at local and regional scale to meet future needs.

9.2.27. In addition, RPO 221, it is an objective that Development Plans support the sustainable development of renewable energy generation ….to spatially suitable locations to ensure efficient use of the existing transmission network.

9.3. Ministerial Guidelines and Other Relevant Guidance

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

9.3.2. The Guidelines advise that a reasonable balance must be achieved between meeting Government Policy on renewable energy and the proper planning and sustainable development of an area, and it provides advice in relation to the information that should be submitted with planning applications.

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

- Noise

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.

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. 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

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

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.

9.3.4. **Draft Wind Energy Development Guidelines 2019 (draft 2019 WEDG)**

9.3.5. In December 2013, the Minister for Housing and Planning announced a public consultation process with respect to a focused review of the 2006 Guidelines and a 'preferred draft approach' to the review was announced in June 2017. Consultation on the draft Guidelines ended in February 2020. The draft guidelines identify Specific Planning Policy Requirements (SPPR), and subject to formal adoption of the Guidelines, it is intended that these SPPRs would be applied by planning authorities and An Bord Pleanála in the performance of their functions, as well as having regard to additional matters for consideration in assessing wind energy developments. Notable changes in the draft guidelines when compared with the 2006 wind energy guidelines are summarised as follows:

- Noise

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

- Shadow Flicker

Section 5.8.1 - The relevant planning authority or An Bord Pleanála should require that the Applicant shall provide evidence as part of the planning application that shadow

flicker control mechanisms will be in place for the operational duration of the wind energy development project.

- Community Investment

Section 5.10 - The Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (December 2016) sets out to ensure that wind energy development in Ireland is undertaken in observance with the best industry practices, and with the full engagement of communities around the country. Community dividend – measures to ensure enduring economic benefit to the community.

- Visual Impact

Section 6.4 - Siting of wind energy projects.

- Set back

Section 6.18.1 Appropriate setback distance to apply - The potential for visual disturbance can be considered as dependent on the scale of the proposed turbine and the associated distance. Thus, a setback which is the function of size of the turbine should be key to setting the appropriate setback. Taking account of the various factors outlined above, a setback distance for visual amenity purposes of 4 times the tip height should apply between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres. Policy SPPR 2 – Set back. Section 6.18.2 Exceptions to the mandatory minimum setbacks - An exception may be provided for a lower setback requirement from existing or permitted dwellings or other sensitive properties to new turbines where the owner(s) and occupier(s) of the relevant property or properties are agreeable to same, but the noise requirements of these Guidelines must be capable of being complied with in all cases.

- Grid Connections – underground to be the standard approach.

9.3.6. **Other Guidance**

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) (EPA 2022).

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, Department of Housing, Planning, Community and Local Government (2018)
- Guidelines for Landscape and Visual Impact Assessment ((GLVIA 3rd Edition) Landscape Institute and Institute of Environmental Management & Assessment 2013 (IEMA)
- Guidelines for Ecological Impact Assessment 2018 Chartered Institute of Ecology and Environmental Management (CIEEM)
- 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.

9.4. Clare County Development Plan 2023-2029

9.4.1. The Clare County Development Plan 2023-2029 (CDP) was adopted on the 9th March 2023, and came into effect on the 20th April 2023, and is currently the statutory plan for the area. Table 9.1 sets out the most relevant CDP policy in relation to the proposed wind farm development.

Table 9.1 Relevant Clare CDP Policy	
Chapter/Section	**Policy/Objective**
Chapter 2	**Climate Action**
Table 2.2	Renewable Energy Resource Targets for County Clare to 2030: Onshore Wind targets of 1,590.0 GWh/y and 550.0 MW.
CDP 2.1 Climate Action	It is an objective: a) To support the implementation of the National Climate Action Plan 2023 and the National Climate Change Adaptation Framework ….to enable County Clare to transition to a low carbon and climate resilient county; b) … c) To raise awareness and understanding of the impacts of climate change on both the local economy and communities in the county, and the ways communities can increase their response and grow their resilience to these impacts.
Chapter 3	**Core Strategy**
CDP 3.3 Appropriate Assessment, Strategic Environmental Assessment and Strategic Flood Risk Assessment	It is an objective: a) To require compliance with the objectives and requirements of the Habitats Directive, specifically Article 6(3) and where necessary 6(4), Birds, Water Framework, and all other relevant EU Directives and all relevant transposing national legislation; b) To require project planning to be fully informed by ecological and environmental constraints … and any necessary assessment to be undertaken, ….. with the preparation of … Ecological Impact Assessments (EcIA);

	c) To protect, manage and enhance ecological connectivity and improve the coherence of the Natura 2000 Network; d) To require all proposals to ensure there is 'no net loss' of biodiversity within developments; e) To ensure that European sites and Natural Heritage Areas … are appropriately protected; f) To …. have regard to the information, data and requirements of the Appropriate Assessment Natura Impact Report, SEA Environmental Report and Strategic Flood Risk Assessment Report .. of this development plan; and g) to require compliance with the objectives of the Water Framework Directive …..
Chapter 6	**Economic Development**
CDP 6.17 Energy Supply	It is an objective: a) To contribute to the economic development and enhanced employment opportunities in the county by: i) Enabling the development of a self-sustaining, secure, reliable and efficient renewable energy supply and storage for the County in line with CDP Objective 3.3; ii) Facilitating the county to become a leader in the production of sustainable and renewable energy …. iii) Supporting on-land and off-shore renewable energy production … in line with CDP Objective 3.3.
Chapter 8	**Rural Development and Natural Resources**
CDP 8.12	It is an objective: To support the implementation of the National Renewable Energy Action Plan (NREAP), the Clare Wind Energy Strategy and the Clare Renewable Energy Strategy to facilitate the development of renewable energy developments in rural areas to meet national objectives towards achieving a low carbon economy by 2050 ….
Chapter 11	**Physical Infrastructure, Environment and Energy**
CDP11.44 Energy Security	It is an objective: To promote and facilitate the sustainable development, maintenance and upgrading of electricity and gas network grid infrastructure, to integrate renewable energy sources, …

CDP11.45 Electricity Networks	It is an objective: a) To facilitate improvements in energy infrastructure and encourage the expansion of the infrastructure within the County; b) To facilitate future alternative renewable energy developments and associated utility infrastructure throughout the County;……
CDP11.47 Renewable Energy	It is an objective: a) To encourage and to favourably consider proposals for renewable energy developments…. in order to meet National, Regional and County renewable energy targets, and to facilitate a reduction in CO2 emissions and the promotion of a low carbon economy; b) To assess future renewable energy-related development proposals having regard to the Clare Renewable Energy Strategy 2023-2030 …; c) To support the sustainable development of renewable wind energy (on-shore and offshore) at appropriate locations and of its related grid infrastructure in County Clare, in accordance with all relevant policies, guidance and guidelines …, and to assess proposals having regard to the Clare Wind Energy Strategy in Volume 6 of this plan…; d) … e) To strike an appropriate balance between facilitating renewable and wind energy-related development and protecting the residential amenities of neighbouring properties; f) To support and facilitate the development of new options and technological advances in relation to renewable energy production and storage, ….; g) To support the integration of indigenous renewable energy production and grid injection; h) To ensure that all proposals for renewable energy developments and ancillary facilities in the County are in full compliance with the requirements of the SEA and Habitats Directives and Objective CDP3.3 of this plan;….

CDP 11.48 Renewable Energy Strategy	It is an objective: a) To support implementation of the National Renewable Energy Action Plan …. and promote County Clare and the Southern Region as a leader and innovator in sustainable renewable energy generation; and b) To support the implementation of the Clare Renewable Energy Strategy 2023-2030 in Volume 5 of this plan; …
Chapter 14	**Landscape**
CDP14.2 Settled Landscape (site is located within a Settled Landscape)	It is an objective: To permit development in areas designated as 'settled landscapes' to sustain and enhance quality of life and residential amenity and promote economic activity subject to: • Conformity with all other relevant provisions of the Plan and the availability and protection of resources. • Selection of appropriate sites in the first instance within this landscape, together with consideration of the details of siting and design, are directed towards minimising visual impacts. • Regard being given to avoiding intrusions on scenic routes and on ridges or shorelines. Development in these areas will be required to demonstrate • That the site has been selected to avoid visual prominence. • That the site layouts avail of existing topography and vegetation to reduce visibility from scenic routes, walking trails, water bodies, public amenities and roads. • That design for buildings and structures reduce visual impact through careful choice of forms, finishes and colours, and that any site works seek to reduce visual impact.
CDP 14.7 Scenic Routes	It is an objective: a) To protect sensitive areas from inappropriate development while providing for development and change that will benefit the rural community; b) To ensure that proposed developments take into consideration their effects on views from the public road towards scenic features or …..
Chapter 15	**Biodiversity, Natural Heritage and Green Infrastructure**
CDP 15.3	It is an objective:

	a) To afford the highest level of protection to all designated European sites …. b) To require all planning applications for development that may have (or cannot rule out) likely significant effects on European Sites in view of the site's Conservation Objectives, either in isolation or in combination with other plans or projects, to submit a Natura Impact Statement ….
CDP 15.12 Biodiversity and Habitat protection	It is an objective: a) To protect and promote the sustainable management of the natural heritage, flora and fauna of the county both within protected areas and in the general landscape … b) To promote the conservation of biodiversity through the protection of sites of biodiversity importance and wildlife corridors… d) To ensure there is no net loss of potential Lesser Horseshoe Bat feeding habitats, treelines and hedgerows within 2.5km of known roosts; e) To implement and monitor the actions as set out in the Clare County Biodiversity Plan; and, f) To promote biodiversity net gain….
CDP 15.17 Freshwater Pearl Mussel	It is an objective: a) To have regard to the potential impacts of developments within or in close proximity to the Cloon River freshwater pearl mussel catchment including impacts arising downstream within the Shannon Estuary and Clonderalaw Bay, b) To have regard to the Cloon Freshwater Pearl Mussel Sub Basin Management Plan in the assessment of planning applications. c) To ensure careful consideration is given to all proposed developments within the Doonbeg, Shannon – Graney/Scarriff and the Shannon – Woodford Freshwater Pearl Mussel sensitive areas; and d) To ensure full compliance with Objective CDP 3.3 in relation to any future developments in close proximity to a freshwater pearl mussel catchment or sensitive area.

Chapter 16	**Architectural and Cultural Heritage**
Objective CDP 16.8 Sites, Features, Objects Archaeological Interest	It is an objective: a) To safeguard sites, features and objects of archaeological interest generally; b) To secure the preservation .. of all archaeological monuments included in the Record of Monuments and Places … of sites, features and objects of archaeological and historical interest generally.
Volume 2 - Maps	Map C - Landscape Desigations – The site is located within the Settled Landscape. Map E - Renewable Energy and Associated Infrastructure – the site appears to be located within an 'Acceptable in Principle' area for Wind Energy. Map F – Nature Designations – SAC's, SPA's and NHA's including pNHA's**.**
Volume 5 Chapter 6 – Onshore Wind	**Renewable Energy Strategy - Relevant Objectives** RES 3.1 It is an objective: To meet the County's energy needs from 100 % indigenous renewable energy sources. RES 4.1 It is an objective: To facilitate the achievement of … the renewable energy targets set out in Table 4.3 by 2030, ensuring that County Clare is the national leader in sustainable renewable energy generation, ….
Figure 6.1 Wind Energy Designations	The site is located within an 'Acceptable in Principle' location for wind energy.
Volume 6	**Clare Wind Energy Strategy**
Section 3.2 – General Objectives for Wind Energy Developments WES One: Development of Renewable Energy Generation:.	To support, in principle and in appropriate scales and locations, the development of wind energy resources. To ensure the security of energy supply by accommodating the development of wind energy resources in appropriate areas and at appropriate scales. Section 3.3 Specific Area Objectives: WES Nine: **'**Acceptable in Principle': Projects within these areas must demonstrate conformity with existing and approved wind farms to avoid visual clutter; be designed and developed in line with the Planning Guidelines in terms of siting, layout; and environmental studies; provide a Habitats Directive Assessment .. if situated in proximity to a Special Area of Conservation or Special Protection Area. Target wind energy generation from Acceptable in Principle areas is 150 MW.

9.4.2. **Clare Biodiversity Action Plan 2025 – 2031**

9.4.3. The Clare Biodiversity Action Plan provides a framework for biodiversity action with the aim of halting biodiversity loss in County Clare. The plan is a non-statutory document underpinned by the National Biodiversity Action Plan 2023-2030 and it translates the actions of the National Plan as they relate to biodiversity at local authority level.

9.5. **Limerick Development Plan 2022-2028 (LCDP)**

9.5.1. The application documentation states that while the majority of the development is wholly contained within County Clare, the majority of the southern extents of the study area of 20km falls within County Limerick, bordering c.6.5km southeast of the site.

9.5.2. For Limerick, the Rural Landscape Character Areas (LCA's) are set out in Table 6.1 and shown on Map 6.1 of the LCDP. The nearest LCA to the application site is LCA 06 Shannon Coastal Zone, with two other LCA's located within the periphery of the 20km Study Area: LCA 01 Agricultural Lowlands and LCA 010 Western Uplands.

9.5.3. The Views and Prospects for Limerick are shown on Map 6.2. Objective EH O31 Views and Prospects is relevant and states that it is an objective 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.

9.6. **Kerry CDP 2022-2028**

9.6.1. A small portion of the wider southwest extents of the Study Area of 20km falls within County Kerry, at c.14.3 km from the nearest turbine. There are no views and prospects contained within the 20km Study Area in County Kerry.

9.7. Natural Heritage Designations

9.7.1. Special Area of Conservation (SAC)

- Lower River Shannon SAC (Site Code 002165) located c.1.6 km west of the site.
- Knockanira House SAC (Site Code 002318) is located c.11 km northeast of the site.
- Barrigone SAC (Site Code:000432) is located c.12km to the south of the site.

Special Protection Areas (SPA)

- River Shannon and River Fergus Estuaries SPA (Site Code: 004077) located c.3.3 km south-east of the site
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (Site Code: 004161) is located c.13.9 km from the site.

9.7.2. Natural Heritage Areas (NHA)

There are three NHA's within a potential zone of influence of the proposed development:

- Lough Acrow Bogs,
- Cragnashingaun Bogs,
- Lough Naminna Bog.

9.7.3. Proposed Natural Heritage Areas (pNHA's)

The EIAR lists ten pNHA's within a potential zone of influence of the proposed development, of note in proximity to the site:

- Fergus Estuary and Inner Shannon North Shore;
- Cloonsnaghta Lough,
- Gortglass Lake,
- Clonderalaw Bay.

10.0 Planning Assessment

10.1. Introduction

10.1.1. I have examined the application details and all other documentation on the file, including the submissions from prescribed bodies and the public and the applicant's response to the submissions. I have had regard to all relevant European, national and local policies and ministerial and other relevant guidance. I have inspected the site and the wider area. The assessment of the development is divided into three main parts, the first being this section, a planning assessment, followed by an Environmental Impact Assessment (EIA) and an Appropriate Assessment (AA). In each assessment, where necessary, I refer to the issues raised by all parties to the Commission in response to the application.

10.1.2. I am satisfied the substantive issues for assessment relate generally to the principle of the development, environmental impact considerations, AA and matters arising from the observations received. Having regard to all the information, I consider the main matters for consideration by the Commission to be as follows:

- Section 15 of Climate Action & Low Carbon Development Act 2015, as amended
- Principle of the Development and Policy Context
- Residential Amenity
- Other Matters (public consultation, property values)
- Planning Conditions

10.1.3. Matters arising in respect of EIA are addressed in section 11 of this report. Matters arising in respect of appropriate assessment are addressed in section 12 of this report.

10.1.4. All three sections of this report (Planning Assessment, EIAR Assessment and the Appropriate Assessment) should be read in conjunction so as to avoid unnecessary repetition under each of the sections.

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

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

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

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

10.2.1. As outlined in respect of policy at Section 9 above, CAP 2025 was published in 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.

10.2.2. 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.

10.2.3. The National Adaptation Framework; Planning for a Climate Resilient Ireland (June 2024), the most recent approved national adaptation framework, the National Adaptation Framework; Planning for a Climate Resilient Ireland June 2024 (NAF) is Ireland's second statutory National Adaptation Framework (NAF) and was published

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

10.2.4. 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. This national climate objective is reflected in the Clare CDP 2023-2029 (see section 9.4 of this Inspector's Report) wherein climate action is one of five development plan principles/strategic objectives. CDP Objective 2.1 'Climate Action' states that it is an objective to support the implementation of the National Climate Action Plan 2023 and the National Climate Change Adaptation Framework, and any subsequent versions thereof, to enable County Clare to transition to a low carbon and climate resilient county. I am satisfied that the proposal accords with both the National climate objective and local climate action objectives.

10.3. **Principle of the Development**

10.3.1. I refer the Commission to Section 9.0 of this report where the relevant EU, national, regional and local policy context in relation to renewable energy and the subject application in particular.

10.3.2. CAP 2024, as reaffirmed by CAP 2025, seeks to accelerate renewable energy generation, including a 9 GW onshore wind capacity by 2030 in order to reach 80% of electricity demand from renewable sources by 2030. The proposed development will contribute to the delivery of onshore wind energy production and is compatible with the Climate Action Plan, 2024.

10.3.3. The proposed windfarm is compatible with national planning policy as set out in the National Planning Framework, 2018-2040 which recognises the need to move

toward a low carbon and climate resilient society with a sustainable renewable energy supply. National Policy Objective 70 of the NPF seeks to promote renewable energy use and generation at appropriate locations in order to meet national objectives.

10.3.4. Submissions received raise concerns that the 2006 Wind Energy Development Guidelines (WEDG) are out-of-date. The applicant's Response to Submission addresses this point (at section 8.3). I am satisfied that the 2006 WEDG remain valid and are the relevant guidelines for informing the assessment of the proposed development. The 2006 WEDG advise that a reasonable balance must be achieved between meeting national policy on renewable energy and the proper planning and sustainable development of an area. The Guidelines also state that projects should not adversely affect any European sites, have an adverse impact on birds, give rise to peat instability or adversely affect drainage patterns, cultural heritage, sensitive landscapes, the local road network or residential amenity. These practical issues will be addressed in more detail in the relevant sections of the Environmental Impact Assessment and Appropriate Assessment sections of this report.

10.3.5. The proposed windfarm is compatible with regional planning policy as set out in the Regional Spatial and Economic Strategy (RSES) for the Southern Region which seeks to facilitate the sustainable development of additional electricity generation capacity throughout the region and to support the sustainable expansion of the transmission network. Objective Regional Policy Objective 99 of the RSES supports the sustainable development of renewable wind energy at appropriate locations in compliance with the Wind Energy Guidelines.

10.3.6. The application site is located entirely within County Clare and is thus governed by the Clare County Development Plan 2023-2029 (Clare CDP). The Clare CDP contains a number of policies and objectives which promote the provision of renewable energy development in the County. Section 2.7.6 of the Clare CDP seeks to support and facilitate renewable energy use and sustainable generation at appropriate locations within the County; Objective CDP 6.17 seeks to contribute to the economic development and enhanced employment opportunities in the County by enabling a secure, reliable and efficient renewable energy supply and storage; Objective CDP 8.12 supports the implementation of the National Renewable Energy

Action Plan (NREAP), the Clare Wind Energy Strategy and the Clare Renewable Energy Strategy to facilitate renewable energy developments in rural areas. Objective CDP 11.47 supports renewable wind energy at appropriate locations, while seeking to strike a balance between renewable energy and protecting residential amenities and protecting the environment. The Clare Renewable Energy Strategy, RES 4.1 seeks to facilitate the achievement of the renewable energy targets set out in Table 4.3 by 2030 which state the renewable energy resource target (planned) for onshore wind is 550MW for the County over the plan period**.**

10.3.7. The Clare Wind Energy Strategy (WES) which has been in existence since 2009, is incorporated into the current CDP, Volume 6, and remains the relevant strategy until the 2006 WEDG is updated. Section 2.6.1 deals with 'Defining Areas for Wind Farm Development' with four areas of hierarchy identified, comprising of 'Strategic areas', 'Acceptable in Principle', 'Not Normally Permissible' and 'Open for Consideration' areas. Having regard to Figure D of the WES and Map E of the Clare CDP, the application site is located within an 'Acceptable in Principle' area.

10.3.8. Section 3.3 of the WES sets out specific area objectives, with 'WES Nine: Acceptable in Principle' relevant to the application site. It states that these areas, with a target wind energy generation of 150MW, are considered suitable for wind farm development because of sufficient wind speeds, access to grid network, and established patterns of inquiries. Projects within these areas must:

- Demonstrate conformity with existing and approved wind farms to avoid visual clutter.
- Be designed and developed in line with the Planning Guidelines in terms of siting, layout and environmental studies.
- Provide a Habitats Directive Assessment ,...if situated in proximity to a Special Area of Conservation or Special Protection Area.

10.3.9. Clare County Council state in their Chief Executive's (CE's) Report that the application site is designated as 'acceptable in principle' for wind energy development, and under this strategy can accommodate medium to large scale windfarms. Figure 2 of the CE's Report shows the proposed development located within an 'Acceptable in Principle' Wind Energy Designation.

10.3.10. I note the concerns raised by Clare County Council with respect to the proliferation of windfarms in this part of Clare, the fact that the Clare WES has been in place for over 15 years and its concern that the existing section 28 Guidelines do not account for the scale of modern turbines. Third party observations raise similar concerns. A third-party submission sets out the climate change policy framework and states that the application is premature in advance of RED III prescribed mapping, a regional renewable electricity strategy and SEA founded statutory guidelines.

10.3.11. In response to these concerns, I am guided by the Climate Action Plan 2024 and 2025, and by National, regional policy outlined in Sections 9.2 and 9.3 of this Inspector's Report, and local policy outlined in Section 9.4 summarised in section 10.3.6 above, which all point favourably to the principle of windfarm development at the location proposed, subject to necessary environmental and habitats assessments. These environmental assessments are undertaken in sections 11.0 and 12.0 of this Inspector's Report.

10.3.12. Overall, I am satisfied that the proposed development is consistent with the Climate Action Plan 2024 and 2025, and with National, regional and local policy.

10.4. **Residential Amenity**

10.4.1. A large number of submissions raise concerns with regard to residential amenity, including shadow flicker, noise and general disturbance, impact on property values, landscape and visual impacts, effects during construction (noise, emissions, traffic); and health concerns in terms of vertigo, depression/anxiety, sleep disturbance, low frequency noise and red flashing lights at nighttime. Several observers raise concerns/queries regarding the location of their property relative to the proposed development; a number of submissions raise concerns over their ability to develop land in the future for residential development, with one submission referring to an existing derelict cottage located within the 500m setback that they wish to renovate in the future.

10.4.2. <u>Derelict Structures</u>

10.4.3. In the case of wind energy development, I note that a noise sensitive location is defined in the 2006 Guidelines and the draft 2019 Guidelines and includes any

occupied dwelling house. As such, the protection of residential amenity is given to occupied, inhabited dwellings, as opposed to derelict ones. I consider that it is not reasonable to condition an operational curtailment strategy, if permission is to be granted, for the proposed wind turbines in order to mitigate potential noise and shadow flicker effects on uninhabitable and derelict properties, where these properties are not considered sensitive receptors.

10.4.4. Difficulties with mapping/locating properties

10.4.5. I acknowledge the concerns raised in relation to locating property relative to the proposed development on various maps/figures, such as those relating to noise sensitive receptors.

10.4.6. I have reviewed the information submitted by the applicant in relation to identifying residential receptors within the study area. Figure 2.4 of the EIAR indicates the commercial, mixed use and residential development within 2km of turbines. However, I consider that the information presented is not comprehensive. Some properties have been omitted from the map. 57 properties have been identified within 1km of the site and 161 within 2km of the site, however, the location points are not annotated or referenced so it is difficult for the reader to decipher which property a location point refers to. Eircode's, cross referenced with a labelling system would provide clarity.

10.4.7. In relation to noise sensitive locations, these are shown on Figure 8.1 of the EIAR by a series of dots which represent commercial, residential and mixed-use development. However, the corresponding Table 8.3.1 gives details of over 300 ITM coordinates for the noise sensitive locations, making it a difficult and lengthy process to identify these locations. A number of submissions state that their properties were omitted from the mapping and assessments carried out in the EIAR and/or are located closer than the 600m setback distance. The response by the applicant does not sufficiently deal with the specific concerns raised by observers. With respect to specific concerns, the following are relevant:

- Noel King's property, while not shown on Figure 2.4, is shown on Figure 8.1 Noise Sensitive Locations within the Study Area and on Figure 12-1 Shadow Flicker Study Area and Receptors. His property is located c.620m from T14 which is in excess of 4 times tip height set back. As such I am satisfied that

the property has been fully assessed in terms of noise, shadow flicker and visual impacts.

- Frank Ranalow indicated that his property is 450m south of T10. I note the applicant's response that identified a cluster of buildings 600m-750m south of T10, with the closest Eircode data within this cluster of buildings being c. 708m from T10. This property was identified as Property ID 138 (Appendix 2 of applicant's Response to Submissions). Having reviewed the distance, I am satisfied that his property is beyond the 600m setback and has been fully assessed for noise, shadow flicker and visual impacts.
- Rita O'Dea states that her property is within 600m of T8. I note the applicant's Response to Submissions which identifies her property as Property ID 227 with a distance of 619m from T8. Having reviewed the distance, I am satisfied that this property is beyond the 600m setback and has been fully assessed for noise, shadow flicker and visual impacts.

10.4.8. Notwithstanding the difficulties outlined above, the impacts of the proposed development on residential amenity in relation to noise and shadow flicker have been fully assessed in the EIAR and in this Inspector's Report.

10.4.9. Shadow Flicker

10.4.10. The issues raised in relation to shadow flicker relate to the orientation and proximity of the wind farm to homes; during the summer shadow flicker will result in continuous shadowing; a lack of mapping of shadow flicker zones, and; concerns that shadow flicker may exceed recommended thresholds.

10.4.11. I refer the Commission to Section 11.7 of this report and Chapter 12 of the EIAR which addresses Shadow Flicker in detail. In summary, there is the potential for significant effects to occur as a result of shadow flicker at up to 43 receptors under worst-case conditions. Mitigation includes a "zero shadow flicker" strategy will be implemented using turbine control software to cease turbine operation during periods when shadow flicker is predicted to occur. Following mitigation, shadow flicker levels at all receptors within the study area will be reduced to negligible levels, and as such would not result in significant effects. Subject to the implementation of these mitigation measures, I consider that the proposed development would not

result in significant shadow flicker impacts at residential receptors within a distance of 10 rotor diameters of the proposed wind turbines.

10.4.12. Noise

10.4.13. I have addressed noise in Section 11.12 below. Noise control measures set out in the CEMP will be used to control construction noise, including during TDR works. Following mitigation, I am satisfied that construction noise will not be significant and will be temporary in duration.

10.4.14. Operational noise can be controlled by noise limits and monitoring. I am satisfied that the predicted noise levels, individual and cumulatively, subject to mitigation measures, will not exceed applicable noise limits at identified sensitive noise receptors.

Visual Residential Amenity

10.4.15. There is no minimum setback distance from turbines specified within the 2006 WEDG. The proposed turbine layout setback from residential properties exceeds the minimum distance of 500m as per the Draft 2019 WEDG and meets the 4 x maximum tip height i.e. (600m).

10.4.16. I consider landscape and visual effects in section 11.17 of this Inspector's Report. I conclude that the landscape effects are 'significant' within the surrounds of the site, reducing to moderate within the remainder of the central study area.

10.4.17. With respect to visual effects, the LVIA concludes that the proposed development will result in visual effects that are 'not significant' with the visual effects ranging from 'Substantial–Moderate' to 'Imperceptible'. Most of the higher effects relate to the nearest views of the proposed development. I conclude however that significant visual effects as a result of the proposed development will be experienced by a small number of residential receptors within 2km of the proposed wind turbines, where these will experience uninterrupted primary views of the proposed turbines.

10.4.18. Red Flashing Lights

10.4.19. Third party concerns raised concerns that red flashing lights from turbines at nighttime would negatively impact residential amenities and enjoyment of night sky. In response the applicant states that the exact nature of the lighting requirements for

the turbines will be agreed with IAA prior to construction of development. I note the IAA requires an aeronautical obstacle warning light scheme for the wind farm development to be agreed prior to construction. I accept the applicant's response that the purpose of the lighting is not to illuminate the receiving environment but is used only for identification purposes. I am satisfied that this type of illumination will not impact on the amenity of the area.

10.4.20. Conclusion: Residential Amenity

10.4.21. I am satisfied that the assessment submitted by the applicant is sufficiently comprehensive to conclude on residential amenity impacts. Having regard to the location of the site, the setback of proposed turbines to residential receptors, and the mitigation measures involved during the construction and operational phases, I am satisfied that the proposed development would not lead to significant negative impact on the residential amenity of the occupiers of properties in the vicinity of the site in respect of noise and shadow flicker. I note that significant visual effects are likely to arise for a limited number of residential properties/local community, however, in the context of a climate emergency, I am satisfied that the proposed development would be consistent with the Climate Act and National policy in support of renewable energy and a refusal of permission would not be warranted on the basis of residual visual effects on residential receptors.

10.5. Other Matters

10.5.1. Public Consultation

10.5.2. I note a number of submissions on the file raise concerns in relation to inadequate public consultations. The applicant responded by setting out the level of public consultation that took place for the proposed development, stating that a Community Engagement Plan was initiated in 2023 and has been ongoing for over 24 months prior to the submission of the planning application in September 2025. A Community Liaison Officer (CLO) was appointed in 2023 to engage with local residents.

10.5.3. The EIA scoping and consultation is discussed in Chapter 5, with copies of the scoping responses received from Clare County Council and prescribed bodies included in Appendix 5.

10.5.4. The applicant has engaged in pre-planning consultations with the Commission (ABP-317616-23 refers) and has set up a dedicated project website (www.cloonkettgreenenergyplanning.ie). Observations have been received from prescribed bodies and members of the public.

10.5.5. Having regard to the public consultation set out above, I am satisfied that appropriate consultations have taken place for the proposed development, and prescribed bodies and the public have had an opportunity to make observations on the proposed development.

10.5.6. **Property Devaluation**

10.5.7. I acknowledge third-party concerns raised in relation to potential impacts on property values and loss of future planning potential due to the proposed development. Section 6.7.5.4 of Chapter 6 Population and Human Health provides a summary of the most recent national and international studies, including from Ireland which looked at the potential effect of wind farms on property values. The studies concluded that in general, there is no substantive evidence that the provision of a wind farm at the proposed location would have a significant effect on the property values in the area. I note too that the EIAR does not identify any habitable dwellings within the 500m separation distances recommended in the 2006 WEDG (Map 12.1 of the EIAR refers) thereby reducing the potential for likely significant effects on residential amenity and by extension property values in the area.

10.5.8. In terms of third-party concerns that the proposed development could result in sterilisation of the lands/ability of landowners to develop future residential development, I do not consider that the proposed wind farm would prevent future housing within the area, and any subsequent planning application would be subject to normal planning considerations and an assessment on their own merits.

10.5.9. **Comment on Conditions**

10.5.10. Appendix 4 to this Inspector's report lists the conditions requested by prescribed bodies, including those set out in the CE's Report in the event of a grant of permission. The Commission will note that a bond of €2,987,000 is sought in

respect of road remediation costs. A breakdown of this figure is set out in section 5.4 of the CE's Report.

10.5.11. The Commission will note that the conditions sought by prescribed bodies do not address all matters raised by these parties, for example in relation to aviation matters or surface water management.

11.0 Environmental Impact Assessment

11.1. Statutory Provisions

11.1.1. The application was submitted under Section 37E of the Planning and Development Act 2000 (as amended) and it was accompanied by an EIAR, as required for any application made under this section of the Act.

11.1.2. Part 1 of Schedule 5 of the Regulations 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 construction 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 megawatts'.

The proposed development exceeds these thresholds and is therefore subject to mandatory EIA.

11.2. EIA Structure

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

a) consisting of the preparation of an EIAR by the applicant, the carrying out of consultations, the examination of the EIAR and relevant supplementary information by the Commission, the reasoned conclusions of the Commission and the integration of the reasoned conclusion into the decision of the Commission, and

b) includes an examination, analysis and evaluation, by the Commission, 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.

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

11.2.3. 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 proposed development and an assessment of the likely direct and indirect significant effects of it on the following defined environmental parameters, having regard to the EIAR and relevant supplementary information:

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

11.2.4. It also provides a reasoned conclusion and allows for integration of the reasoned conclusions into the Commission's decision.

11.3. Issues raised in respect of EIA

11.3.1. Issues raised in respect of EIA, and discussed under relevant sections below, include the following:

- Shadow flicker
- Noise
- Public health
- Biodiversity
- Birds
- Natura 2000 sites, in particular Freshwater Pearl Mussel
- Land and Geology
- Hydrology and hydrogeology
- Traffic and transport
- Climate
- Material Assets, including aviation
- Landscape and visual
- Cultural Heritage

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

Article 94 (a) Information to be contained in an EIAR (Schedule 6, paragraph 1)
A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under section 94(b).
A description of the proposed development is contained in Chapter 2 of the EIAR including details on the location, site, design and size of the development, arrangements for access and construction methodology, spoil and waste to be generated. The EIAR provides details on use of natural resources and the production of emissions and waste.
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 is generally carried out for each of the technical chapters of the EIAR. I am satisfied that the assessment of significant effects is comprehensive and sufficiently robust to enable 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 mitigation measures to address potential adverse effects and are identified in each technical chapter of the EIAR. A schedule of Mitigation Measures is set out in section 17 of the EIAR which details measures to address identified impacts. Mitigation measures generally comprise standard good practices and site-specific measures. The Commission's attention is drawn to proposed mitigation measures and concerns over same regarding Biodiversity, Water and Material Assets (regarding Aviation) as set out in this Inspector's Report.
A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment (including the additional information referred to under section 94(b).
A description of the alternatives considered is contained in Chapter3 of the EIAR. I am, therefore, 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.
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.
In each technical chapter of the EIAR details are provided on the existing baseline conditions and likely impacts in a do-nothing scenario.
A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved
The methodology employed in preparing the EIAR, including the forecasting methods are set out, in each of the individual chapters assessing the environmental effects. Limitations to preparing the EIAR are detailed, where encountered, in each of the relevant chapters.

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 specifically dealt with in section 6.8 of the EIAR. The Commission should note specific risks regarding operational impacts to Aviation have not been adequately addressed.
Article 94 (c) A summary of the information in non-technical language.
This information has been submitted as a separate standalone document (Volume 1). I have read this document, and I am satisfied that it is reasonably concise, comprehensive and is written in a language that is reasonably easily understood by a lay member of the public given the nature of the proposal.
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 resources relied upon are generally appropriate and sufficient.
Article 94 (e) A list of the experts who contributed to the preparation of the report
The EIAR Project Team is set out in section 1.8 of the EIAR. Specialist and competent experts that contributed to, and are responsible for, each EIAR chapter/topic are outlined in the Curricula Vitae's of contributors which are presented in Appendix 1.1 Contributors to the EIAR, of Volume III of the EIAR.

11.5. Alternatives Considered

11.5.1. A description of the alternatives considered is contained in Chapter 3 of the EIAR. The alternatives considered include: 'Do Nothing' Alternative; Alternative Locations (the Strategic Site Selection process); Alternative Layouts (including alternative turbine numbers); Alternative Design (including transport routes, site access, and grid connection routes); Alternative Processes; Alternative Operational Life.

11.5.2. Several potential wind farm locations were stated to be identified after applying the including the proposed development site. These were then subject to further assessment and screening. The Reasons for Site Selection are set out in section 3.3.2 and include a criteria-based screening exercise based on:

- Compliance with Planning Designation: the Clare County Development Plan (CDP) 2023 – 2029 Wind Energy Map 9.1 has identified the site as "Acceptable in Principle" for wind energy.

- Avoidance of Environmental Designations: There are no Natura 2000 sites within the development footprint. The nearest identified Natura site is the Lower River Shannon SAC 2.5km away.
- Separation distance from dwellings; Minimum setback distance of 4 times tip height of the turbines to non-involved landowners was adopted.
- Level of visual impact: it was considered that the site has the capacity to absorb a wind farm of scale.
- Proximity to Grid: The adjacent 220kV overhead link which is adjacent to the proposed development site is being utilised to connect the National Gird.
- Wind Resource: Wind speeds measured at the Site indicate a mean wind speed of 8.4m/sec at the proposed hub height above ground level.
- Site accessibility: Primary site access can be achieved from the northwest along the L-2072. The sites naturally flat and level topography assisted with the routing of internal access tracks.

11.5.3. Following an assessment of all criteria, the proposed development site was deemed suitable to progress as a potential wind farm location.

11.5.4. The EIAR details consideration of alternative layouts, preceded by a determination of a constraints-led preliminary developable area. The EIAR outlines the series of wind farm design iterations (5 no. in total) and across 3 no. turbine ranges: Nordex-N133, Enercon-E138 and Vestas-V136, which have a similar tip height and rotor diameter (149.5m – 150m tip height) (133m-135m rotor diameter).

11.5.5. Enhanced habitat mapping, peat probing, and ground investigations—along with consideration of site-specific constraints such as steep topography, watercourses, and ecologically sensitive areas—also informed design iterations. This led to the layout of 14 turbines. Appendix 3, Volume 4 of the EIAR includes figures of the turbine layout options considered, while Table 3-5 of the EIAR includes a comparison of potential residual environmental effect for the 5 no. design options.

11.5.6. The EIAR states the final design iteration was chosen as it strikes a balance between energy production capacity and avoidance of environmental sensitivities.

11.5.7. A total of six turbine delivery route (TDR) options were assessed. Five routes were designed to connect to the N68 and one route to the R423. Each route was designed to facilitate access to the site at two key locations: one on the western extent and one on the eastern extent. The preferred route was chosen to minimise enabling works along the routes whilst providing the most direct access to the site.

11.5.8. The alternative grid connection options were examined; the technical details of the route options are outlined in Table 3-6 and the final design was chosen following assessment, consultation with Eirgrid and a lack of capacity at Moneypoint, Booltiagh or Ennis. The only viable option was to consider a 220 kV loop-in connection on site at Cloonkett Wind Farm.

11.5.9. Alternative operational lifespans of 30 and 40 years were considered with permission for a permanent substation that would form part of the national electricity network. A 40- year operational life is considered to provide greater overall benefits.

11.5.10. I am, therefore, 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.

11.6. Assessment of Likely Significant Effects

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

- population and human health.
- biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directives (Directive 92/43/EEC and Directive 2009/147/EC respectively).
- land, soil, water, air and climate.
- material assets, cultural heritage and the landscape.
- the interaction between these factors
- the vulnerability of the proposed development to risks of major accidents and/or disasters.

11.6.2. Given the nature of the proposed development the EIAR has considered the following environmental impacts separately-

- Noise and Vibration (chapter 8),
- Shadow Flicker (chapter 12).

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

- Issues raised in the application and submissions
- Analysis, Evaluation and Assessment of the EIAR
- Conclusion, Direct and Indirect Effects.

11.6.4. The Commission should note a comprehensive 'Schedule of Mitigation Measures' is presented in section 17 of the EIAR which sets out mitigation measures recommended in the EIAR.

11.7. Population and Human Health

11.7.1. Issues Raised

11.7.2. The National Environmental Health Service Executive (HSE) noted the use types and water bodies within the surrounding area; condition of local roads. The submission considered that the EIAR identified the areas for assessment in terms of population and human health and the need to consider emissions and exposure of populations to the emissions evaluated against recognised protection standards.

11.7.3. Third parties raised issues in respect of impacts on neighbouring residences, including via shadow flicker, noise and general disturbance, property values, landscape and visual impacts, effects during construction (noise, emissions, traffic);

health concerns were raised in terms of vertigo, depression/anxiety, sleep disturbance, low frequency noise; turbary rights.

11.7.4. A number of submissions raise residential amenity concerns around shadow flicker, including the impact during summertime and potential continuous shadowing; concerns that shadow flicker may exceed recommended thresholds and a lack of mapping of shadow flicker zones.

11.7.5. **Context**

11.7.6. Chapter 6 of the EIAR deals with Population and Human Health. This chapter is supported by the following associated appendices and figures:

- Chapter 8: Noise and Vibration
- Appendix 8 Noise and Vibration
- Chapter 12: Shadow Flicker
- Appendix 12 Shadow Flicker
- Volume 4 EIAR Figures:
    - Figure 2.1 Site Location
    - Figure 2.4 Properties within 2km of Turbines
    - Figure 8.1 Noise sensitive locations within the Study Area
    - Figure 8.2 Noise Monitoring Locations
    - Figure 12.1 Shadow Flicker Study Area and Receptors

11.7.7. Chapter 6 of the EIAR identifies, describes and assesses the potential direct and indirect impacts of the proposed development on population and human health during the construction, operation and decommissioning phases. The proposed development study area is described in terms of Electoral Divisions (ED's) which correlate to the townlands in which the proposed development is located. A 20km distance from the proposed development was chosen as the zone of influence for assessing potential cumulative effects on population and human health. The assessment is undertaken in accordance with government and industry best practice guidelines. No difficulties were encountered in drafting the Chapter.

11.7.8. **Baseline**

11.7.9. The baseline environment is described in Section 6.6 of Chapter 6 in terms of population, socio-economic/employment and economic activity; land use; land ownership; on-site wind resource; other wind farms; recreation, amenity and tourism; and human health and safety.

11.7.10. The site is described as being located approx. 19km south-west of Ennis, approx. 20km north-east of Kilrush and approx. 14km west of Shannon Airport. The closest settlements are the villages of Killadysert, c.2.8 km south-east and Lissycasey, c.5 km to the north. The area is predominantly rural in character consisting of one-off and small clusters of houses focused on the local road network. The EIAR states that there are 161 residential properties within 2 km of the turbine array (Figure 2.4 of the EIAR) and 57 residential properties within 1 km of the turbine array. The closest property to a turbine is stated to be located c. 518 m distance and belongs to an involved landowner. All other residential properties are located greater than 600 m from the turbine array. The on-site substation is located 149 m from the nearest residential property.

11.7.11. Section 6.6.1.1 of the EIAR describes the population trends within the study area. The relevant Electoral Divisions (ED) for the proposed development are Kilfiddane and Killadysert, with a population of 345 and 955 persons respectively from the 2022 census. The principal employment status in the Kilfiddane and Killadysert ED's is stated to be 'At work', with 49.57% and 49.03% respectively. The majority of the general health of those in Kilfiddane ED and Killadysert ED recorded their health as being 'Very Good' or 'Good' in the 2022 Census.

11.7.12. With respect to recreation, amenity and tourism, the proposed development site is located c.14km north-east of the Wild Atlantic Way, while the Shannon Estuary Way is located c.5km to the south of the site. It is stated that the most significant recreation activity/attractions in proximity to the proposed wind farm site are tourist travel routes, trail walking, glamping, camping, sports grounds and the cultural amenity associated with cultural and natural attractions, such as the aforementioned Wild Atlantic Way and Shannon Estuary Way.

11.7.13. Community facilities and services are centred on towns and villages in the area. The closest settlements are the villages of Killadysert and Lissycasey, with

Ennis and Kilrush being the nearest large towns. The proposed TDR does not pass through or by any significant community facilities and will remain within the public road network.

11.7.14. Figure 8.1 of the EIAR (Chapter 8 in relation to Noise and Vibration) indicates the Noise Sensitive locations within the Study area in relation to Noise and Vibration and Figure 8.2 shows the Noise Monitoring locations. The closest dwellings to turbines are those listed in Table 3.X in Section 3.6.1. The baseline for the noise environment is detailed in section 11.12 of this Inspector's Report and is not repeated here.

11.7.15. With respect to shadow flicker, the study area is shown on Figure 12-1 (Volume 4) of the EIAR and a total of 66 potential shadow flicker receptors were identified. These include habitable residential dwellings and buildings that are mixed residential and commercial. No other sensitive property types were identified within the study area. The receptors are labelled as Shadow Flicker Assessment Location (SFAL) on Figure 12-1 with coordinates presented in Table 12-3. A conservative approach was taken in assuming that all buildings had habitable rooms with windows. None of the SFAL's are located within the 500m assessment area, the closest receptor to a wind turbine is SFAL16, which is located 518m south-east of T1. This is an involved landowner.

11.7.16. **Potential Effects**

11.7.17. The EIAR identifies the potential for a range of environmental effects on population and human health (section 6.7 of the EIAR). Likely significant effects of the development, as identified in the EIAR, are summarised in Table11.7 below. Potential significant effects are underlined.

Table 11.7: Population and Human Health			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	The existing environment remains as it is currently and will not have a significant effect on population and human health.	n/a	n/a
Construction	Construction traffic related effects will be short-term and slight in significance. Short-term, significant positive impact on employment profile of the area around Cloonkett, and a short-term slight, positive impact on local businesses and services in the nearby towns and villages of the Study Area. Temporary slight adverse effects on residential land-use due to noise nuisance (machinery). Potential for temporary, moderate-significant, negative effects to human and public safety during the delivery of turbine components.	A Construction and Environment Management Plan (CEMP) will address construction and decommissioning works including health and safety protocols and methodologies. Traffic and Transport Management Plan with mitigation measures detailed.	Employment and economic activity: Temporary slight positive economic effect. Air quality: slight to moderate temporary residual effects from fugitive dust emissions. Noise: temporary moderate short-term effect from TDR accommodation works (Chapter 8 of EIAR).
Operational Phase	A significant effect on Socio-economics, Employment and Economic Activity in the area: short-term, significant positive impact on the employment profile of the area, and a short-term slight, positive impact on local businesses and services in the nearby towns and villages of the Study Area. Community Benefit Scheme for the Proposed Development will have a significant effect on population in the area.	Safety and Health Management Plan/procedures. Provisions of CEMP apply. Supervisory Control and Data Acquisition (SCADA) system for remote monitoring and control of key infrastructure. An operational noise survey to ensure compliance with noise limits.	Population: Temporary, neutral effects on overall population in the area during working hours, no significant effects. Significant, long-term, positive impact from community benefit fund.

	A new source of noise will be introduced into the soundscape and it is expected that there will be a long-term slight to moderate significant effect for dwellings within the 35 dB LA90 study area with a moderate significance of impact on the closest dwellings to the proposed wind farm. Shadow Flicker: potential for significant effects (daily impacts) to occur as a result of shadow flicker at up to 43 receptors under worst-case conditions (Chapter 8 of EIAR).	Mitigation measures will be refined to ensure compliance with the noise limits is achieved at all noise sensitive locations. A "zero shadow flicker" strategy will be implemented using turbine control software to cease turbine operation during periods when shadow flicker is predicted to occur, then minimal (near zero hours a year) shadow flicker would occur at any relevant receptors with habitable rooms and windows within 10 rotor diameters of the wind farm.	Significant positive impact for electricity users throughout the country. Noise: a slight to moderate significance of impact, with dwellings closest to the Proposed Wind Farm with a long-term moderate significance of effect (Chapter 8 of the EIAR)
Decommissioning	Potential effects will be similar to the construction phase but of a reduced magnitude. Potential impact to public health and safety during the decommissioning phase is considered temporary moderate and negative.	A Construction and Environment Management Plan (CEMP) will address both construction and decommissioning works including health and safety protocols and methodologies.	Community benefits from capital investment are expected to last beyond the Decommissioning Phase resulting in a residual permanent significant effect.
Cumulative	No cumulative impacts with other proposed or operational wind farms in the area are predicted to occur on any receptors in the study area Electricity generating capacity will have a long-term significant positive cumulative impact on utility infrastructure and renewable energy resources.		

11.7.18. **Analysis, Evaluation and Assessment:**

11.7.19. I have examined, analysed and evaluated Chapter 6 of the EIAR relating to Population and Health and Chapter 12 relating to Shadow Flicker, all of the associated documentation and the submissions on file. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on population and human health as a consequence of the development have been identified as set out in the EPA Guidelines on EIAR.

11.7.20. Issues relating to property value, future residential development and derelict properties are considered in section 10.4 of this Inspector's Report and is not repeated here.

11.7.21. Mapping of Sensitive Receptors

11.7.22. A number of submissions state that their properties were omitted from the mapping and assessments carried out in the EIAR and/or are located closer than the 600m setback distance. I address these concerns in section 10.4 of this Inspector's Report and conclude that despite the presentation of material relating to the location of sensitive receptors, the impacts of the proposed development on residential amenity in relation to noise and shadow flicker have been fully assessed in the EIAR and in this Inspector's Report.

11.7.23. Turbary Rights

11.7.24. In relation to turbary rights, the applicant states that turbary and existing agricultural practices will largely remain, with minimal adverse effects on existing land use. The use of the local road network, and the layout and maintenance of the internal access tracks has been designed with due regard to existing turbary rights. All turbary plots and related existing access tracks have been avoided, and no wind farm infrastructure will impede access to them. Therefore, I am satisfied that no turbary rights or access will be negatively impacted by the proposed development during the lifespan of the proposed development.

11.7.25. Construction Impacts

11.7.26. Notwithstanding that the proposed development will result in benefits to the community in terms of investment in the area, new job opportunities, during the 24-month construction period, there will be disruption to local residents within the area, including the temporary works associated with the TDR. However, with the proposed mitigation measures in place, including the CEMP which will be finalised by condition prior to the commencement of development, and the implementation of best practice construction methods (health and safety etc), I consider that the potential impacts would be mitigated to an acceptable level.

11.7.27. Operational Impacts – Shadow Flicker

11.7.28. Chapter 12 of the EIAR provides a dedicated chapter on Shadow Flicker for the proposed development. At Section 12.1.2 the study area for the assessment has been determined based on a two-stage process. The first stage is based on 10 times rotor diameter criterion giving a maximum distance of 1.36 km (10 x 136m rotor) from each of the wind turbines. The second stage considered the calculated area over which it is geometrically possible for shadows from the turbines to be cast and excluding areas (in particular to the south of the turbines) where there is no possibility of shadows from the turbines being cast.

11.7.29. Section 12.2 sets out the Methodology used which is based on the prediction method – i.e. it is possible to predict the total theoretical number of hours per year that shadow flicker may occur from the relative position of the turbines to the receptors, the geometry of the wind turbines, the latitude of the wind turbine site and the size and orientation of the windows potentially affected.

11.7.30. Two scenarios are presented, a worst-case scenario (where average weather effects are not taken into account) and a more realistic scenario, where the model output accounts for estimates of typical weather conditions.

11.7.31. Section 12.2.2 refers to a number of policy documents (local, national and international) with reference to shadow flicker: at local level the Clare CDP Wind Energy Strategy (Section 6.7) states that applications must have regard to the thresholds, limits and buffer zones in the 2006 WEDG's; at national level the 2006 WEDG recommend that shadow flicker at neighbouring offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day, and at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very

low; the 2019 draft WEDG refer to a zero-shadow flicker policy, encouraging the use of technology for shadow flicker control; the Irish Wind Energy Association Best Practice Guidelines 2012 references the 10 rotor diameters from turbine locations as normally suitable for EIA purposes.

11.7.32. The study area is shown on Figure 12-1 (Volume 4) of the EIAR and a total of 66 potential shadow flicker receptors were identified. These include habitable residential dwellings and buildings that are mixed residential and commercial. No other sensitive property types were identified within the study area. The receptors are labelled as Shadow Flicker Assessment Location (SFAL) on Figure 12-1 with coordinates presented in Table 12-3. A conservative approach was taken in assuming that all buildings had habitable rooms with windows. None of the SFAL's are located within the 500m assessment area, the closest receptor to a wind turbine is SFAL16, which is located 518m south-east of T1. This is an involved landowner.

11.7.33. Of the 66 receptors identified within the study area(see Baseline above), 65 have the potential to receive shadow flicker effects. The results of the Shadow Flicker model (worst-case scenario and realistic scenario) for all houses within 1.36 Km (10 rotor diameters) are presented in Table A12-1-1 in Appendix 12-1.

11.7.34. In terms of annual impacts, the total theoretical maximum levels based on a worst-case scenario, exceed 30 hours per year at 36 receptors, and when considering a more realistic scenario for typical sunshine hours, 30 hours per year would be exceeded at 3 receptors (SFAL26, 28 and 30) (Table 12-4 refers).

11.7.35. In terms of daily impacts, Table 12-4 provides a list of predicted levels of shadow flicker and highlights calculated/predicted levels that exceed the assessment criteria. Details of the duration of individual shadow flicker events occurring at each receptor are provided in Table A12-1-2 in Appendix 12-2. The predicted worst-case theoretical maximum hours per day of shadow flicker exceeds 30 minutes at 43 receptors. As such there is the potential for significant effects to occur as a result of shadow flicker at up to 43 receptors under worst-case conditions.

11.7.36. In terms of cumulative impacts, there are no existing wind turbines within 10 rotor diameters of the properties considered in the assessment. The nearest wind farms to the proposed development are Crossmore wind farm (c.4.6km to the northwest), Lissycasey windfarm (c.8 km to the north); Boolynagleragh windfarm (c.10

km to the north) and Kiltumper windfarm (c.12 km to the northwest). Due to these distances, the assessment considers that the existing environment contains no prospect for cumulative shadow flicker to occur.

11.7.37. Section 12.8 of the EIAR concludes that following assessment, mitigation measures are proposed for a “zero shadow flicker” strategy which will be implemented using turbine control software to cease turbine operation during periods when shadow flicker is predicted to occur. The EIAR finds that it is not likely that there will be any significant as a result of shadow flicker from the project either alone or in combination with other plans or project.

11.7.38. Having regard to the installation of shadow flicker control system to curtail shadow flicker and which I consider has been clearly detailed within the EIAR, and in the absence of any cumulative shadow flicker effects, I am satisfied that shadow flicker effects as a result of the proposed development on sensitive receptors will, as far as reasonably possible, be eliminated and aligns with the stricter shadow flicker requirements of the Draft 2019 Guidelines. I am, therefore, satisfied that adverse impacts on residential amenity in respect of shadow flicker would be avoided.

11.7.39. <u>Operation Impacts – Noise</u>

11.7.40. Likely significant effects from noise are considered in section 11.13 of this Inspector’s Report and are not repeated here. I conclude that operational noise can be controlled by noise limits, and I am satisfied that the predicted noise levels, individual and cumulatively, subject to mitigation measures, will not exceed applicable noise limits at identified sensitive noise receptors.

11.7.41. **Conclusion, Direct and Indirect Effects**

11.7.42. I am satisfied that the potential for significant adverse effects on identified receptors can be avoided, managed and/or mitigated by the adoption of the mitigation strategy and through suitable conditions. I therefore consider that the proposed development would not result in unacceptable direct, indirect or cumulative population and human health impacts.

11.8. Biodiversity

11.8.1. Issues Raised

11.8.2. Related issues raised by the Department of Housing, Local Government and Heritage (DAU Section) are summarised below:

Freshwater Pearl Mussel (FWPM)

- EIAR indicates that several habitats are assessed as being of national importance, including wet grassland, active raised bog and transition mire and quaking bog – highly sensitive to hydrological alteration, peat disturbance and construction activities. Proposed development is close to intact bog remnants, drains and tributaries which form part of the hydrological network linked to the Cloon River and downstream FWPM habitat.
- Survey work carried out as part of the project provides invaluable information on FWPM distribution in the Cloon River and the Cloonkett tributary and is broadly in line with the projected population estimates in ongoing decline. The Cloon River had several reaches of good quality habitat, but silt (plumes), excess macrophytes and excess filamentous algae were recorded in all reaches.
- The development has the potential to:
    - Alter the hydrological regime of the catchment.
    - Increase sediment losses to the river
    - Increase nutrient losses to the river
    - Further intensify land use within the catchment
- Insufficient data and analyses presented on:
    - Potential hydrological impacts from the permanent loss of peatland habitat and exposure, compaction and dewatering of peat.
    - The mobilisation of sediment associated with the construction, operation and decommissioning of the wind farm over the lifetime of the development.

- The efficacy of the proposed mitigation measures to prevent alteration of the hydrological functioning and pollution of the Cloon, in particular with fine sediment and nutrients has not been demonstrated.
- Potential impacts on the suitable habitat extent and condition attributes cannot have been fully assessed. Potential impacts on the population attributes have not been fully assessed. The NIS does not make certain that the project will not adversely affect the integrity of that site.
- The proposed development presents a significant risk to the FWPM in the Lower River Shannon SAC, has potential to prevent the achievement of its conservation objective (to restore) and therefore adverse impacts on the integrity of the site.

Bats

- No assessment has been provided on potential disturbance to the Lesser Horseshoe Bat (LHB) (Annex II species) maternity roost, displacement from foraging routes, or changes to connectivity between the roost and key habitats. Further clarification should be sought.
- Concerned with proximity of proposal to linear features of key commuting and foraging corridors; inadequate species-specific buffer zones or a clear avoidance strategy for these high-use flight routes.
- The absence of detailed operational mitigation.
- EIAR acknowledges limitations in bat survey coverage, including restricted access to several land parcels within the 500 metre buffer, may have resulted in an underestimation of bat activity. Further survey work may be required.
- All bat-related mitigation measures should be fully described within the CEMP.

Mammals

- Red Squirrel and Pine Marten surveys were not completed due to access constraints. Clarification recommended on how mammal impacts have been assessed in the absence of complete baseline data.

Other

- Survey limitations may render some of the EIAR's conclusions uncertain.
- No comprehensive decommissioning plan with the application. Insufficient information has been provided to conclude that decommissioning will not adversely affect the environment or European sites.

11.8.3. Related issues raised by Clare County Council are summarised below:

- The FWPM population in the Cloon River System is at unfavourable conservation status. There are an absence of juveniles and a rarity of small mussels throughout the Cloon where suitable habitat is found. The population is failing due to the deterioration in habitat quality which is evident from the high levels of siltation and macrophyte growth, climate change, low flows and catchment drainage.
- Drainage from the site by the Carrowreagh and Cloonkett streams can potentially have an impact on the area occupied by the highest densities of this species in the River Cloon. A precautionary approach assumes their presence immediately downstream on both streams.
- Results of the field surveys demonstrate that the Cloon catchment is not currently achieving favourable conservation status. Difficult to see how the proposed development will allow for the population to be restored.

11.8.4. Third parties raise the following biodiversity issues (excluding issues relating to birds):

- Inadequate assessment of impacts on the Lower River Shannon SAC.
- Concern for impact on the FWPM and associated catchment.
- The proposed wind farm is located within a region of exceptional environmental sensitivity. Various habitats with ecological value of national importance, home to a wide range of species. Support a diverse range of protected species – including Lesser horseshoe Bat, and Marsh Fritillary butterfly. Further assessment is considered necessary.

- Risk of long-term irreversible environmental damage including peat slippage and landslide risk, water contamination from sediment and concrete leachate.
- The ecological and hydrological interconnections between the peatlands, Gortglass Lough, and downstream designated habitats mean that any disturbance within the proposed site carries significant risk of cumulative and long-term damage.
- Survey coverage for bat activity is incomplete, no quantitative risk modelling and mitigation measures lack detail or enforceability. The risk of collision, displacement, and habitat fragmentation remains high.
- Concern for impact, including a threat of displacement and disturbance, on mammals. Fragmentation of wildlife corridors is unacceptable.
- Concern of loss of forestry and associated impacts.
- Cumulative ecological pressure from multiple windfarms must be considered.

11.8.5. **Context**

11.8.6. Chapter 9 of the EIAR deals with biodiversity. This chapter is supported by the following terrestrial ecology appendices:

- Appendix 9.1 Habitats Report
- Appendix 9.2 Bat Report
- Appendix 9.4 Aquatics Report
- Appendix 9.5 Biodiversity Management and Enhancement Plan (BMEP)
- Appendix 9.6 Aquatic Habitat Management & Enhancement Plan (AHMEP)
- Appendix 9.7 Lidar & Eco-Hydrology Analysis Report
- Appendix 9.8 Technical Note on Indirect Hydrological Impact Calculations

11.8.7. This section of the EIA is also informed by the following documents:

- Natura Impact Statement prepared by Woodrow, APEM Group. The NIS found that in the absence of mitigation measures there was potential for

effects from emissions to water on the integrity of the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA.

- CEMP, included in the EIAR as Appendix 2.1.
- The applicant's response to submissions,
- Specialist Report, prepared by Donncha Madden, Inspectorate Ecologist, Appendix 5 to my report.
- Technical Note, prepared by Finbarr Quigley, Inspectorate Environmental Scientist, Appendix 6 to my report.

11.8.8. Limitations to the EIAR are listed as:

- Mature coniferous plantation on deep peat with extensive drainage meant traditional red squirrel transects and pine marten surveys were not possible;
- Displacement and attraction effects of bats at operating turbines - a precautionary approach was taken with regards to this effect and the need for mitigation in this regard.
- Restricted survey data on fish species present – electrofishing was not deployed as any FWPM population could be severely impaired by associated disturbance. Therefore, non-intrusive methods were used: environmental DNA (eDNA) analysis and published records searches.

11.8.9. **Baseline**

11.8.10. The site supports a range of lowland habitats including agricultural fields, grasslands, raised bog, including large areas of cut over bog, conifer plantation, scrub and hedgerows.

11.8.11. Two European sites were identified as Important Ecological Features (IEFs) of international importance, namely: the Lower River Shannon Special Area of Conservation (SAC) [002165] and the River Shannon and River Fergus Estuaries Special Protection Area (SPA) [004077], due to the direct hydrological connection to the site via tributaries of the River Cloon. Clonderalaw Bay proposed Natural Heritage Area (pNHA) [000027] was identified as an IEF of national importance, due to the hydrological connection via the River Cloon.

11.8.12. The Cloonkett stream, a tributary of the River Cloon, flows west and borders the site boundary to the south. A second tributary of the River Cloon, the Carrowreagh East stream, flows west within the north-west section of the site. Both of these tributaries meet the River Cloon downstream approx. 2 km west of the site, which forms part of the Lower River Shannon SAC (site code 002165). Impact on this SAC and other Natura 2000 sites are considered in the Appropriate Assessment, section 12 of this Inspector's Report. Qualifying interests of the Lower River Shannon SAC include FWPM, sea, brook and river lamprey, salmon and otter.

11.8.13. Two proposed Natural Heritage Area (pNHA) lakes, Cloonsnaghta Lough (site code: 001004) and Gortglass Lough (site code: 001015), are located to the south of the site. There is no direct hydrological connection between the proposed development and these two freshwater lake sites.

11.8.14. The majority of the main study area consists of peatland habitats of varying conditions including actively cutover raised bog, re-vegetating cutover and turf banks, several intact raised bog remnants, and heathlands. The remainder of the site consists of commercial conifer plantation woodland.

11.8.15. Three habitats on the site were identified as having an ecological value assessed as national importance, namely: wet grassland [6410 quality]; active raised bog [7110 priority* quality]; and transition mire and quaking bog [7140 quality]. Other habitat IEFs on the site were assessed as county (regional) importance or local importance (higher value), namely: species poor wet grassland; raised bog mosaic; cutover raised bog; species-poor wet heath; poor acid flush; hedgerows; and scrub.

11.8.16. Surveys recorded a relatively large population of adult FWPM in the River Cloon, largely confined to the main river and absent from all but the lower reaches of its tributaries, with a marked increase in density moving downstream as the river becomes larger. eDNA results and habitat assessment suggest the potential for the species to be present in the tributaries of the River Cloon on site. There is also evidence for the widespread presence of brown trout, along with Atlantic salmon and European eel. These species are of national conservation interest, both intrinsically and, in the case of salmonids, for their key role in the life cycle of FWPM. The three species of lamprey (sea lamprey, river lamprey, and brook lamprey) in Ireland are

likely to be present in the River Cloon downstream of the site, and one or more species may be present in the tributaries on site.

11.8.17. The site supports a foraging and commuting population of lesser horseshoe bats of national importance. During the surveys a previously unknown breeding colony of this species (the Burrenfadda roost) was discovered on the site. The ESA was identified as being of local importance (higher value) for a further six species of bats, including Nathusius's pipistrelle and whiskered bat Myotis mystacinus.

11.8.18. There was minimal evidence for otter utilising the study area, although several trails, prints, target noted spraints, and potential slipways were observed near wet site drains and stream banks during surveys. Watercourses within the site are considered sub-optimal for foraging otter.

11.8.19. Very low levels of habitat use by badger were recorded within the study area and in general the majority of the study area was assessed as having limited suitable habitat to support badger setts.

11.8.20. Some observations of pine marten were made during bat transects, particularly in the areas of conifer forestry on the site. Irish hares were occasionally recorded during surveys.

11.8.21. Smooth newt and a population of scare blue tailed damselfly and other odonatan species were recorded in a quarry pond on site, close to the northern site boundary.

11.8.22. March fritillary surveys indicated locations of larval webs close to proposed T5 and T9 and area of suitable habitat to the centre of the overall development site.

11.8.23. A small number of rhododendron saplings were recorded within several locations across the study area. Japanese knotweed and giant hogweed were recorded just outside the study area along a section of the TDR.

11.8.24. **Potential Effects**

The EIAR identifies the potential for a range of environmental effects on biodiversity. Likely significant effects of the development, identified in the EIAR, are summarised in Table 11.8 below. Potential significant effects are underlined.

Table 11.8: Summary of Potential Effects

Biodiversity: Terrestrial Ecology			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Existing land management practices would continue, including peat extraction. Likely the River Cloon freshwater pearl mussel population will continue to decline. Likely condition of the LHB roost building would deteriorate.	Not applicable.	Not significant.
Construction	Designated Sites: • Potential for significant indirect effects upon the Lower River Shannon SAC exists for these QI: FWPM, Sea Lamprey, Brook Lamprey, River Lamprey, Salmon and Otter. Habitats and flora: • 0.21ha of cutover raised bog mosaic will be directly lost: permanent, adverse, likely significant effect at the county (regional) scale. • 5.59 ha of species-poor wet grassland, 5.29 ha of cutover	Mitigation measures set out in section 9.7 of the EIAR, the Schedule of Mitigation Measures (CEMP) and section 5.3 of the NIS in respect of Natura 2000 sites. A number of embedded 'design stage' mitigation by avoidance summarised in section 5.1.1 in the Schedule of Mitigation Measures (CEMP). Biodiversity Management and Enhancement Plan (Appendix 9.5) aim is to restore ca. 73.58 ha of peatland habitat. Includes tailored management and enhancement measures to mitigate for the loss of	Loss of Annex I habitat and peatlands. EIAR states the residual effect would be a net positive effect within the areas of peat restoration and enhancement. Bat mitigation measures would result in a likely net positive impact upon the local bat population especially the population of lesser horseshoe bats using the site.

	raised bog,, 1.15 ha of species-poor wet heath and 0.05 ha of poor acid flush will be directly lost: permanent, adverse, likely significant effect at the local scale. • Loss of hedgerow and scrub: permanent, likely and significant. • Potential disruption to local shallow groundwater levels with impact to active peat formation: permanent, adverse, likely significant effect ranging from a local (higher) significance. • Spreading of invasive species: permanent, adverse, likely significant effect at the local (higher) scale. Fauna: • Bats: Habitat loss and fragmentation, direct, permanent, adverse, likely significant effects. • Bats: loss of foraging and commuting habits: vegetation removal has potential to be permanent adverse, likely significant effect in the long-term at a local (higher) level for all bat species with the	hedgerow/scrub, poor acid flush, wet grassland, wet heath and cutover bog habitats supporting a range of fauna. Implementation of Aquatic habitat management and enhancement plan (AHMEP), which includes measures for the protection and enhancement of water quality within watercourses and key areas of the study area, is included as Appendix 9.6. Detailed mitigation to protect water quality includes application of water quality protection measures outlined within Appendix 2.1 CEMP and Appendix 11.1 SWMP. Bats: preconstruction roost surveys will be undertaken. Tree felling will be 'soft-felled' in accordance with NRA. Use of 'exclusion zones' if roosts found. Planting of riparian corridors (7km) and use of bat vegetation buffers. Installation of mammal ramps are proposed within any open excavations which would allow any trapped mammals to escape. A pre-works ecological constraints walkover survey will be carried out.	Following the full implementation of these proposed mitigation measures the potential for residual effect upon terrestrial (non-volant) mammal IEFs will be considered not significant. Following the implementation of these proposed mitigation measures the potential for residual effect upon aquatic IEFs is considered not significant in the short term and likely positive in the long term.

	exception of lesser horseshoe bat for which the impact is likely to be permanent adverse, likely significant effect in the long-term at a National level. • Non-volant mammals, being trapped in excavations: direct, temporary, adverse, likely significant effect at the local level. Habitat loss: indirect, temporary, adverse, significant effect. • Otter: Deterioration in water quality from pollution could result in reduced foraging: indirect, adverse, significant effect (local level). • Common lizard: mortality: temporary, adverse, likely significant effect (local level). • Marsh Fritillary: habitat loss/destruction: potential for direct, temporary, adverse, likely significant effect at the local (higher) level of county (regional) significance. Aquatic ecology: • FWPM: Disturbance with potential for permanent, adverse and significant with international importance.	Suite of biodiversity enhancement measures including: • the targeted habitat management of 3.15 ha of deteriorating SU marsh fritillary habitat within the BMEP lands; • peatland habitats have been selected where habitat management and enhancement measures will be implemented; • fencing to ensure natural regeneration of riparian vegetation along stream banks and supplementary planting of linear features and linear scrub habitat; • proposed constructed wetlands and sustainable drainage systems (SuDs); • Treatment and monitoring of invasive flora. • Excluding livestock from all water courses within the site.	

	• Salmonid fish: Disturbance with potential for temporary, adverse and significant effect (local level). • Water pollution: Flow changes and contamination by sediment, nutrients and pollutants via the tributaries that flow through the site and confluence with the River Cloon downstream: potential adverse effect on FWPM and/or their habitat, with adverse, significant effects at an International level.		
Operation	Habitats and flora: • No direct significant effects identified. Indirectly, potential for significant effect on peatland habitats if water table is affected during construction. • Potential for indirect permanent, adverse, likely significant effects at the local (higher) scale on important habitats, notably peatland habitats of county (regional) importance and local (higher) importance. Fauna:	Creation and maintenance of bat buffers (i.e vegetation clearance). Feathering of turbine blades is proposed to reduce bat fatalities. For Leisler's bat and Nathusius' pipistrelle species, a turbine curtailment regime will be implemented to reduce bat fatalities around T3 and T13. Curtailment will be monitored for year one of operation. Ongoing implementation and monitoring of the SWMP, BMEP and the AHMEP.	For the likely significant effects assessed, application of the proposed mitigation measures in full will limit residual effects to be negligible/not significant and in some cases result in a long-term likely positive effect

	• Bats: Direct: Collision risk and barotrauma: considered to be a permanent, adverse, likely significant effect at the local (higher) level for some species. Aquatic ecology: • Increase in hardstanding area may increase the frequency or water velocity of high flow events. Large flooding events cause mortality to adult and juvenile FWPM. Indirect, long term, and adverse, likely significant effect at an international level.		
Decommissioning	• No other effects than those described in construction and operational phases likely to occur. • Activities similar to construction activities, shorter duration and less intrusive. Not significant.	Decommissioning Plan, section 4.3.1 of the CEMP.	None
Cumulative	Projects considered identified in Table 9.38 and Table 9.39 of the EIAR. No likelihood of significant cumulative effects has been identified.	N/a	None

11.8.25. **Analysis, Evaluation and Assessment**

11.8.26. I have examined, analysed, and evaluated Chapter 9 of the EIAR, all the associated documentation and submissions on file in respect of biodiversity. I have inspected the application site and the surrounding area. I am however not satisfied that the applicant understanding of the baseline environment is comprehensive and that the key impacts in respect of biodiversity receptors have been identified. Submissions to the application raise a number of issues in respect of biodiversity which I address below:

11.8.27. **Impact on Terrestrial Habitats**

11.8.28. I am satisfied that the desk study has considered the zone of influence (ZoI) for the proposed development. I note the habitat survey covered the proposed wind farm site and slightly extended area as shown on Figure 9.1 of the EIAR, which I consider acceptable. The ecological study area (ESA) was extended beyond the proposed development boundary, where appropriate, to cover the ZoI. These areas are identified in the ecological features-specific mapping provided in the supporting Appendix reports: Appendix 9.2: Bat Report, Appendix 9.3: Avian Ecology Report, including Collision Risk Model (CRM) and Appendix 9.4: Aquatic Ecology Report.

11.8.29. Table 9.34 of the EIAR sets out the area calculation and overview of all potential habitat impacts, as detailed above direct habitat loss with significant adverse impacts are likely in respect of wet grassland (GS4), raised bog mosaic (PB1/PB4), cutover raised bog (PB4), wet heath (HHS), poor acid flush (PF2), scrub (WS1) totalling 17.85ha. In addition, 8.4ha of conifer plantation and ca. 1.3km of hedgerow will be removed.

11.8.30. The EIAR states that the proposed development seeks to avoid and/or minimise any direct or indirect effects on habitats displaying characteristics of Annex 1 quality, which are predominantly peatland in nature. A total area of ca. 0.53 ha raised bog mosaic [PB1/PB4] will be impacted, either directly (ca. 0.21 ha) or potentially indirectly (ca. 0.32 ha). The EIAR acknowledges that there is a likelihood of these areas retaining the potential for supporting pockets of actively peat forming vegetative communities aligning with the Annex 1 habitat Degraded raised bogs still capable of natural regeneration [7120]. I note that the Biodiversity Management and

Enhancement Plan (BMEP) states that the Annex 1 areas have been subjected to extensive historic modification (i.e. drainage, turf cutting) and the current habitats are fragmented and highly mosaic in nature.

11.8.31. An additional 10.31ha of peatland habitats comprising cutover raised bog [PB4] will be either directly or indirectly lost to the proposed development. Associated peatland habitat of 1.88ha comprising wet heath and poor acid flush will also be directly and indirectly potentially lost to the proposed development.

11.8.32. The EIAR states that a total of 6.65ha of peatland habitats will be directly impacted by the proposed development. A breakdown of this figure is not provided and Table 9.34, Area calculation and overview of all potential habitat impacts (both direct and indirect), does not clarify the figure. I note that cumulatively, 5.5ha of raised bog mosaic and cutover raised bog will be directly lost to the proposed development.

11.8.33. In order to mitigate for this direct habitat loss and to provide additional enhancement to peatland habitats, a total area of ca. 72.58 ha (66.5 ha required as offset mitigation, with an additional 7.08 ha as additional enhancement) of peatland habitats within the BMEP lands have been selected where habitat management and enhancement measures will be implemented, providing a greater than 10:1 ratio (as recommended in Nature Scot guidance document, 'Advising on peatland Habitats and Carbon-rich soils in Development Management'.

11.8.34. The BMEP includes tailored management and enhancement measures to mitigate for the loss of hedgerow/scrub, poor acid flush, wet grassland, wet heath and cutover bog habitats supporting a range of fauna such as snipe and marsh fritillary which were identified as IEFs sensitive to displacement, habitat loss, and alteration.

11.8.35. Proposed mitigation to offset the loss of these areas of hedgerow and scrub habitat will be incorporated into the fencing, natural regeneration of native hedgerow/scrub habitat and supplementary planting of an extensive riparian corridor which will cover a total of ca. 7.31 km of the Carrowreagh East and Cloonkett streams within the Site. This riparian corridor will consist of livestock fencing to maintain a 1-10 m buffer to the watercourses allowed to naturally regenerate with

native hedgerow and scrub species. This riparian corridor will be enhanced through the supplementary planting of native hedgerow and scrub species.

11.8.36. The proposed substation is located in improved agricultural grassland (GA1) and agricultural wet grassland (GS4) habitats with a number of farmland hedgerows (WL1) within the footprint. For the substation and TDR, which will utilise the existing road network for the majority of the TDR to the site, there is no potential for significant effects during either the construction or operational phases of the proposed development.

11.8.37. Peatland restoration will be monitored as detailed in the BMEP (monitoring summarised in BMEP Section 9.10.9) to support restoration of peatland over the lifetime of the proposed development (40 years) which would have a positive residual effect within the areas of peat restoration and enhancement.

11.8.38. Overall, I am satisfied that the proposed development seeks to avoid and/or minimise any direct or indirect effects on habitats displaying characteristics of Annex 1 quality. I accept the proposed BMEP seeks to mitigate impact on peatlands in accordance with best practice and in line with the provisions of the Clare County Biodiversity Action Plan (2017 - 2023), Ireland's 4th National Biodiversity Action Plan (2023-2033) and the Clare County Development (2023 – 2029) Objective CDP15.12 relating to Biodiversity and Habitat Protection.

11.8.39. **Impact on Aquatic Habitats**

11.8.40. This section of my report, and the following section relating to FWPM, is informed by the report prepared by the Inspectorate Environmental Scientist, Finbarr Quigley, appended as Appendix 6 to this report. This report assessed the water-related impacts of the proposed development and the efficacy of proposed mitigation measures in meeting the WFD requirements, in particular, given the 'protected area' status of the Lower River Shannon SAC, downstream of the proposed development. Impact on QI of the Lower River Shannon SAC are assessed in section 12 of this report, in the Appropriate Assessment.

11.8.41. I have considered impact on water quality in section 11.10 of this Inspector's Report wherein I conclude that the applicants understanding of the baseline environment is not comprehensive and key impacts in respect of likely effects on the

water environment as a consequence of the development have not been identified or adequately assessed. In the absence of such information, there is a potential for significant effects to arise during the construction and operational phases to the environmental factor of water.

11.8.42. In my opinion, there is insufficient certainty that the proposed mitigation measures to prevent deterioration in water quality can be relied upon. As such, a residual risk to aquatic habitats and species cannot be ruled out, with potentially greater implications for species that are particularly dependent on good water quality for their survival such as otters, Sea Lamprey, Brook Lamprey, River Lamprey and Atlantic Salmon.

11.8.43. Impact on Freshwater Pearl Mussel (FWPM)

11.8.44. Further to the Submissions made by the DHLGH and Clare County Council and the concerns therein I sought specialist environmental scientific and ecological advice in relation to water quality and FWPM. The principal concerns raised in submissions relate to sediment mobilisation; nutrient mobilisation; hydrological pathways; efficacy of mitigation measures; and the conclusions reached within the Natura Impact Statement. A copy of the subsequent reports prepared by Finbarr Quigley, an Inspectorate Environmental Scientist and Donncha Madden, an Inspectorate Ecologist are appended to this Inspector's Report as Appendix 6 and 5, respectively. While I assess the impact on the FWPM and consider the applicant's NIS in the Appropriate Assessment Section of my report, the Commission should note that significant concerns were raised by both the Inspectorate Environmental Scientist and Inspectorate Ecologist with respect to the efficacy of mitigation measures relating to the protection surface water and the FWPM.

11.8.45. In the absence of mitigation the proposed construction works has potential to generate sediment and nutrient-rich runoff which has potential to adversely affect downstream FWPM habitat. Consequently, the acceptability of the proposal is dependent on the effectiveness of the mitigation measures relied upon within the EIAR. The Commission will note that the Inspectorate Ecologist agrees with the findings of the Inspectorate Environmental Scientist's Technical Note (Appendix 6) wherein significant concerns remain regarding gaps in environmental analysis and

the efficacy of mitigation measures, in particular, relating to the SWMP and the downstream risk to the FWMP population.

11.8.46. I concur with the Inspectorate Ecologist that FWPM is the principal ecological receptor relevant to determination of the application and that sediment and nutrient pathways represent the principal mechanisms through which effects could arise and that the principal issue is whether the mitigation measures relied upon have been demonstrated to be effective. Insufficient evidence has been presented to demonstrate that adverse effects on FWPM population, and the associated conservation objectives for the Lower River Shannon SAC can be excluded beyond reasonable scientific doubt. I therefore conclude that that significant effects on FWPM cannot be ruled out.

11.8.47. Impact on Bats

11.8.48. The lesser horseshoe bat (LHB) maternity roost is located in the north-western periphery within the site. The nearest turbine to the LHB roost is proposed turbine T.3 situated 250m south / south-west of T.3. High activity was recorded near turbine location T.3, for lesser horseshoe bat, all pipistrelle species, and Leisler's bat. High activity for pipistrelle species was also detected in the southeast of the site, close to T.14. This area also recorded peaks in activity for Mytois spp., Nathusius' pipistrelle, and lesser horseshoe bat.

11.8.49. Further to the Submission made by the DHLGH and the concerns therein I sought specialist ecological advice in relation to bats, including consideration of the adequacy of baseline information, likely impacts, mitigation measures and the conclusions of the ecological assessment, the aforementioned report prepared by Donncha Madden, an Inspectorate Ecologist refers.

11.8.50. With regard to baseline information and survey effort, the Inspectorate Ecologist is satisfied that the applicant undertook a comprehensive programme of bat surveys over a number of seasons and generated a substantial body of information regarding species presence, habitat use, commuting routes and activity levels throughout the study area and noted that particular consideration was given to Lesser Horseshoe Bat. Overall, I note and accept the Inspectorate Ecologist's opinion that the level of survey effort is extensive and proportionate to the sensitivity of the receiving environment and that sufficient information is available to

characterise bat usage of the site and assess likely impacts arising from the proposed development.

11.8.51. With respect to the LHB, a species which is particularly sensitive to habitat fragmentation and loss of connectivity, and addressing the Department's concerns, the Inspectorate Ecologist notes that the applicant undertook targeted LHB surveys and specifically considered the location of the maternity roost, Core Sustenance Zone, commuting routes and foraging habitats. The results of these investigations informed the iterative design process and the development of mitigation measures proposed for the site. The Inspectorate Ecologist states that having reviewed the surveys and assessment material submitted, he is satisfied that the applicant appropriately identified the key LHB receptors and assessed the principal pathways through which impacts could arise.

11.8.52. The Inspectorate Ecologist is of the opinion that the principal ecological consideration for bats in this application is habitat connectivity and forestry removal. Noting the concerns of the Department, the applicant's survey efforts and the proposed mitigation strategy, comprising,

- retention of key habitat features where possible;
- design modifications;
- habitat enhancement measures;
- replacement planting;
- maintenance of commuting corridors; and
- specific mitigation within the Lesser Horseshoe Bat Core Sustenance Zone.
- turbine buffer distances informed by NatureScot guidance, including minimum separation distances from identified bat habitat features and a 250 m stand-off distance in relation to the known LHB maternity roost.

11.8.53. I concur with the opinion of the Inspectorate Ecologist that habitat connectivity has been specifically considered in project design, landscape features most relevant to bat movement and foraging activity have been appropriately assessed and while habitat loss and alteration will occur, I am satisfied that habitat connectivity has been specifically considered in project design and that the applicant has appropriately

assessed the landscape features most relevant to bat movement and foraging activity.

11.8.54. With respect to operational effects, prescribed bodies and third parties raised concerns regarding mitigation measures in particular relating to turbine curtailment, real-time monitoring and shut-down thresholds. I note the Inspectorate Ecologist's comment that the operational mitigation measures are considerably more detailed than implied by the Department's submission and comprise:

- turbine feathering below cut-in speed;
- smart curtailment during periods of elevated bat activity;
- wind speed-based operational restrictions;
- post-construction bat activity monitoring;
- mortality monitoring;
- adaptive management; and
- refinement of curtailment measures following review of monitoring results.

11.8.55. The Inspectorate Ecologist is satisfied that the likely operational impacts on bats have been appropriately assessed, that operational mitigation has been proposed which is generally consistent with current practice for wind energy developments in bat-sensitive landscapes and incorporated into the applicant's evaluation of likely effects on bats.

11.8.56. Overall, I note and accept the opinion of the Inspectorate Ecologist that bat survey effort was extensive and proportionate and that sufficient information has been provided to assess likely impacts on bats, including LHB. In addition, that the applicant has appropriately considered habitat connectivity, commuting routes, forestry removal and operational effects and has proposed mitigation measures including habitat management, turbine feathering, curtailment and post-construction monitoring.

11.8.57. **Impact on Otters**

11.8.58. The DHLGH raise concerns regarding baseline mammal surveys. I note that otter surveys in line with best-practice guidelines were completed at the site during

optimal survey conditions during walkovers in winter and summer 2024 and 2025. The otter survey was extended to a 150m survey area up and downstream from stream crossing points and watercourse sections within 150 m of proposed infrastructure for otter and did not identify any resting sites within the proposed development area.

11.8.59. No holts, layups, or resting places were observed during the surveys conducted. No signs of otter were recorded along the potential TDR watercourse crossing points surveyed. The EIAR acknowledges that there is suitable habitat for otter within the study area and that there is potential for otter to pass through the site whilst commuting and/or foraging owing to the large territories of this species and the proximity of the site to a known population. It is similarly considered that otter may utilise the network of drains within the wider site to commute through the area. Watercourses within the site are considered sub-optimal for foraging otter as they are too small to support fish in numbers that would make it energetically feasible for otters. The larger watercourses further downstream are more suitable for breeding and foraging otter. Any otter populations downstream of the site could be associated with the aforementioned Lower River Shannon SAC.

11.8.60. I note otter related mitigation measures including a 200m pre-construction confirmatory survey prior to foresting felling (CEMP) and installation of mammal ramps within any open excavations to allow for escape. Prolonged deterioration in water quality can impact food sources for otter and I note the water quality measures for both construction and operational phases as detailed in the SWMP, CEMP and the AHMEP, together with monitoring of implementation of these plans are aimed at mitigating risks to water quality. Having reviewed the suite of documents, and having regard to expert opinion, I have concluded at section 11.10 of this Inspector's Report that there is potential for significant effect on the environmental factor of water, including a degradation of water quality. This presents a risk to aquatic habitats, and indirectly to otters. Having regard to the foregoing, I conclude that significant effects on otter cannot be ruled out.

11.8.61. **Impact on other Fauna**

<u>Other Mammals, including badger, red squirrel and pine martin:</u>

11.8.62. I note the concerns raised by the Department with respect to mammal survey effort, and the concerns raised in third party observations concerning the impact on a range of fauna.

11.8.63. No badger setts, pine marten dens or red squirrel dreys were identified within the study area during the surveys. The limitations of access and the suitable habitat types across the proposed development resulted in the need for mitigation to be designed to ensure no significant adverse impacts arise in relation to these species during the lifetime of the proposed development. Subsequently, mitigation has been included, this will include all areas proposed for habitat removal which will be thoroughly checked for signs of mammals prior to works being approved to commence. Mammal ramps will be installed within any open excavations during the works to reduce the risk of entrapment of foraging mammals at this site (this will also be regularly checked by the appointed ECoW as part of the CEMP).

11.8.64. I am satisfied that subject to application of the proposed mitigation measures, there will be no significant effect on 'other' mammals. No likely significant effects are identified for terrestrial (non-volant) mammals during operational phase of the windfarm.

Amphibians and Reptiles

11.8.65. Records of amphibians and reptiles were limited within the study area; one sighting of a common lizard was recorded, and several pairs of smooth newt were recorded within one isolated pond location, elsewhere, suitable spawning habitat for smooth newt was considered very limited. This pond also has a population of the scarce blue-tailed damselfly. The pond is located close to the northern site boundary, south east of the proposed site access, within the site boundary.

11.8.66. The EIAR states that the works corridor, which was re-routed to avoid the pond location, be located approximately 40 m east of the western main site entrance access track within the final design iteration. Given the purposeful avoidance of the important pond, and its location within the site boundary, it is not identified in the site layout plan (P22-125-0500-0002) nor the peat and spoil placement drawings (PDD-125-0600-0006). This area is also proximate to a borrow pit, a peat and spoil deposition area and a wheel wash and in my opinion, the omission of the pond, with regards to existing and proposed drainage systems in the vicinity is a significant

omission. This is compounded by the likelihood that water leaving settlement ponds in this location is likely to disperse as surface run-off and subsequent discharge into surface waters is more likely to occur (refer to section 4.6 of Technical Note prepared by Inspectorate Environmental Scientist).

11.8.67. I note that neither the SWMP nor the CEMP refer to any specific measures in relation to protecting the pond other than its avoidance, however its absence from drawings makes it difficult to conclude that impacts will not arise. Finally, the concerns arising with respect to surface water quality management, as detailed above in Section 11.10 are also relevant in relation to the protection of the pond. I conclude therefore that likely significant effects on amphibians cannot be ruled out.

Invertebrates: Marsh Fritillary and Damselfly

11.8.68. It was determined that the site population of the marsh fritillary butterfly is of county (regional) importance. Direct impacts upon marsh fritillary were identified in the EIAR as potential mortality through clearance of the habitat, inappropriate access into the areas of suitable habitat within the larval web season (August -October) or storage of materials within the habitat. Indirect impacts were associated with the loss or deterioration of areas of suitable habitat.

11.8.69. The construction works for the proposed development will result in the removal of localised pockets of suitable under-grazed (SU) habitat (ca. 0.03 ha). The mitigation proposal includes the targeted habitat management of 3.15 ha of deteriorating SU marsh fritillary habitat (which was noted to support the core breeding population and larval webs) within the BMEP lands to offset for the 0.03 ha of habitat lost. The species-specific management practices which will be implemented have been further detailed within the BMEP. In addition, the construction works corridor adjacent to marsh fritillary habitat(s) will be clearly marked and temporarily fenced off during the construction period under the supervision of an ECoW to avoid any accidental adverse effects on the habitat.

11.8.70. Following full implementation of these proposed mitigation measures, I am satisfied that the potential for significant residual effect upon marsh fritillary can be considered not significant in the short term and likely positive in the longer term. In addition, I note that no direct or indirect impacts to invertebrates are likely during the operational phase of the proposed development.

11.8.71. With respect to scarce blue-tailed damselfly found in the pond close to the northern site access, and for reasons discussed in relation to amphibians above, likely significant effect to this invertebrate species, albeit at a local level of importance, cannot be ruled out.

11.8.72. **Conclusion: Direct and Indirect Effects**

11.8.73. Having regard to the foregoing assessment, I am not satisfied that the proposed surface water management systems, water quality impact assessment and related mitigation measures is comprehensive so as not to have significant adverse effect on the aquatic environment. In my opinion there is a potential for significant effects to arise during the construction and operational phases of the proposed development to aquatic habitats and species, in particular, on Freshwater Pearl Mussel, Otter, Sea Lamprey, Brook Lamprey, River Lamprey and Atlantic Salmon. I have concluded in the AA of this Inspector's Report that there is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests.

11.8.74. In addition, the proposed development will result in the loss of Annex I habitat (raised bog) and additional peatland habitat which will have a significant effect and will be offset by peatland enhancement measures detailed in the Biodiversity Management and Enhancement Plan (BMEP).

11.8.75. I am of the opinion that the proposed development would give rise to negative significant effects on biodiversity to an extent that they would warrant a recommendation of refusal on biodiversity and ecological grounds.

11.9. Biodiversity (Birds)

11.9.1. Issues Raised

Depart. of Housing, Local Government and Heritage (DAU)

- The ecological value of the bird assemblage is undervalued in the EIAR;

- The conclusion in the EIAR that impacts on hen harrier will be negligible due to no evidence of nests despite numerous observations over the study period requires further assessment. Dawn/dusk surveys and nest search effort were not sufficient to rule out the possibility of breeding hen harrier;
- Further assessment required for impact on kestrel as the Department considers it to be potentially significant;
- Insufficient survey data to inform collision-risk and disturbance assessments for barn owl, merlin, sparrowhawk, short-eared owl and white-tailed eagle;
- The Development may cause a barrier effect and increase collision risk for waterfowl and waders travelling between the Cloonkett/Glenconaunmore wetland habitats and Gortglass/Cloonsnaghta Loughs. Geese and swan sensitivity is not reflected in the impact conclusions; and
- The limitations outlined in the EIAR may render some of the conclusions uncertain.

Clare County Council:

- The Council expressed concerns over the conclusion that hen harrier will not be affected by the Development despite numerous records of the species during the surveys. The Council also noted that the in-combination and cumulative effects on hen harrier from the development and nearby developed wind farms has not been properly assessed from the perspective of it being an Annex I listed species.
- The Council noted the importance of blanket bogs and loughs in proximity to the Development which are used by avian species associated with the Shannon Estuary Special Area of Conservation (SAC) and the Lower River Shannon Special Protection Area (SPA).

Third Parties:

- General concerns regarding avian ecology included the following:
    - Impacts on hen harrier, marsh harrier, curlew, merlin, barn owls;
    - Incomplete survey coverage of area;

- Insufficient survey effort to accurately assess avian baseline or impacts; and
- Lack of flightline mapping, barrier effect analysis and cumulative collision risk assessment.

11.9.2. **Context**

11.9.3. Chapter 9 of the EIAR deals with biodiversity. This chapter is supported by avi-fauna related appendices:

- Appendix 9.1 Habitats Report
- Appendix 9.3 Avian Ecology & CRM Report, prepared by Woodrow APEM Group.
- Appendix 9.5 Biodiversity Management and Enhancement Plan (BMEP)

11.9.4. This section of the EIA is also informed by the following documents:

- Natura Impact Statement prepared by Woodrow, APEM Group,
- CEMP, included in the EIAR as Appendix 2.1.
- The applicant's response to submissions,
- Specialist report, prepared by ERM, Appendix 7,
- Specialist report, prepared by Donncha Madden, Inspectorate Ecologist, Appendix 5.

11.9.5. The assessment is undertaken in accordance with government and industry best practice guidelines and I note ERM's comments that the impacts on avifauna assessed in the EIAR and the applicant's Response to Submissions are in line with good practice.

11.9.6. The site supports a range of lowland habitats including agricultural fields, grasslands, raised bog, including large areas of cut over bog, conifer plantation, scrub and hedgerows.

<u>Limitations:</u>

11.9.7. No avi-fauna limitations are identified in the EIAR.

11.9.8. ERM note that the collision risk modelling (CRM) calculations are presented in text form in Appendix 9.3 of the EIAR. The CRM excel spreadsheets were not submitted alongside the EIAR and so it was not possible to check the underlying calculations and formula in detail.

11.9.9. Having regard to the DHLGH submission which raised concerns about the survey effort and coverage, and the applicant's response to same, ERM consider there are still limitations relating to surveys undertaken in 2023 and 2024 with limited transect coverage of the survey area in 2023 while breeding bird surveys of the turbine array area and 500m buffer in 2023 and 2024 also missed the earlier part of the breeding season with the first visit in 2023 undertaken in May and the first visit in 2024 undertaken in June. ERM consider the results reflect these limitations but that breeding bird survey data from 2024 suggests that the breeding assemblage of Red and Amber listed birds recorded in 2023 is relatively representative of the site, even if numbers are lower in 2023.

11.9.10. No maps are provided showing which areas could not be accessed for the hinterland breeding raptor surveys (2km buffer shown in Appendix 9.3 Figure 13), although the limitations section acknowledges that surveys could only be carried out on lands where permission had been granted. Submissions from members of the public note that they were not asked for permission for survey access. The limitations state that areas were covered using vantage point watches and scanning from publicly accessible lands, which may or may not have provided sufficient coverage. Flight activity surveys, however, provide additional survey effort and would be expected to identify breeding activity within the surveyed area if breeding raptors were present.

11.9.11. Vantage point surveys in 2022 and 2023 were undertaken simultaneously from five separate viewsheds, with the 2 km viewsheds from four of the vantage points (VPs) overlapping with surveyors positioned at other VPs. Although viewsheds used for analysis were reduced to remove areas overlapping with other VPs, disturbance may well still have occurred within viewsheds due to the presence of other surveyors (SNH, 2017).

11.9.12. **Baseline**

11.9.13. The site supports a relatively diverse assemblage of birds, dominated by passerine species. Eight Annex I-listed species were recorded during baseline surveys. Nine Birds of Conservation Concern Ireland Red List and 23 Amber List species were recorded during baseline surveys.

11.9.14. The site is considered of national significance for two species of birds: hen harrier and kestrel; it is of county (regional) importance for a further six bird species, all associated with water or wetland habitats: snipe; black headed gull (wintering), curlew, golden plover, grey heron and lesser black backed gull (breeding).

11.9.15. The closest designated site is Gortglass Lough Proposed Natural Heritage Area located approximately 200m south of the project site, and the River Shannon and River Fergus Estuaries SPA is located approximately 3.3km southeast of the project site. Impact on European Sites and qualifying interests are assessed in the Appropriate Assessment of this Inspector's Report, and I direct the Commission to same in this regard.

11.9.16. Gortglass Lough, Cloonsnaghta Lough and Lough Athoga are the only open waterbodies within the 2 km turbine buffer and are located to the south of the proposed development. These loughs are not covered as part of the Irish Wetland Bird Survey (I-WeBS), EIAR site scoping indicated that these waterbodies were unlikely to support notable waterbird populations.

11.9.17. **Potential Effects**

11.9.18. The EIAR identifies the potential for a range of environmental effects on aviation ecology (section 9.6 of the EIAR). Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.9 below. Potential significant effects are underlined.

Table 11.9: Summary of Potential Effects

Biodiversity: Birds			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Existing land management practices would continue. Current bird assemblage supported by the site would likely continue to be supported, quality of peatland habitat continuing to slowly degrade.	Not applicable.	Not significant.
Construction	Golden Plover: Indirect effect: Potential for water pollution events resulting in downstream water quality deterioration/loss of prey in the Shannon Estuary. Snipe: Direct effect: loss of nest sites. Indirect effect: Habitat loss and disturbance. Curlew: Indirect effect: Disturbance and potential for water pollution events resulting in downstream water quality deterioration/loss of prey. Grey heron: Indirect effect: Habitat loss, disturbance and potential for water pollution events resulting in downstream	A summary of the mitigations outlined in the EIAR Section 9.7, and accompanied by a Construction Environmental Management Plan (CEMP) and Biodiversity Management and Enhancement Plan (BMEP), include: • Access within the Development will be restricted to the footprint of the proposed works and will only be permitted via internal access routes; • A competent Ecological Clerk of Works will oversee all works and ensure all mitigation measures are adhered to during the construction phase of the Development; • The mitigation hierarchy will be implemented to avoid, minimise and offset any potential likely significant adverse effects as appropriate; • Embedded 'Design Stage' mitigation which focuses on locating infrastructure	With the identified mitigation measures in place, the EIAR predicts no significant effects on any avian receptors.

	water quality deterioration/loss of prey. Gull species (Herring gull, lesser black backed gull, black-headed gull): Direct effect: habitat loss; Indirect effect: disturbance. Kestrel: Direct effect: Loss of nest sites; Indirect effect: Disturbance and displacement. Hen Harrier: Indirect effect: disturbance and displacement.	away from priority/sensitive habitats and watercourses; • Construction will begin outside the breeding season; • Any removal of suitable nesting habitat will occur outside of the breeding season; • Upon removal of suitable nesting habitat, the areas will be maintained in an unsuitable nesting condition for the rest of construction; • If vegetation clearance is required during the breeding season, the area will be surveyed in advance to confirm there are no breeding birds present, or to set up appropriate buffer zones around nesting birds; • Management of 4.03 ha of wet grassland for breeding snipe, to mitigate for the loss of 5.64 ha of wet grassland under the development footprint. The NIS further outlines mitigation measures set out to prevent adverse effects on watercourses and downstream designated sites including avoidance of sensitive avian habitats, including Annex I bog/wetland habitats used by upland and wetland bird species.	
Operation	Golden Plover: Direct effect: Collision risk. Snipe: Direct effect: Collision. Indirect effect: Displacement.	• Snipe: Direct habitat loss will be offset by the Biodiversity Management and Enhancement Plan (BMEP) outlined in Section 9.10.	With the identified mitigation measures in place, the EIAR predicts no significant effects on any avian receptors.

	Curlew: Indirect effect: Disturbance. Grey heron: Direct effect: Collision Risk. Indirect effect: Habitat loss and disturbance. Gull species: none Kestrel: Direct effect: Collision risk. Hen Harrier: None	• Grey heron: A riparian buffer management has been proposed to avoid the loss of suitable habitats for this species. • Two kestrel nest boxes will be provided to increase breeding success and mitigate any future collision mortality.	
Decommissioning	No significant effects identified.	Mitigation similar to construction phase.	Not significant.
Cumulative	Snipe: Indirect: Habitat loss during construction. Indirect: Displacement during operation.	Cumulative effects are considered in section 9.6.4 of the EIAR with plans or projects within 20km of the site considered. Mitigation measures as per above.	Not significant.

11.9.19. **Analysis, Evaluation and Assessment**

11.9.20. I have examined, analysed, and evaluated Chapter 9 of the EIAR, all of the associated documentation and submissions on file in respect of biodiversity (birds). I have inspected the application site and the surrounding area. I am satisfied that the applicant understanding of the baseline environment, is comprehensive and that the key impacts in respect of likely effects ornithological receptors, because of the proposed development have been identified. Submissions to the application raise a number of issues in respect of ornithology which I address below:

11.9.21. Robustness of Assessment

11.9.22. The Specialist Report on ornithology prepared by ERM notes (Appendix 7 refers) that there are some uncertainties associated with the results of some of the baseline surveys undertaken (See Limitations above) due to the number or timing of visits not being fully aligned with best practice guidance. However, based on the results of the survey which were undertaken (which included a greater number of years/seasons than the minimum required by SNH / NatureScot guidance), ERM, whose opinion I agree with, consider it unlikely that these uncertainties have undermined the assessment of impacts.

11.9.23. DHLGH raised concerns regarding how the ornithological findings were summarised in the EIAR and NIS, and the manner in which value has been attributed to the identified species. The applicant's Response to Submissions addresses this concern and includes additional assessment of the impacts on the River Shannon and River Fergus Estuaries SPA.

11.9.24. The Commission will note that the AA Screening and NIS Report have a number of omissions including the identification of likely significant effects identified and taken forward for inclusion in the NIS. However, having regard to the ERM Report, appended to this Inspector's Report, I am satisfied that based on the information presented across the EIAR, NIS and the Applicant's Response to Submissions, sufficient information has been provided to demonstrate that the project will not undermine the conservation objectives for the River Shannon and River Fergus Estuaries SPA.

11.9.25. I refer the Commission to Section 12 of this Inspector's Report, that deals with Appropriate Assessment and considers the impact of the proposed development on SPA sites wherein I conclude that adverse effects arising from the proposed development can be excluded for the River Shannon and River Fergus Estuaries SPA and Mid-Clare Coast SPA.

11.9.26. Likely Significant Effects

11.9.27. The site is considered of national significance for two species of birds: hen harrier and kestrel; it is of county (regional) importance for a further six bird species, all associated with water or wetland habitats: snipe; black headed gull (wintering), curlew, golden plover, grey heron and lesser black backed gull (breeding). Likely significant effects on these bird species are assessed in the EIAR and are considered below.

11.9.28. Other species of local importance and with a green conservation status are buzzard and sparrowhawk. These species were scoped out of the EIAR and are dealt with in greater detail in the Response to Submissions and are therefore considered below. Herring gull is identified as local importance with an amber conservation status and is assessed below. The proposed development is not considered important for other bird species.

11.9.29. Hen Harrier

11.9.30. The baseline study recorded nine birds of prey, with five hen harrier one of five species considered to be regularly occurring within the 2 km proposed turbine buffer. While baseline surveys carried out over three years did not record hen harriers breeding or roosting within the 2 km turbine buffer, they were observed foraging within or surrounding the 500 m proposed turbine buffer during baseline surveys.

11.9.31. The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161], ca. 14km from the site, is solely designated for breeding hen harrier. I concur with the applicant's AA screening report to screen out this SPA from Appropriate Assessment as the proposed development is beyond the core and Irish maximum breeding season foraging range for hen harrier and there is no potential for likely significant effects.

11.9.32. Construction activities may have temporary indirect effects by occasionally displacing individuals foraging through the area. I note that there are no important habitats with a limited distribution or availability utilised by hen harrier that will be lost to the infrastructural footprint of the proposed development. The short-term nature of the proposed construction works, as well as the discreet nature of the proposed construction works within the wider landscape and the availability of alternative foraging areas, potential secondary effects on foraging hen harrier are assessed as imperceptible and therefore not significant.

11.9.33. During the operational phase, the relatively linear nature of the turbine array within the wider landscape, the availability of alternative foraging areas within the wider area and the intermittent level of recorded usage of the area demonstrates, according to the EIAR, that hen harriers are not exclusively reliant on the proposed development site. Based on hen harrier exhibiting a level of tolerance to operational turbines, any disturbance and/or displacement effects on foraging harriers are assessed as negligible magnitude and therefore no likely significant effects arise.

11.9.34. With respect to collision risk, the EIAR assesses the magnitude of effect due to predicted collisions on the national hen harrier population as 'negligible', i.e. < 1% population effect.

11.9.35. The applicant's Response to Submissions addresses concerns raised by prescribed bodies and third parties over impact to hen harrier in a detailed response (section 2.2.7.1 refers) and concludes that the reduction in hen harrier activity over the breeding season is a strong indication that hen harriers do not breed within the 2 km turbine buffer and it can be objectively concluded, without scientific doubt, that the proposed development is not within the core breeding season foraging of any pairs of hen harrier, and it can also be concluded that the proposed development is beyond the zone of influence of any pairs, most probably breeding > 5-6 km away to the north of the site.

11.9.36. I note and accept the comments from ERM that although there were limitations in the surveys undertaken, it agrees with the applicant's assessment that it is unlikely that Hen harrier have bred on the wind farm site during the period when surveys have been undertaken. Additional analysis and assessment of the hen harrier flight activity recorded on site during the breeding season is provided in the

applicant's response to submissions which indicates that the majority of flight activity was recorded later in the breeding season and is unlikely to relate to locally breeding birds. ERM note however, it appears that birds have been recorded during flight activity surveys during the earlier part of the breeding season and may relate to birds breeding in the wider area but acknowledge the predicted collision risk is however low, and no significant effects are predicted. Although some displacement may occur during operation, there is abundant alternative suitable foraging habitat in the wider area.

11.9.37. Additional assessment of cumulative impacts on hen harrier is presented in the applicant's Response to Submissions; I deal with cumulative effects below.

11.9.38. Kestrel

11.9.39. Kestrel was the most active raptor species within the 500 m turbine buffer and indicated that the 500 m turbine buffer was within the home range of one breeding pair and are assessed as National importance.

11.9.40. With respect to the construction phase, inappropriately monitored/phased construction works could result in indirect disturbance effects on breeding kestrel and displacement of foraging individuals.

11.9.41. In consideration of kestrels being relatively tolerant to certain kinds of human disturbance, the discreet nature of the proposed construction works within the wider landscape and the availability of alternative foraging areas, as well as the short-term nature of the proposed construction works, potential secondary effects on foraging kestrels are assessed as 'not significant'.

11.9.42. There are no important habitats with a limited distribution or availability utilised by kestrel that will be lost to proposed development. Areas of adequate habitat will remain to provide a range of alternative nesting locations for kestrels. The EIAR concludes that no likely significant effects are likely to occur as a result of long-term habitat loss.

11.9.43. Based on kestrels exhibiting a high level of tolerance to operational turbines, any disturbance and/or displacement effects are unlikely, and collision risk is the main consideration for this species.

11.9.44. The DAU raised concerns that the Year 3 modelled outputs for predicted collision risk was notably high for kestrel. However, as per the Response to Submission, the applicant does not consider this value to accurately represent the likelihood of collision risk for this species in reality and estimates reported are highly inflated for several reasons, including avoidance rate that is highly precautionary, higher default avoidance rate is applied in CRM as they are one of the most frequently recovered birds of prey, resulting in predicted collision risk estimates presented for kestrel in the EIAR are unrealistically high. The Response to Submissions clarifies that collision risk results in an adverse effect of low significance on a population of national importance over the long-term.

11.9.45. I note the comments from ERM who state, for kestrel, the EIAR predicts a pre-mitigation effect from operational collision mortality of low significance at a national level. ERM note that mitigation measures are proposed to offset mortality through the provision of nest boxes, with monitoring undertaken to determine the success of this mitigation, Section 9.10.7 of the EIAR refers. Assuming nest boxes are placed sufficiently far from the project site, ERM considered they do not increase flight activity and collision risk, noting that monitoring includes adaptive management measures to require additional mitigation if collision mortality is higher than predicted. I concur with the conclusions of ERM with respect to kestrel including that residual effects will be not significant.

11.9.46. <u>Snipe</u>

11.9.47. A range of raised bog habitat and associated wet grasslands provide the largest expanses of wetland habitats, including a spring that maintains an area of quaking bog. These habitats were considered likely to support a wintering and breeding snipe population. During surveys, snipe was recorded utilising and/or flying through the 500 m turbine buffer and/or in close vicinity to the proposed development. Breeding walkover surveys covering suitable habitat within the site indicates a possible snipe breeding territory in this area.

11.9.48. The EIAR finds that there is potential for inappropriately monitored/phased construction works occurring during the breeding season to result in direct disturbance to nesting snipe and precocious young. Embedded mitigation by design is stated to avoid core snipe breeding areas which will minimise direct effects,

however, construction activities close to nesting birds also have the potential to result in displacement and contribute to nest failure resulting in an adverse effect of 'low significance' on a county important population over the short-term.

11.9.49. Disturbance effects caused by construction activities are also considered in the EIAR to have the potential to displace wintering snipe which utilise the site resulting in an adverse effect of 'low significance' on a county important population over the short-term, although this is precautionary on the basis of availability of alternative sites in the wider area.

11.9.50. During the operational phase, there is potential for longer-term displacement effects of breeding snipe (one pair) resulting in an adverse effect of 'low significance' on a population of county importance over the long term. The proposed development site is considered to support wintering snipe in numbers of county importance. Reduced utilisation of suitable foraging/roosting habitats around turbines is unlikely to extend greater than 80-100 m from the turbine base. As alternative foraging and roosting habitats within and adjacent to the proposed development site are not a limiting factor, any localised displacement are considered in the EIAR to have an imperceptible effect on the regional snipe population, resulting in no likely significant effects.

11.9.51. The collision risk modelling was run for wintering and breeding snipe flight activity and found that predicted collision risk was low. Mitigation measures are required to offset any displacement effects on breeding and wintering snipe and predicted collision risk. Direct habitat loss will be offset by the Biodiversity Management and Enhancement Plan (BMEP) outlined in Section 9.10 minimising any direct effects during construction and ensure that suitable bogland habitat is retained over the operational phase. Having regard to the foregoing, I am satisfied that the proposed development will not result in significant effects on snipe.

11.9.52. <u>Gull species</u>

11.9.53. The gull species are considered unlikely to be adversely affected by construction activities within an agricultural landscape, as they often forage in disturbed ground and are relatively tolerant of disturbance. In addition, there are alternative sites available in the wider area for these species to use.

11.9.54. While the operational phase could give rise to habitat loss, the EIAR considers that there are no important habitats with limited distribution or availability utilised by these gull species that will be lost to the infrastructural footprint of the proposed development site. Although improved grassland will be lost to the proposed development, there is widespread availability of grassland in the area. Therefore, given the extensive foraging ranges employed by these gull species, the wide availability of alternative foraging locations and as this population is not wholly reliant on the proposed development site, no likely significant effects will occur as a result of long-term habitat loss.

11.9.55. With respect to operational disturbance/displacement, given the apparent low behavioural sensitivity of these gull species to operational turbines and in the context of a highly mobile population with access to alternative foraging sites in the wider area, the EIAR finds that no likely significant effects are expected. Given the large foraging range of these species, and the available suitable alternative habitats in the area, I agree that the project would not result in a significant loss of habitat, or disturbance and displacement for these species.

11.9.56. With respect to operational collision risk, the EIAR states the level of turbine-mediated mortality for the lesser black-backed gull and the black-headed gull was reflective of low usage of the site at flight heights within the collision risk zone (CRZ) and would be imperceptible to background levels. Having regard to the foregoing, I agree with the findings that no significant population-level effects are likely based on the measured level of predicted collision risk for the proposed development site.

11.9.57. The AA of this Inspector's Report considers impact of the proposed development in respect of the black-headed gull, a SCI of the River Shannon and River Fergus Estuaries SPA. The AA concludes that adverse effects arising from the proposed development can be excluded for the River Shannon and River Fergus Estuaries SPA.

11.9.58. Overall, I am satisfied that no likely significant effects arise in respect of gull species.

11.9.59. <u>Curlew</u>

11.9.60. A range of raised bog habitat and associated wet grasslands provide the largest expanses of wetland habitats, including a spring that maintains an area of quaking bog. These habitats were considered likely to support curlew.

11.9.61. River Shannon and River Fergus Estuaries SPA support a nationally important population of curlew (2,396 birds). Over the four breeding seasons covering the proposed development site (from 2021 to 2024) no curlew were recorded within the 500 m proposed turbine buffer; no breeding behaviour was associated with observations and birds were noted as commuting through the area. There was no breeding curlew encountered within the 2 km of the proposed development site. During non-breeding surveys, snipe were recorded commuting; no foraging sites were identified.

11.9.62. Potential disturbance/displacement effect arising during construction is assessed as moderate, resulting in an adverse effect of low significance on a county important population over the short-term. Indirectly, there is potential for water pollution events during construction resulting in downstream water quality deterioration/loss of prey in the Shannon Estuary, arising from regularly occurring pollution in the absence of mitigation. Temporary adverse impacts, together with distance to the Shannon Estuary, are not considered significant on this species.

11.9.63. It is unlikely that curlew will be adversely affected by the operational phase, due to the low usage of the proposed development site. There are no contemporary breeding records for this species and usage of the proposed development site was only recorded occasionally by small numbers of birds. The notably low level of flight activity recorded within the 500 m turbine buffer means the proposed development does not pose a measurable collision risk to curlew. No likely significant effects due to collision risk are anticipated.

11.9.64. <u>Golden Plover</u>

11.9.65. Golden plover is a SCI of the River Shannon and River Fergus Estuaries SPA and likely significant effects to the SPA are considered in the appended AA to this Inspector's Report.

11.9.66. The number of observations of golden plover were low during the bird surveys and there were no foraging birds recorded in the site. The EIAR concludes that a

medium sensitivity for golden plover and a negligible magnitude effect results in a 'no likely significant effects on a county important population over the short-term'. Indirectly, there is potential for water pollution events during construction resulting in downstream water quality deterioration/loss of prey in the Shannon Estuary, arising from regularly occurring pollution in the absence of mitigation. The likelihood of water pollution occurring with the severity and/or duration required to elicit significant effect on Golden Plover is unlikely. Any temporary adverse impacts, together with distance to the Shannon Estuary, are not considered significant on this species.

11.9.67. The applicant's Response to Submissions addresses concerns raised with respect to impact on the golden plover and clarifies that the site of the proposed development does not provide any suitable breeding habitat for this upland breeding wader and the closest breeding sites are in expansive bogs of Connemara.

11.9.68. With respect to the operational phase, the Response to Submissions supplements EIAR findings and states that golden plovers are known to exhibit high levels of turbine avoidance and predicted collision risk, based on aggregated flight time within the buffer and applying 99.8% avoidance was found to be low, 0.03-0.09 collision per annum (1-4 collision over 40 years). Mortality at this rate would have an imperceptible population level effect. Wider area surveys detected small numbers in estuarine habitats associated with the River Shannon and River Fergus Estuaries SPA and golden plover were not recorded on the two closest waterbodies - Gortglass Lough & Cloonsnaghta Lough.

11.9.69. I note that ERM in its Report do not raise any concerns with respect to impact on golden plover and state based on the information presented across the EIAR, NIS and the applicant's Response to Submissions, sufficient information has been provided to demonstrate that the project will not undermine the conservation objectives for the River Shannon and River Fergus Estuaries SPA.

11.9.70. Having regard to the foregoing I am satisfied that the proposed development will not have a significant effect on golden plover.

11.9.71. <u>Grey heron</u>

11.9.72. Grey heron was recorded utilising and/or flying through the 500 m turbine buffer and/or in close vicinity to the proposed development. Grey heron activity was

largely associated with the Cloon (Clare) River and the River Shannon river systems that occur within the 500 m turbine buffer and wider area.

11.9.73. Potential disturbance/displacement effect arising during construction is assessed in the EIAR as low, resulting in an adverse effect of low significance on a county important population over the short-term. Indirectly, there is potential for water pollution events during construction resulting in downstream water quality deterioration/loss of prey arising from regularly occurring pollution in the absence of mitigation. Temporary adverse impacts are not considered significant on this species.

11.9.74. During the operational phase, a potential indirect effect of habitat loss and disturbance/displacement are identified in the EIAR. A riparian buffer management has been proposed to avoid the loss of suitable habitats for this species. No likely significant effects are likely to occur as a result of long-term habitat loss. Grey herons are considered to have a low sensitivity to operations turbines and disturbance at levels sufficient to induce any discernible displacement effects is unlikely in the EIAR and I accept that no likely significant effects due to disturbance or displacement caused by operational turbines are anticipated for grey heron. With respect to collision risk, no significant population-level effects are anticipated resulting in a 'no significant effects' finding.

11.9.75. Having regard to the foregoing I am satisfied that the proposed development will not have a significant effect on grey heron.

11.9.76. <u>Buzzard</u>

11.9.77. The proposed development site and surrounding 2 km buffer were found to support, at least, two breeding territories. The CRM (Year 3) predicted collision risk (0.25 – 0.27 collisions per annum) for buzzard and states that the levels of predicted collision risk warrant further investigation in terms of effects on these bird's populations.

11.9.78. The Ornithological Results Report notes that woodland habitats, including treelines, are important for this species and limiting the timing for proposed felling operations to outside the breeding season, would limit any potential for direct impacts to this species. The Report concludes, based on exceptionally low recorded

usage over the study period, that the proposed development site and associated wider area (2 km proposed turbine buffer) are not important for buzzard populations and no likely significant effects are anticipated. Having regard to the foregoing I am satisfied that the proposed development will not have a significant effect on buzzard.

11.9.79. Sparrowhawk

11.9.80. The EIAR baseline account for sparrowhawk estimates that there are two breeding pairs in the environs of the proposed development. It is noted that woodland habitats within the proposed development site are important for this widespread and commonly occurring raptor, and the population recorded is assessed as being of local importance. The CRM output predicted a worst case of 2.8 collisions over the 40-year lifetime of the project. The assessment concludes that this predicted levels of collision would have a negligible/imperceptible effect on the regional (county) population. Restricting the timing for proposed felling operations to periods outside the breeding season would limit any potential for direct impacts to this species during construction. No population level effects are anticipated, based on the level of predicted collision risk. Based on the species favourable (green listed) conservation status sparrowhawk was scoped out for further consideration within the EIAR and was not considered to be an important ecological feature. Having regard to the foregoing I am satisfied that the proposed development will not have a significant effect on sparrowhawk.

11.9.81. Cumulative Effects

11.9.82. A number of submissions raise concerns with respect to cumulative effects on birds. A cumulative assessment was undertaken and is presented in Chapter 9 of the EIAR. Additional assessment of cumulative impacts is detailed in the applicant's Response to Submissions. ERM consider cumulative effects in their report. I accept ERM's findings that cumulative effects of the proposed development have been adequately assessed; and that with mitigation measures in place significant effects will not occur on ornithological receptors.

11.9.83. **Conclusion, Direct and Indirect Effects**

11.9.84. I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation

to the application. I am satisfied that the applicant provided sufficient survey data to enable assessment of likely effects on the environmental factors of biodiversity: birds. I am satisfied that potential effects on birds as a result of the proposed development would be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects on birds.

11.10. Water (Hydrology and Hydrogeology)

11.10.1. Issues Raised

11.10.2. The National Environmental Health Services (NEHS) concur with the conclusions of the EIAR that there is adequate protection of surface and ground water during construction and operation of the proposed development subject to implementation of mitigation measures.

11.10.3. Submissions received from some third parties, the DAU and Clare County Council raise concerns in respect of the risk to surface waters and groundwaters during construction and operation phases; inadequate hydrological assessment, drainage and hydrogeological impacts; impact on drinking water supplies; and cumulative impacts.

11.10.4. The DAU submission concludes that the development has the potential to:

- Alter the hydrological regime of the catchment.
- Increase sediment losses to the river
- Increase nutrient losses to the river
- Further intensify land use within the catchment

11.10.5. The DAU considers that insufficient data and analyses is presented on:

- Potential hydrological impacts from the permanent loss of peatland habitat and exposure, compaction and dewatering of peat.
- The mobilisation of sediment associated with the construction, operation and decommissioning of the wind farm over the lifetime of the development.

- The DAU considers that the efficacy of the proposed mitigation measures during construction and operation to prevent alteration of the hydrological functioning and pollution of the Cloon River, in particular with fine sediment and nutrients has not been demonstrated.
- The potential impacts on the suitable habitat extent and condition attributes have not been fully assessed, and the proposed development presents a significant risk to the FPM in the Lower River Shannon SAC and has potential to prevent the achievement of its conservation objective (to restore the favourable conservation objective of the FPM).

11.10.6. **Context**

11.10.7. Chapter 11 of the EIAR deals with Hydrology and Water Quality. This chapter is supported by appendices:

- Appendix 11.1 – Surface Water Management Plan (SWMP)
- Appendix 11.2 – Water Framework Directive Assessment Report
- Appendix 11.3 – Site Specific Flood Risk Assessment Report
- Appendix 11.4 – Hydrological and Hydraulic Walkover Report
- Appendix 11.5 - Hydrology and Drainage Briefing Note

11.10.8. Hydrogeology is addressed in Chapter 10 and includes:

- Appendix 10.1 – Peat Stability and Geotechnical Assessment Report (GAR)
- Appendix 10.2 – Hydrogeological Survey Report

The CEMP is included in the EIAR as Appendix 2.1

In response to the DAU suggestion that the efficacy of the mitigation measures to protect the hydrological regime and prevent pollution was not demonstrated, the applicant provided a detailed response which referenced the contents of EIAR, NIS and associated documents. The applicant did not introduce any new information in response to this element of the submission.

11.10.9. The assessment is undertaken in accordance with government and industry best practice guidelines. Desktop study and assessment have been carried out for

the hydrology and hydrogeology aspects of the proposed development including field inspections of drainage, hydrological features, surface water sampling and river flow monitoring, bench testing and hydrogeological monitoring.

11.10.10. This section of the EIA is informed by the Technical Note prepared by Inspectorate Environmental Scientist, Finbarr Quigley, and appended to this Inspector's Report as Appendix 6. The report focuses on the effectiveness of the mitigation measures identified by the applicant with specific regard to potential flow, sedimentation and nutrient impacts on receiving waters from the proposed development. The report considers, having regard to the Freshwater Pearl Mussel (FWPM) downstream of the proposed development, whether the applicant has demonstrated beyond a reasonable scientific doubt that no significant adverse effects on water quality or quantity will arise as a result of the proposed development.

11.10.11. The study area for the wind farm site and turbine delivery route (TDR) Nodes 6 and 8 extends to 10km, where applicable, and includes for hydrologically connected rivers and designated areas downstream (up to c.50km and more).

11.10.12. 18 no. watercourse crossings are proposed. 15 no. are located within the windfarm site, one of which will cross a WFD watercourse (by a single span bridge) crossing point proposed on the Carrowreagh East Stream, a tributary of the Cloon River. Two crossings relate to the proposed grid connection; the other relates to the turbine delivery route. Save for the Carrowreagh East Stream, all other crossings will be via culvert. From my analysis there is another crossing of the Carrowreagh East Stream on the site, this is discussed below in Section 11.10.21.

11.10.13. Several field drains will be diverted to accommodate the proposed onsite substation compound associated with the grid connection; these drains will be diverted into the proposed drainage system.

11.10.14. Permanent felling of approximately 8.4 ha of forestry is required for the proposed development to accommodate the construction of some turbines, hardstandings, crane pads, and access tracks.

11.10.15. <u>Limitations</u>

11.10.16. No water-related limitations are identified in the EIAR.

11.10.17. The following limitations are reported in the appended Technical Note, prepared by the Inspectorate Environmental Scientist.

- Limited discussion of the Jar/bench testing within the application documentation, in particular the SWMP; given the reported results indicate that the proposed development is likely to produce waters which will not be treated adequately in the settlement ponds as designed.
- The SWMP lacks rigorous, site-specific hydrogeological modelling of fine sediment transport during construction and relies on generalised mitigation rather than the strict, zero-tolerance sediment controls required in protected catchments.
- The applicant has not provided sufficient information on the nature of additional water treatment required to remove clay-sized particles. This creates significant uncertainty over the ability of the proposed development to effectively mitigate against impacts on water quality.
- Concerns over consistency of approach of surface water treatment/process which varies across documents, including the SWMP, the CEMP and the WFD Assessment.
- No risk assessment of the impact of treatment process i.e. use of flocculants and mobile treatment plant, on receiving waters has been undertaken. This is considered a significant omission.
- Having regard to soil type and characteristics, doubt is raised regarding the surface water discharge method following discharge from settlement ponds, including that the reduction of concentration of suspended solids is not quantified
- No attempt to quantify the retention/removal of nutrients has been undertaken by the applicant. Given the proposal to install 79 settlement ponds as part of the proposed development and the sensitivities of the receiving aquatic environment to additional nutrient inputs, the absence of any detailed discussion on the likely concentrations of nutrients leaving the settlement ponds is a flaw.

- There is insufficient discussion and inconsistencies within the SWMP, the CEMP and the Peat & Spoil Management Plan on the management of all 'silty' waters to be generated on site including those with a high peat content. The use of additional treatment methods such as the application of flocculants and the employment of lamella clarifiers are referenced in some documents and absent from others.
- The WFD Assessment makes no reference to groundwater bodies and the potential for impact from the proposed development thereon. The assessment has not sufficiently considered the relationship/overlap between the WFD and Habitat's Directives with respect to these more stringent targets and has limited the discussion to the achievement of the Good Status objective only. The reliance within the WFD Assessment on assumptions that the mitigation measures identified in the SWMP, the CEMP and the Peat & Spoil Management Plan prove that no significant impacts will occur on water quality or the ecological status (including conservation objectives of the FPM) is also flawed.

11.10.18. **Baseline**

Hydrology

- All watercourses in the vicinity of the Proposed Wind Farm' drain to the Cloon River which contains Freshwater Pearl Mussel (Lower River Shannon SAC), making the area highly sensitive to changes in surface water quality and quantity. A Conservation Objective in the Lower River Shannon SAC is 'To restore the favourable conservation condition of Freshwater Pearl Mussel in the Lower River Shannon SAC'.
- The Cloon River flows into Clonderalaw Bay (Lower River Shannon SAC, River Shannon and River Fergus Estuaries SPA and Clonderalaw Bay Proposed Natural Heritage Areas (pNHA).
- The proposed development site including the turbine delivery route is located within the Shannon Estuary North Catchment and the Mal Bay Catchment.

- All of the proposed turbines and the proposed wind farm site are located within the Cloon (Clare)_020 subbasin, within which there are two tributaries, the Carrowreagh East stream and the Cloonkett Stream. Both discharge into the Cloon River. The Cloon River drains into the Shannon Estuary approximately 6.3 km south-west of the site.
- The majority of agricultural field drains onsite drain towards the Cloon River via its tributaries.
- The closest being an area with recurring flooding at the Cloon River Cranny Bridge located approximately 1.7 km west of the proposed development.
- The OPW flood mapping shows that there is medium and low fluvial flood risk associated with the Cloon River and the Cloonkett Stream.
- The Cloon River has 2019-2024 WFD river status of 'good' and is 'not at risk' of meeting WFD objectives.
- There were occasional peaks in suspended solids concentrations the watercourses that were surveyed with potential to impede salmonid fish.
- Hydrological features noted on site included agricultural field drains, bog drains and streams.
- Gortglass Lough, a WFD drinking water 'protected area' is located ca. 500m from the proposed development site.

Hydrogeology

- The site is underlain by a Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones. The overburden deposits of till and peat are mapped as having low permeability, preventing the free movement of surface water to the underlying Locally Important Aquifer. The nature and composition of the bedrock geology indicate that there is limited connectivity between the site and the Lower River Shannon SAC.
- The GSI's Groundwater Vulnerability ranges from 'M – Moderate' to 'E – Extreme' with the western half and southern extent of the Site within an area mapped as predominantly 'X – Rock at or Near Surface'.

- Based on site investigations, lateral groundwater flow from the site would be significantly impeded by the geological composition and structure of the underlying bedrock deposit.
- Recharge rates within the site are likely be low due to the low permeability of both the subsoil and underlying bedrock aquifer.
- There are 2 no. groundwater wells recorded within the Site and 4 no. groundwater wells recorded within 1km of the Site, but probably more unmapped.
- Groundwater monitoring wells were installed in all five boreholes with response zones within the bedrock. Readings were taken over a period of 5 months between August 2024 and December 2025. In general, groundwater levels across the site are shallow with a mean value of 1.81m bgl.
- Groundwater levels within the peat piezometers (Table 10-20) were shallow, ranging from ground level to 1.15m bgl with a mean groundwater depth of 0.36m bgl.
- Groundwater recharge rates within the Kilrush GWB are not currently available. The mechanism by which recharge occurs is by diffuse recharge, which occurs over the entire GWB via rainfall soaking through the subsoil. Most recharge will occur where overlying soils are thinner.

11.10.19. **Potential Effects**

11.10.20. The EIAR identifies the potential for a range of environmental effects on water. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.10.1 below. Potential significant effects are <u>underlined</u>.

Table 11.10.1: Summary of Potential Effects

Water (Hydrology and Hydrogeology)			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Site hydrology would remain largely as it is. The effect of climate change may result in an increase in rainfall that may alter watercourse processes.	N/A	Not significant.
Construction	• Unmitigated Increase in Surface Runoff. Moderate to significant direct, negative, reversible and likely effects. • Release of suspended solids to watercourses resulting in increase in turbidity that could affect the water quality, aquatic ecology and fish stocks of downstream waterbodies. Significant direct, negative, reversible and likely effects. • Release of Cement-Based Products leachate from these can have significant negative effects on water quality.	Mitigation measures are detailed in section 11.5.2 and 10.7 of the EIAR and in the CEMP (Appendix A, Schedule of Mitigation Measures). In addition, the following: Implementation of the detailed Surface Water Management Plan (SWMP) Appendix 11.1, Volume III of the EIAR refers. The SWMP contains methodology for drainage, water quality management and silt control. The site drainage and attenuation system will be installed prior to the main construction activities and includes excavation of drainage ditches and	Following mitigation, the residual effects of the construction stage are 'Not significant'.

	• Release of Hydrocarbons to watercourses resulting in a deterioration of water quality. Moderate impact due to low likelihood and low quantities involved. • Spread of invasive alien species which can result in reduced water quality and aquatic habitats. Significant direct, negative and likely effects.	installation of settlement ponds and soakaways. Implementation of the CEMP (Appendix 2.1, EIAR) includes best practice construction methods during the construction stage to minimise effects on water quality, including: • Construction Waste Management • Construction Traffic Management • Pollution Prevention Management • Biosecurity Management • Emergency Response and Flood Risk Management SOWOR (Schedule of Works Operation Record). Implementation of the Aquatic Habitat Management and Enhancement Plan AHMEP (Appendix 9.6, EIAR) includes specific measures for protection of water quality and aquatic environment. Implementation of the Biodiversity Management Plan (Appendix 9.5, EIAR). General monitoring of the site and watercourses, to include: • An Ecological/ Environmental Clark of Works (ECoW) or hydrologist to supervise construction works. • Daily visual observation in areas of high construction activity or during high	

		rainfall periods to identify any evidence of siltation, oil or other pollutants. • Daily inspections and field water quality readings (conductivity, pH, turbidity, dissolved oxygen saturation) at appropriate fixed river locations, plus other locations as appropriate. • Monthly analysis of water parameters at appropriate fixed river locations. Determinants to be agreed with NPWS for each sample location. • If a pollution event occurs, additional sampling as appropriate to determine the level of impact, and how to remedy. • Turbidity monitors to be installed up- and downstream of site during vegetation clearance and construction. In addition, mitigation measures are detailed in Section 5.3 of the NIS.	
Operation	There is no significant risk of sediment release. The significance of the effect of the release of the hydrocarbons into the receiving waters is 'slight'.	Mitigation measures are detailed in section 11.5.3 of the EIAR and include: • Use of interceptor drains, swales and settlement ponds to limit suspended solid release. • Implementation of a pollution prevention and response plan. • Monitoring of riparian corridors zones, wader wet grassland and SUDs measures. Additional measures are detailed in section 6.4 of the AHMEP and include: • Lockable gates to exclude unauthorised vehicular access.	With monitoring and a pollution prevention and response plan, the residual risk is maintained as 'Not Significant'.

		• No storage of chemicals or mobile machinery. • Scheduled regular inspections of drainage infrastructure, to ensure effective operation and maintenance. • Any remedial engineering works will require appropriate planning, with mitigation measures incorporated; an ECoW is required for supervision of any additional/ remedial works. • Post construction water quality monitoring.	
Decommissioning	Largely a repeat of activities during construction. Release of suspended solids to watercourses unlikely and not significant.	The watercourse crossings and the internal access tracks will be retained.	With mitigation, the residual effects of the decommissioning stage is 'Not significant'.
Cumulative	Crossmore Wind Farm in the same sub-basin, constructed in 2024, can be screened out from further assessment. The cumulative effects on the Groundwater Supply Sources, Public Water Supplies and Source Protection Zones are considered in EIAR, Chapter 10: Effects on these receptors are imperceptible and are not likely to be significant.	N/a	Not significant.

11.10.21. **Analysis, Evaluation and Assessment**

11.10.22. I have examined, analysed, and evaluated Chapter 11 of the EIAR, all the associated documentation and submissions on file in respect of water. I have inspected the application site and the surrounding area. I am however not satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of water/hydrological receptors have been identified. Submissions to the application raise a number of issues in respect of water which I address below. I would also refer the Commission to the applicant's response to the submissions which relies on the information already provided within the EIAR rather than address the specific matters addressed.

11.10.23. <u>WFD Assessment</u>

11.10.24. Submissions have raised concerns relating to deterioration in water quality, impact on wells and drinking water supplies (including from turbine blade erosion and microplastic pollution), potential eutrophication from construction sediment; changes to local water tables and runoff patterns and cumulative impacts with existing nearby developments.

11.10.25. An assessment of the proposed development has been undertaken in accordance with Article 4 of the EU Water Framework Directive (2000/60/EC), as transposed by the European Communities (Water Policy) Regulations 2003, as amended, and with regard to the River Basin Management Plan 2022–2027, Appendix 11.2 of Volume 3 of the EIAR, refers.

11.10.26. I note that the Assessment is confined to consideration of surface waters only and does not consider groundwaters, a point also raised by the Inspectorate Environmental Scientist who considers that this is a significant omission which weakens the overall WFD assessment of the project. I am, however, satisfied that the impact on groundwater is adequately assessed in Chapter 10 of the EIAR and I refer to Chapter 10 of the EIAR for the purposes of this assessment.

11.10.27. Following a scoping exercise of potential risks, the WFD Assessment concluded that the proposed development is unlikely to include any activities that are likely to cause deterioration in WFD status for the waterbodies within the site boundary or prevent the waterbodies from achieving their WFD objectives. In relation

to ecological elements, the report states that 'deterioration of the water quality of the water body is unlikely due to several control measures being in place to prevent surface water runoff from being contaminated by site activities.'

11.10.28. Relevant water bodies (i.e. those hydrologically connected) as classified under the River Basin Management Plan are set out in the table below. The majority of the TDR temporary accommodation works is scoped out from assessment as works will be within the public road corridor. I note the 3rd cycle (2019-2024) status of surface water bodies is now available on EPA Maps and that this provides an update on the 2nd cycle (2016-2021) as reported on within the applicant's EIAR.

Table 11.10.2: Status and Risk of Relevant Waterbodies

Surface Waterbody (watercourse)	**Status (2019-2024)**	**Risk (of not achieving WFD Objectives)**	**On site / downstream**	**Pressures (for At Risk waterbodies only)**
Cloon (Clare)_020	Good	Not at Risk	Site	N/A
Cloon (Clare)_010	Good	Not at Risk	Site	N/A
Crompaun (West)_010	Poor	At Risk	Site (TDR works)	Sediment, Nutrients (Agriculture)
Groundwater Waterbody	**Status**	**Risk**	**On site / downstream**	**Pressures (for At Risk waterbodies only)**
Kilrush (IE_SH_G_123)	Good	Not at Risk	Site	N/A
Transitional Waterbody	**Status**	**Risk**	**On site / downstream**	**Pressures (for At Risk waterbodies only)**
Clonderalaw Bay (IE-SH_060_1200)	Moderate	Review	Downstream	Not identified
Lower Shannon Estuary (IE_SH_060_0300)	Good	Good	Downstream	N/A

Cloon (Clare) Waterbody

11.10.29. All of the proposed turbines and the proposed wind farm site are located within the Cloon (Clare)_020 sub-basin, within which there are two tributaries (the most northern is the Carrowreagh East stream and the southern tributary is called the Cloonkett Stream which ultimately discharge into the River Cloon which is located approximately 2.4 km west. The Cloon River drains into the Shannon Estuary approximately 6.3 km south-west of the site.

11.10.30. None of the proposed development is within a designated site; however, there are designated sites downstream of it, two of which are hydro-ecologically designated sites.

- The Lower Shannon Special Area of Conservation (SAC) is approximately 1.6 km downstream and contains a high number of habitats and species listed on Annexes I and II of the EU Habitats Directive, including the Freshwater Pearl Mussel (FPM). A conservation objective in the Lower River Shannon SAC is to restore the favourable conservation condition of Freshwater Pearl Mussel in the Lower River Shannon SAC. The proposed development is also located within the Cloon FPM catchment.
- The River Shannon and River Fergus Estuaries Special Protection Area (SPA) are downstream of the proposed development site and they are designated for wetland and water bird populations.

11.10.31. According to the EIAR, there is one WFD watercourse crossing point proposed on the Carrowreagh East stream which is a tributary of the Cloon River. This will be an upgrade to an existing ford crossing and would be a clear span bridge. I note, however, that there is a second crossing on the Carrowreagh East stream, downstream of the proposed clear span bridge, which is not detailed in site layout plan, Sheet 1 of 23, (drawing no. P22-125-0500-0001) and across which access will be provided to facilitate erection of a circuit tower for the overhead line. There is an existing watercourse crossing at this point to facilitate residential and farm access.

11.10.32. Other watercourse crossings within the proposed development comprise bottomless box culverts and pipe culverts where the proposed wind farm access

tracks cross minor streams and land drains. The EIAR states that box culverts may be used at minor drain crossings where a piped culvert would not be sufficient. These will also be sized to accommodate the 1 in 100-year (+20 %) flood flow. Box culverts will be installed a minimum of 500 mm into the stream bed in accordance with the IFI guidelines.

11.10.33. Appendix 9.4 of the EIAR, Report on Aquatic Ecology Surveys, refers to positive eDNA results which means the presence of FPM within the Carrowreagh East stream cannot be ruled out. FPM were present in low numbers in the Cloonkett Stream. The Report on Aquatic Ecology Surveys concluded that the habitat for FPM was at good status, but not high, mainly due to the presence of fine silt at all locations.

11.10.34. The Water Framework Directive requires that, where more than one water status objective relates to a water body, the most stringent must apply. As the Cloon waterbody is located within a designated SAC, the conservation objectives under the Habitats Directive apply as it is a 'WFD Protected Areas'. The freshwater pearl mussel has additional requirements for supporting conditions, which are set out in the Freshwater Pearl Mussel Regulations (S.I. No 296 of 2009) and described in the relevant site-specific conservation objectives for the SAC.

11.10.35. While the environmental objective established for the Cloon_020 waterbody for the 3rd Cycle of the WFD was to achieve Good Status, the conservation objectives for the FPM within the Cloon River under the Habitats Directive were to 'Restore' the system to favourable conditions. This objective requires a more stringent target to be set which is the equivalent of a High-Status waterbody. In assessing the WFD Compliance of the proposed development, I note and agree with the Inspectorate Environmental Scientist's concern in the appended Technical Note that the applicant has not sufficiently considered the relationship/overlap between the WFD and Habitat's Directives with respect to these more stringent targets and has limited the discussion to the achievement of the Good Status objective only.

11.10.36. Furthermore, I note the concern of the Inspectorate Environmental Scientist that reliance on the mitigation measures identified in the SWMP, the CEMP and the Peat & Spoil Management Plan that no significant impacts will occur on water quality

or the ecological status (including conservation objectives of the FPM) is flawed for the reasons set out in his report (and discussed in detail below).

Crompaun (West) Waterbody

11.10.37. The Crompaun (West)_010 waterbody is located ca.100m north of the proposed access road (in the townland of Carrowreagh West) as part of the TDR. The Crompaun West River eventually drains into the Shannon Estuary approximately 4.5 km south-west of the site. A culvert is proposed as part of the proposed TDR, ca.300m south of the Crompaun, over a watercourse/field drain which drains to the Crompaun West. The Crompaun (West)_010 waterbody is identified as an 'Area for Restoration' by the Local Authority Waters Programme (LAWPRO) under the WFD Cycle 3. Measures for restoration are not yet available. Mitigation measures are required to mitigate risk to the waterbody status.

11.10.38. There is a 'Low' risk of deterioration to the receiving waterbodies near to the Crompaun (West) WFD sub-catchments. A 'Low' risk of deterioration is stated as there would be sufficient mitigation measures in place to address all potential impacts of the proposed development.

Transitional Waterbodies

11.10.39. The receiving Clonderalaw Bay and Fergus Estuary transitional waterbodies will be unaffected by the proposed development as the risk of deterioration in the catchments upstream of it would be at 'Low' risk of deterioration.

Groundwater waterbody

11.10.40. Submissions raise concerns regarding insufficient hydrogeological assessment, including groundwater-flow modelling, identification of recharge areas, vulnerability classification, and protection measures for both the spring well and the GWS reservoir. Without such detailed analysis, the risks to local water supplies remain unacceptably high.

11.10.41. As noted above and in the Inspectorate Environmental Scientist's Technical Note, the absence of any assessment of impacts on the Kilrush Groundwater waterbody underlying the site is a significant oversight which weakens the overall conclusions of the applicant's WFD Assessment.

11.10.42. Results of the Hydrogeological Survey Report, Appendix 10.2 of the EIAR, indicate that shallow groundwater dominates the site. However, the EIAR considers that the shallow groundwater encountered within the piezometers likely represent a perched groundwater system as results from the desk study and field investigations indicate that this shallow system is separated from the main bedrock aquifer by a layer of low permeability fine-grained glacial till. The results from the peat piezometer monitoring indicate little seasonal variance in groundwater levels within the Blanket Peat. This suggests that groundwater drawdown resulting from construction activities will not have a significant effect on the peatland areas as the soils will be slow to react to localised water level changes.

11.10.43. Groundwater flow at the site follows regional topography in a westerly and southerly direction towards the Cloon River which is stated in the Hydrogeological Survey Report to align Kilrush GWB. The report continues that the main recharge mechanism to the Kilrush GWB locally is via diffuse recharge. Due to the generally low permeability of the aquifer a high proportion of the recharge will discharge rapidly to surface water courses via the upper weathered layers of the aquifer, effectively reducing the available groundwater resources in the aquifer. Although it is expected that groundwater at the site will discharge into the Cloon stream at the south of the site, the poor productivity of the aquifers in the Kilrush GWB indicate that it is unlikely that any local major groundwater/surface water interactions occur. In addition, I note that although the Lower River Shannon SAC is down gradient of the proposed site, at a distance of approximately 1.6km to the east, the nature and composition of the bedrock geology indicates that there is limited connectivity between the Site and this SAC.

11.10.44. Pumping of groundwater during the construction phase of the wind farm for excavation of turbine foundations will likely be required, however, the amount of pumping required is not expected to interfere with groundwater levels in the bog.

11.10.45. Groundwater monitoring wells (proposed and existing) will be used during the construction phase will be used to monitor groundwater levels and quality to assess any potential effects during the construction works.

11.10.46. In summary, no significant effects to groundwater are likely.

<u>Gortglass Lough Waterbody</u>

11.10.47. Gortglass Lough, located ca. 480m to the south of the site, is a WFD 'protected area' as it is a drinking water supply. Gortglass Lough is downgradient of the site, however the nature and composition of the bedrock geology indicates that there is limited connectivity between the site and Gortglass Lough. In terms of hydrogeology, the area is characterised as being highly restrictive, fracture-dominated and poorly connected groundwater systems. In terms of Aquifer Type, it is classified as a Locally Important Aquifer – Bedrock which is mostly low-yielding with some localised moderate yields possible near structures such as faults. I note there are no faults evident on the GSI bedrock layer. Groundwater flows and water table positions tend to be shallow in these systems which suggests the groundwater feeding Gortglass Lough is highly likely to be sourced from within the surface water catchment area feeding the lake than from deeper groundwater connections to the north, due to low connectivity for the reasons already outlined.

11.10.48. The on-site streams are disconnected from Gortglass Lough, and nearby Cloonsnaghta Lough, and the intervening upland terrain to the south acts as a natural topographic barrier, physically preventing any peat movement or runoff from the site toward the loughs.

11.10.49. I have reviewed the Hydrogeological Survey Report and I have consulted the EPA Hydrotool maps which indicate a zone of contribution around Gortglass Lough defined by the contours of the ground. I am satisfied there is no viable source pathway-receptor linkage between the peatlands within the site and Gortglass or Cloonsnaghta Loughs. I am satisfied that the proposed development will not have a significant impact on Gortglass Lough.

<u>WFD Assessment Conclusion:</u>

11.10.50. I consider there are significant shortcomings in the WFD Assessment including, deficiencies relating to an assessment of impact on Kilrush groundwater waterbody, deficiencies relating to an assessment in respect of achieving environmental objectives relating to the protected areas of the Lower River Shannon SAC and associated conservation objectives for the FPM, and the reliance within the WFD Assessment on assumptions that the mitigation measures identified in the SWMP, the CEMP and the Peat & Spoil Management Plan would be effective in achieving those environmental objectives.

11.10.51. Having regard to the nature and scale of the proposed development, and in particular its location upstream of the Cloon (Clare)_020, a water body under the Water Framework Directive, which status is 'good' and upstream of a Natura 2000 Site, the Lower River Shannon SAC, where the most stringent environmental objectives apply, I am not satisfied that the proposed development is consistent with achieving those environmental objectives. The proposed development would therefore be contrary to the requirements of Article 4 of the EU Water Framework Directive (2000/60/EC), as transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), as amended, and would be inconsistent with the objectives of the Water Action Plan 2024 and the proper planning and sustainable development of the area.

11.10.52. Mitigation Measures

11.10.53. I refer to the appended Inspectorate Environmental Scientist's Technical Note, wherein it states, water quality measures adopt the principles of mitigation by avoidance where possible and include avoiding deep peat, using floating roads where necessary, implementing buffer distances around watercourses, minimising volumes of contaminated water, minimising the number of water-crossing points, replacing a ford crossing in a river with a clear-span bridge and the adoption of good practice methods for construction, with some works only undertaken within certain periods of the calendar year and certain weather conditions. The inclusion of these embedded measures is considered best practice and their implementation would provide effective mitigation. The proposed mitigation measures relating to the control of impacts from the use of concrete and hydrocarbons during construction are well developed, robust and in line with industry best practice. The potential impacts from sanitary wastewater generated on site have also been considered and appropriate mitigation measures designed and outlined in sufficient detail within the application.

11.10.54. The Inspectorate Environmental Scientist does however, raise concerns with the applicant's proposed measures of mitigation by minimisation or reduction which include measures taken to reduce the extent of impacts that cannot be completely avoided, as far as is practically feasible and include measures relating to the minimisation of impacts on receiving waters which are detailed in the SWMP, the

CEMP, the Peat & Spoil Management Plan and listed in the NIS, discussed below in greater detail.

11.10.55. Surface Water Management Plan

11.10.56. The Surface Water Management Plan (SWMP) as prepared by the applicant (Appendix 11.1) is based on industry standard principles which aim to minimise the volume of contaminated water to be treated and use a multi-stage treatment train of the discharges from the development and is intended to capture surface water run-off from hard standing and construction areas, with the exception of the initial site clearance phase, in swales and discharge into 79 no. settlement ponds and an unknown number of temporary semi-permanent settlement ponds, although details of any discharges from the ponds are not provided. The applicant stated that there will be no direct discharges from the proposed development to any existing natural watercourse.

11.10.57. The treated water will percolate to groundwater or travel over ground and be assimilated into the existing drainage network. Pumped water from turbine excavations will pass also through the drainage system for treatment. The SWMP also describe a scenario where dewatering may be required in areas away from the site drainage system. In this scenario, the applicant suggested that dewatering would be via filter bags to adjacent lands within the red-line boundary. These types of discharges would be onto natural vegetation and would be set back a minimum of 20m from any drain or watercourse although further detail is limited in the SWMP.

11.10.58. 5 bench tests were conducted on non-peat soil samples collected from the Phase 1 ground investigation (GI) trial pits. The EIAR indicates that of the 49 trial pits conducted across the site, 27 were found to contain blanket peat deposits ranging in depth from very shallow (0.15m bgl) to deeper layers (4.5m bgl). Therefore, it is assumed that peat will form a significant constituent of the material to be excavated during construction. Groundwater levels within the peat piezometers were shallow, with a mean groundwater depth of 0.36m bgl, meaning that excavations within peat are highly likely to encounter significant volumes of water which may need to be pumped into the surface water management system proposed for the site.

11.10.59. There is insufficient discussion and inconsistencies within the SWMP, the CEMP and the Peat & Spoil Management Plan on the management of all ‘silty’

waters to be generated on site including those with a high peat content. In my opinion and having regard to the sensitivities of the receiving waters within the site, the applicant has not demonstrated to a sufficient degree of confidence that the proposed surface water management systems will be effective at removing peat particles from the water prior to discharge to the receiving environment.

11.10.60. The Inspectorate Environmental Scientist (Appendix 6) considers that the results of the Jar/Bench Test, designed to inform surface water management on site, suggest that the achievement of sufficient settlement of particles within the proposed settlement ponds would prove challenging due to elevated levels of clay-sized particles which require extended periods to settle and states that given the reported results of the Jar/Bench tests, the proposed development is likely to produce waters which will not be treated adequately in the settlement ponds as designed. The applicant has described how additional treatment of waters to remove clay-sized particles may be necessary using flocculants and mobile treatment plants however the applicant has not provided sufficient information on the nature of this additional water treatment. I concur with the opinion of the Inspectorate Environmental Scientist that this creates significant uncertainty over the ability of the proposed development to effectively mitigate against impacts on water quality. This, in the opinion of the Inspectorate Environmental Scientist is a significant omission as these results would inform the effectiveness of ponds to remove all particles likely to be encountered.

11.10.61. In addition to the foregoing, the Inspectorate Environmental Scientist notes that many of the 79 settlement ponds proposed across the site and the outfalls from these ponds are located within 10m of existing watercourses. Given the aforementioned uncertainty relating to how effective the treatment process will be, there is a risk that water containing elevated levels of suspended solids may discharge via surface runoff into watercourses and drainage ditches at various locations within the site, particularly during the construction phase of the proposed development.

11.10.62. I note and accept the concerns raised by the Inspectorate Environmental Scientist in his Technical Note that the applicant's assessment fails to adequately evaluate the severe risks of silt loss on the critically sensitive freshwater pearl mussel (Margaritifera margaritifera) population, that it lacks rigorous, site-specific

hydrogeological modelling of fine sediment transport during construction, overlooks the impact of silt clogging critical gravel interstitial spaces on juvenile recruitment, and relies on generalised mitigation rather than the strict, zero-tolerance sediment controls required in protected catchments.

11.10.63. Construction and Environmental Management Plan

11.10.64. The CEMP states that the settlement of clay-sized particles may require additional treatment using flocculants if sufficient settlement of these proves to be impractical. No further detail is provided in the CEMP. The Water Framework Directive Assessment (WFD) (Appendix 11.2 of the EIAR) states that the settlement of clay-sized particles may require additional treatment using flocculants in a mobile treatment plant employing lamellar clarifiers if natural settlement of these fine-grained particles is impractical.

11.10.65. The Inspectorate Environmental Scientist in his Technical Note clarifies that:

(i) Flocculants are specialised chemicals or polymers often used in water and wastewater treatment to clump suspended fine particles into larger, heavier clusters called "flocs" thus making them easier to remove via settlement, and;

(ii) A mobile lamellar clarifier is a transportable wastewater treatment unit using inclined plates to separate suspended solids from runoff. The use of this technology alone will not remove clay or peat particles from water and would require the use of coagulants and flocculants to successfully remove these particles.

11.10.66. Neither the SWMP or the CEMP assess this additional treatment, and I accept the opinion of the Inspectorate Environmental Scientist that this raises concerns over the consistency of approach adopted when drafting the various management plans that assist the application.

11.10.67. Within the CEMP and WFD assessment, the applicant has acknowledged that the removal of clay-sized particles in the settlement ponds may not be possible. This is due to the longer settlement times required to remove these smaller particles. They have suggested that flocculants may be required to provide effective treatment of waters arising. They have also suggested that a mobile treatment plant may be

required to carry out this treatment but have provided no information on how this technology would be employed. Consequently, no risk assessment of the impact of this treatment process on receiving waters has been undertaken. I concur with the opinion of the Inspectorate Environmental Scientist that this is a significant omission and, in this instance, creates a high degree of uncertainty when assessing the effectiveness of the proposed mitigation measures against the known sensitivities of the FPM.

11.10.68. Nutrient Impact

11.10.69. The proposed development will not introduce a new source of nutrients however the disturbance of vegetation, peat and soils has the potential to release nutrients into the water environment.

11.10.70. With regard to nutrient impacts, the applicant states that 'potential impacts on ecological receptors are anticipated to be unlikely as the majority of construction activities (with the exception of watercourse crossings for cables and access tracks) will be at least 50m away from each watercourse in the waterbody, as far as possible'. However, the site layout plan shows access roads, turbines, hard stands, and settlement ponds much closer to drainage ditches, small streams etc. which are all hydrologically connected to the two main watercourses which flow through the site and have the potential to transport nutrients quickly downstream and to the FPM sites.

11.10.71. The WFD Assessment (Appendix 11.2) the applicant relied on the silt mitigation measures to minimise nutrients (along with silt) in the final discharges from the settlement ponds, however, as noted by the Inspectorate Environmental Scientist, no attempt to quantify the retention/removal of nutrients has been undertaken by the applicant and the absence of any detailed discussion on the likely concentrations of nutrients leaving the settlement ponds is a flaw. While acknowledging that the Aquatic Habitat Management and Enhancement Plan will reduce agricultural sources of nutrients, the nutrient impact assessment is inadequate because it fails to evaluate the long-term mobilization and downstream delivery of phosphorus and nitrogen from peat disturbance and construction runoff. This oversight ignores the strict oligotrophic requirements of the FPM, where minor

nutrient enrichment triggers filamentous algae and macrophyte growth that chokes the gravel bed, cuts off vital oxygen exchange, and causes juvenile mortality.

11.10.72. Aquatic Habitat Management and Enhancement Plan (AHMEP)

11.10.73. The AHMEP details enhancement measures for the study area, based on best practice, to increase its value as habitat, and its potential to support FPM and its host fish in the future. Appropriate associated monitoring and evaluation of these enhancement measures was also outlined within the document, including use of turbidity monitors would be automated and alarmed to trigger a response if threshold turbidity values were exceeded. The Inspectorate Environmental Scientist acknowledges that while the use of in-situ monitors with alarms are a useful tool in identifying spikes in turbidity, their usefulness in situations where chronic, low-level fine sediment is occurring may be limited. In addition, reaction times to spikes of turbidity can mean considerable damage may have already taken place before action is taken. Despite this, he is satisfied that the monitoring system is robust, in line with industry best practice. In addition, the AHMEP, also included additional enhancement measures that will, in the view of the Inspectorate Environmental Scientist, help to further improve aquatic habitats relative to its current status, referencing in particular, the fencing of watercourses and the removal of livestock access which would have the most immediate tangible benefit to the aquatic environment. Overall, I agree with the Inspectorate Environmental Scientist that the monitoring and enhancement measures identified by the applicant in the AHMEP would be effective for the purposes for which they were designed.

11.10.74. **Flood Risk Assessment**

11.10.75. A third-party submission states that the two streams Cloonkett stream and the Carrrowreagh East stream flow either side of the site and often flood.

11.10.76. A Flood Risk Assessment accompanies the application (Appendix 11, Volume 3 of the EIAR). The proposed development site is located within Flood Zone C - where the probability of flooding from rivers and the sea is low (less than 0.1% AEP for both river and coastal flooding).

11.10.77. The River Cloonkett is subject to flooding along the southern site boundary; the nearest turbine (T6) from the flood event is located ca. 130m and is ca. 5-6m higher than the watercourse and impact on this turbine is unlikely.

11.10.78. There is one main watercourse crossing on the western side of the site, located between turbines T2 and T3, which crosses the Carrowreagh East stream. A clear span bridge is proposed at this location. The soffit level of the bridge will provide a minimum freeboard of 300mm to allow a fluvial flood level of 1 in 100 years (+20%). The supports for the proposed clear span bridge crossing will be set back 5m from the riverbank (per SWMP, I note the typo in the EIAR which specifies 44m). This watercourse crossing will require a Section 50 Application through the OPW.

11.10.79. The remaining watercourse crossings within the proposed development intersect peat or land drains, for which culverts have been proposed; they will be sized to accommodate the 1 in 100 year (+20%) flood flow and will include a minimum freeboard of 300mm. A preliminary hydrological and hydraulic analysis was carried out to design these watercourse crossings where culverts are required. The design replicates the existing conditions as much as possible to minimise the impact; in some cases, small diversions are required.

11.10.80. In respect of groundwater flooding, I note from EIAR Section 3.2, Subsoil and Hydrogeology, the subject site is, in general, not at risk of groundwater flooding.

11.10.81. Mitigation measures to protect the site and surrounding area from flooding are set out in the FRA and are those covered in the SWMP, the CEMP and are summarised in Table 11.10.1 above.

11.10.82. In summary, with suitably sized piped culvert and box culvert crossings, and a suitably designed bridge, there will be no effect on flows within watercourses, and the risk of flooding will not be increased as a result of the Proposed Development. The Flood Risk Assessment considered the flood risk and the potential for the proposed development to cause or change the offsite flood risk. I concur with the assessment which concludes that, subject to appropriate mitigation, the proposed wind farm is not itself at risk of flooding and is not expected to have any adverse impact on flood risk.

11.10.83. **Microplastic Pollution**

11.10.84. A number of submissions have raised concerns regarding microplastic pollution from the erosion of wind turbines. Whilst the concerns and the reference to a publication on the matter are noted, I am not aware of any peer reviewed scientific evidence base quantifying the release of microplastic from the erosion of wind turbines or demonstrating any emissions likely to result in a significant effect on the environment. The routine preventative maintenance programme of the turbines proposed by the applicant during the operational phase as per Chapter 2 of the EIAR is noted.

11.10.85. **Local Groundwater Supplies**

11.10.86. Submissions have raised concerns regarding potential impact on private wells. Based on a review of the GSI Groundwater Wells and Springs mapping (Figure 10.9, Volume IV) there are 2 no. groundwater wells recorded within the Site and 4 no. groundwater wells recorded within 1km of the site, although the EIAR acknowledges that unmapped wells in the area are probable. There are no mapped springs within the site or within 1 km of the site. The wells are mapped on Figure 10.9. Appendix 4 of the EIAR. Yield within the wells range from poor to moderate (19 to 55m3 per day). According to the EIAR, these yields suggest that the underlying bedrock is poorly productive.

11.10.87. Notwithstanding that additional wells in the area are probable, the dewatering of the foundation excavations is not expected to cause interference with domestic wells in the area, due to large offset distances to known wells, relatively shallow depths of excavation and temporary short-term nature of dewatering, if required. I am satisfied that no significant effects to groundwater wells are likely.

11.10.88. I am satisfied that the potential effects on local groundwater supplies have been assessed. As outlined previously, impact on groundwater levels is not considered likely having regard to site and project characteristics and dewatering will be localised within excavations and small in scale. I refer here to my assessments above in relation to groundwater and surface water quality, where I conclude that the proposed development, taking account of mitigations measures, will not result in significant effects on hydrology and hydrogeology and will not cause a deterioration of water quality.

11.10.89. **Enhancement Measures to Improve Water Quality**

11.10.90. I note the enhancement measures and related monitoring set out in the Biodiversity Management and Enhancement Plan (BMEP) within the proposed development site which includes ca.72 ha of peatland restoration and targeted drain, raising water tables, stabilising exposed peat, preventing erosion and restoring bogland hydrology; new fencing along watercourses to exclude livestock (ca. 7Km); underplanting of riparian buffers (approx. 4Ha) to prevent soil erosion and hydrological attenuation via targeted drain management and prioritised interventions.

11.10.91. **Decommissioning Works**

11.10.92. The DAU raise concerns with respect to inadequate decommissioning assessment. Section 2.7 of the EIAR details decommissioning works and in greater detail in section 4.3.1 of the CEMP. The applicant addressed this issue in the Response to Submission, section 3.2.20 and stated that agreeing to a detailed Decommissioning Plan at this stage would be premature negating the use of potential future technologies and best practices in decommissioning. Furthermore, decommissioning will be subject to the statutory/regulatory requirements at that time.

11.10.93. I note that a site-specific Decommissioning Plan and a Decommissioning Transport Management Plan will be prepared prior to commencement. Decommissioning is expected to take 6 months.

11.10.94. The turbine foundations, access and track roads will remain in-situ. The substation and ancillary electrical equipment will be left in-situ permanently as they will form part of the national grid. The dismantling and removal of wind turbines will be undertaken in reverse order to methodology employed during their construction. A number of large-scale cranes will be brought back to site utilising the existing hard stand areas. The electrical and fibre optic cabling that connects each turbine will be removed from the cable ducting, using a mechanical winch. This will be undertaken at each of the joint bays/pull pits along the cable. The cable ducting will be left in-situ.

11.10.95. I am satisfied that impacts will be similar and less significant than those considered and assessed for the construction stage. I consider it appropriate that a detailed decommissioning plan is required to be agreed prior to commencement of development and would be subject to environmental best practice and relevant baseline data at the time of decommissioning.

11.10.96. **Conclusion: Direct and Indirect Effects**

11.10.97. I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. In my opinion, the applicants understanding of the baseline environment is not comprehensive and key impacts in respect of likely effects on the water environment as a consequence of the development have not been identified or adequately assessed. In the absence of such information, there is a potential for significant effects to arise during the construction and operational phases to the environmental factor of water.

11.11. Land and Soil

11.11.1. **Issues Raised**

11.11.2. Submissions from third parties raised concerns in relation to an absence of detailed peat stability assessment and insufficient assessment of risk from peat failures. Concern was also raised with respect to soil disturbance and sedimentation release, and damage to peatlands which are recognised or their ecological importance and as carbon sinks. A concern was raised over continuation of turbary rights.

11.11.3. Turbary rights concerns are addressed in Section 11.7 (Population and Human Health) of this Inspector's Report. Water quality impacts arising from peat disturbance and sedimentation is considered in Section 10 (Water) of this Inspector's Report.

11.11.4. **Context**

11.11.5. Chapter 10 of the EIAR deals with Soils, Geology and Hydrogeology. This chapter is supported by appendices:

- Appendix 10.1 – Peat Stability and Geotechnical Assessment Report (GAR)
- Appendix 10.2 – Hydrogeological Survey Report
- Appendix 10.3 – Peat and Spoil Management Plan
- Appendix 10.4 – Bench Test Result

- The CEMP is included in the EIAR as Appendix 2.1 and includes a Waste Management Plan at section 4.3.6.

Hydrology and Water Quality is addressed in Chapter 11. I consider matters relating to hydrogeology in Section 11.10 of this Inspector's Report.

11.11.6. The assessment is undertaken in accordance with government and industry best practice guidelines. Desktop study and assessment have been carried out for the land and soil aspects of the proposed development. In addition, site surveys including peat probing were undertaken and a phased intrusive ground investigation, comprising trial pits and boreholes, was undertaken by Irish Drilling Limited (IDL). No limitations are identified and are not evident in the assessment.

11.11.7. **Baseline**

- The land within the study area is a mixture of pastural agriculture, peat habitat and commercial forestry. The proposed development site also includes some historical, and current turbary peat extraction.
- The topography of the proposed development site is hilly and slopes from both the north and south towards the centre with elevations ranging from 90 m to ca. 50 m. Maximum elevation to the north is ca. 100 m OD and maximum elevation in the south is approximately 75 m. From east to west, the proposed development site generally slopes to the west from an elevation of approximately 80 m OD to 50 m OD.
- Slopes as measured during the walkover survey, at the proposed turbine locations range from two to eight degrees. The slopes at the proposed turbine locations within areas of peat display slopes ranging from two to five degrees.
- Much of the central and eastern portions of the site is underlain by Blanket Peat deposits. Isolated and often linear deposits of till derived from Namurian sandstones and shales were mapped along the northern margin of the site. Large extents of bedrock or subcrop were recorded and mapped within the western portion of the site, and along the site's southern margin. There is a low to high potential for crushed rock aggregate across the site.

- Findings from the peat probe surveys give a minimum, maximum and mean peat depth of 0m, 6.65m (at T01) and 1.43m respectively. Approximately 36% of peat depths recorded were less than or equal to 0.5m (≤ 0.5m).
- Quaternary deposits beneath proposed infrastructure elements include:
    - Blanket Peat Deposits:Turbines/Hardstands for T01-T02, T05-T07, T09, and T11-T13
    - Bedrock Outcrop or Subcrop: Turbines/Hardstands for T03, T04, T10
    - Till and Blanket Peat Deposits : Turbines/Hardstands for T08
    - Till, Blanket Peat Deposits, and Bedrock Outcrop or Subcrop :Turbines/Hardstands for T014
    - Bedrock Outcrop or Subcrop : Substation
    - Blanket Peat Deposits : Met Mast
    - Bedrock Outcrop or Subcrop : Construction Compound 1 (West)
    - Till and Blanket Peat Deposit : Construction Compound 2 (East)
- There are no karst features recorded within the site and no occurrences of coal were observed within the site.
- The GSI Landslide Susceptibility mapping indicate that the site and proposed infrastructure locations are almost exclusively within an area mapped as having a ‘Low’ landslide susceptibility. Two turbines (T03 and T04) lie within areas classified as having ‘Moderately Low’ landslide susceptibility.
- There are no known areas of soil contamination on the site.

11.11.8. **Potential Effects**

11.11.9. The EIAR identifies the potential for a range of environmental effects on land and soils. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.11 below. Potential significant effects are <u>underlined</u>.

Table 11.11: Summary of Potential Effects

Land Soil			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Land and soils will remain as is. Commercial planted forestry likely to be felled.	n/a	n/a
Construction	Site clearance works will result in 'moderate adverse' magnitude with permanent, direct effects. • Felling of ca.8.4 ha of conifer plantation forestry. • Total excavated peat volume (with bulking factor) is ca. 140,211m3, to be reinstated. • Total excavated spoil volume (with bulking factor) is ca. 178,365m3, to be reinstated. Earthworks will result in 'moderate, adverse' effects with slight significance, including: • The proposed borrow pits will provide a potential volume of ca. 165,000m3 of site-won granular for re-use on site. • Ca.11km (approx. 4,100m of this to be floated) x5m wide of new internal access tracks.	Mitigation measures are detailed in section 10.7 of the EIAR and in the CEMP (Appendix A, Schedule of Mitigation Measures) including: • Implementation of the CEMP (Appendix 2.1, EIAR) includes best practice construction methods will be used. • Fuels and oils will only be stored at the construction compound areas in designated bunded areas. Details of oil spill protection measures set out in the CEMP and includes an Emergency Spill Response Plan. • All refuelling shall be carried out using fuel trucks, which will bring fuel to the felling plant and equipment. • No long-term stockpiles of material shall remain after construction and no surplus/waste soil or rock will be removed from site. • Construction activities including vehicle movement will be restricted to the footprint of the development.	The post mitigation effect on the land and soil receptors is considered to be 'Small adverse and Insignificant.

	Accidental hydrocarbon spillage: localised slight effect. Peatland restoration works will result in the restoration of ca. 74ha of peatland: positive, long-term direct with a negligible effect on land and soil. The effect of a slope failure is unlikely. With respect to waste: Table 4-2 of the CEMP refers. No likely significant effects arising.	• All excavations shall be constructed and backfilled as quickly as possible and stop during or prior to heavy rainfall events. • Soil excavated from trenches where the internal cabling crosses existing paved roads will be taken to a licenced facility for disposal or recycling where required. • In respect of slope stability, no rock blasting is proposed; works will be designed and supervised by a geotechnical engineer or engineering geologist. Refer to the mitigation/control measures identified for each of the infrastructure elements in Appendix B of the Geotechnical Assessment Report. Implementation of a Waste Management Plan, section 4.3.6 of the CEMP refers.	
Operation	There is potential for spills / leaks of oils/battery fluids from this equipment resulting in contamination of soils, resulting in small adverse direct effect of slight significance. Maintenance of access tracks during the operational phase will result in small adverse direct effect of slight significance on land and soil.	Mitigation measures are detailed in section 10.7.3 of the EIAR and include: • Implementation of a pollution prevention and response plan.	The post mitigation effect on the land and soil receptors is considered to be 'Negligible and Insignificant'

Decommissioning	Effects similar to construction phase but of reduced magnitude. No new effect anticipated. Likely effects to the land, soils and geology direct, short-term, adverse of imperceptible significant.	Decommissioning will largely involve a repeat of most of the activities listed in the construction phase. Some of the effects associated with reinstatement of the Site (excavation of turbine bases, access tracks etc.) will be avoided by leaving these in place where possible. A detailed Decommissioning Plan will be produced prior to decommissioning (section 4.3.1 of the CEMP).	The post mitigation effect on the underlying soils, geology and hydrogeology receptors is considered to be 'Negligible and Insignificant'.
Cumulative	If construction for identified large-scale development overlap or run concurrently with the development of the Site, there may be a supply issue with local quarries providing imported aggregate, resulting in a small adverse, effect of slight significance.	None.	No likely significant effects identified.

11.11.10. **Analysis, Evaluation and Assessment**

11.11.11. I have examined, analysed, and evaluated Chapter 10 of the EIAR, all the associated documentation and submissions on file in respect of land and soil. I have inspected the application site and the surrounding area. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of land and soil receptors have been identified. Submissions to the application raise a number of issues in respect of land and soil which I address below:

11.11.12. Slope Stability Assessment

11.11.13. The GSI Landslide Susceptibility mapping indicate that the site and proposed infrastructure locations are almost exclusively within an area mapped as having a 'Low' landslide susceptibility. Two turbines (T03 and T04) lie within areas classified as having 'Moderately Low' landslide susceptibility. Localized areas of 'Moderately High' landslide susceptibility are mapped within areas of steeper topography, i.e. along the northern and southern parts of the site. I note the results from the ground investigation indicate that these areas are underlain by very shallow bedrock, predominantly mantled by fine-grained till deposits and are therefore not readily susceptible to landslip. I note that there is no other infrastructure located in areas of 'Moderately High' landslide susceptibility; that site survey findings did not identify evidence of slope instability and that there are no historical records of landslide activity within 5km of the Site on the GSI database.

11.11.14. I note that best practice mitigation to prevent slope failure will be implemented. Overall, I am satisfied that the risk of landslide within the Site is 'Negligible and Insignificant' and that the localised areas of 'Moderately High' landslide susceptibility pose little risk due to the presence of shallow bedrock.

11.11.15. Peat Stability and Geotechnical Assessment Report

11.11.16. As stated above, works will impinge on the peat covered areas, the slopes are >2 degrees, and peat depth is in excess of 0.5m bgl. A geotechnical assessment was undertaken using findings from the site walkover surveys and intrusive ground

investigations and is presented in Appendix 10.1 – Peat Stability and Geotechnical Assessment Report. The analyses returned Factor of Safety Results of >1.3 for all infrastructure elements assessed, indicating the risk of peat landslide is 'Negligible and Insignificant'.

11.11.17. I note the concerns of third parties with respect to the adequacy of the peat stability assessment. Having reviewed the application documentation I am satisfied that the peat stability assessments and analyses were undertaken in accordance with current guidelines and best practice approaches. I note that peat depths at the proposed turbine locations were assessed through a program of 268 peat probes, conducted either directly at or immediately adjacent to each turbine position. The peat probing was further supplemented by 49 no. trial pits and 5 no. rotary core boreholes. I am satisfied the investigations are adequate to determine ground and groundwater conditions.

11.11.18. Mitigation/control measures are identified for each of the infrastructure elements in Appendix B of the Geotechnical Assessment Report. Recommendations and guidelines with respect to the management of peat and soil during construction are set out in the Peat & Spoil Management Plan. I note that the post mitigation effect on the underlying land, soil and geological receptors can be considered to be 'Negligible and Insignificant'.

11.11.19. **Conclusion: Direct and Indirect Effects**

11.11.20. I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. I am satisfied that the applicant provided sufficient survey data to enable assessment of likely effects on the environmental factors of land and soil. I am satisfied that potential effects on land and soil as a result of the proposed development would be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects on the environmental factors of land and soil.

11.12. Air (incl. Noise and Vibration)

11.12.1. Issues Raised

11.12.2. The HSE (National Environmental Health Service (NEHS) refers to the Judgement in Webster/Rollo v Meenaclogher (Wind) Limited (2024 IEHC 136) and to consider if there is a duty to incorporate the likelihood of a private nuisance into decision making and refers to UK guidance on complaint methodology on windfarm noise nuisance. In addition, the following noise-related points are made:

- EIA should take account of most up-to-date scientific knowledge on noise assessment;
- Tabulation of the predicted change in the noise environment from the proposed development and the cumulative change in the original baseline noise environment before any wind farm development in the area is the most informative way of reporting the likely effect of operational noise in an EIAR, referring to the Environmental Noise Guidelines for the European Region, 2018 (WHO).
- The changing of some of the absolute noise exposure limits at NSLs from a limit based on a low background to a non-low background at increased wind speeds increases the criteria for noise exposure limits.
- Introducing a new noise source into an existing low noise background requires mitigation to ensure there are no adverse impacts on health, not just a change in the evaluation criteria.
- The EIAR clearly identifies that the standard being used to assess impacts (BS4142) states that an increase of +10dB indicates a ‘significant adverse impact’. The prediction is that night-time will be an increase of +14 dB, which on the logarithmic Decibel scale is a significant level above the level that has been identified as ‘significant adverse impact’. So, the conclusion from the EIAR does not reconcile with the assessment criteria used to evaluate ‘adverse effects’.

- Mitigation measures should be implemented that reduce the change in the night-time noise environment to below the 10 dB that BS4142 indicates will have a significant adverse impact.
- If the 35 dB exposure limit had been adopted (which is permitted under the methodology) for low background levels instead of the 40 dB that was chosen, there would be significantly more NSL not meeting the adopted criteria. The adopted noise criteria for low background areas permits changes in the noise environment significantly above 10dB.
- With respect to construction noise, the NEHS considers there is no requirement for additional noise mitigation measures.

11.12.3. Clare County Council request with respect to residential amenity (including noise) that full details of the mitigation measures are clarified before permission is granted and how same will be implemented in order to address any concerns arising from local residents at the operational stage.

11.12.4. Third parties raise the following concerns:

- Noise nuisance and noise pollution in terms of aerodynamic noise and amplitude modulation;
- multiple turbines will generate continuous noise including low-frequency sound and infrasound that can travel considerable distances;
- noise can be intrusive particularly at night leading to sleep disturbances;
- persistent noise can contribute to anxiety and impact wellbeing;
- turbine blades will generate noise that affects residents and farm animals;
- comparisons drawn with Crossmore wind farm and the level of noise experienced when visiting this wind farm;
- specific concern from an observer who lives to the north-east of T14, with one of the highest noise levels during construction predicted to be near T14 – a baseline noise monitoring location should have been considered upwind in what is the prevailing south westerly wind direction.

- Traffic, dust, and general disturbance impactful on public health particularly during the construction phase of the proposed development.

11.12.5. **Context**

11.12.6. Chapter 7 of the EIAR deals with Air and Climate. Climate is considered in section 11.15 of this Inspector's Report, Appendix 2.1, CEMP, Section 4.3.2 Dust Management Plan is relevant. Chapter 8 of the EIAR deals with Noise and Vibration. Chapter 8 is supported by the following appendices and figures:

Volume 3 Appendices:

- Appendix 1.2 Developments considered for Cumulative Assessment
- Appendix 8 Noise and Vibration

Volume 4 EIAR Figures:

- Figure 2.1 Site Location
- Figure 2.4 Properties within 2km of Turbines
- Figure 8.1 Noise sensitive locations within the Study Area
- Figure 8.2 Noise Monitoring Locations

11.12.7. The turbine selected and assessed is the Vestas V136 4.5MW, with a hub height of 82m. The closest property to a turbine is located ca. 518 m distance. This property belongs to an involved landowner. All other residential properties are located greater than 600 m from the turbine array. The on-site substation is located 149 m from the nearest residential property. A separation distance of 600m (4 times tip height) was achieved from the closest landowner, located over 518m from the nearest proposed wind turbine.

11.12.8. Construction and decommissioning noise have been assessed by comparing predicted construction activities against best practice construction noise criteria, namely BS5228 Part 1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1: Noise; at the nearest residential dwellings to the construction activities.

11.12.9. The operational noise study area includes all residential dwellings with a predicted noise level greater than 35 dB LA90 (which is the lowest limit prescribed in the 2006 Wind Energy Development Guidelines).

11.12.10. Construction and operational vibration have been scoped out and are not assessed in the EIAR.

11.12.11. In respect of construction noise criteria, in the absence of Irish guidance, the British Standard BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites –Noise, was applied to the assessment. The nearest residential dwellings to the proposed development are afforded Category A designation (65 dB LAeq,1hr during daytime periods).

11.12.12. In respect of operational noise, windfarm turbine operational noise was assessed relative to the 2006 WEDG criteria and supplemented by best practice guidance contained in ETSU-R-97 together with the detailed guidance contained in the Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (May 2013). Noise predictions were performed for the wind turbine layout using the highest noise levels at each wind speed, for the proposed turbine model have been selected for a range of standardised 10m height wind speeds from 2 m/s up to 14 m/s (cut-out occurs at 7m/s2). Receptors including those within the 35 dB LA90 noise contour of the turbines were modelled.

11.12.13. The following noise limits as per 2006 WEDG are applied to the operational phase:

- Daytime (07:00 – 23:00hrs):
    - 35-40 LA90,10min for quiet daytime environments of less than 30dB LA90,10min.
    - 45dB LA90,10min for daytime environments greater than 30dB LA90,10min, or a maximum increase of 5dB(A) above background noise (whichever is higher).
- Night-time (23:00 – 07:00hrs):

- 43dB LA90,10min.

11.12.14. The EIAR states that in the absence of detailed guidance in the 2006 WEDG, on how to choose the noise limit from within the range of 35-40 LA90 in low noise areas (<30 dB LA90) a limit of 40 dB LA90 has been adopted, section 8.3.7 refers.

11.12.15. Substation transformer noise has been assessed according to British Standard BS 4142.

11.12.16. Air quality, considered in Chapter 7 of the EIAR, Ireland's most recent air quality monitoring indicates that we meet current EU standards (EPA, 2024). To assess the impacts of construction dust emissions, the Institute of Air Quality Management (IAQM) guidance document: 'Guidance on the Assessment of Dust from Demolition and Construction' was used.

11.12.17. With respect to limitations, the EIAR acknowledges that there were periods of missing data (9 days) in respect of particulate matter monitoring. Based on overall survey results I am satisfied that the air quality assessment was not compromised. With respect to noise, other than the referenced lack of national updated wind energy development guidance no other limitations are detailed.

11.12.18. **Baseline**

11.12.19. The study area for construction is based on the closest noise sensitive locations to proposed construction works. The operational noise study area includes all residential dwellings with a predicted noise level greater than 35 dB LA90 (which is the lowest limit set out in the 2006 WEDG). The operational study area is shown on Figure 8.1, Volume 4 of the EIAR and includes 67 no. noise sensitive locations, which are properties classified as commercial, residential, or mixed use (residential and commercial) and represented by orange, green and blue dots respectively on Figure 8.1. The cut-in speed at the turbine hub-height is approximately 3 m/s and the cut-out wind speed is approximately 25 m/s.

11.12.20. The 10 no. noise monitoring locations (NML) are presented in Figure 8.2, which is in my opinion a representative sample of the closest locations to the proposed development. Details of the noise monitoring locations and rationale for the

selection of these monitoring locations are presented in Table 8-3 of the EIAR and Appendix 8.1. The results are presented in Appendix 8.1: Baseline Noise Measurements of the EIAR and in Tables 8-4 and Tables 8-5 of the Chapter 8 of the EIAR, 'Summary of Prevailing Background Noise during Daytime Periods' and 'Summary of Prevailing Background Noise during Nighttime Periods'. The Commission will note that there is a discrepancy between the daytime prevailing background noise tables in Appendix 8.1 and that presented in Chapter 8. It appears that the data/table representing prevailing background noise for nighttime (Table 8-7 of Appendix 8.1 and Table 8-5 of Chapter 8) is also used for prevailing background noise for daytime (Table 8-4 of Chapter 8) and not the data from Table 8-6 of Appendix 8.1. It is not helpful that the EIAR and Appendix 8.1 uses similar title formatting for tables which adds to the confusion

11.12.21. Background noise results indicate a low background noise environment at lower wind speeds, as expected, ranging from daytime levels of 23.7 db LA90, 10min at 1m/s windspeed to 56.0 db LA90, 10min at 10m/s windspeed, with nighttime levels ranging from 16.3 db LA90, 10min at 1m/s windspeed to 42 db LA90, 10min at 10m/s windspeed.

11.12.22. Where low background noise levels are found, the 2006 WEDG recommend a limit of 35 to 40 dB LA90. There is no guidance as regards choosing the noise limit from within this range. For the proposed development, for low noise areas (<30 dB LA90) a limit of 40 dB LA90 has been adopted. Nighttime limits are set at 43 dB LA90,10min across all wind speeds.

11.12.23. **Potential Effects**

The EIAR identifies the potential for a range of environmental effects on air quality, noise and vibration. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.12 below. Potential significant effects are underlined

Table 11.12 Summary of Potential Effects, Mitigation and Monitoring and Residual Effects: Air Quality, Noise and Vibration			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	The noise environment would remain largely unchanged.	n/a	n/a
Construction	Air Quality: No significant effects on air quality expected. Noise: • Site traffic noise is expected to be low. • Tree felling & Borrow Pits – Temporary, slight effect. Not significant. • Preparation of access roads, hardstands and drainage - Slight effect, temporary in duration. • Wind turbine foundations & installation - slight effect, temporary in duration. • Bridge construction - slight effect, temporary in duration. • Substation construction: slight effect, temporary in duration. • Grid Connection Route (GCR) and Overhead Line (OHL) connection works - Slight effect, temporary duration. Not significant. TDR Construction activities: • Node 6 –cumulative noise has the potential to exceed noise levels by 3dB – <u>significant temporary effect.</u> • Road widening works along the L-2072 between TDR Node 8 and western site	Construction works will be carried out in accordance with BS 5228-1:2009+A1:2014 guidance. Noise control measures set out in the CEMP will be adhered to, including: • Plant maintenance. • Limiting plant items operating simultaneously • For construction traffic, restricting movements along access routes to the standard working hours. • If turbine deliveries are required at night, vehicles will not be allowed to wait outside residential properties with engines idling, and local residents will be kept informed of any activities required outside normal working hours. Noise mitigation at Node 6, including phasing works so not all	Air quality: slight to moderate residual impacts arising from fugitive dust emissions during construction activities involving excavations, felling or earthmoving. Noise: TDR accommodation works Node 6 – slight effect, temporary. At Node 8 – moderate short-term residual effect, temporary.

	entrance – daytime limit will be exceeded – short duration (less than 3 days) – significant temporary effect.	plant is operated at once or use of a temporary barrier or screen. For the TDR road widening works, a temporary barrier or screen will be used to reduce noise levels below the noise limit where required.	
Operational Phase	Noise: Substation: Predicted daytime and nighttime noise is below the level that would lead to an adverse effect. Wind Turbine Noise: Assuming worst-case scenario at 16 locations in northwest and central area the noise limits are exceeded at the 6m/s windspeed by between 0.1 and 2.8 dB. At 1 no. location the nighttime criteria is exceeded marginally (by 0.2 to 0.4 dB) at 7m/s and 8m/s. Long term moderate adverse effect. Other locations – long-term slight to moderate adverse effect.	Wind turbines have sound optimised (SO) modes of operation which generate reduced noise levels. These have been used to meet the noise criteria. Table 8-24 sets out the SO modes that would allow the daytime and nighttime noise limits to be met at all noise sensitive locations at 6 m/s, 7 m/s and 8 m/s, where operational noise is marginally exceeded.	Noise: slight to moderate effect for dwellings within the 35 dB LA90 study area with a moderate significance of effect on the closest dwellings to the proposed wind farm.
Decommissioning	Noise will be of a lesser impact than for construction.	Noise controlled through relevant guidance and standards in place.	None
Cumulative	Only Crossmore windfarm has potential to contribute to noise from proposed development. The noise from this operational windfarm is more than 10 d B less than the predicted levels of the proposed development and will therefore have a negligible cumulative impact.	N/a	None

11.12.24. **Analysis, Evaluation and Assessment**

11.12.25. I have examined, analysed, and evaluated Chapters 7 and 8 of the EIAR, all the associated documentation and submissions on file in respect of air, noise and vibration. I have inspected the application site and the surrounding area. I am satisfied that the applicant understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on air, noise and vibration receptors, because of the proposed development have been identified. Submissions to the application raise a number of issues in respect of air and noise which I address below:

11.12.26. **Amplitude Modulation (AM)**

11.12.27. I note the concerns raised by observers regarding Amplitude Modulation (AM) and the applicant's Response to Submissions report. The applicant refers to this in Section 8.2.3 of the EIAR. It is generally not possible to predict the occurrence of AM at the planning stage. All wind turbines generate AM or blade swish, but the occurrence of elevated levels of AM is a complex phenomenon that is related to a combination of turbine and site characteristics;

11.12.28. Mitigation for AM is set out in Section 8.5.2 of the EIAR – should complaints arise from the operational windfarm, the developer is committed to commissioning a noise survey at noise sensitive locations. If complaints of AM occur, this survey will establish the extent of the AM, and if a correction needs to be applied. It is intended that measurement methodology and corrections to be applied will be based on the updated ETSU guidance. This may require consideration of further mitigation in the form of operating at certain sound optimised modes. For AM this tends to occur for certain atmospheric conditions or wind directions, so the mitigation may be applied for certain conditions.

11.12.29. I consider that the approach to addressing AM is consistent with the relevant guidance and is best controlled through planning conditions, which allows for corrections to be made.

11.12.30. **Infrasound and low frequency sound**

11.12.31. Concerns were also raised in relation to infrasound and low frequency noise. I refer to Section 8.2.4 of the EIAR in this regard. It is stated that wind turbines do not produce infrasound at amplitudes capable of causing annoyance, and there is no evidence of health effects arising from low frequency noise generated by wind turbines. A number of guidance documents are quoted, and as a result of the evidence outlined, an assessment of infrasound and low frequency noise from the wind farm has been scoped out.

11.12.32. I consider this approach to be consistent with the 'Assessment & Rating of Wind Turbine Noise' (Department for Energy Security and Net Zero (2026) guidance document – Section 1.20 sets out the potential effects which do not require assessment. These include infrasound and low frequency sound. The guidance states that the existing evidence base indicates that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health. For low frequency sound, noise sensitive receptors are considered to be suitably protected from low frequency sound by the proposed noise criteria.

11.12.33. **Operational Noise: Public Health Concerns**

11.12.34. In relation to concerns raised by the HSE and other third parties about the standards, guidance and methodology used in the assessment of noise and vibration impacts from the proposed development, I consider that the applicant has addressed these in a comprehensive manner in its responses to the submissions.

11.12.35. For a number of reasons outlined in the Response to Submissions document the applicant contends that the assessment of operational wind turbine noise against the levels presented in the 2018 WHO document is not considered to be appropriate or in accordance with best practice. I accept that this is in accordance with accepted industry practice. I am satisfied that the noise criteria used to assess operational noise from the proposed development is based on a best practice approach based on the following best practice acoustic guidance: Wind Energy Development Guidelines (DEHLG, 2006); ETSU-R-97, The Assessment and Rating of Noise from Wind Farms (1996); Institute of Acoustics' A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, (May 2013).

11.12.36. **Efficacy of Mitigation Measures**

11.12.37. Predicted noise levels (unmitigated) from wind turbines at 338 NSLs within the 35 dB LA90 noise contour with wind spend of 2m/s to 14m/s are presented in Appendix 8.5 (Table 8-5-1) and range from 12.2 dB LA90 at 3m/s windspeed at receptor ID 188 to 42.6 dB LA90 at 14m/s windspeed at receptor ID 189. Mitigated noise levels are presented in Appendix 8.5 (Table 8-5-2) with wind speeds of 6m/s to 8m/s and range from 22.5 dB LA90 to 42.6 dB LA90.

11.12.38. At 16 locations the noise limits are exceeded at the 6m/s windspeed by between 0.1 and 2.8 dB. The location where the largest exceedance occurs is north west and central to the proposed wind farm. This location also exceeds the night time criteria marginally (by 0.2 to 0.4 dB) at 7m/s and 8m/s. The noise criteria are met at all other locations for the night time and also the daytime.

11.12.39. The proposed wind turbines have sound optimised modes of operation which generate reduced noise levels. Table 8-22 of the EIAR sets out the sound optimised modes to be adopted to allow the daytime and night time noise limits to be met at all noise sensitive locations at 6m/s, 7m/s and 8m/s where the modelling predicted that the operational noise is marginally exceeded.

11.12.40. Should the Commission be minded to grant permission, I recommend that a suitable condition be included to limit daytime and night-time noise at noise sensitive receptors in line with the 2006 WEDG and that the applicant be required to submit and agree a noise compliance monitoring programme for the proposed development with the planning authority, to include the mitigation measures required to achieve compliance with the noise limits, such as the curtailing of particular turbines in the case of the 16 no. NSLs where exceedances may occur during daytime, and 1 no. NSL where exceedance may occur during nighttime. The condition should also require that the results of the initial noise compliance monitoring be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm.

11.12.41. Subject to compliance with the identified mitigation measures and noise limits and noting the significant separation distances between the proposed turbines and

the nearest residential receptors (c. 610m: nearest non-involved landowner), I do not consider that the proposal would be likely to have a significant impact on sensitive receptors by way of noise disturbance.

11.12.42. **Air Quality**

11.12.43. EIAR Vol. II, Chapter 7 - Air Quality and Climate assessed the potential adverse effects on air quality and corresponding potential to affect human health. I concur with the EIAR findings that the implementation of the mitigation measures will result in slight to moderate residual impacts arising from fugitive dust emissions during construction activities involving excavations, felling or earthmoving. These will be localised in nature and as they will be associated with particular elements of the construction phase, they will be temporary in nature and will not result in any permanent residual impacts.

11.12.44. **Conclusion: Direct and indirect Effects**

I am satisfied that the potential for significant adverse effects on identified receptors can be avoided, managed and/or mitigated by the adoption of the mitigation strategy and through suitable conditions. I therefore consider that the proposed development would not result in unacceptable direct, indirect or cumulative air quality noise impacts, including that of noise and vibration impacts.

11.13. Climate

11.13.1. **Issues Raised**

11.13.2. The importance of addressing climate change is accepted and referenced in some submissions, including that of Clare County Council.

11.13.3. Concerns are raised that developments that disturb deep peat contradict Climate Action Plan 2024 and EU Nature Restoration Regulation targets, that disturbing peatland landscape is not compatible with climate objectives. Peatlands should be preserved as a carbon sink.

11.13.4. Concern is raised that climate change is having a serious effect on the FWPM catchment. This concern is addressed in the Appropriate Assessment section of this Inspector's Report.

11.13.5. A third-party submission sets out the climate change policy framework and states that the application is premature in advance of RED III prescribed mapping, a regional renewable electricity strategy and SEA founded statutory guidelines. A response to this issue is addressed in section 10.0 of this Inspector's Report.

11.13.6. **Context**

11.13.7. Chapter 7 of the EIAR deals with Air Quality and Climate. This chapter is supported by appendix 7.1 Climate Calculations. The Scottish Carbon Calculator Tool was used to calculate whole life carbon emissions and carbon savings as a result of the proposed development. The amount of CO2 that could potentially be avoided on an annual basis due to the proposed development is estimated based on the expected output of the wind farm. Air quality impacts are considered and assessed in section 11.12 of this Inspector's Report.

11.13.8. The assessment is undertaken in accordance with government and industry best practice guidelines. No limitations are identified and are not evident in the assessment.

11.13.9. **Baseline**

11.13.10. Key greenhouse gas emission sources identified are embodied emissions from the production of material used for the construction, emissions associated with the construction phase including transport, construction activities (including peat removal, drainage, forestry felling and waste), and emissions associated with decommissioning. A very limited amount of emissions are associated with the operational phase.

11.13.11. The site comprises predominately vegetated peatlands (milled in some areas), along with forestry and agricultural lands. The total volume of excavated peat is estimated to be 140,211 m3 (subject to detailed estimates: Peat and Spoil Management Plan, appendix 10.3). 8.4 ha of forestry is to be clear felled, forestry will

be replanted elsewhere, and the carbon calculator does not take this into account. It is therefore likely that the estimated carbon loss will be slightly higher than the actual carbon loss for the proposed development.

11.13.12. **Potential Effects**

11.13.13. The EIAR identifies the potential for a range of environmental effects on climate. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.13 below. Potential significant effects are underlined:

Table 11.13: Summary of Potential Effects

Climate			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Clear felling would likely occur albeit at a later date. There will be an increase in greenhouse gas emissions if increasing future electricity needs are not met by alternative renewable sources.		
Construction	Estimated CO2 losses of 238,472 tonnes.	Biodiversity enhancement and monitoring measures - refer to the Biodiversity Management and Enhancement Plan (BMEP), contained in Appendix 9.5, EIAR Volume III. A total of 8.4 ha of new forestry will be replanted to compensate the loss of forestry at the site which will offset 503 tonnes of CO2 lost due to the felling of forestry.	Slight negative effect on CO2 emissions during construction.
Operation	The operation of the windfarm would have a significant positive effect on Clare County Council meeting their CDP and CAP targets: and a slight, positive effect on Ireland meeting its various climate targets.	None required. Estimated CO2 emissions savings (tonnes CO2 per annum): 86,921.	Slight, positive effect on Ireland meeting its various climate targets.
Decommissioning	No significant effects likely.	Decommissioning will largely involve a repeat of most of the activities listed in the construction phase. Some of the effects associated with reinstatement of the Site	None

		(excavation of turbine bases, access tracks etc.) will be avoided by leaving these in place where possible. It is proposed to retain these elements of the construction and cover with overburden material (which will have been placed at the sides of roads and hardstanding to turbines) to allow for re-vegetation of the development site.	
Cumulative	There will be no cumulative effects on climate and greenhouse gas emission during construction. Once operational, the proposed windfarm, together with others in the locality, will have a cumulative long-term, significant, positive effect on climate and would assist the national and international objectives for offsetting CO2 emissions.	None required.	Cumulative long-term, significant, positive effect on climate

11.13.14. **Analysis, Evaluation and Assessment**

11.13.15. I have examined, analysed, and evaluated Chapter 7 of the EIAR, all the associated documentation and submissions on file in respect of climate. I have inspected the application site and the surrounding area. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of climate have been identified. Submissions to the application raise a number of issues in respect of climate which I address below:

11.13.16. Based on the Scottish Windfarm Carbon Assessment Tool, embodied carbon emissions associated with the manufacturing and transportation of turbines (14 no.), together with emissions from construction and decommissioning activities, will release 52,318 tonnes of CO2 to the atmosphere. Losses from soil organic matter and felling of forestry are estimated to be ca. 135,662 tonnes of CO2. The total expected losses are estimated to be 238,472 tonnes of CO2. In total, it is estimated that 3,476,840 tonnes of CO2 will be displaced over the proposed forty-year lifetime of the wind farm i.e. 86,921 tonnes of CO2 per annum.

11.13.17. The long term positive effect from the carbon savings will support the objectives of the Climate Action Plan 2025 and the Climate Action Plan 2024, Ireland's long-term Climate Action Strategy, the National Adaptation Framework; Planning for a Climate Resilient Ireland (June 2024) and sectoral plans and the national transition towards a low carbon, climate resilient and sustainable nation.

11.13.18. The payback time for the manufacture, construction and decommissioning phases (including carbon losses from soil, felling of forestry etc.) is estimated at approximately 2.7 years. Should further restoration measures be put in place, the total carbon emissions and carbon payback time would be reduced.

11.13.19. Some third-party submissions raise concerns over the loss of forestry. There will be the loss of 8.4 ha of forestry as felling is required to accommodate the construction of wind farm infrastructure and as part of environmental mitigation measures for bat species. I note the EIAR states that there will be no direct or indirect effect on site temperature and microclimate due to clear felling because clear

felling forms part of the cycle of commercial forestry and without the proposed development clear felling would occur as normal.

11.13.20. Having regard to mitigation, biodiversity enhancement and monitoring measures described in Biodiversity Management and Enhancement Plan (and as detailed above in section 11.8 of this Inspector's Report), I am satisfied that potential negative effects on climate would be avoided, managed and mitigated. The greenhouse gas emissions as a result of the proposed development will be offset by the operation of the proposed development.

11.13.21. **Conclusion: Direct and Indirect Effects**

11.13.22. I have considered the application details and all other documentation on file including the EIAR, and all of the submissions and observations received in relation to the application. I am satisfied that the applicant provided sufficient data to enable assessment of likely effects on the environmental factor of climate. I am satisfied that there will be a long term significant positive residual cumulative effect on climate as a result of the proposed development due to the displacement of CO2 from the atmosphere arising from fossil fuel energy production. I am therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative effects on the environmental factors of climate.

11.14. Material Assets (Telecommunications and Aviation)

11.14.1. **Issues Raised**

- AIRNAV Ireland considers that the proposed windfarm falls within the Shannon Airport Runway 06 Instrument Landing System coverage area: require a complete assessment on (1) Windfarm effects on ILS 06 guidance signals (2) Windfarm effects on ILS 06 flight calibration; and should include windfarm structures computer modelling and associated signal effects computer simulations, if deemed necessary. AirNav state that FCSL are an ANI approved company who possess the expertise required to complete both the signal effects and flight calibration assessments.

- Shannon Airport consider that the proposed wind turbines at this location may have implications for the operations of the communication, navigation and surveillance systems used by Air Nav Ireland for the separation and safety of aircraft. May also have implications for the flight paths of aircraft. Shannon Airport consider the proposed development will have no impact on the aerodrome Obstacle Limitation Surfaces (OLS) and is not within the protection areas as per our safeguarding maps and consider that it is unlikely that there will be any Annex 14 OLS impacts due to the proposed wind farm. Proposed turbines would be required to be included in the Air Navigation Obstacle Dataset. Crane activity must be pre-approved.
- The Irish Aviation Authority (IAA) seek to confirm that the proposed wind farm development and any associated cranes that would be utilised during its construction would have no impact on Obstacle Limitation Surfaces, Instrument Flight Procedures, Communications, Navigation and Surveillance equipment or the safety of flight operations at Shannon Airport.
- The Department of Defence requests measures relating to obstacle lighting, and engagement in the event of negative impacts on future military radar systems.
- Submission by Cathal Crowe, TD, Fianna Fáil spokesperson on Aviation and Logistics. Recently IAA and Shannon Air Group made submissions on wind farm applications flagged concerns that the safe operation of radar infrastructure at Woodcock Hill, Meelick may be compromised by a wind farm in the area. Rotating blades of turbines could distort the radio wave signals emitted from the radar's magnetron and, thus, the positioning of aircraft on the monitoring screens at the Air Nav Ireland base at Ballycasey, Shannon may not be accurate on both altitudinal and horizontal axes. If the positioning of aircraft on an air traffic controllers screen is not fully accurate than passenger safety may be at risk.
- The potential risk of disturbance of telecommunications, broadband and television as a result of the proposed development is raised by third-parties.

11.14.2. **Context**

11.14.3. Chapter 16 of the EIAR deals with Material Assets, Telecommunications and Aviation. This chapter is supported by Appendix 16.1 Aviation Review Statement (Ai Bridges Ltd) and Appendix 16.2 Electromagnetic Interference (EMI) Impact Assessment. Traffic and terrestrial transport related impacts are considered in section 11.15 of this Inspector's Report. The applicant's Response to Submissions Report is relevant and addresses the issues raised by prescribed bodies and third parties. The assessment is undertaken in accordance with government and industry best practice guidelines. No limitations are identified and are not evident in the assessment.

11.14.4. **Aviation**

11.14.5. The applicant commissioned an Aviation Review of the development, prepared by Ai Bridges Ltd, EIAR Appendix 16.1 refers. The applicant's Response to Submissions Report is also relevant. Issues arising are considered in greater detail in section 11.14.20 below.

11.14.6. The Commission are advised that this Inspector's Report is supplemented with a report prepared by Sagentia Aviation, attached as Appendix 8, who were appointed by An Coimisiún Pleanála to independently review aviation matters relating to the proposed development. The report findings are considered in section 11.14.20 below.

11.14.7. The Wind Energy Development Guidelines (2006) advise that the siting of wind turbines may have implications for the operations of the Communications, Navigation and Surveillance systems used for Air Traffic Control for the separation and safety of aircraft and that wind turbine siting may also have implications for the flight paths of aircraft. Regard must be had to the Irish Aviation Authority's Obstacles to Aircraft in Flight Order, 2002, (S.I. 14 of 2002), as amended, which specifies the criteria used to determine whether or not any object anywhere in the State is deemed to be an obstacle affecting aircraft operations. In addition, no part of the wind turbine should penetrate defined volume of air spaces above which new objects are not permitted. Conditions regarding lighting of structures, submission of

coordinates of the turbines positions, as constructed, and/or other appropriate conditions should be included, where advised by the Irish Aviation Authority.

11.14.8. The 2019 draft guidance state that wind turbines or any structure exceeding 90 metres in height are considered obstacles to aerial navigation and need to be shown on aviation charts. A wind turbine could interfere with the safe operation of an airport, simply by its presence and height if located close to an airport (within 20 km) and that no part of the wind turbine should penetrate defined surfaces, above which new objects are not permitted in the vicinity of airports.

11.14.9. **Utilities**

- An onsite 220kV loop-in/out electricity substation will be constructed within the Proposed Development site to provide a connection between the wind farm and the national grid via a loop-in connection to the existing Prospect – Cashla 220 kV OHL.
- There will be no interactions between the grid connection cable and Uisce Eireann assets.
- A wastewater holding tank will be provided to service the substation. This tank will be a sealed storage tank with all wastewater tankered off site as required by an authorised waste collector to a wastewater treatment plant. Potable water will be delivered to site and stored in a holding tank in the substation control building.

11.14.10. **Telecommunications**

- Ai Bridges was commissioned to evaluate the possible impacts that the proposed wind farm development could have on existing telecommunications operator networks. Results from the impact analysis indicate that there is one licensed microwave radio link that crosses over the proposed wind farm site; however, the proposed turbines are sufficiently far from the radio link that it would not be impacted (Figure 6 of the Electromagnetic Interference (EMI) Impact Assessment refers, clearance distance of 47m).

11.14.11. **Baseline**

11.14.12. Aviation

11.14.13. The nearest operational airport to the Proposed Development is Shannon Airport, located c. 14.88km east of Turbine 14. All turbines are located more than 29.7km from Woodcock Hill Secondary Surveillance Radar (SSR).

11.14.14. Utilities

11.14.15. There were no Gas Networks Ireland (GNI) gas transmission lines or Uisce Éireann mains water line utility identified within the proposed development site boundary. The EIAR states that Eirgrid and ESB Networks did not provide feedback during consultations.

11.14.16. Telecommunications

11.14.17. Results from the EMI Impact Assessment indicate that there is one licensed microwave radio link that crosses over the proposed wind farm site.

11.14.18. **Potential Effects**

11.14.19. The EIAR identifies the potential for a range of environmental effects on material assets (utilities, telecommunications, broadband and aviation). Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.14.1 below. Potential significant effects are underlined.

Table 11.14.1: Summary of Potential Effects

Material Assets (utilities, telecommunications, broadband and aviation)			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	Unlikely there would be changes to the existing Material Assets and Utilities, telecommunications and aviation.	n/a	n/a
Construction	<u>Aviation</u> Construction infrastructure such as cranes required for the installation of wind turbines, or any structure exceeding 100 metres in height, can be an obstacle to low flying craft and to aerial navigation. No likely significant effects identified. <u>Utilities</u> There is potential for impacts to utilities along the TDR. Overhead utilities and obstructions will need to be temporarily removed at several locations to provide adequate overhead clearance. (refer to Table 16-1 Accommodation Works on the Turbine Delivery	An aeronautical obstacle lighting scheme will be agreed with IAA in line with IAA's consultation response and applied to the proposed turbines. Implementation of the CEMP measures including the Traffic Management Plan (TMP) contained in Section 4.3.7 of the CEMP; measures include: • There are no existing buried services expected within the site however pre-construction confirmation surveys will be undertaken ahead of construction. • Communication with service providers will be maintained for the duration of the construction works. • Where services will be interrupted to accommodate delivery of infrastructure components, residents and businesses in proximity to the works will be informed in advance.	No residual effects identified.

	Route, Schedule of Mitigation Measures, Appendix A to the CEMP). This would result in brief slight negative effect. <u>Telecommunications</u> No likely significant effects. Effects on overhead telecommunications services associated with the TDR will be confined to locations within the road corridor where temporary accommodation works will be required resulting in brief slight negative effect.		
Operation	<u>Aviation</u> • Any structure exceeding 100 metres in height, can be an obstacle to low flying craft and to aerial navigation. • The proposed wind farm is within 25 nautical miles from the VOR/DME at Shannon Airport, with the Minimum Sector Altitudes (MSA) providing a minimum obstacle clearance of 1000 ft above the highest obstacle within specified sectors. Proposed turbines are below this threshold.	An aeronautical obstacle lighting scheme will be agreed with IAA in line with IAA's consultation response and applied to the proposed turbines.	A long-term positive residual impact on electricity infrastructure in the area. No other residual effects identified.

	No likely significant effects identified. <u>Utilities</u> • The potential for negative effects on Material Assets and Utilities is minimal. No impact on existing water or gas utility infrastructure is expected. • A long-term positive impact on renewable energy resource with the proposed grid connection and onsite 220kV substation. contributing to the national and local electrical infrastructure. <u>Telecommunications:</u> No likely significant effects		
Decommissioning	<u>Aviation</u> No likely effects identified. <u>Utilities:</u> The substation will be taken in charge by Eirgrid / ESB, which will have a long-term positive effect on electricity infrastructure provision in the area and on the national grid.	Notice will be provided to all stakeholders affected prior to decommissioning works commencing.	The material assets and utilities associated with the electrical infrastructure for the substation and OHL connection will be taken in charge by Eirgrid or ESB following decommissioning

	Telecommunications: There is potential for brief disconnection of overhead lines during the decommissioning phase of large turbine components required to be removed from the site, resulting in a brief slight negative effect.		
Cumulative	Aviation • No likely significant effects identified with respect to aviation, though reference is made to further technical assessments and consultations that may be required. Utilities & Telecomms • Brief impact may also occur to the supply of electricity and telecommunications to homes and businesses as a result of temporary removal of services to accommodate turbine delivery.	As above for Construction.	None

11.14.20. **Analysis, Evaluation and Assessment**

11.14.21. I have examined, analysed, and evaluated Chapter 16 of the EIAR, all associated documentation and submissions on file in respect of material assets (telecommunications, utilities and aviation). I have inspected the application site and the surrounding area. I am satisfied that the applicant understanding of the baseline environment is comprehensive and that the key impacts in respect of material assets (telecommunications, utilities and aviation) receptors have been identified. Submissions to the application raise a number of issues in respect of these material assests which I address below:

11.14.22. **Aviation**

11.14.23. This section of my report is informed by the Sagentia Aviation Report and I refer the Commission to Appendix 7 for the Sagentia Aviation report who were appointed to provide an independent review of the aviation evidence presented by the applicant, including the Response to Submissions document. As detailed above, the nearest operational airport to the proposed development is Shannon Airport, located c. 14.88km east of Turbine 14. All turbines are located more than 29.7km from Woodcock Hill Secondary Surveillance Radar (SSR).

11.14.24. The applicant commissioned an Aviation Review of the development, prepared by Ai Bridges Ltd, EIAR Appendix 16.1. I note the Executive Summary in the Aviation Review Statement, summarised below in Table 11.14.2.

11.14.25. As detailed above (section 11.14.1) submissions received raised a number of issues. The applicant response can be summarised as follows:

- ILS 06 guidance signals: Refers to Appendix 16.1 of the EIAR which states it is very unlikely that the proposed wind turbines will have any impact on the ATS (air traffic service) communications and radio navigational aids; typically, interference to VHF communication systems will only occur when obstacles are in close proximity to the VHF transmitter (less than 500m). No mitigations are required for communication and navigations systems.

- ILS 06 flight calibration: Refers to Appendix 16.1 of the EIAR. The altitude of the aircraft as it passes west of the wind farm is 3,875ft. This distance is over 3,000ft higher than the altitude of the nearest proposed turbines. Due to distance of over 3,000ft, the report confirms that it is highly unlikely that there would be any impact on the inspection/calibration test flights.
- The applicant agrees to engage FCSL, to complete an assessment on potential impacts on signals and flight calibration. It is stated that this assessment will be forwarded to AirNav Ireland for review.

Table 11.14.2: Summary of Aviation Issue / Applicant's Position / Sagentia Aviation Opinion		
Subject	**EIAR** **Ai Bridges Findings (summary)**	**Independent External Consultant** **Sagentia Aviation Assessment of Ai Bridges Report (summary)**
Annex 14 – Obstacle Limitation Surfaces (OLS)	One of the proposed wind turbines (no. 14) would be located within the Outer Horizontal Surface of the Shannon Runway Obstacle Limitation Surfaces (OLS). Shannon Airport Authority \ IAA may require an assessment on the possible impact of the turbine.	Conclusions are reasonable and proportional for providing an initial indication of likely impacts. The decision for whether a further technical assessment of T14 should rest with Shannon Airport.
Annex 15 – Aerodrome Surfaces	Should the proposed windfarm be permitted, the turbines would be within 45km of Shannon Airport's Airport Reference Point (ARP) and would be greater than 100m in height. The turbines would, therefore, be required to be included in the IAA Electronic Air Navigation Obstacle Dataset.	The aviation review correctly confirms that the wind turbines are required to be included in the IAA Aeronautical Electronic Obstacle Data Sets.
Building Restricted Areas (BRA)	There will be no impacts to Building Restricted Areas (BRAs) due to the proposed wind farm.	Conclusions are reasonable and proportional for providing BRA assessments. However, BRA assessments are only one element of technical

		assessments to be considered when safeguarding CNS systems.
Minimum Sector Altitudes (MSA)	There would appear to be no impact on the published Minimum Sector Altitudes (MSA) altitudes for Shannon Airport. The Minimum Sector Altitudes (MSA) is the lowest altitude which may be used that will provide a minimum obstacle clearance of 1000ft above all obstacles within a sector of 25 nautical miles (46km) from the VOR/DME at Shannon Airport.	Conclusions are reasonable and proportional.
Instrument Flight Procedures	With respect to Instrument Flight Procedures, it was concluded that Shannon Airport Authority \ IAA may require a detailed assessment on the possible impact of the proposed turbines on the flight procedures. The proposed wind farm is relatively near the departure flight path to UNBEG and could be a concern for the airport operator. However, preliminary climb altitude calculations indicate that aircraft abiding by the flight rules should have sufficient altitude by the time they fly over the wind farm that there will be no issues.	Understands that Ai Bridges are not an IAA Approved Procedure Design Organisation (APDO). As such it should be recognised (and as also concluded by Ai Bridges) that this review should be treated as information only and only as a guide to the Applicant of whether a formal IFP assessment conducted by an IAA APDO is likely to be required.

Communications and Navigation Systems	As the proposed wind farm is approximately 14 km from the Localizer and transmitting antenna at Shannon Airport, it is very unlikely that wind turbines at the proposed development will have any impact on these ATS communications and radio navigational aids.	Wind farms even when outside the respective BRA can present issues to both ILS, VHF communication and navigation systems such as VOR. These impacts can include signal in space inference, signal blocking which could affect RF coverage and carrier interference degradation to the quality of VHF communications. Ai Bridges indicate that impacts are very unlikely due to range, whilst this may be a reasonable assumption for an initial guide to the Applicant, it cannot be considered as either a qualitative or a quantitative statement. Shannon Airport/ AirNav may require further technical assessments of impacts to its CNS so that it can conduct an operational impact appraisal as part of its mandated safeguarding responsibilities.
Shannon Primary Surveillance Radar (PSR)	As four of the turbines are within 15 km of the PSR would fall into the 15km Detailed Assessment Eurocontrol guidelines. These 4 wind turbines were then assessed and confirmed to have Radio Line of Site (RLOS) to the Shannon Airport PSR.	Ai Bridges have correctly identified that 4 of the wind turbines may require a Detailed Assessment. The remaining 10 turbines may only be required to have a Simple Assessment conducted. It is not a valid argument to claim that mitigation measures will not be required based on similar distances to other wind farms only, as the exact terrain profiles from point to point

	Radio planning software was also used to predict the Probability of Detection of each of the 14 proposed turbines by the PSR at Shannon and concluded that all 14 wind turbines would likely be detectable by Shannon Airport's PSR. Based on existing wind farm precedents mitigation measures will not be required.	between a radar and a wind turbine will differ, where some profiles of previous wind farms may have reduced impacts to an acceptable level through terrain shielding. Additionally, it is Shannon Airport's responsibility to fully assess technical impacts to its CNS and where required to conduct operational impact assessments against the ATS it provides.
Shannon Secondary Surveillance Radar (SSR)	Nine of the proposed turbines would be located within 16 km of the SSR at Shannon Airport which under EuroControl guidelines would require a Detailed Assessment. These 9 wind turbines were then assessed and confirmed to have Radio Line of Site (RLOS) to the Shannon Airport SSR. Radio planning software has also been used to predict the likelihood that radar signals reflected from the proposed turbines would be detectable by an airborne radar transponder. Preliminary analysis indicates that level of bistatic reflections (radar multipath interference) due to the proposed turbines is likely to be small and would be	Ai Bridges claim that a detailed EuroControl SSR Detailed Assessment has been conducted against the 9 wind turbines within 16km of the Shannon Airport SSR, yet only present findings of a Multiple Target Report calculations against which they also state that the results are subject to "confirmatory analysis". There is no reference to SSR Probability of detection or 2D position accuracy which form the minimum basis of a Detailed Assessment. As a complete and verified Detailed Assessment conducted against the EuroControl requirements has not been conducted, and reviewed by Shannon Airport/ AirNav for operational impacts, it is difficult to quantify

	below the threshold that is detectable by airborne transponders. A detailed radar assessment would be recommended for nine of the proposed turbines to assess their potential impact on the SSR.	how the claim that no mitigation measures are required or no residual impacts exist can be substantiated.
Woodcock Hill Secondary Surveillance Radar (SSR)	All of the turbines at the proposed development would be more than 16 km from the Woodcock SSR and would be in Assessment Zone 4 (Eurocontrol Guidelines), i.e. no assessment required.	Conclusions are reasonable and aligned with the EuroControl guidance for assessing SSR impacts from a wind farm.
Flight Inspection and Calibration	The Flight Inspection and Calibration procedures are unlikely to be impacted by the proposed wind farm development.	The Cloonkett wind farm appears to be sufficiently distanced from the flight paths presented, as not to require a change in the standard flight check serials conducted during calibration to maintain Minimum Separation Altitude (MSA) above obstacles; this should be checked with Flight Calibration Services Ltd (FCSL), the approved Flight Inspection Service Provider for Shannon Airport.
Aeronautical Obstacle Warning Light Scheme	The IAA are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding.	Ai Bridges have recommended that the Applicant implement approved lighting scheme for the Cloonkett

		wind farm that meets the applicable regulatory requirements.
Irish Air Corps / Department of Defence Safeguarding	The proposed wind farm is not located in an Irish Air Corps / Department of Defence restricted area.	Conclusions are reasonable and aligned with the guidance from the Irish Air Corps as extracted and presented in Appendix 16.1 of the EIAR, though question as to whether any further updated information has been published since 2014.
Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)	The proposed development is unlikely to impact the Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS).	Conclusions are reasonable and aligned with the guidance published by the Irish Air Corps which is believed to be similar to the concerns expressed by the GASA and EAS against recent wind farm consultations.

11.14.26. The Submissions are considered by Sagentia Aviation at section 3.5 of its Report, I note the following Sagentia Aviation comments:

- Agreement to engage with authorities should be bound by condition, specifically the applicant agrees to engage with the authorities to confirm if the Development impacts upon the Airports CNS (which includes the ILS systems). If impacts are found, then the only likely mitigation is a reduction in the development's design envelope (no. of wind turbines, reduction in maximum tip height etc.).
- With respect to the Department of Defence request that the "owner will engage with the Department" and "provide suitable mitigations", Sagentia Aviation state that it is not clear how any binding agreement (other than to engage) can be placed on the applicant as no tangible impacts have been identified as currently there is no DoD radar system in place.
- BRA assessments are only one element of technical assessments to be considered. Whilst Sagentia Aviation agrees that Cloonkett wind farm does not infringe the BRA defined for an ILS system, the Airport has requested "assessments examining the windfarm effects on ILS 06 guidance signals should include windfarm structures computer modelling and associated signal effects computer simulations, if deemed warranted".
- While Ai Bridges concludes that it is very unlikely that turbines at the proposed wind farm will have any impact on ATS communications and radio navigational aids, wind farms even at 14km can present issues to both ILS, VHF communication and navigation systems, referring to 'localiser coverage' needs to be considered in respect to elevation, potentially requiring further specialised computer modelling. Shannon Airport state in their submission that they believe that the Development lays inside the Localiser coverage pattern and that further detailed modelling is required.
- The aviation review statement (report of Ai Bridges) does not contain a detailed technical assessment of whether the development will impact upon the ILS coverage.

- The Cloonkett wind farm appears to be sufficiently distanced from the flight paths presented, as not to require a change in the standard flight check serials conducted during calibration to maintain Minimum Separation Altitude (MSA) above obstacles, which should be checked with Flight Calibration Services Ltd.

11.14.27. Assessment – Findings of Sagentia Aviation

11.14.28. I refer the Commission to the Sagentia Aviation Summary at Section 4.5 of its Report which states that Shannon Airport and AirNav highlighted that they have identified that the development sits within the ILS coverage and that specific detailed technical assessments of any impact may be required. Sagentia Aviation recommend the following:

- Each of the conditions agreed by the Applicant should be captured in planning approvals.
- The requirement for the Applicant to commission both a signal (coverage impact) assessment and Flight Calibration assessment should be formalised within the planning approvals.
- Agreement for the Applicant to mitigate the Development should impacts upon Shannon Airport's 06 ILS be identified from the signal (coverage assessment) or Flight Calibration assessment should be formalised within the planning approvals.

11.14.29. Having regard to the documentation on file, including the AI Bridges Aviation Report, prescribed body submissions and the independent aviation report prepared by Sagentia and commissioned by An Coimisiún Pleanála, I am of the opinion that while it may be feasible for the applicant to undertake the necessary assessments, it is not possible to seek this information as a request for additional information and for it to be assessed within the constraints of accelerated decision-making applicable under the REDIII Directive and under which this application is governed.

Conclusion on Aviation

11.14.30. Having regard to the forgoing, it is not possible to conclude that the proposed development is unlikely to have a significant effect on materials assets – aviation.

11.14.31. **Utilities**

11.14.32. No Gas Networks Ireland (GNI) gas transmission lines or Uisce Éireann mains water utilities were identified within the site boundary. Effects on the overhead utilities associated with the TDR as a result of deliveries of infrastructure components is only associated with the construction process. This would result in a brief slight negative impact on utilities along the TDR. Works will be subject to the implementation of the CEMP and the Traffic Management Plan included in Section 4.3.7 of the CEMP. No impact on existing water or gas utility infrastructure is expected during the operational phase.

11.14.33. Impact on private and public water supplies are considered in section 11.10 of this Inspector's Report.

11.14.34. **Telecommunications**

11.14.35. In response to third party concerns, the applicant points to the EIAR assessment on potential impacts on broadband, television, and general telecommunications, noting that the primary mitigation measures are included in mitigation by design. During construction, temporary slight, negative impacts may arise to services along the turbine delivery route. With respect to the operational phase, the proposed development has been assessed by Ai Bridges for any potential Electromagnetic Interference (EMI) with telecommunications and broadcasting systems in or near the proposed development site. Having regard to this assessment, I am satisfied that while one licensed microwave radio link has been identified that crosses over the proposed wind farm site; the proposed turbines are sufficiently far from the radio link that it would not be impacted. The Commission will note there are no mitigations identified by the applicant.

11.14.36. **Conclusion: Direct and Indirect Effects**

11.14.37. I have considered the application details and all other documentation on file including the EIAR, and all of the submissions received in relation to the application.

I am satisfied that the applicant provided sufficient data to enable assessment of likely effects on the environmental factors of material assets relating to utilities and telecommunications and that no likely significant effects arise. I am, however, not satisfied that sufficient information has been provided to enable an assessment on aviation. In the absence of such information, there is a potential for significant effects to arise during the operational phase of the proposed development.

11.15. Material Assets (Traffic)

11.15.1. Issues Raised

- Concerns were raised by residents that the local roads were not suitable for heavy traffic or large vehicles required for construction and turbine transport; that access routes were inadequate, narrow and in poor condition; increased HGV traffic poses safety risks; may cause deterioration and damage to local infrastructure; no realistic strategy put forward to address these issues; disturbance impacts; impact on houses on the L2070.
- Clare County Council raise concerns about the impact on the local road network serving the site during the construction phase as they are considered poor in terms of capacity and width. Road closures will have an impact on the wider road network, referencing L2072, L6180. The quarry source for the proposed development is unknown. The Council recommend conditions in the event of a grant.
- Transport Infrastructure Ireland (TII) recommend planning conditions relating to the temporary works on the N68/L2158, with full details of the transportation of abnormal loads and exceptional abnormal loads to be agreed prior to the commencement of development. The substation transformer unit may be an abnormal load due to weight. Permit may be required for transport. National road structures on haul route should be checked/require a structural assessment.
- The Department of Transport (DOT) considers that the development and in particular the connection cables to the national grid may affect the regional and local road network; and may restrict the authority in its the ability to

maintain the public road. Request that OHL and UGC options and route options are considered.

11.15.2. The Commission should be aware that the L2072 is referred to as the L2070 on Google maps. Clare County Council and the applicant refer to this road as the L2072, except in the case of the Landscape Chapter of the EIAR wherein it is referred to as L2070. As such it is referred to as the L2072 throughout this section of the report.

11.15.3. **Context**

11.15.4. Chapter 13 of the EIAR is undertaken in accordance with government industry best practice guidelines. It identifies, describes and assesses the potential direct and indirect effects of the proposed wind farm, associated grid connection (GC) and turbine delivery route (TDR) on the existing traffic conditions and the surrounding transportation network during the construction, operation and decommissioning phases. Relevant documentation includes:

- Appendix 2.1 CEMP (including Section 4.3.7 - Traffic Management Plan (TMP)
- Appendix 2.2 Overhead Line Works Construction Methodology Report
- Appendix 13.1 Detailed Turbine Delivery Route (TDR) assessment.
- Appendix 13.2 Set of Swept Path Analysis drawings
- Appendix 13.3 Traffic Generation Calculations
- Appendix 13.4 Passing Opportunities Report
- Figures 13.1 Proposed development and surrounding transport network
- Figure 13.2 Traffic Counter Locations
- Figures 13.3 Haul routes and Quarries
- Figure 13.4 TDR Node Locations

11.15.5. The Study Area for this Chapter comprises elements of the existing or future transportation network that could potentially be impacted by activities associated with the construction, operation and decommissioning of the proposed development, Figure 13-1, Volume 4 refers. Construction expected to take 24 months and traffic generated movement calculations assume the for worst case scenario.

11.15.6. With respect to the haul route and turbine delivery route (TDR), wind turbine components will enter the country through Foynes or Galway ports and delivery options from both are considered in the EIAR. Turbine components will travel to site via the M18 motorway from either port as far as Junction 12. From Junction 12, the TDR travels between the M18 motorway and the N85 national road to the site entrance on the L-2072. Most loads are of standard size and can navigate the national road network. The oversized 220kV transformer load required for the grid connection will follow the same route to site as the TDR.

11.15.7. Due to their abnormal size, blades and towers will be delivered at night to avoid disruption to peak day time traffic. The turbine blades will be the longest components to be transported from the port to site. Details of the TDR and related proposed temporary works to address the pinch points are provided in the Turbine Delivery Assessment Report (Appendix 13.1) and Swept Path Analysis Drawings, Appendix 13.2) and an overview of the proposed route is shown on Figure 13.4 TDR Node Locations. Eight (8) no. pinch points have been identified along the route where temporary accommodation works will be required and these are described in Table 13-3 of the EIAR and are located within the townlands of Killow, Skehanagh, Clareabby, Cahircalla Beg, Cahircalla More, Ballyduneen and Carrowreagh West, Co Clare. The temporary accommodation works required with minor and temporary works identified to M18 Junction 9 (TDR node 1), N85 and N68 national roads (TDR Nodes 4, 5 and 6).

11.15.8. Appendix 13.1 identifies further works to N6 and the M6 / M18 Junction based on port of entry being Galway. Drawing 380211-500AI.1 also identifies proposed works to the N68 / L6180 junction.

11.15.9. In addition to the TDR nodes, temporary widening along the L2072 of ca. 5km between TDR Node 8 and the western site entrance will be required, in the form of the placement of local bearing surfaces to the road verges.

11.15.10. Regarding crossings and structures along the TDR, there is an existing watercourse crossing along the TDR that will be crossed by oversized loads associated with the delivery of turbine components. The Cranny bridge is located in Cranny Village on the L-2072. It was assessed regarding its structural integrity and

its width and was determined that no modifications are required, with the bridge being suitable for turbine delivery vehicles to traverse it.

11.15.11. Four haul routes are proposed for the delivery of construction materials from quarries using HGV's, such as concrete and aggregates. The licensed quarries and haul routes to the proposed development are shown on Figure 13.1, Volume 4 and in the Traffic Management Plan, Appendix 2.1 CEMP of the EIAR. The stone required for the construction of the internal access roads will be sourced from within the on-site construction borrow pits and will significantly reduce the need for road haulage from local quarries. It is expected that a large proportion of aggregates required for the construction of the wind farm will be site won from the five proposed construction borrow pits in the western side of the site. As the site is bisected by an existing narrow tertiary local road (L6239), HGV's transporting materials from the construction borrow pits in the western side of the site, to the eastern part of the site will do so via the internal wind farm access tracks and cross the public road using the 2 no. proposed new site accesses on the local road L6239.

11.15.12. Proposed Site Access Points

11.15.13. Two main access points are proposed, one from the western side and one from the eastern side, both accessed off the L2072. The primary access for construction and operation will be the western site entrance, which will require a new access to be constructed. All abnormal loads associated with wind turbines and substation components will enter the site at this location. The eastern access will be used for construction and operational access and is an existing field access.

11.15.14. Wind Farm Crossing Point

11.15.15. It is proposed that no HGV traffic will be permitted to travel along the L2072 between the western and eastern access points to minimise potential traffic related adverse effects on local residents along this section of road. A crossing point is proposed on the L6239 local road.

11.15.16. Passing Opportunities

11.15.17. Potential passing opportunities were identified in the local road network surrounding the proposed development, following a field survey. On the L6180, 23

no. suitable locations were identified for passing, with 1 no. potential passing bay requiring temporary works to widen it to meet the 6m requirement. On the L2072, 54 no. suitable locations were identified for passing, with 4 no. proposed passing bays requiring temporary works to widen to the 6m requirement. All works required are within the public road corridor. Road upgrade works are intended to remain after the construction phase, to improve the safety of the public road network. Further details on the passing opportunities are provided in Appendix 13.4 'Passing Opportunities Assessment'.

11.15.18. **Baseline**

11.15.19. The nearest motorway to the site is the M18, located c. 22 km east of the site. The M18 forms part of the TDR for the proposed development. The nearest national road to the site is the N68, a national secondary road, c.3.2 km north of the proposed development. The N68 forms part of the haulage and turbine delivery route. Further details on the relevant road network is set out in Table 11.15.1 below:

Table 11.15.1: Relevant Road Network

Road Category	**Description** **Distance to site (km)**	**Element of proposed development**
Motorway	**M18** c.22km east	Part of the TDR route
National road	**N68** – national secondary road c. 3.2 km north	Part of haulage and TDR route
National	**N69** – national secondary road c. 10km south	Part of the TDR route
National	**N18** – national primary road c. 25km east	Part of TDR route
National	N6 – national primary road c. 70km north	Part of TDR route
Regional	**R473 –** connects the N67 in Kilrush to the N85 between Ennis and Clarecastle. c. 3.1 km south	Part of haulage route
Regional	**R485** – connects the N68 to the R473	Part of haulage route

	c. 7.3 km east	
Local	**L-2072** – runs along northern boundary of site	Part of TDR route
Local	**L-6238** – runs along southern boundary of site	
Local	**L-6239 –** runs through centre of the site	
Local	**L-2128 –** runs along east of site	
Local	**L-2130 –** runs along west of site	

11.15.20. Baseline traffic volumes (2024) on roads in the study area are shown in Table 13-2, Chapter 13. The values are taken from TII data and from road surveys conducted by Traffinomics Ltd during September 2023. The Annual Average Daily Traffic (AADT) figures shown in Table 13-2 are projected to a proposed construction commencement year of 2029 from 2024 source data.

11.15.21. **Potential Effects**

11.15.22. The EIAR identifies the potential for a range of environmental effects on traffic and transportation. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.15.2 below. Potential significant effects are underlined.

Table 11.15.2: Material Assets - Traffic			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	There will be no change to the current road network and existing traffic patterns within the study area.	n/a	n/a
Construction	• Ca. 28,516 HGV trips (two-way) over the duration of the installation works (24 months) (i.e. approx. 300 trips per week). • An average daily increase of 46 HGV trips per day, increasing to 71 no. HGV trips per day during the peak months. • LGV traffic of 59 no. trips per working day, increasing to 73 no. during peak construction period. • The combined HGV and LGV average daily increase are 105 vehicles per day and rising to 143 vehicles per day at peak. • Traffic increases on the N68 and R473 generally falls below the threshold for a significant effect in a traffic impact assessment, particularly on a regional road. Proposed construction traffic is not likely to result in a significant effect on the N68 or the R473. • Without mitigation, the proposed works have potential to lead to a negative impact on the existing road network but effects are considered to be likely, short term and slight in significance • No likely significant effects on air quality.	Mitigation measures will be incorporated into CEMP and Traffic Management Plan (TMP): • Detailed TMP will be prepared. • All vehicles hauling materials to and from the site will use only agreed transport routes. • Required sightlines will be maintained in both directions. • All construction related HGV traffic moving between the west and east access points of the site will use the internal wind farm access track network and proposed crossing point on the L6239. • Public roads will be kept free from mud, dust, spillages etc. • Banksmen to be stationed at site entrances. • Adequate signage to be installed on approaches to entrances.	Main Wind farm: Short-term, slight and insignificant. Turbine Delivery Route: Temporary; slight and insignificant. Grid Connection: Temporary; Slight to moderate.

		• Construction related parking will be accommodated within the site. • Off-peak deliveries accommodated where possible. • Replacement of damaged footpaths. • Mitigation measures are provided in Chapter 7 (Air & Climate) to address air quality.	
Operational Phase	• Trip generation is anticipated to be minimal as both the wind farm and substation will be operated remotely. Effects are imperceptible in significance.	• Hedgerow trimming will be carried out to ensure required visibility during operational phase.	Neutral; imperceptible.
Decommissioning	Similar to the construction stage but of a much lower magnitude. Effects are not significant.	• Localised drainage and soil management deployed to avoid risk of silt run-off from wheels of vehicles. • Some access tracks will remain in situ.	Temporary; not significant
Cumulative	With Cahermurphy Wind Farm, 12.7km to the north, has potential for cumulative effects: assessed as temporary, imperceptible to slight impact. Crossmore Wind Farm, 4km to the north, is now constructed – no significant effects identified. St. John of Bosco Community College extension, 3.7 km southeast, temporary imperceptible cumulative impact will be created.	As above for construction and operational phases.	None

11.15.23. **Analysis, Evaluation and Assessment**

11.15.24. I have reviewed and considered the traffic and transportation sections set out in Chapter 13 and all relevant documentation including associated appendices. I am satisfied that the content of the chapter, as well as the overall quality of data used, judgements, modelling and conclusions presented by the applicant are satisfactory, and along with the submissions on file and my inspection of the site, allows for an assessment of the likely significant effects of the proposed development on traffic and transport.

11.15.25. I acknowledge the concerns raised by Clare County Council and local residents with regard to the impact on the local road network as a result of the proposed development. I note that the traffic and transportation impact assessment examined the local road network in terms of capacity, width, structural condition and general suitability to facilitate the proposed development. The assessment included a turbine delivery route assessment with swept path analysis, a passing opportunities report and the identification of a number of haul routes following consultation with Clare County Council. Subject to mitigation, the EIAR concluded that no significant effects are likely as a result of the proposed development.

11.15.26. Clare County Council raise serious concerns regarding the extent of traffic movements associated with the proposed development, citing approx. 3,696 traffic movements per month at the peak construction period. The applicant addresses this concern in their response by stating that this figure occurs during months 4-7 of the overall 24 month programme. The figure of 3,696 represents 1,840 HGV movements and the remainder for LGV's. The calculations of the HGV movements indicate an average daily increase of 46 HGV trips per day and increasing to a peak of 71 HGV trips during the peak months 5,6, 7 and 8 of the construction programme. The applicant considers that the traffic volumes are significantly less than what would be expected for the construction of this type of development due to the volume of site won aggregate from the on-site borrow pits and peat and spoil management plan.

11.15.27. Construction traffic volumes represent a 2.17% increase on the N68 and a 10.09% increase on the R473. The 10.09% increase is more substantial but

generally falls below the threshold for a significant effect in a traffic impact assessment, particularly on a regional road. Proposed construction traffic is not likely to result in a significant effect on the N68 or the R473.

11.15.28. I consider that the concerns can be addressed through the proposed mitigation measures and suitable conditions. These would include a final Traffic Management Plan (TMP), operating hours, relevant licences and permits, financial bonds etc. A number of measures have been proposed by the applicant to improve the condition of the local roads that will be affected and minimise potential traffic - through road widening, passing bay opportunities, and the creation of a crossing point on the L6239 in order to reduce traffic impacts on local residents along the L2072.

11.15.29. The Commission will note that Clare County Council, TII and the Department of Transport recommended conditions to be attached in the event of a grant of permission. These are considered further in section 10.5.10 of this Inspector's Report.

11.15.30. I note the applicant's response to concerns regarding road closures and the implications for the wider road network. As the proposed grid connection is on-site, there will be no road closures required for the grid connection. The only exception is one temporary closure required along a lightly trafficked tertiary local road which divides the site and will be crossed by interconnector cabling. I note Section 1.1.7 of the TMP estimates that any road closure to facilitate this crossing would be less than a days work.

11.15.31. I acknowledge the submissions received from TII and the Department of Transport. With regard to the TDR, the applicant will be required to comply with all operational requirements and ensure that the strategic function of the national road is maintained. This would include specific conditions in relation to the proposed temporary works to the N68/l2158 junction, as recommended by TII. Abnormal loads will be subject to the relevant permits prior to delivery and will be delivered mostly at night-time. A structural survey will be carried out to determine the suitability of the existing roads to carry the loading, where necessary. A pre-condition survey of haul

routes, consisting of a video survey and photographs will be carried out and a post works surveys of the local public roads, which will be incorporated into the final TMP.

11.15.32. In relation to the proposed grid connection cables, the connection to the national grid is on-site and will not require any cabling in the public roads. As such, there will be no impacts on the regional or local road network in terms of operation, maintenance or future road construction.

11.15.33. I consider that the greatest impact on traffic and transportation will occur at the construction phase, which will result in short-term effects; subject to mitigation measures impact will be slight and insignificance. There will be minimal traffic generated at the operational phase and the decommissioning phase.

11.15.34. **Conclusion: Direct and Indirect Effects**

11.15.35. I am satisfied that the potential for significant adverse effects on traffic and transport can be avoided, managed and/or mitigated by the adoption of the mitigation strategy and through suitable conditions. I am therefore satisfied that the proposed development would not result in any unacceptable direct, indirect or cumulative effects on traffic and transportation.

11.16. Archaeology, Architectural & Cultural Heritage

11.16.1. **Issues Raised**

11.16.2. A number of submissions make reference to an ancient crannog on the island of Gortglass Lough and a promontory fort adjacent to the crannog within 1km of the nearest turbine, which do not appear to have been identified or mentioned in the EIAR. As many of these features are subsurface or underwater, they would not have been detected through the desktop analysis and limited field-walking. Excavation works poses a very real risk of disturbing unrecorded settlement activity.

11.16.3. The EIAR lists known assets, including the Shannon Estuary cultural landscape and sites such as Canon Island Abbey, yet it concludes imperceptible effects. This conclusion does not account for cumulative visual intrusion from a 14-turbine skyline visible from heritage settings and approaches. A proper setting

analysis and intervisibility mapping are required. Without them, the cultural heritage assessment is incomplete.

11.16.4. The Department of Housing, Local Government and Heritage (DHLGH) advises that advance archaeological test excavation should be carried out in advance of any development to determine if previously unknown sub-surface archaeological features or deposits are present. Additional mitigation measures may be necessary/appropriate conditions if permission is granted.

11.16.5. **Context**

11.16.6. Chapter 14, Archaeology, Architectural & Cultural Heritage, of the EIAR identifies, describes and assesses the potential direct and indirect effects of the proposed wind farm, associated grid connection (GC) and turbine delivery route (TDR) on the cultural heritage resource, which encompasses relevant heritage assets, such as archaeological sites and architecture heritage structures, and non-tangible resources, including historical associations, folklore, tradition, place names. Chapter 15 Landscape and Visual Impact Assessment was also reviewed as part of this cultural heritage assessment and assessed a 20km distance for potential visual impacts.

11.16.7. Relevant documentation includes:

- Appendix 14.1 - Cultural Heritage Photographic Record
- Appendix 14.2 - Target Archaeological Geophysics Letter
- Figure 14.1 – Recorded Archaeological Sites within 2km study area.

11.16.8. Section 14.3 of the EIAR sets out the methodology used to assess cultural heritage and includes details on the study area, desktop study, field surveys (carried out in March 2025) and consultation. The primary study area reviewed for the assessment comprised the site and surrounding lands extending for 2km in all directions from the site, and provided the baseline context for known cultural heritage, including recorded archaeological sites, protected structures and NIAH structures/lands.

11.16.9. A review of lands extending 10 km in all directions from the site was carried out to assess potential indirect visual effects on cultural heritage constraints within the wider landscape which have potential notable visual sensitivities that extend beyond their immediate settings. A 100m wide Study Area centred on the locations of TDR work areas was also assessed.

11.16.10. During the scoping stage, the Department of Housing, Local Government and Heritage advised that a comprehensive programme of archaeological geophysical survey be carried out where the terrain and ground conditions allowed. Target Archaeological Geophysics (TAG) was consulted during the design phase and concluded that the terrain was not suitable for geophysical survey (Appendix 14.2 refers to the letter from TAG in this regard).

11.16.11. With respect to limitations, the EIAR advises that the 2 km study area contains cultural heritage constraints which are located within inaccessible private properties. The assessment of these constraints was informed by the desktop study. No other limitations or difficulties relating to factors that may affect the accessibility or reliability of relevant baseline datasets were encountered.

11.16.12. **Baseline**

11.16.13. The baseline environment describes relevant archaeological and architectural legislation, relevant policy in the Clare CDP 2023-2029. Section 14.4.3.1 and a summary of the archaeological context of the wind farm site and the turbine delivery route nodes.

11.16.14. There are no recorded archaeological sites located within the boundary of the site, while there are 13 no. archaeological sites within the surrounding 2km study area, which are shown on Figure 14.1 and detailed in Table 14.5, with details of their existing condition also provided. The majority (8 no.) are ringforts, with the remainder being two burial grounds, one enclosure, one quarry and one earthwork. The nearest recorded archaeological site is a levelled earthwork (CL059-018---) located 560m southwest of T1, and 225m west of site access track; and a ringfort (CL059-005---) located 825m northwest of T3 and 220m north of OHL pole. None of these recorded sites are National Monuments in State care or subject to preservation orders, but all

are protected under the National Monuments Act (1930). All are located within inaccessible third-party private lands. There is one National Monument in State Care located within 10km of the site, an Augustinian Abbey located on Canon Island, located at the confluence of the Rivers Shannon and Fergus estuaries, c.7.5km to the southeast of the site (Figure 14.2 refers).

11.16.15. I note the following:

- A review of Database of Irish Excavation reports database was carried out for lands within the 2km Study Area and revealed no entries for any archaeological site investigations within the site or in any of the townlands located within the surrounding 2km Study Area.
- No potential unrecorded archaeological sites or structures of architectural heritage interest were noted within the Site during the review of the above Cartographic sources/LiDAR Imagery sources.
- There are no RPS or NIAH structures/lands within the site boundary or within the 2 km Study Area, or any proposed protected structures or Architectural Conservation Areas (ACA's) within the 2 km Study Area.
- There is one example of a Megalithic Structure within the 10km study area. Ref. CL049-037002 located c.6km to the north of the site.
- The routes for the proposed new site access tracks were subject to field-walking inspections and no surface traces of potential unrecorded architectural sites or architectural heritage features were noted along these routes.
- There are no recorded archaeological sites or designated architectural structures located within the 100 m study area of the proposed TDR works in these areas.

11.16.16. **Potential Effects**

The EIAR identifies the potential for a range of environmental effects on cultural heritage. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.16 below. Potential significant effects are underlined.

Table 11.16: Archaeology, Architectural & Cultural Heritage			
Project Phase	**Potential Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	The lands will remain in agricultural use with no large-scale ground excavation works occurring.	n/a	n/a
Construction	• No likely significant direct or indirect effects on known archaeological resource or designated architectural heritage structures. • Likely permanent, direct, adverse effects on any unrecorded archaeological remains that may exist within the footprint of areas requiring ground excavation works.	• A suitably qualified archaeologist will be employed to supervise the construction phase. • Advance archaeological field-walking surveys will be undertaken within all construction areas located within forestry plantations following pre-construction tree felling. • Archaeological monitoring of ground excavation works. If sites are identified during monitoring, further mitigation measures, which may include preservation in situ, may apply.	If unrecorded archaeological resource: Either preservation *in situ* for a negligible magnitude of impact resulting in a potential not significant /imperceptible significance of effect or preservation by record – high magnitude of effect, but creation of detailed archaeological record, resulting in a potential slight/moderate effect.
Operational Phase	• No likely significant direct effect on known elements of the archaeological and architectural heritage resource, or on any potential unrecorded archaeological sites. • There will be a long-term, indirect, slight visual effects on cultural heritage constraints within 2km. No likely significant effects on these constraints will arise.		Indirect, slight, adverse, residual effects on the wider settings of ten extant archaeological sites within the surrounding 2 km Study Area.

	• Megalithic structure - (CL049-037002-): Located within an area from which no turbines will be visible – no likely significant indirect effects on its setting will occur. • National monument (Augustinian Abbey, No. 195) – views from the abbey towards the direction of the site are screened by natural topography and no turbines will be visible from this location. No likely significant indirect effects on its wider setting.		
Decommissioning	No likely significant effects.	N/a	This phase will reverse the slight indirect visual effects on the settings of cultural heritage constraints.
Cumulative	A review of operational, consented and proposed wind farm developments within 20 km of the site was carried out. The cultural heritage impact assessments of the wind farms reviewed noted that none predicted any likely significant effects on the cultural heritage resource. The reviewed wind farms will not act in combination with the proposed development to result in likely significant direct or indirect cumulative effects on the cultural heritage resource.	N/a	

11.16.17. **Analysis, Evaluation and Assessment: Direct and Indirect Effects**

11.16.18. I have examined, analysed and evaluated Chapter 14 of the EIAR, all of the associated documentation and submissions on file in respect of Archaeology, Architectural and Cultural Heritage. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on cultural heritage as a consequence of the development have been identified as set out in the EPA Guidelines on EIA and EIAR.

11.16.19. I note that the proposed development site was not considered suitable for an archaeological geophysical survey, and the DAU advise that the proposed development be subject to advance archaeological test excavation in advance of any development to determine if previously unknown subsurface archaeological features or deposits are present. Additional mitigation measures to ensure preservation *in situ* or preservation by record may be required where features or deposits are present. In the event of a grant of permission, additional mitigation conditions are recommended by DAU, see section 10.5.10 of this Inspector's Report refers.

Crannog and Promontory Fort

11.16.20. With regard to an ancient crannog on Gortglass Lough referenced in a number of submissions, I note the applicant's response to this issue, which states that there are no recorded monuments of this description on the national monuments service website. All recorded monuments and structures within the study area of the proposed development have been assessed in Chapter 14 and a Cultural Heritage Photographic Record is provided in Appendix 14.1 of the EIAR. The proposed development will not result in any significant direct effects on any known cultural heritage constraints. I note that Gortglass Lough is some distance removed from the proposed development. I am satisfied that the proposed development will not result in any significant effects on the ancient crannog which is stated to be at Gortglass Lough.

11.16.21. Canon Island Abbey

11.16.22. I have reviewed the information with regard to Canon Island Abbey in Chapter 14 and also Chapter 15 in terms of landscape and visual impact. Section 15.4.7.6 of

Chapter 15 notes that there is a high density of historic ruins across the study area, which include the remains of the 12th century Canon Island Abbey, located a distance of 7.5 km east of the proposed development. Further detail on the abbey is provided at Section 14.5.4.2 of Chapter 14. The island is stated to be in private ownership and is not included in a National Monuments Service list of monuments where the Office of Public Works maintain visitor services but which are accessible to the public. The applicant reviewed the ZTV mapping prepared for Chapter 15 and indicates that the views from the abbey towards the direction of the site are screened by natural topography on the island and that no turbines will be visible from this location. Given the natural screening effect and the distance of the national monument to the site, there will be no likely significant indirect operation phase effect on its wider setting.

11.16.23. I have reviewed the selected VRP's in Chapter 15, none of which were taken from the abbey. However, I am satisfied that there is a high degree of natural screening around the abbey ruins, which would screen views towards the proposed turbines. I do not consider that further analysis is required of the historic ruin and I would concur with the applicant that no likely significant effect will occur.

Cumulative Effects

11.16.24. I note that the applicant has carried out a review of existing, consented and proposed developments within the 2km Study Area around the site and the 100m study area around the TDR work areas, with the applications comprising mainly of small scale residential and agricultural buildings. I agree that due to the small-scale nature of these developments, they do not have the potential to result in likely significant direct, indirect or cumulative effects on the settings of any recorded cultural heritage constraints.

11.16.25. For wind farm developments that are operational, consented and proposed, a review was carried out within 20km of the site, with a total of fifteen wind farm developments reviewed. The review was conducted of the cultural heritage assessment prepared for each of the developments and none predicted any likely significant effects on cultural heritage resources. I am satisfied that based on the review carried out, the distances to these wind farms and the absence of known

cultural heritage sites with notable visual sensitivities within the landscape extending for 10km from the proposed development, the reviewed wind farm developments will not act in combination with the proposed development to result in likely significant direct or indirect cumulative effects on the cultural heritage resource.

11.16.26. **Conclusion: Direct and Indirect Effects**

11.16.27. I am satisfied the potential direct effects on known and unknown archaeological and cultural heritage receptors would be avoided, managed and mitigated by the measures that form part of the proposed development and through suitable conditions. I am satisfied that there is no potential for significant indirect effects on the setting of archaeological and cultural heritage receptors. In reaching this conclusion, I have had regard to the cumulative impact of the proposed development and other renewable energy projects in the study area.

11.17. Landscape

11.17.1. **Issues Raised**

11.17.2. Clare County Council, while recognising that the majority of the site is designated as 'Acceptable in Principle' in the Wind Energy Strategy, consider that given the spatial extent of the site, the height, scale and number of turbines, the proposal would significantly alter the landscape character at this location. The Council referred to viewpoints including localised impacts at Gortglass Lake, views along the L2072 and the L6038, all of which were considered significant and of particular concern. The Council also raised concerns regarding views from the estuary - with the photomontage from Ballysteen Pier noted in this regard.

11.17.3. Third-party concerns relate to the size, scale, height and number of turbines proposed, which are considered to be excessive and dominate a tranquil, rural unspoilt landscape with open natural views. In addition:

- the LVIA claims overall no significant visual effects. Referencing EPA EIA Guidelines 2022 and GLVIA3, a Substantial-moderate effect is significant unless compelling mitigation or design response is shown. The LVIA

undervalues Gortglass Lough as merely a pleasant view, disregarding its dual role as a public water supply and a recreational fishery. Sensitivity is high, not medium;

- the proposed turbines are considered to negatively impact on Gortglass Lake, Clonsnaughta Lake, Craghera, Burrenfada and Shessiv, and are contrary to the landscape protection policies in the development plan.
- the submitted photomontages and visual impact assessment is considered to be deficient and based on limited and selectively chosen viewpoints. The omission of long-established houses from receptor mapping further undermines viewpoint selection and significance judgements.
- the photomontages confirm a significant adverse effect for high-value public receptors.
- The impact of the proposed turbines on Kildysart Village are not included in the photomontages.

11.17.4. **Context**

11.17.5. Chapter 15 of the EIAR assesses the landscape and visual impacts of the proposed development and includes a Landscape and Visual Impact Assessment (LVIA) of the project undertaken by Macro Works. Associated appendices are:

- Volume III – Technical Appendices: Appendix 15 Landscape and Visuals;
- Volume V – Portfolio of photomontages: Book 1: VP1-VP12 and Book 2: VP13-VP27.

11.17.6. The LVIA is based on the best practice guidance including 'GLVIA3 Guidelines for Landscape and Visual Impact Assessment'. The extent of the study area is influenced by turbine height – as the blade tip height for the proposed development is 150 m, the minimum ZTV radius recommended is 20km from the outermost turbines. There are no sites of national or international importance in terms of landscape and visual sensitivity between 20-25km of the outermost turbines, as such, the radius of the study area remains at 20km. The 20km is further divided into:

- A ‘Central Study Area’ i.e. the landscape within 5km of the proposed development - there is a particular higher potential for significant effects to occur.
- ‘Wider Study Area’, the remainder of the study area beyond 5km to the 20km outer limit.

The extent of the 20km Study Area is shown on Figure 15-1, Chapter 15. As there are no sites of national or international importance from a landscape and visual sensitivity perspective between 20-25km of the outermost turbines, the radius of the proposed development is set at 20km. I consider that the Study Area is acceptable.

11.17.7. In terms of the grid connection (GC) and turbine delivery route (TDR), the effects are localised to the immediate environment, within approx. 500m, and these areas fall within the 20km study area.

11.17.8. The assessment criteria for visual effects are based on the sensitivity of visual receptors weighed against the magnitude of visual effects. Visual effects are considered on designated views, local community views, centres of population, major routes, tourism, recreational and heritage features.

11.17.9. Limitations are not expressly considered in the EIAR. I am satisfied that there are no limitations in respect of the assessment of landscape and visual impact.

11.17.10. **Baseline**

11.17.11. The application site is located within a lowland site ranging from approx. 50-100m altitude above sea level. It encompasses a patchwork of peatland, fringed by blocks of conifer forestry, regenerating scrub and agricultural farmland. The N68 national road which traverses diagonally across the northern portion of the area, supported by a network of local roads. These corridors are lined with dispersed rural dwellings, reflecting a settled but low-density population pattern.

11.17.12. The proposed development is located approximately 5km to the north of the Shannon Estuary. The Central Study Area is a mixture of flat to gently undulating terrain with two small loughs located to the south of the site. Tributaries of the Cloon River, c.2.3 km west of the nearest turbine flows towards the Shannon Estuary.

11.17.13. The landscape in the northern/northwest of the study area is more dramatic upland in nature, with extensive bogland. Of note is Slievecallan Mountain located in an area of upland blanket bog c.15km northwest of the site. Ben Dash is located approximately 9km to the north of the site. To the east/south-west and south-east the Shannon Estuary is the dominant landscape feature. The confluence of the Fergus and Shannon Estuaries is also a notable feature c.4.7km to the east.

11.17.14. Urban development is largely confined to the periphery of the study area, with Ennis, Shannon, Clarecastle and Kilrush being the principle settlements. The closest small settlements to the site are Killadysert village, (c.2.8 km south-east) and Lissycasey, c.5 km to the north.

11.17.15. The study area traverses Clare, Limerick and Kerry County Council administrative areas. The proposed development is located within a landscape setting that is considered to be most consistent with the 'Flat Peatland' and 'Hilly and Flat Farmland' landscape types (2006 WEDG).

11.17.16. According to the Landscape Character Assessment of the Clare CDP, there are 26 no. Landscape Character Types (LCT) and 21 no. Landscape Character Areas (LCAs) across the county. The western part of the site lies within Landscape Character Type (LCT) 9 – 'Farmed Rolling Hills' in (LCA) 19 – 'Kilrush Farmland' and the eastern part of the site lies within Landscape Character Type (LCT) 8 – 'Farmed Lowland Ridges' in (LCA) 18 – 'Shannon Estuary Farmland'. Other LCTs within the central study area include LCT 10 – 'Flat Estuarine Farmland and Islands' to the east, with LCT 20 – 'Low Drumlin Farmland' to the north/northeast.

11.17.17. LCA 19 'Kilrush Farmland' is described as an area where the condition is described as moderate, with the areas close to the principal corridor routes disturbed and showing evidence of agricultural decline and lack of maintenance. Away from the major route, it is more intact and rural in character. Map E of the Clare Wind Energy Strategy (WES) indicates that the majority of this LCA is designated as 'Open for Consideration' for wind development, with part of this LCA in an 'Acceptable in Principle' area.

11.17.18. LCA 18 'Shannon Estuary Farmland' is described as an area of variable condition. In parts, the traditional landscape pattern dominates, more intact to the

east and north, noting that the estuary coastline is partly degraded due to infrastructure and the industrial activity within the Shannon estuary and modern residential development including tourist and holiday home development. Ridges create many small-scale areas unsuitable for large development. The sensitivity remains higher in the more intact areas, with elevated areas also sensitive due to their increased visibility. The coastline to Clonderlaw Bay is classified as an area of high amenity. This landscape area is designated entirely as 'Open for Consideration' for wind development.

11.17.19. In terms of landscape sensitivity in the Clare LCA, the proposed development is located within a 'Settled Landscape' area, (areas where people live and work). CDP Objective 14.2 relates to 'Settled Landscapes' where it is an objective to permit development in areas designated as 'settled landscapes' that sustain and enhance quality of life and residential amenity and promote economic activity subject to set criteria. The southwestern and eastern portion of the study area, along the banks of the River Shannon is classed as a 'Heritage Landscape' (areas where natural and cultural heritage are given priority and where development is not precluded).

11.17.20. Scenic routes within 20km of the proposed development are shown on EIAR Figure 15-7 and it is an objective of the Clare CDP 14.7 to protect these views from inappropriate development. All of the scenic routes and views in both Clare and Limerick that fall inside the ZTV) were considered by the applicant. Only one scenic view in County Clare, V21, was considered relevant for assessment in the EIAR (Ref. VP9) and those along the scenic route along the southern face of Shannon in County Limerick (Ref. VP21, VP22 and VP24). No scenic designations were identified in Conty Kerry.

11.17.21. In terms of major routes, the N68 crosses the Study Area from the northeast to the southwest, linking the settlements of Ennis and Kilrush, and passing approximately 3.9 km northwest of the nearest turbine location. Across the Shannon Estuary, the N69 runs across the southern extent of the Study Area approximately 9.4 km to the south.

11.17.22. Following route screening analysis, it was found that there was a strong degree of wind farm screening from local road network within 5km of the site.

Immediately beyond the Site, intervening vegetation (predominantly hedgerows and forestry) serves to restrict views of the turbines and the level of screening increases with distance. Due to the combination of rolling ridges and dense vegetation patterns in the central study area, screened views surpass both 'open views' and 'partial views' from beyond 2km. In addition, the turbines are contained in low ground between ridges which has the effect of screening most, but not all of the turbines.

11.17.23. A range of tourism, recreational, and cultural heritage features are distributed throughout the Study Area, most notably associated with the Shannon Estuary. There are two tourist drives within the study area, the Wild Atlantic Way and the Shannon Estuary Way. There are also 11 identified viewing points, all of which are within the study area. Various receptor types are represented in the selected viewshed reference points (Tale 15-7 of the EIAR refers).

11.17.24. A Zone of Theoretical Visibility (ZTV) map was prepared based on a worst-case scenario for potential visibility within the study area. The most notable potential for comprehensive visibility is in the Central Study Area (within 5km) and within the wider eastern and southern extents. This is primarily due to the relatively low-lying terrain in these areas. The areas with the most consistent visibility are located along the Shannon Estuary, around 5km south of the nearest turbine, continuing along the estuary and towards the eastern section of the Study Area. The settlement of Kildysart has the potential to offer some visibility of the proposed turbines across elevated northern parts of the settlement. A cumulative ZTV map illustrates existing wind farm developments. In a cumulative context, the Study Area is influenced by wind energy development, most notably the north-western extents of the Study Area.

11.17.25. **Potential Effects**

11.17.26. The EIAR identifies the potential for a range of environmental effects on landscape. Likely significant effects of the development, as identified in the EIAR, are summarised in Table 11.17 below. Potential significant effects are underlined.

Table 11.17 Landscape and Visual			
Project Phase	**Potential, Direct, Indirect and Cumulative Effects**	**Mitigation and Monitoring**	**Residual**
Do Nothing	A do-nothing scenario has not been provided in the EIAR chapter.		
Construction	Landscape Character Effects: • Modest physical effect on the landscape within the immediate area as none of the proposed infrastructure have an extensive physical footprint. Topography and land cover will remain largely unaltered. • Central Study Area: The magnitude of construction stage landscape effects on the physical landscape of the site and its immediate surrounds is High-medium with a Negative quality of effect and short-term in duration. Moderate significance of construction-stage effects. • Wider Study Area: Magnitude of landscape effect will be Low, and Negligible at increasing distances. Quality of the landscape effects would remain Negative. Such effects will be Short-term in duration. • Overall, no significant construction stage effects. Visual Effects: • The erection of turbines and movement of tall lifting plant will introduce vertical features into views. Their influence on perceived landscape character is considered modest, and greater weight is placed on the long-term effects of the	• The EIAR refers to design mitigation such as turbines spacing and layout: well offset from any regional or national roads; turbines are well spaced allowing a high degree of visual permeability between the turbines, regular spacing corresponds well with the scale of the receiving landscape type. Turbines are consistent in height. • 'keyhole' felling of forestry. • Excavations will tie into existing ground levels. • Any temporary excavations or stockpiles of material will be re-graded to tie into existing site levels and reseeded. • Excavated peat will be used for landscaping and restoration of the 5 borrow pits used during construction. • Access tracks take advantage of the existing track network and land contours, and new tracks will be of 'floating' construction. • All internal site cabling will be underground and will follow site access tracks.	No residual landscape character or visual effects identified.

	operation of the wind turbines on landscape character.		
Operation	Landscape Character: • Significance of effects on landscape character is deemed to be Moderate within the site and its immediate surrounds reducing to Moderate-slight within the remainder of the Central Study Area, which will be Negative and long-term in duration, reducing to Slight and Imperceptible at increasing distances thereafter, as the Development is perceived as a progressively smaller component of the wider landscape fabric. Visual Effect: • Designated Views: Not significant. • Local Community Views: Not significant • Major Routes: Not Significant. • Tourism, Recreational and Heritage Features: Not significant.	• The main Gas Insulated Substation (GIS) structure will be coloured Olive Green to blend in with surrounding vegetation features and aid visual recession generally. • Monitoring of hedgerow screen planting around the substation facility.	None identified
Decommissioning	As above for operational phase. Not significant.	None	None
Cumulative	• Table 15-9 provides a summary of cumulative wind farms within the Study Area (20km radius) as of May 2025. • Medium-low in relation to cumulative landscape and visual impact with other wind farms. • Other cumulative developments were not considered to contribute to significant cumulative effects.	None	

11.17.27. **Analysis, Evaluation and Assessment**

11.17.28. I have examined, analysed and evaluated Chapter 15 of the EIAR, all of the associated documentation and submissions on file in respect of landscape and visual impact. I am satisfied that the applicant's understanding of the baseline environment, is comprehensive and that the key impacts in respect of likely effects on landscape as a consequence of the development have been identified as set out in the EPA Guidelines on EIA and EIAR.

11.17.29. Policy Context

11.17.30. I have reviewed the policy context for wind farm developments which is set out in the Clare CDP, Chapter 14 and the Wind Energy Strategy (WES) for County Clare, Volume 6 of the CDP.

11.17.31. Chapter 14 of the Clare CDP deals with Landscape. Section 14.2.1.3 identifies a number of LCA's (Figure 14.2) and confirms that the proposed development falls into two LCA's – the eastern part of the site is located within LCA 18 Shannon Estuary Farmland and the western part within LCA 19 – Kilrush Farmland/Kilmihil Farmland. The 'Slieve Callan Uplands' border the site to the north.

11.17.32. The landscape character assessment was used as a baseline to assess capacity for areas to accommodate wind farm developments. Four classifications have been developed for wind farm development, and the proposed development is located within an 'Acceptable in Principle' designation, with specific objective 'WES Nine: Acceptable in Principle' of relevance. Projects within these areas must avoid visual clutter with existing and approved wind farms; conform with Planning Guidelines in terms of siting, layout and environmental studies and comply with the Habitats Directive.

11.17.33. Section 4 of the WES addresses the landscape capacity of the areas identified as 'Acceptable in Principle'. As stated above, 'Shannon Estuary' LCA, has 'Medium to Low' sensitivity to wind farm development, where 'large to medium' number of turbines are appropriate and wherein it states that this LCA has some capacity for large to small wind farms in part due to the quite industrial nature of the

area close to Moneypoint and the capacity of the ridged hills to accommodate wind energy developments.

11.17.34. I refer the Commission to the Clare County Council submission, Section 3.6, Clare Wind Energy Strategy' which states, "the subject site being within the Shannon Estuary Landscape Character Area is designated as 'acceptable in principle' for wind energy development, and which under the strategy (Table 4a of WES) can accommodate medium to large scale windfarms" and confirming the capacity of this LCA for windfarm development as set out in the WES. In relation to the Kilrush Farmlands/Kilmihil Farmlands Landscape Character Area (LCA19), the majority of this LCA is designated as 'Open for Consideration' for wind development, with part of this LCA within an 'Acceptable in Principle' Area. The overall sensitivity of LCA19 to wind farm development is 'Medium' with the appropriate scale of wind farms that can be accommodated being 'medium/large. The rolling hills and drumlins in this sparsely settled areas offer capacity to accommodate wind farm development.

11.17.35. Section 14.3.2 of the Clare CDP define 'living landscapes' within the County; the site is located within the 'Settled Landscape' category, one of three types of living landscape identified. These are areas where people live and work; uses envisaged within these landscapes include agriculture, energy, forestry, extraction, transportation, industry, commerce, tourism, recreation, leisure, education, residential, healthcare and social infrastructure. Clare CDP objective 'CDP 14.2' sets out requirements for development in 'settled landscapes'. In my opinion, the principle the proposed development complies with the objective in relation to conforming with relevant provisions of the Plan, selection of appropriate sites within the landscape ('acceptable in principle' area), avoiding intrusions on scenic routes/ridges/shorelines/public roads and amenities; however given the nature and extent of the proposed wind farm development, there will be a visual impact and this is discussed further in the section below.

11.17.36. I note the concerns raised by Clare Co. Co in relation to the spatial extent of the site, the height and overall scale of the development, which it considers will significantly alter the overall character and appearance of this landscape and the

particular concerns raised concerning views at Gortglass Lake, along the L2072 and L6038 and at Ballysteen Pier.

11.17.37. Having regard to the policy context, I am satisfied that the proposed development is located in a landscape character area that is favourable to wind farm development.

11.17.38. Landscape Impacts

11.17.39. There will be some temporary landscape impacts during the construction phase including along the TDR and grid connection route, but I agree with the EIAR that these are of moderate significance and will be short-term in nature. My assessment therefore focuses on the proposed wind turbine structures.

11.17.40. From a potential landscape impact, the proposed development represents an intensification of wind energy development within the wider landscape. In this context there are existing and permitted windfarm developments to the north and west of the proposed development site. There are limited existing man-made interventions of significance in the landscape surrounding the site, generally relating to electrical grid infrastructure, turbary and commercial forestry plantations, with Aughinish Alumina Plant and Moneypoint Power Station on the banks of the Shannon and within the study area.

11.17.41. In terms of the significance of the potential landscape impacts, and notwithstanding the nature and characteristics of the receiving landscape as outlined above, I do not concur with the conclusion of the EIAR that the operational effects of the proposed development would have a ‘moderate’ landscape impact. I consider that the proposed impact would be significant, largely due to the landscape terrain within which the development is proposed which is ‘hollowed’, ‘bowl-like’ and low-lying and while visual impacts further afield may be some-what reduced, this would be a significant intervention in the immediate landscape though this impact reduces as distance from the proposed development increases. While the impact on landscape character may, in my opinion, be significant, there is simultaneously a capacity to absorb the development in the area having regard to the expanse of the low-lying landscape within which the development is proposed.

11.17.42. I consider that the proposed development is in keeping with the siting and design criteria for the 'Flat Peatland' and 'Hilly and Flat Farmland' landscape types (as defined in the 2006 WEDG and the Draft 2019 WEDG) and discussed in Sections 15.4.4 and 15.5 of the EIAR. In terms of the 'flat peatland', the proposed development is dispersed across a flat peatland landscape and is offset from any regional or local roads; it occupies a large spatial extent which corresponds well to the broad lowland landscape; the turbines have regular spacing which is preferred in this landscape, giving a high degree of visual permeability; with a dispersed layout; in terms of height, tall turbines are most appropriate with an even profile which is the case with the proposed development. As such, the location, spatial extent, spacing, layout and cumulative effect is the only effective means of reducing the impact of the proposal within this broad peatland setting. The proposed development is also aligned with the 'hilly and flat farmland' landscape type. As stated in the EIAR, the proposed substation has been positioned on low lying ground, away from residential receptors with some screening provided by existing mature hedgerows and localised landform. The main structure will be painted olive green to blend in with the surrounding vegetation and additional screen planting around the substation to a height of 6-8m.

11.17.43. In terms of Ballysteen Pier, Clare County Council had a particular concern that the proposed development would constitute a prominent feature in the landscape and alter the character when viewed from the Pier. The Pier is located to the south-east of the proposed development, approx. 12.6km from T14, with the view looking northwest towards the proposal across the Shannon Estuary. The photomontage (VP20) shows all 14 turbines visible from behind the rolling ridgeline. Taking account of the distance from the proposed development and considering the baseline includes heavy industrial development at Foynes and an existing windfarm further to the east, while the proposed turbines may be noticeable and visible, I do not consider that they would alter the character at Ballysteen Pier to a significant degree.

11.17.44. Landscape and wind energy related designations and associated policies and objectives from the current Clare, Limerick and Kerry County Development Plans have been considered in the EIAR. I have reviewed these designations and agree

that the landscape effects of the proposed wind farm do not contravene any of these designations.

Visual Impacts

11.17.45. I acknowledge the concerns raised in some submissions about the viewpoints that were selected. Having inspected the application site and surrounding area, including the various scenic routes and views and reviewed the key receptors/viewpoints I make the following conclusions with respect to visual receptors:

- I agree with the applicant that it is not realistic to include all locations that provide a view of the proposed development. Instead, a total of six receptor types were chosen in order to assess the visual impact of the proposal. The breakdown of the receptor types is as follows: twelve (12) Local Community Views, fourteen (14) Centre of Population views, thirteen (13) Amenity and Heritage features, three (3) Major Routes and five (5) Designated Scenic Routes and Views.
- A specific concern was raised that there was no single meaningful viewpoint taken within a 5km radius on the east side of the proposed windfarm, apart from across the River Fergus at Ballynacally. The VRP's chosen on the eastern side of the proposed windfarm within a 5km radius to best represent the receptor types are VP 9 local road at Ballynacally overlooking Fergus Estuary, which represents a designated scenic route and views, a centre of population and amenity and heritage feature; VP7 (north-east) at Gortglass Lough which represents an amenity and heritage feature; VP10 (north-east) at Tonlegee which represents a local community view; VP27 Kildysart Pier represents both an amenity and heritage feature and a local community view. In this regard, I consider that the viewpoints selected are comprehensive and representative of the views experienced from different distances, angles and contexts.

11.17.46. As with landscape impacts, I consider that there will be temporary visual impacts associated with the construction phase, but this is not a cause for concern

given their temporary nature. My assessment therefore focuses on the turbine structures and associated infrastructure proposed.

11.17.47. I consider that the proposed development has the greatest potential to have a significant visual impact within the immediate area of the site on a number of viewpoints, which I will discuss below. Due to the size and scale of the proposed wind turbines, their impacts cannot be effectively mitigated, such as by screening vegetation.

11.17.48. Regarding localised viewpoints at Gortglass Lake, and along the L2072/L2070 and L6038, I agree with the opinion of Clare County Council that these will be significantly affected; these views and others are analysed further as follows:

- VP7 Gortglass Lough at Blean

  I acknowledge the submissions that have been made regarding Gortglass Lough and the importance of Gortglass Lough from a recreational and visual amenity perspective. The LVIA recognises this with views across the lough described as pleasant, and VP7 designated a higher sensitivity rating (Medium) for this reason. The lough is located c. 690m from the site, and the viewpoint selected is c. 1.3km south-east of T13 and is representative of a recreational amenity (Gortglass Lough) and local community view for nearby dwellings. The view is orientated to the north-west. All of the proposed turbines will be prominent from this location and will become a defining element of the landscape.

- <u>VP11 (Marian Shrine on the L2070)</u>

  The viewpoint selected is located c.960m north-east of T3 and is representative of a local community view and centre of population. This is an elevated view that overlooks a number of residential dwellings and agricultural buildings in the immediate foreground. This view is orientated to the south-east/south-west. I agree with the LVIA that the magnitude of visual effect is deemed High, and the visual impact is substantial-moderate.

- <u>VP12 – Local road at Craghera</u>

The viewpoint selected is taken along the L6239, which dissects the wind farm site, c.560m from T7, looking south-east. I consider that the turbines will be a prominent feature at this location with a substantial-moderate effect.

- VP16 Local Road at Cloonsnaghta

  The viewpoint selected is c. 640m to the south of the site, looking north/north-east/northwest and represents a local community view. I would agree with the EIAR that the effect from this view would be substantial-moderate.

11.17.49. The following while not as significant as the viewpoints above will, in my opinion, have a moderate impact on views:

- VP1 Local Road at Furroor – 5.5km north-west of T3, looking south-east.
- VP6 L2070 at Carrowreagh East – 1.5km north-west of T1, looking east/south-east. All 14 no. turbines, the substation and a number of galvanised steel towers will be visible.
- VP10 Local Road at Knockanaffrin (L2070 at Tonlegee) 1km to the north-east, looking towards the west/south-west.

11.17.50. The following viewpoints demonstrate that views of the proposed development will be partially or fully screened. These include:

- VP 2 (10.6 km from T3, north-west view, looking south-east)
- VP 3 (3.3 km from T3, northern view, looking south-east.
- VP 4 (4.1 km from T3) north-west view, looking south-east.
- VP 5 (5.5 km from T1, north-west view, looking south-east
- VP8 Local Road at Coolmeen (2.8 km from T1), south-west view, looking north/north-east.
- VP13 Cranny Cemetery (2.3km from T1, north-west view, looking east/south-east.
- VP14 Coolmeen GAA – (2.8km south-west from T1, looking north-east.
- VP15 Local Road at Cloonkett (760m south of T1), looking north-east.

11.17.51. In terms of tourism, recreational and heritage features, there is a high concentration of these within the wider study area to the east, southeast and

southwestern extents associated with the Shannon and Fergus Estuary. The Wild Atlantic Way and the Shannon Estuary Way also form part of the wider study area and a number of the selected viewpoints were taken along these routes.

11.17.52. The applicant has prepared a total of 12 viewpoints to represent this receptor type, which comprise of VP9 and VP17-27. I consider that the viewpoints selected are comprehensive and cover a range of tourism, recreational and cultural heritage features within the Shannon Estuary. All but two of the 12 selected viewpoints have a sensitivity of High-Medium, apart from VP9 and VP17 which are rated Medium sensitivity.

11.17.53. There are a number of scenic designations within the study area, and VP9 represents a scenic designation (V21) in the Clare CDP. The Limerick CDP contains one scenic designation, which traverses along the southern edge of the Shannon Estuary, and is also recognised as part of the Wild Atlantic Way and the Shannon Estuary Way. The scenic designation is represented by VP21, VP22 and VP24.

11.17.54. Of the 12 selected viewpoints, I agree with the applicant's assessment that VP17, VP18, VP19, VP21, VP22, VP23 and VP24 will show partial blade sets and overall the magnitude of visual effect from these viewpoints would be low-negligible. VP25, VP26 and VP27 would be entirely screened by the existing terrain and would therefore have a negligible visual effect.

11.17.55. In terms of VP20 taken at Ballysteen Pier, I consider this view in section 11.18.43 above, in my opinion, owing to the distance of the Pier to the proposed development, topography of the intervening land between the site and Pier, and the existing industrial development along the Shannon Estuary, I consider that the view from this location would not be significant.

11.17.56. <u>Cumulative Impacts</u>

11.17.57. I note the assessment criteria for cumulative effects outlined by the applicant in Section 15.2.14 of the LVIA, with the guidance set out in the WEDG's 2006 and NatureScot 2021 providing key references for cumulative landscape and visual effects. A total of 15 no. wind farm developments were considered with a cumulative ZTV map shown in Figure 15-15 of the EIAR (comprising 13 existing operational

wind farms, 1 unconsented (Cahermurphy 2) and 1 wind farm outside the study area (Leanamore).

11.17.58. The study area is influenced by wind energy development, particularly the north-western extents of the study area. All but one of the existing and consented developments are located outside the 'Central Study Area', with a notable offset from the proposed development. The assessment considers that the Crossmore wind farm development, located c. 4.4 km to the west, has the greatest potential for cumulative visual effects. There is also a cluster of existing and consented wind farms beyond 8km to the north-west of the proposed development, however, due to the distance and undulating terrain, it is not considered by the applicant that these would result in notable cumulative effects even where intervisibility occurs. I concur with this assessment.

11.17.59. The cumulative visual effects assessment also reviewed sequential cumulative effects, which occur when an observer has to move to another viewpoint to see different developments. In this regard, the proposed, consented and operational developments have the potential to be experienced from a number of linear receptors within the Study Area, including scenic routes, the Wild Atlantic Way, and the Shannon Estuary Way, which traverse both the Central and wider Study Areas. One of the more notable linear receptors is the Shannon Estuary Way, and while the cumulative ZTV identifies the potential for theoretical visibility of the proposed, existing and consented developments along this route, it does not account for screening effects of local vegetation. A number of photomontages taken along the Shannon Estuary Way (for example VP27) show that the proposed development is screened by vegetation and landform, with no cumulative visual effect at this location.

11.17.60. Overall, while the proposed development will contribute to a greater intensity and dispersal of wind energy developments within the Central and Wider Study Areas, the proposed development is viewed distinctly separate to these and is given a Medium-Low cumulative landscape and visual impact. Having regard to the cumulative impact assessment as discussed above and in the EIAR, I would agree with this conclusion in terms of cumulative impacts.

11.17.61. **Conclusion: Direct and Indirect Effects**

11.17.62. Having regard to my site visit, the examination of environmental information in Chapter 14 and the accompanying documentation within Volume IV the EIAR and the LVIA, and notwithstanding the applicant's findings that operational effects are 'moderate-slight' within the site and surrounds, reducing to 'moderate slight' within the remainder of the central study area, which are of negative quality and long-term duration, I consider the landscape effects as 'significant' within the surrounds and site, and reducing to moderate 'within the remainder of the central study area.

11.17.63. With respect to visual effects, the LVIA concludes that the proposed development will result in visual effects that are 'not significant' with the visual effects ranging from 'Substantial–Moderate' to 'Imperceptible'. Most of the higher effects relate to the nearest views of the proposed development, which principally represent local community receptors and are therefore localised effects. I consider however that significant visual effects as a result of the proposed development will be experienced by a small number of residential receptors within 2km of the proposed wind turbines, where these will experience uninterrupted primary views of the proposed turbines. I am satisfied that residential receptors within 2km of the proposed wind turbines where there are no views or intermittent or limited views will not experience significant visual effects, and that visual effects reduce beyond 2km. Other visual receptors will not experience significant views on the basis of, or a combination of, intermittent, limited or no views, visual extent, distance and the context of the landscape.

11.17.64. On balance, based on National Policy supporting renewable energy (see Section 9.2) and the designation of the site as an 'appropriate location' for windfarm development, I consider that the potential benefits associated with renewable energy generation including wind energy within the context of a climate emergency, outweigh the potential adverse localised landscape character effect and potential perceived adverse localised visual effect for a small number of residential receptors. I am therefore satisfied, that the proposed development would be consistent with the Climate Act and National Policy in support of renewable energy and a refusal of

permission would not be warranted on the basis of residual landscape and visual effects.

11.18. Major Accidents and Natural Disasters

11.18.1. Chapter 6, Section 6.8 of the applicant's EIAR deals with the vulnerability of the proposed development to the risk of major accidents and/or natural disasters. Concerns regarding flooding, fire, major incidents involving dangerous substances/spills, catastrophic events (e.g. landslides) and catastrophic events have been assessed.

11.18.2. As stated elsewhere in this Inspector's Report, some third-party submissions make reference to flood risk, landslide and serious pollution risks arising from the proposed development.

11.18.3. The EIAR states that should a major accident or natural disaster occur, the potential sources of pollution onsite during the construction and operational phases are limited. The primary sources with the potential to cause significant environmental pollution and associated adverse effects on human health and the environment include the storage of hydrocarbons, chemicals and wastes. A wind farm is not a recognised source of pollution nor is it an activity which requires Environmental Protection Agency licensing

11.18.4. Flood risk is assessed in Chapter 11 of the EIAR and I consider this issue in section 11.10 of this Inspector's Report and conclude that, subject to appropriate mitigation, the proposed wind farm is not itself at risk of flooding and is not expected to have any adverse impact on flood risk.

11.18.5. With respect to fire risk, I note that the proposed infrastructure including turbines, met mast and substation are set away from any the surrounding forestry in order to maintain an appropriate fire break. There will be a supervisory control system for remote monitoring and control of the key infrastructure (e.g. turbines, substation) to help alert operators to potential technical failures/issues, and in case of emergency the industry standard software controlling the operation of turbines will allow them to be shut down remotely to prevent/ limit potential issues.

11.18.6. Section 6.8 of the applicant's EIAR outlines that the nearest SEVESO site at 14.5km to the east. I am satisfied that the vulnerability of the proposed development to risk of major accidents caused by sites designated under the Seveso-III-Directive (2012/18/EU) is low.

11.18.7. I am satisfied that the risk of catastrophic events such as turbine toppling over and rotational failure is considered low, taking account careful siting, distance to receptors, maintenance and remote monitoring.

11.18.8. I have considered and assessed landslide risk in section 11.11 of this Inspector's Report. This issue in considered in Chapter 10 of the EIAR, Soils, Geology and Hydrogeology. I am satisfied that the risk of landslide within the Site is 'Negligible and Insignificant' and that the localised areas of 'Moderately High' landslide susceptibility pose little risk due to the presence of shallow bedrock.

11.18.9. Having regard to the foregoing, I am satisfied that the potential risks i to the proposed development should a major accident or natural disaster occur, identified in section 6.8 of the EIAR, have been clearly identified, and I consider based on the risk assessment undertaken and the mitigation proposed that the proposed development has a low potential to cause natural or major accidents.

11.18.10. The Commission will note that specific risks regarding operational impacts to Aviation have not been adequately addressed nor assessed in the application documentation and this matter is considered in greater detail in section 11.15 Material Assets of this Inspector's Report.

11.19. Interactions

11.19.1. Chapter 17 of the applicant's EIAR provides a matrix of the interactions in EIAR Table 17.1. Table 17.2 provides a description of interactions and inter-relationships between key environmental aspects of the proposed development. Mitigation measures to counteract significant effects are detailed. The interactions assessment concludes that the proposed development is not expected to result in adverse significant effects on the environment with respect to the various environmental factors and their interactions.

11.19.2. I conclude at sections 11.9 and 11.10 above that significant effects in relation to the environmental factors of biodiversity and water cannot be ruled out and that mitigation measures to prevent / reduce significant effect have not been proven to be effective. In addition, significant effects in relation to material assets (aviation) cannot be ruled out. Having regard to the foregoing, I consider that significant effects in relation to interactions cannot be avoided, managed or mitigated by the measures contained within the EIAR or by additional information, owing to time constraints for decision-making relating to REDIII Directive.

11.20. **Reasoned Conclusion**

11.20.1. Having regard to the examination of environmental information contained above, and in particular to the EIAR and response to submissions provided by the developer, and the submissions from prescribed bodies and the third parties, and having regard to the technical reports by the Inspectorate Ecologist and Inspectorate Scientist, it is considered that the main significant direct and indirect effects of the proposed development on the environment with the implementation of the proposed mitigation measures are as follows;

- In respect of **biodiversity**, there is a potential for significant effects to arise during the construction and operational phases of the proposed development to **aquatic habitats and species**, in particular, on Freshwater Pearl Mussel, Otter, Sea Lamprey, Brook Lamprey, River Lamprey and Atlantic Salmon. There is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests. In addition, the proposed development will result in the loss of **Annex I habitat** (raised bog) and additional peatland habitat which will have a significant effect and will be offset by peatland enhancement measures detailed in the Biodiversity Management and Enhancement Plan (BMEP).
- In respect of **water**, there is an inadequate understanding of the baseline environment, key impacts and the likely effects on the water environment

have not been identified or adequately assessed. In the absence of such information, there is a potential for significant effects to arise during the construction and operational phases to the environmental factor of water.

- In respect of **climate**, there will be a long-term positive effect residual cumulative effect on climate as a result of the proposed development due to the displacement of CO2 from the atmosphere arising from fossil fuel energy production.
- In respect of **material assets (aviation)**, there is an inadequate information to adequately assess the key impacts and the likely effects on material assets (aviation). In the absence of such information, there is a potential for significant effects to arise on the environment.
- In respect of **landscape**, significant landscape and visual impacts arise during the operational phase of the proposed development given the placement of significant structures within the local landscape thereby changing the existing visual context. This will result in significant landscape effects within 2km of the proposed turbines and will result in significant visual effects on a small number of residential and local community receptors within 2km of the proposed turbines, where primary and open views towards the wind farm will be experienced.
- In respect of **risks of major accidents and/or disasters**, specific risks regarding operational impacts to Material Assets (**Aviation**) have not been adequately addressed nor assessed in the application documentation.

11.20.2. The proposed development would therefore give rise to significant direct and indirect effects on the environment which, notwithstanding the climate-related benefits to the proposal, would not be acceptable for the reasons outlined above.

12.0 Appropriate Assessment (AA)

12.1. Screening Determination

12.1.1. Appendix 1 below provides the Appropriate Assessment Screening Assessment. 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), River Shannon and River Fergus SPA (Site Code 004077) and the Mid-Clare Coast SPA (Site Code 004182) in view of the sites conservation objectives. An Appropriate Assessment is required. This determination is based on:

I. Likely direct and indirect impacts arising from the proposal both individually or in combination with other plans or projects,

II. The mitigation measures which are included as part of the current proposal,

III. The Conservation Objectives for these European Sites,

IV. Views of prescribed bodies in this regard, and

V. Specialist reports from the Inspectorate Ecologist, Inspectorate Environmental Scientist and the external consultant Ecologist.

12.2. Appropriate Assessment Conclusion (Integrity Test)

12.2.1. Appendix 2 below contains the Appropriate Assessment. In screening the need for Appropriate Assessment, it was determined that the proposed development could result in significant effects on Lower River Shannon SAC (site code: 002165), River Shannon and River Fergus SPA (Site Code 004077) and the Mid-Clare Coast SPA (Site Code 004182) in view of the conservation objectives of these sites and that Appropriate Assessment, under the provisions of S177AE of the Planning and Development Act 2000 (as amended), was required.

12.2.2. Following an examination, analysis and evaluation of the NIS, EIAR and all associated material submitted, including observations on nature conservation, the

internal specialist reports prepared by the Inspectorate Environmental Scientist and Inspectorate Ecologist, and the external Specialist Report on Ornithology prepared by ERM, I consider:

- With respect to River Shannon and River Fergus Estuaries SPA and Mid-Clare Coast SPA, 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.
- With respect to the Lower River Shannon SAC, that adverse effects on the site integrity of Lower River Shannon SAC (site code: 002165) cannot be excluded in view of the conservation objectives of this site and that reasonable scientific doubt remains as to the absence of such effects. My conclusion is based on the following:
    - the conservation objectives applicable to the Cloon catchment;
    - the recognised sensitivity of Freshwater Pearl Mussel (FWPM) to fine sediment and nutrient enrichment;
    - the historical importance of sediment as a limiting factor within the catchment;
    - the findings of the Inspectorate Environmental Scientist's Technical Note regarding mitigation effectiveness including:
    - deficiencies in the design and mitigation proposals of the surface water management plan to appropriately intercept and remove silt generated by the proposed development and the failure to provide any design details, operational protocols, or environmental impact assessments regarding the toxicological risks or secondary ecological impacts of chemical additives (flocculants) could pose to the downstream FWPM;
    - deficiencies in the design of the surface water management plan to retain nutrients generated during this development creates an unassessed risk of nutrient enrichment in the downstream catchment, which could cause eutrophication and jeopardize the critical habitat requirements of the freshwater pearl mussel population; and,

- the residual uncertainty associated with sediment and nutrient management,
- the conclusions of the Inspectorate Ecologist that insufficient evidence has been presented to demonstrate that adverse effects on FWPM conservation objectives can be excluded beyond reasonable scientific doubt.

12.2.3. As a result, there is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests.

13.0 Recommendation

On the basis of the above assessment, I recommend that the Commission REFUSE to approve the proposed development subject to the reasons set out below.

14.0 Reasons and Considerations (Draft Order)

The Commission reached its decision in a manner consistent with:

a) Section 15(1) of the Climate Action and Low Carbon Act 2015, as amended by Section 17 of the Climate Action and Low Carbon Development (Amendment) Act 2021, (consistent with Climate Action Plan 2024 and Climate Action Plan 2025 and the national long term climate action strategy, national adaptation framework and approved sectoral adaptation plans set out in those Plans and in furtherance of the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State); and,

b) Directive 2000/60/EC, the Water Framework Directive and in a manner which achieves or promotes compliance with the requirements of the Directive.

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:

c) Directive 2014/52/EU amending Directive 2011/92/EU (Environmental Impact Assessment Directive);

d) Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directive);

National Policy and Guidance including**:**

e) Project Ireland 2040: National Planning Framework ("NPF"), First Revision of the NPF;

f) National Development Plan 2021-2030

g) the objectives and targets of the National Biodiversity Action Plan 2023-2030;

h) Policy Statement on Security of Electricity Supply (November 2021);

i) National Energy Security Framework (April 2022);

j) National Energy and Climate Action Plan (2021-2030);

Regional and Local Planning Policy, including in particular:

k) the Regional Spatial and Economic Strategy for the Southern Region 2020-2032;

l) the Clare County Development Plan 2023-2029;

m) the nature, scale and layout of the proposed development and the location of proposed development upstream of a European Site, the Lower River Shannon SAC, site code 002165, and its associated conservation objectives and qualifying interests;

n) the pattern of development within the area and context of the receiving environment,

o) the entirety of the documentation submitted by the applicant in support of the proposed development, including the Environmental Impact Assessment

Report, the Natura Impact Statement and the response to submissions made in February 2026,

p) the range of mitigation measures set out in the Environmental Impact Assessment Report and the Natura Impact Statement,

q) measures proposed for the construction, operation and decommissioning of the development,

r) the submissions received in relation to the application,

s) 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 effect on a European Site,

t) the Specialist Reports prepared by the Inspectorate Environmental Scientist, Inspectorate Ecologist, external ecology consultant and external aviation consultant; and,

u) The Inspector's report and recommendation.

Appropriate Assessment Stage 1 Screening Determination

The Commission agreed with and adopted the screening assessment and conclusion carried out in the inspector's report 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), River Shannon and River Fergus SPA (Site Code 004077) and the Mid-Clare Coast SPA (Site Code 004182) in view of the sites conservation objectives and that an Appropriate Assessment was required. This determination is based on:

i. Likely direct and indirect impacts arising from the proposal both individually or in combination with other plans or projects,
ii. The mitigation measures which are included as part of the current proposal,
iii. The Conservation Objective for these European Sites,
iv. Views of prescribed bodies in this regard, and

v. Specialist reports from the Inspectorate Ecologist, Inspectorate Environmental Scientist and the external Ecologist.

Appropriate Assessment Stage 2 Conclusion

The Commission considered the Natura Impact Statement, the mitigation measures contained therein, all relevant submissions, the internal specialist reports prepared by the Inspectorate Environmental Scientist and Inspectorate Ecologist, the external Specialist Report on Ornithology prepared by ERM and the Inspector's assessment. The Commission carried out an appropriate assessment of the implications of the proposal for those three sites in view of their Site Conservation Objectives. The Commission considered that the information before it was adequate to allow the carrying out of an appropriate assessment.

In completing the assessment, the Commission considered, in particular,

- with respect to the River Shannon and River Fergus Estuaries SPA and Mid-Clare Coast SPA, 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.
- with respect to the Lower River Shannon SAC, that adverse effects on the site integrity of Lower River Shannon SAC (site code: 002165) cannot be excluded in view of the conservation objectives of this site and that reasonable scientific doubt remains as to the absence of such effects. My conclusion is based on the following:
    - the conservation objectives applicable to the Cloon catchment;
    - the recognised sensitivity of FWPM to fine sediment and nutrient enrichment;
    - the historical importance of sediment as a limiting factor within the catchment;
    - the findings of the Inspectorate Environmental Scientist's Technical Note regarding mitigation effectiveness including:
    - deficiencies in the design and mitigation proposals of the surface water management plan to appropriately intercept and remove silt generated

by the proposed development and the failure to provide any design details, operational protocols, or environmental impact assessments regarding the toxicological risks or secondary ecological impacts of chemical additives (flocculants) could pose to the downstream freshwater pearl mussel;

- deficiencies in the design of the surface water management plan to retain nutrients generated during this development creates an unassessed risk of nutrient enrichment in the downstream catchment, which could cause eutrophication and jeopardize the critical habitat requirements of the freshwater pearl mussel population; and,
- the residual uncertainty associated with sediment and nutrient management,
- the conclusions of the Inspectorate Ecologist that insufficient evidence has been presented to demonstrate that adverse effects on FWPM conservation objectives can be excluded beyond reasonable scientific doubt.

In overall conclusion, the Commission considered there is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of the Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests.

Environmental Impact Assessment: Reasoned Conclusion

The Commission completed an environmental impact assessment in relation to the proposed development and concluded that, notwithstanding the implementation of the mitigation measures proposed as set out in the Environmental Impact Assessment Report, the proposed development would be likely to have significant effects on the environment, by itself and in combination with other plans and projects in the vicinity, and that such effects would not be acceptable. In doing so, the Commission adopted the report and conclusions of the Inspector that the main significant direct and indirect effects of the proposed development on the

environment with the implementation of the proposed mitigation measures are as follows:

- In respect of biodiversity, there is a potential for significant effects to arise during the construction and operational phases of the proposed development to aquatic habitats and species, in particular, on Freshwater Pearl Mussel, Otter, Sea Lamprey, Brook Lamprey, River Lamprey and Atlantic Salmon. There is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests. In addition, the proposed development will result in the loss of Annex I habitat (raised bog) and additional peatland habitat which will have a significant effect and will be offset by peatland enhancement measures detailed in the Biodiversity Management and Enhancement Plan (BMEP).
- In respect of water, there is an inadequate understanding of the baseline environment, key impacts and the likely effects on the water environment have not been identified or adequately assessed. In the absence of such information, there is a potential for significant effects to arise during the construction and operational phases to the environmental factor of water.
- In respect of climate, there will be a long-term positive effect residual cumulative effect on climate as a result of the proposed development due to the displacement of CO2 from the atmosphere arising from fossil fuel energy production.
- In respect of material assets (aviation), there is inadequate information to adequately assess the key impacts and the likely effects on material assets (aviation). In the absence of such information, there is a potential for significant effects to arise on the environment.
- In respect of landscape, significant landscape and visual impacts arise during the operational phase of the proposed development given the placement of significant structures within the local landscape thereby changing the existing visual context. This will result in significant landscape effects within 2km of the

proposed turbines and will result in significant visual effects on a small number of residential and local community receptors within 2km of the proposed turbines, where primary and open views towards the wind farm will be experienced.

- In respect of risks of major accidents and/or disasters, specific risks regarding operational impacts to Material Assets (Aviation) have not been adequately addressed nor assessed in the application documentation.

The proposed development would therefore give rise to significant direct or indirect effects on the environment which, notwithstanding the climate-related benefits to the proposal, would not be acceptable for the reasons outlined

Proper Planning and Sustainable Development

The Commission, in performing its functions in a manner consistent with the applicable climate objectives as set out in Section 15 of the Climate Action and Low Carbon Development Act, 2015 as amended, considers that while the principle of a renewable energy development on this site is supported by National, Regional and local policy there are specific and significant technical information deficits and difficulties with the assessments undertaken in respect of the proposed development. In this particular circumstance;

i. having particular regard to the Freshwater Pearl Mussel and on the basis of the information submitted with the application, the Commission cannot be satisfied that the mitigation measures proposed as part of the development would adequately mitigate the risk associated with the construction and operation of the proposed windfarm on the environment. In view of the above, it is considered that the proposed development would constitute an unacceptable risk to biodiversity, water and in particular the Freshwater Pearl Mussel. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

ii. having regard to the nature, scale, and location of the proposed development, and in particular its location upstream of the Cloon (Clare)_020, a water body

under the Water Framework Directive, which status is 'good', and which is also designated as a ‘protected area’ and as a Natura 2000 Site, the Lower River Shannon SAC, where the most stringent environmental objectives apply, the Commission is not satisfied that the proposed development is consistent with achieving those environmental objectives. The proposed development would therefore be contrary to the requirements of Article 4 of the EU Water Framework Directive (2000/60/EC), as transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), as amended, and would be inconsistent with the objectives of the Water Action Plan 2024 and the proper planning and sustainable development of the area.

iii. having regard to the information provided with the application, including the Natura Impact Statement and scientific observations on the proposed development, the Commission considers that reasonable scientific doubt remains as to the implications for the proposed development on site integrity for the Lower River Shannon SAC (site code 002165) specifically, it is considered that adverse effects on the Freshwater Pearl Mussel cannot be excluded beyond reasonable scientific doubt in view of the conservation objectives to restore its favourable conservation condition. The Commission cannot be satisfied beyond reasonable scientific doubt that the proposed development, individually, would not adversely affect the integrity of Lower River Shannon SAC (site code 002165) in view of the Site's conservation objectives and qualifying interests.

iv. having particular regard to aviation matters, submissions received from prescribed bodies and the independent external report on aviation commissioned by the Commission, and on the basis of inadequate information submitted with the application, the Commission cannot be satisfied that the likely significant effects on the environment have been adequately assessed or that the mitigation measures proposed as part of the development would adequately mitigate the risk associated with operation of the proposed windfarm on aviation. In view of the above, it is considered that the proposed development would constitute an unacceptable risk to the safety

of aircraft. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

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.

Alaine Clarke
Senior Planning Inspector

Appendix 1: Appropriate Assessment Screening

Screening for Appropriate Assessment Test for likely significant effects	
Step 1: Description of the project and local site characteristics	
Brief description of project	Wind Farm: a 14 turbine wind farm and associated infrastructure including internal access tracks, hard standings, permanent meteorological mast, onsite 220 kV substation, a loop-in grid connection to the National Electricity Grid (NEG), internal electrical and communications cabling, temporary construction compounds, drainage infrastructure, earthworks and spoil management, and all associated works related to the construction of the wind farm as well as measures designed to protect and enhance existing habitats. Grid Connection: The substation will provide a connection point between the wind farm and the national grid via a loop-in connection to the existing Prospect – Cashla 220 kV overhead line (OHL), which runs in north-east to south-west direction through the eastern extent of the site. Turbine Delivery Route: (TDR) follows the public road network from the selected port to Junction 12 between the M18 Motorway and the N85 National Road to the Site entrance on the L2072 Local Road. This will include temporary accommodations and temporary hardcore surfacing which will be reinstated. Full details of proposal are set out in Section 2.2 of the NIS and in Chapter 2 of the EIAR.
Brief description of development site characteristics and potential impact mechanisms	The proposed wind farm is situated within a lowland site ranging from approximately 50-100 m altitude above sea level. The majority of the main study area consists of peatland habitats of varying conditions including actively cutover raised bog, re-vegetating cutover and turf banks, several intact raised bog remnants, and heathlands. The remainder of the site consists of commercial conifer plantation woodland with extensive drainage (planted previously on peatland substrates), semi-natural and intensely managed improved agricultural grasslands and scrub mosaics. The rural landscape surrounding the study area is dominated by intensely managed agricultural land. The site occurs within the wider Shannon Estuary North Catchment. Two streams, tributaries of the River Cloon flow westwards through the proposed development site; the Carrowreagh East and the Cloonkett. The site does not occur within or adjacent to any Natura 2000 sites, however it maintains a hydrological connection to the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA through the River Cloon connection.

	There are a number of potential source » pathway » receptor impact mechanisms: • Hydrological connection via the River Cloon and its tributaries; • Landscape connectivity
Screening report	Yes
Natura Impact Statement	Yes, prepared by Woodrow APEM Group
Relevant submissions	Refer to section 7 of this Inspector's Report for summary and to the submissions for more detail. Depart. of Housing, Local Government and Heritage; Issues raised include efficacy of mitigation measures re water quality in the Lower River Shannon SAC, impact on Freshwater Pearl Mussel, querying ornithological findings including in respect of, amongst others, Hen Harrier and swans. Clare County Council: Issues raised include impact on Freshwater Pearl Mussel (FWPM), avi-fauna concerns relating to hen harrier; bog and lake habitats are a key habitat for many birds. Third Parties: Issues raised include inadequate assessment of impacts on the Lower River Shannon SAC, concern for impact on the FWPM, concerns for impacts on birds, including curlew, hen harrier etc**.,** incomplete survey coverage of area; Insufficient survey effort to accurately assess avian baseline or impacts; Lack of flightline mapping, barrier effect analysis and cumulative collision risk assessment. Concerns for impacts on (amongst others) hen harrier and curlew. The NIS fails to establish, beyond reasonable scientific doubt, that: peat disturbance will not lead to sedimentation of downstream watercourses; groundwater pathways will not be altered by excavation, turbine foundations, and road construction; surface water runoff will not affect protected habitats. Inadequate hydrological modelling and the absence of detailed peat stability assessment contravene the requirements of Article 6(3) of the Habitats Directive. The NIS approach is mitigation-led, Under Article 6(3) and People Over Wind, this is insufficient to avoid AA or to sustain a no adverse effects conclusion.
I have considered the following reports in preparing this AA Screening Report: • Specialist Report prepared by Donncha Madden, Inspectorate Ecologist (appendix 6) • Technical Note, prepared by Inspectorate Environmental Scientist (appendix 7) • Specialist Report, prepared by ERM on ornithology (Appendix 8)	
Step 2. Identification of relevant European sites using the Source-pathway-receptor model I have included only those sites with any possible ecological connection or pathway in this screening determination.	

European Site (code)	Qualifying interests[1] Link to conservation objectives (NPWS, date)	Distance from proposed development (km)	Ecological connections[2]	Consider further in screening. Y/N
Lower River Shannon SAC (002165)	[1110] Sandbanks [1130] Estuaries [1140] Tidal Mudflats and Sandflats [1150] Coastal Lagoons* [1160] Large Shallow Inlets and Bays [1170] Reefs [1220] Perennial Vegetation of Stony Banks [1230] Vegetated Sea Cliffs [1310] Salicornia Mud [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [3260] Floating River Vegetation [6410] Molinia Meadows [91E0] Alluvial Forests* [1029] Freshwater Pearl Mussel [1095] Sea Lamprey [1096] Brook Lamprey [1099] River Lamprey [1106] Salmon [1349] Common Bottlenose Dolphin [1355] Otter Conservation objectives: Site_specific_cons_obj	Ca. 2km to the west of windfarm site, 0.8km to Biodiversity Management and Enhancement Plan (BMEP) lands	There is direct hydrological connectivity from the Site to this SAC via two tributaries of the Cloon – Carrowreagh East and Cloonkett.	Yes
River Shannon and River Fergus Estuaries SPA (004077)	[A017] Cormorant [A038] Whooper Swan [A046] Light-bellied Brent Goose [A048] Shelduck [A052] Teal [A054] Pintail [A062] Scaup [A137] Ringed Plover [A140] Golden Plover [A141] Grey Plover [A142] Lapwing [A143] Knot [A149] Dunlin [A156] Black-tailed Godwit [A157] Bar-tailed Godwit [A160] Curlew [A162] Redshank [A164] Greenshank [A179] Black-headed Gull [A855] Wigeon [A857] Shoveler [A999] Wetland and Waterbirds	Ca. 4km to the east.	Yes, potential for landscape connectivity. Hydrological connection via the River Cloon and its tributaries	Yes

	Conservation objectives: Site_specific_cons_obj			
Knockanira House SAC (002318)	[1303] Lesser horsehoe bat Conservation objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002318.pdf	Ca. 11km to the north-east	Yes, potential for landscape connectivity.	Yes
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	[A082] Hen harrier Conservation objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004161.pdf	Ca. 14km to the south.	Yes, potential for landscape connectivity.	Yes
Mid-Clare Coast SPA (004182)	[A017] Cormorant [A045] Barnacle Goose [A137] Ringed Plover [A144] Sanderling [A148] Purple Sandpiper [A149] Dunlin Calidris [A169] Turnstone [A999] Wetlands Conservation objectives: ConservationObjectives.rdl	Ca. 20km to the east.	Yes, potential for landscape connectivity.	Yes

Step 3. Describe the likely effects of the project (if any, alone or in combination) on European Sites

Sources of impacts 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 Sea Lamprey Brook Lamprey River Lamprey Atlantic Salmon Otter Perennial Vegetation of Stony Banks Water courses of plain to montane levels with the Ranunculion fluitantis and	Direct: • Disturbance of mobile species during construction and operation. Indirect: • Habitat degradation because of a reduction in water quality in receiving watercourses /waterbodies as a result of sediment and pollutants released during works; • Habitat degradation due to change to existing hydrogeological regime. • Potential to impact water-dependent species because of a reduction in water quality. • Spread of invasive alien species;	Therefore, emissions to surface water and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives of the Lower River Shannon SAC. Possibility of significant effects cannot be ruled

Callitricho-Batrachion vegetation Molinia Meadows Alluvial Forests* Sandbanks Estuaries Tidal Mudflats and Sandflats Coastal Lagoons* Large Shallow Inlets and Bays Reefs Vegetated Sea Cliffs Salicornia Mud Bottlenose Dolphin Atlantic Salt Meadows Mediterranean Salt Meadows		out without further analysis and assessment
River Shannon and River Fergus Estuaries SPA (004077) Cormorant Whooper Swan Light-bellied Brent Goose Shelduck Teal Pintail Scaup Ringed Plover Golden Plover Grey Plover Lapwing Knot Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Greenshank Black-headed Gull Wigeon Shoveler Wetland and Waterbirds	Direct: • Collision risk • Barrier effect Indirect: • Potential to impact water-dependent species because of a reduction in water quality. • Introduction and/or spread of invasive alien species.	Therefore, collision risk, barrier effect, habitat degradation/deterioration in water quality and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives of the River Shannon and River Fergus Estuaries SPA. Possibility of significant effects cannot be ruled out without further analysis and assessment
Knockanira House SAC (002318) Lesser Horseshoe Bat	I note and concur with the following statement in the AA Screening Report, in addition, I have consulted the supporting documentation for this SAC and reviewed the Bat Surveys for Professional Ecologists, Good Practice Guidelines (Collins, 2023).	Possibility of significant effects can be ruled out without further analysis and assessment.

	"The supporting documentation for this SAC (NPWS, Conservation objectives supporting document – lesser horseshoe bat (Rhinolophus hipposideros), 2018) indicates that a zone extending up to 2.5 km from a known roost is appropriate for providing information for AA. This is equal to the normal foraging range of 2.5 km for lesser horseshoe bat (Schofield, 2008). Although the typical foraging range of the species is up to 2.5 km, seasonal movements between summer and winter roosts have been reported as 5 km to 10 km (Collins, 2023). There is no potential for habitat connectivity between the Proposed Development and the SAC, the Site is located c. 11 km from the SAC and is therefore outside the typical maximum foraging and seasonal movement ranges."	
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) Hen Harrier	I note the AA Screening Report which screened out this SPA from further consideration, stating that it is not considered that hen harrier breeding populations listed as QI for this SPA are present within the proposed development site, which is not an important supporting habitat for this species. In addition, the maximum distance known for hen harrier to travel from a nest site, recorded in 2012 using remote tracking was 7.5 km (female) and 11.4km (male) (Irwin, et al., 2012). Consequently, the Site is determined to be outside of this range. I note the Conservation Objectives for the SPA which states breeding pairs predominantly use the area within 5km of their nest site or centre of territory, though they can travel further. Having regard to the distance from the proposed development site to the SPA, noting the above and the specialist ornithological report from ERM, I am satisfied that the possibility of significant effects on this SPA can be ruled out.	Possibility of significant effects can be ruled out without further analysis and assessment.
Mid-Clare Coast SPA (004182) Cormorant Barnacle Goose Ringed Plover Sanderling Purple Sandpiper Dunlin Turnstone Wetlands	The applicant's screening report or NIS did not screen/consider this SPA. Direct: • Collision risk Indirect: • Potential disturbance/displacement	Collision risk, disturbance or displacement risk cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives of the Mid-Clare Coast SPA. Possibility of significant effects cannot be ruled out without further

		analysis and assessment.

Likelihood of significant effects from proposed development (alone): **Yes**, for:

- Mid-Clare Coast SPA (004182)
- River Shannon and River Fergus Estuaries SPA (004077)
- Lower River Shannon SAC (002165)

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, the EIAR, the applicant's Response to Submission, my site visit, review of the conservation objectives and supporting documents, the Specialist Report prepared by ERM, I consider that in the absence of mitigation measures beyond best practice construction methods, the proposed development has the potential to result significant effects on:

- Lower River Shannon SAC (002165),
- River Shannon and River Fergus Estuaries SPA (004077), and,
- Mid-Clare Coast SPA (004182).

The applicant screened in the Lower River Shannon SAC (002165) and the River Shannon and River Fergus Estuaries SPA (004077). I have also screened in Mid-Clare Coast SPA.

Such impacts could be significant in terms of the stated conservation objectives of the SAC and SPAs when considered on their own and in combination with other projects and plans in relation to:

- direct effects relating to collision morality and barrier effects, potential disturbance and displacement of mobile qualifying interest species;
- indirect effects associated with potential disturbance and displacement of qualifying interest species, potential for damage of ex-situ habitats or species; impacts from surface water runoff or water quality impacts as a result of sediment and pollutants released during works and operation; spread of invasive species.

Proceed to AA.

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), the River Shannon and River Fergus Estuaries SPA (004077), and on the Mid-Clare Coast SPA (004182) in view of the sites conservation objectives. Appropriate Assessment is required. This determination is based on:

i. Likely direct and indirect impacts arising from the proposal both individually or in combination with other plans or projects,
ii. The mitigation measures which are included as part of the current proposal,
iii. The Conservation Objective for these European Sites,
iv. Views of prescribed bodies in this regard, and
v. Specialist reports from the Inspectorate Ecologist, Inspectorate Environmental Scientist and the external consultant Ecologist.

Appendix 2: Appropriate Assessment

Appropriate Assessment
The requirements of Article 6(3) as related to appropriate assessment of a project under part XAB, sections 177V 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 development of Cloonkett Wind Farm consisting of 14 no. wind turbines, a permanent 220kV substation and ancillary development in view of the relevant conservation objectives of Lower River Shannon SAC (Site Code 002165), River Shannon and River Fergus Estuaries SPA (004077), and Mid-Clare Coast SPA (004182) based on scientific information provided by the applicant and considering expert opinion set out in observations on nature conservation and experts on behalf of An Coimisiún Pleanála. The information relied upon includes the following: • Natura Impact Statement prepared by Woodrow, APEM Group, • CEMP, • The EIAR in particular chapter 9, Biodiversity, and appendices, • The applicant's response to submissions, • Specialist Report prepared by Donncha Madden, Inspectorate Ecologist (appendix 5) • Technical Note, prepared by Inspectorate Environmental Scientist (appendix 6) • Specialist Report, prepared by ERM on ornithology (Appendix 7) 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 NIS, mitigation measures designed to avoid or reduce adverse effects on site integrity are included and assessed for effectiveness.
Submissions/observations (related to NIS and AA) **Depart. of Housing, Local Government and Heritage;**

- Hydrological connection to FWPM habitat should be carefully considered. The NIS does not make certain that the project will not adversely affect the integrity of that site. Scientific data remains as to the adverse effects. FWPM survey results are consistent with monitoring confirming ongoing decline. Cloon River reaches record silt, excess macrophytes and algae. Development has potential to: alter hydrological regime of the catchment; increase sediment and nutrient losses to the river, intensity land use within the catchment. Insufficient data and analyses presented. Potential to have adverse impact on the integrity of the Lower River Shannon SAC.
- Query ornithological findings not reflective of extensive species assemblages identified.
- Queries Hen Harrier survey and breeding findings.
- Barrier effect or collision risk to wintering waterfowl and waders. Sensitivity of migratory geese and swans are not reflected in impact conclusions.
- Deferred or unspecified mitigation cannot be relied upon in an Appropriate Assessment context.
- Consent may only be granted where it can be established, beyond reasonable scientific doubt, that the project will not adversely affect the integrity of any European Site.

Clare County Council:

Re FWPM:

- There are an absence of juveniles and a rarity of small mussels throughout the Cloon where suitable habitat is found. The population is failing due to the deterioration in habitat quality which is evident from the high levels of siltation and macrophyte growth.
- Climate change is having a serious effect on the catchment, and ongoing catchment drainage.
- The Cloon catchment is not currently achieving favourable conservation status. Drainage and intensity of impacts does not allow for restoration to be achieved.

Re Avi Fauna:

- Increasing pressure on hen harriers in terms of available habitat;
- Bog and lake habitats are a key habitat for many birds.

Third Parties:

- Inadequate assessment of impacts on the Lower River Shannon SAC. The NIS fails to establish, beyond reasonable scientific doubt, that: peat disturbance will not lead to sedimentation of downstream watercourses; groundwater pathways will not be altered by excavation, turbine foundations, and road construction; surface water runoff will not affect protected habitats. Inadequate hydrological modelling and the absence of detailed peat stability assessment contravene the requirements of Article 6(3) of the Habitats Directive.
- Concern for impact on the FWPM.
- Risk of bird strikes by collision with turbines.

- The ecological and hydrological interconnections between the peatlands, Gortglass Lough, and downstream designated habitats mean that any disturbance within the proposed site carries significant risk of cumulative and long-term damage.
- Concerns for impacts on birds, including curlew, hen harrier etc.

LOWER RIVER SHANNON SAC (SITE CODE 002165):

Summary of Key issues that could give rise to adverse effects (from screening stage):

(i) Potential to impact water-dependent species because of a reduction in water quality.
(ii) Disturbance of mobile species.
(iii) Spread of invasive alien species.

See section 5.2 and Table 7of the NIS

Qualifying Interest features likely to be affected	**Conservation Objectives** Targets and attributes	**Potential adverse effects**	**Mitigation measures (summary)**
Freshwater Pearl Mussel (FWPM)	**Restore** the favourable conservation condition. ○ Maintain distribution at 7km. This conservation objective applies to the FWPM population in the Cloon River, Co. Clare. ○ Restore to 10,000 adult mussels. ○ Restore to least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length.	Surveys recorded a relatively large population of adult FWPM in the River Cloon, largely confined the main river and absent from all but the lower reaches of its tributaries, with a marked increase in density moving downstream as the river becomes larger. There is direct connectivity to the Lower River Shannon SAC via tributaries of the River Cloon. There is potential for accidental release of sediment and / or contaminated water via surface water run-off to the Lower River Shannon SAC via the Cloon and its tributaries during all phases of the development which can	Set out in section 5.3 of the NIS and include embedded mitigation through design, construction phase standard best practice measures, site-specific measures to include appointment of an Ecological Clerk of Work, timing of works, machinery operational requirements, storage and use of contaminants, control of run off and monitoring, including water sampling. Baseline flow and depth monitoring at outflows within the site will be established and flow will be monitored throughout the duration of the construction period.

	○ No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution. ○ Restore suitable habitat in more than 3.3km and any additional stretches necessary for salmonid spawning. ○ Restore water quality. ○ Restore substratum quality. ○ Restore substratum quality. ○ Restore appropriate hydrological regimes. ○ Maintain sufficient juvenile salmonids.	affect the conservation objectives of the QI habitats and/or species. This risk is greatest during the construction phase where a watercourse crossing is proposed over a waterbody connected to the SAC and where the Turbine Delivery Route crosses points of the River Cloon.	Biosecurity measures incorporated in the project design will minimise the spread of IAS during construction and decommissioning phases (see Appendix 2.1 CEMP) (& pg 60 of NIS). The proposed SWMP (Appendix 11.1, Volume 3 of the EIAR) provides measures to limit effects on water quality during the operational phase. FPM habitat monitoring within the site will be done in the pre-construction phase, during construction, and post-construction, to determine if there are any changes to levels of filamentous algal, macrophyte and bryophyte growth and of fine sediment (outlined in the Aquatic Habitat Management Plan, Appendix 9.6). Stage 2 FPM surveys be conducted at six-year intervals on the surveyed reaches of the River Cloon and repeat Stage 1 FWPM surveys be conducted on the Cloonkett and Carrowreagh East tributaries to capture any changes to FWPM. Additional measures during operation include: restricted access, access track inspections, no storage of chemicals or mobile machinery, off-site treatment of wastewater.

			Water quality assessments will be carried out once operational, including sediment particle size and flow, FWPM habitat monitoring.
Sea Lamprey Brook Lamprey River Lamprey (grouped as similar targets and attributes)	**Restore** the favourable conservation condition of Sea Lamprey. **Maintain** the favourable conservation condition of Brook and River Lamprey. Distribution: extent and anadromy, greater than 75% of main stem length of rivers accessible from estuary (Sea Lamprey), access to all water courses down to first order streams (Brook & River Lamprey); Population structure of juveniles: at least three age/size groups present. Juvenile density in fine sediment: juvenile density of at least 1/m2 for sea lamprey, 2/m2 of brook lamprey and river lamprey.	The three species of lamprey are likely to be present in the River Cloon downstream of the Site, and one or more species may be present in the tributaries within the proposed wind farm area, though were not recorded on Site. There is potential for accidental release of sediment and / or contaminated water via surface water run-off to the Lower River Shannon SAC via the Cloon and its tributaries during all phases of the development which can affect the conservation objectives of the QI habitats and/or species. Reduced water quality could potentially result in the release of pollutants and negatively affecting **juvenile density** in fine sediment. The construction phase of the project could potentially result in sediment release reducing oxygen levels to eggs, impacting **population structure** of juveniles**.**	As above for water quality. There is potential for disturbance through vibration effects for lamprey and Atlantic salmon (see following QI) during the construction of the single span bridge across the Carrowreagh East. Embedded mitigation: no in-stream works and the abutments for the bridge will be founded on reinforced concrete pad footings maintaining 4 m setbacks from the stream banks. No pile-driving is proposed. Above-water noise can transmit vibrations: works will not take place during fish spawning or migration periods. The bridge construction works will be short-term and temporary in nature. Given that no instream works are proposed, there is limited evidence of lamprey species and Atlantic salmon in Carrowreagh East watercourse, and embedded mitigation includes timing works to have the least impact on aquatic species, it is considered that the effects from construction will not significantly affect populations of Atlantic

	Extent and distribution of spawning habitat: no decline in extent and distribution of spawning beds. Availability of juvenile habitat: more than 50% of sample sites positive.	Construction of the bridge cross the Carrowreagh East watercourse has potential to cause disturbance effects through noise and vibration.	salmon and lamprey associated with the Lower River Shannon SAC.
Atlantic Salmon	**Restore** the favourable conservation condition. Distribution: extent of anadromy, 100% of river channels down to second order accessible from estuary; Adult spawning fish, CL for each system consistently exceeded; Salmon fry abundance, maintain or exceed 0+ fry mean catchment-wide abundance threshold value, currently set at 17 fry per 5 min sampling; Out-migrating smolt abundance, no significant decline; Number and distribution of redds, no decline in number and distribution of spawning redds due to anthropogenic causes.	Surveys show that salmonid fish habitat quality is low, it is considered that adults have potential to occupy the rivers within and directly connected to the site. Atlantic salmon were not recorded on site. Reduced water quality due to mixed sources of pollution could lead to significant effects on this species given that they need good water quality to maintain their survival. Potential sediment run off as a result of proposed repairs could result in gravels becoming unsuitable for spawning, adversely effecting number of adult spawning fish.	As above.

	Water quality, at least Q4 at all sites sampled by EPA.		
Otter	**Restore** the favourable conservation condition. Distribution, no significant decline; Habitat, no significant decline; Couching sites and holts, no significant decline; Fish biomass available, no significant decline; Barriers to connectivity, no significant increase.	The otter survey was extended to a 150m survey area up- and downstream from stream crossing points and watercourse sections within 150m of proposed infrastructure for otter. Several trails, target-noted spraints, and potential slipways were observed near wet site drains and stream banks. No holts, layups, or resting places were observed during the species-specific surveys conducted within the 150 m survey area to watercourses. It is considered that there is suitable habitat for otter within the study area and that there is potential for otter to pass through the site. There is potential for likely significant effects on otter both directly (disturbance) and indirectly (prey reduction from emissions to surface waters). Fish typically comprise the majority of prey of otter and therefore there is potential for an indirect effect on this species relating to fish biomass availability, should deterioration in water quality affect fish (prey populations).	As above with respect to water quality. With respect to disturbance: there was limited evidence of otter recorded during the field survey. The site is within the foraging range for male otters. The ability of otter to tolerate noise generated by human activity, coupled with the limited evidence of otter recorded during field surveys and typical territorial range means that noise generated at all phases is not likely to significantly affect otter populations associated with the Lower River Shannon SAC (pg 59 of the NIS).

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	**Maintain** the favourable conservation condition. Habitat area, area stable or increasing subject to natural processes; Habitat distribution, no decline, subject to natural processes; Hydrological regime: river flow & groundwater discharge, maintain appropriate regimes; Maintain natural tidal regime and freshwater seepages; Substratum composition: particle size range, appropriate to habitat. Water quality, maintain appropriate water quality to support the natural structure and functioning of the habitat; Typical species, maintain typical species in good condition, including appropriate distribution. Maintain floodplain connectivity: area of active floodplain at and	This habitat has potential to be found in the SAC downstream of the Site The proposed construction works could result in a **reduction in water quality** from emissions via the River Cloon during construction (accidental release of pollutants/cements or sediments/silt).	As above with respect to water quality.

	upstream of the habitat should be maintained. Maintain riparian habitats.		
Estuaries	**Maintain** the favourable conservation condition of estuaries. Permanent habitat area is stable or increasing. Conserve the community types in a natural condition.	This habitat has potential to be found in the SAC downstream of the site. Emissions to surface water, sedimentation and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives for these QIs of the Lower River Shannon SAC.	As above with respect to water quality.
Mudflats and sandflats not covered by seawater at low tide	**Maintain** the favourable conservation condition of mudflats and sandflats. The permanent habitat area is stable or increasing. Conserve the community types in a natural condition.	This habitat has potential to be found in the SAC downstream of the site. Emissions to surface water, sedimentation and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives for these QIs of the Lower River Shannon SAC.	As above with respect to water quality.
Reefs	**Maintain** the favourable conservation condition of reefs. The distribution of Reefs is stable.	This habitat has potential to be found in the SAC downstream of the site. Emissions to surface water, sedimentation and / or introduction and / or spread IAS cannot be ruled out, and	As above with respect to water quality.

	The permanent habitat area is stable. Conserve the reef community types in a natural condition.	can be considered to cause likely significant effects, negatively impacting the conservation objectives for these QIs of the Lower River Shannon SAC.	
Atlantic salt meadows	**Restore** the favourable conservation condition of Atlantic salt meadows. Area is 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 vegetation structure.	This habitat has potential to be found in the SAC downstream of the site. Emissions to surface water, sedimentation and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives for these QIs of the Lower River Shannon SAC.	As above with respect to water quality.
Mediterranean salt meadows	**Restore** the favourable conservation condition of Mediterranean salt meadows. Area is increasing. No decline or change in habitat distribution. Maintain natural circulation of sediments and organic matter. Maintain/restore creek and pan structure. Maintain natural tidal regime. Maintain vegetation structure.	This habitat has potential to be found in the SAC downstream of the site. Emissions to surface water, sedimentation and / or introduction and / or spread IAS cannot be ruled out, and can be considered to cause likely significant effects, negatively impacting the conservation objectives for these QIs of the Lower River Shannon SAC.	As above with respect to water quality.

Bottlenose Dolphin	**Maintain** the favourable conservation condition. Species range within the site should not be restricted by artificial barriers to site use. Critical areas should be maintained in a natural condition. Human activities should not adversely affect the population	This habitat has potential to be found in the SAC downstream of the Site. Habitat used preferentially by bottlenose dolphin, should be maintained in a natural condition. Considering the hydrological connection and proximity of this connection to critical habitat for common bottlenose dolphin, likely significant effects on this QI cannot be ruled out from indirect effects from emissions to water.	As above with respect to water quality.
Molinia Meadows	**Maintain** the favourable conservation condition.	**None** This QI is recorded upstream of the site in the SAC, to the north and the east of Limerick city. No habitat associated with this qualifying interest was identified in proximity to the works, I agree with the AA Screening Report that there is no potential for likely significant effects on this QI as a result of the proposed works.	Not applicable.
*Alluvial forests with Alnus glutinosa and Fraxinus excelsior	To **restore** the favourable conservation condition.	**None** This QI is recorded upstream of the site in the SAC, to the north and the east of Limerick city. No habitat associated with this qualifying interest was identified in proximity to the works, I agree with the AA Screening Report that there is no potential for likely significant effects on this QI as a result of the proposed works.	Not applicable.

Sandbanks which are slightly covered by sea water all the time Large shallow inlets and bays Vegetated sea cliffs of the Atlantic and Baltic coasts Salicornia and other annuals colonizing mud and sand *Coastal lagoons	**Maintain** the favourable conservation condition of sandbanks, inlets and bays, sea cliffs, salicornia and other annuals. **Restore** the favourable conservation condition of coastal lagoons.	**None** Having regard to the distance of the proposed works to these habitats I am satisfied that there is no potential for likely significant effects on these habitats.	Not applicable.
The above table is based on the documentation and information provided on the file and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests. In particular, I note those relating to Freshwater Pearl Mussel, sea lamprey, brook lamprey, river lamprey, Atlantic salmon Otter, Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, Estuaries, Mudflats and sandflats not covered by seawater at low tide, Reefs, Atlantic salt meadows, Mediterranean salt meadows, Bottlenose Dolphin.			
Assessment of issues that could give rise to adverse effects view of conservation objectives **(i) Potential to impact water-dependent species because of a reduction in water quality.** I refer the Commission to the appended reports referenced above, in particular, those prepared by the Inspectorate Environmental Scientist and Inspectorate Ecologist. I fully adopt the findings and conclusions of these reports. Conclusions of these reports are presented below: The applicant has assembled a comprehensive ecological evidence base and that sufficient information has been provided to identify the relevant receptors, pathways and potential impacts. FWPM is the principal ecological receptor relevant to determination of the application			

and that sediment and nutrient pathways represent the principal mechanisms through which effects could arise. The principal issue in this case is whether the mitigation measures relied upon within the Natura Impact Statement have been demonstrated to be effective.

The Surface Water Management Plan (SWMP) has not been properly designed to intercept and remove the full volume of silt generated by this development. The site's specific soil profile contains highly mobile fine particles and peat, which will remain suspended and cannot be effectively captured by the applicant's proposed standard sediment settlement ponds. Furthermore, while the applicant suggests that chemical flocculants may be required to treat these fine fractions, they have failed to provide any design details, operational protocols or environmental impact assessments regarding the toxicological risks or secondary ecological impacts these chemical additives could pose to the downstream FWMP (Margaritifera margaritifera) population.

The SWMP has not been properly designed to retain nutrients generated during this development. The applicant has failed to provide site-specific evidence or modelling demonstrating that dissolved or particulate nutrients will be effectively captured within the drainage system. This lack of rigorous retention data creates an unassessed risk of nutrient enrichment in the downstream catchment, which could cause eutrophication and jeopardize the critical habitat requirements of the freshwater pearl mussel population.

The applicant has failed to demonstrate beyond reasonable scientific doubt that the development will not adversely impact water quality and, consequently, the FWPM population. By omitting critical evidence regarding fine sediment retention, flocculant safety, and nutrient capture, the assessment leaves significant gaps in its environmental analysis. In the absence of this objective scientific certainty, the evaluation falls short of the stringent legal and ecological standards required to guarantee the protection of this highly sensitive species.

Having regard to the findings of the Inspectorate Environmental Scientist's Technical Note, the Inspectorate Ecologist Specialist's Report and the ecological significance of the uncertainties identified therein, I am not satisfied that adverse effects on the conservation objectives and integrity of the Lower River Shannon SAC can be excluded beyond reasonable scientific doubt. Accordingly, I do not concur with the conclusion of the Natura Impact Statement in respect of FWPM.

Although the FWPM requires exceptional high water quality, the risk to water quality due to the uncertainty of the efficacy of mitigation measures relating to pollution control/sediment egress and nutrient enrichment extends to other QI species and habitats, including otter, lamprey, salmon, Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, estuaries, Mudflats and sandflats not covered by seawater at low tide, reefs, Atlantic salt meadows, Mediterranean salt meadows, bottlenose dolphin, it is not possible to conclude beyond reasonable scientific doubt that the mitigation measures are effective, notwithstanding that some of these habitats are at some remove downstream of the development site which is likely to reduce impacts through dilution and sediment settlement.

Mitigation measures and conditions
Based on the foregoing, I am not satisfied that the mitigation measures for the proposed development are adequate.

(ii) Disturbance of mobile species

Otter, lamprey and salmon may be at risk from disturbance, particularly during construction works.

With respect to otter: The ability of otter to tolerate noise generated by human activity, coupled with the limited evidence of otter recorded during field surveys and typical territorial range means that noise generated at all phases is not likely to significantly affect otter populations associated with the Lower River Shannon SAC. There is potential for disturbance through vibration effects for Atlantic salmon and lamprey during the construction of the single span bridge across the Carrowreagh East. There is limited evidence of Atlantic salmon and lamprey species in Carrowreagh East watercourse.

Mitigation measures and conditions
Bridge works will not take place during fish spawning or migration periods, works will be temporary and short-term. No instream works are proposed. Abutments for the bridge will be founded on reinforced concrete pad footings maintaining 4 m setbacks from the stream banks. No pile-driving is proposed. It is considered that the effects from construction will not significantly affect populations of Atlantic salmon and lamprey associated with the Lower River Shannon SAC due to disturbance.

(iii) Spread of invasive alien species (IAS)

Small number of Rhododendron saplings, Japanese knotweed, giant hogweed and snowberry were recorded in/close to the study area. Himalayan balsam was recorded on the banks of the River Cloon downstream of the Site. No other invasive species were recorded during the surveys. Figure 9.12 of the EIAR illustrates the locations of the AIAS recorded within the site and immediate environs during the field assessment. IAS can result in changes to the ecological functioning of water habitat/water quality.

Mitigation measures and conditions
Biosecurity measures incorporated in the project design will minimise the spread of IAS during construction and decommissioning phases (see Appendix 2.1 CEMP) (& pg 60 of NIS).

In-combination effects

The NIS has carried out an assessment of the proposed development. An assessment of cumulative effects with other plans and projects has been carried out in Section 6 of the NIS (Table 8, March 2025). With respect to wind farms in the area, there are a stated 15 wind farms within 20 km of Cloonkett, either operational, approved or planned, as outlined in Table 9 of the NIS. None are hydrologically connected to the River Cloon or any of the tributaries to which the proposed development is connected, and therefore there is no potential for in combination effects. The NIS concluded that, subject to implementation of mitigation measures, that the proposed development will not have an adverse effect on the integrity of the Lower River Shannon SAC.

I have reviewed the details of these projects, plans and policies which were identified in the NIS. Having regard to the concerns raised in my assessment as to the efficacy of mitigation measures to protect water quality in the SAC, I am unable to conclude that no in-combination effects would arise.

Findings and conclusions
The applicant determined that following the implementation of mitigation measures the construction and operation of the proposed development alone, or in combination with other plans and projects, affect the integrity of any European Site either alone or in combination with any other plans or projects.

Based on the information provided by the applicant in response to the submission of the Development Application s Unit (DAU) of the Department of Housing, Local Government and Heritage, which has been addressed above, I am not satisfied that adverse effects arising from aspects of the proposed development can be excluded for the Lower River Shannon SAC (site code 002165).

I note and concur with the conclusion of the Inspectorate Ecologist as follows:
Having regard to the findings of the Inspectorate Environmental Scientist's Technical Note (see details above relating to efficacy of mitigation measures to protect water quality) and the ecological significance of the uncertainties identified therein, I am not satisfied that adverse effects on the conservation objectives and integrity of the Lower River Shannon SAC can be excluded beyond reasonable scientific doubt.

While mitigation measures and includes construction and post-construction monitoring, I am not satisfied that the mitigation measures proposed to prevent adverse effects have been assessed as being effective and I am not satisfied that these matters can be addressed by way of a condition of a grant of permission.

Reasonable scientific doubt
I conclude that there is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests.

Site Integrity

I am not satisfied on the basis of the information provided in the NIS and in the response to submissions, that the proposed development will not affect the attainment of the Conservation objectives for the Lower River Shannon SAC (site code 002165).

River Shannon and River Fergus Estuaries SPA (004077):

Summary of Key issues that could give rise to adverse effects (from screening stage):

(i) Collision risk
(ii) Potential disturbance/displacement/ Barrier effect
(iii) Potential to impact water-dependent species because of a reduction in water quality.
(iv) Spread of invasive alien species.

See section 5.2 and Table 7of the NIS. The NIS only screened in Wetland and Waterbirds to the NIS. I consider all SCI bird species in this AA. I note the external Specialist Report, prepared by ERM, which stated that information is included in the EIAR and, in particular, in the Applicant's Response to Submissions which provides additional information and assessment to allow the Commission to reach complete, precise and definitive findings as part of the AA of the implications of the project on the integrity of the River Shannon and River Fergus Estuaries SPA in view of the conservation objectives of those sites.

Qualifying Interest features likely to be affected	**Conservation Objectives** To maintain the favourable conservation condition. **Targets and attributes (as below, where relevant)**	**Potential adverse effects**	**Mitigation measures (summary)**
Cormorant	No significant decline in breeding population, productivity rate, distribution, prey biomass. No significant increase of barriers to connectivity. Human activities should not adversely affect the breeding population.	Based on habitat availability within the 2 km turbine buffer and / or behavioural traits, there was potential for these birds to occur. They were recorded within the study area at higher frequency over the 3-year study and therefore warranted further assessment. **Potential adverse effects: Collision risk / Barrier effect, and potential disturbance / displacement:**	Yes. A summary of the mitigations outlined in the EIAR Section 9.7, and accompanied by a CEMP and Biodiversity Management and Enhancement Plan (BMEP).

	Population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	The response to submissions states that for cormorant, there was no foraging observed within the 500m turbine buffer and habitat availability was limited to two small streams that were assessed as largely unsuitable (too restricted or shallow) for this species. Single birds were only occasionally recorded on Gortglass Lough, and cormorants were more frequently encountered during counts covering the SPA. Therefore, no loss of habitat or disturbance / displacement effects are anticipated. Cormorant flight activity within the 500 m buffer was assessed as relatively low, with periodic commuting flights (17 observations over 3-year study) by small numbers (1-2 birds). Based on flight time in the collision risk zone, predicted collision risk (0.02 collisions per annum, < 1 collision over 40 years) was low and would have an imperceptible population level effect. Mitigation not required. **Potential adverse effects: Potential to impact water-dependent species because of a reduction in water quality due to contaminants, sedimentation and / or spread of invasive alien species with potential to negatively impact wetland / waterbird habitat:** Mitigation required.	The NIS further outlines the following mitigation measures set out to prevent adverse effects on watercourses and downstream designated sites: • Avoidance of sensitive avian habitats, including Annex I bog/wetland habitats used by upland and wetland bird species; • Reduced turbine count and repositioned layout to minimise collision, disturbance, and habitat loss; • Minimised watercourse crossings; redesigned grid route to protect downstream designated wetland/river bird habitats; • ≥50 m buffers around all watercourses to safeguard riparian bird corridors. • Drainage design preventing direct discharge to maintain high-quality downstream
Curlew	Population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	Curlew was recorded during the surveys. The site offers some potential foraging habitat. No breeding behaviour was recorded and birds were noted as commuting through the area**.** **Potential adverse effects: Collision risk / Barrier effect, and potential disturbance / displacement:**	

		The response to submissions states that the notably low level of flight activity recorded within the 500m turbine buffer means the proposed development does not pose a measurable collision risk to curlew. There were no winter records of curlew within the 500m turbine buffer, with closest records being small numbers occasionally recorded at Cloonsnaghta Lough. No curlew breeding activity was recorded within the 800m turbine buffer and although there were birds recorded during the bird season, these were predominately recorded late in the summer (July/August) and were not attributed to any breeding attempts in the area. Based on the low levels of utilisation measured over the 3-year baseline study, it is considered that there is no potential for likely significant effects to the SPA population. Mitigation not required. **Potential adverse effects: Potential to impact water-dependent species because of a reduction in water quality due to contaminants, sedimentation and / or spread of invasive alien species with potential to negatively impact wetland / waterbird habitat:** Mitigation required.	habitats for water-dependent birds; • Strict timing restrictions (no in-channel works outside 1 July–30 September) to avoid disturbance to breeding birds; • Full sediment and pollution control (settlement ponds, silt fencing, traps) to prevent water-quality impacts affecting bird foraging areas; • Careful peat/soil handling to avoid hydrological changes to bog/wetland habitats; • Rapid re-vegetation of disturbed ground to restore habitat and reduce erosion risk; and • Water quality monitoring, including continuous turbidity monitoring, to protect downstream designated habitats supporting avian qualifying interests.

Golden Plover	Population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	Golden plover was recorded during the surveys. The site offers some potential foraging habitat and is within core foraging range. No breeding behaviour was recorded, and birds were noted as commuting through the area. The site of the proposed development does not provide any suitable breeding habitat for this upland breeding wader, and the closest breeding sites are in expansive bogs of Connemara. **Potential adverse effects: Collision risk / Barrier effect, and potential disturbance / displacement:** The response to submissions states Golden plovers are known to exhibit high levels of turbine avoidance and predicted collision risk, based on aggregated flight time within the buffer and applying 99.8% avoidance was found to be low, 0.03-0.09 collision per annum (1-4 collision over 40 years). Mortality at this rate would have an imperceptible population level effect. Wider area surveys detected small numbers in estuarine habitats associated with the SPA and golden plover were not recorded on the two closest waterbodies - Gortglass Lough & Cloonsnaghta Lough. Mitigation not required. **Potential adverse effects: Potential to impact water-dependent species because of a reduction in water quality due to contaminants, sedimentation and / or spread of invasive alien species with potential to negatively impact wetland / waterbird habitat:** Mitigation required.	As above
Black-headed Gull	Population trend stable or increasing.	Based on habitat availability within the 2 km turbine buffer and / or behavioural traits, there was potential for	As above

	No significant decrease in the range, timing or intensity of use of areas.	these birds to occur. They were recorded within the study area at higher frequency over the 3-year study and were further assessed. **Potential adverse effects: Collision risk / Barrier effect, and potential disturbance / displacement:** The response to submissions states: flights by relatively small numbers were recorded through the 500m turbine buffer. Black-headed gulls are known to exhibit high levels of turbine avoidance and predicted collision risk, based on aggregated flight time within the buffer and applying 99.2% avoidance was found to be low, 0.05 collision per annum (2 collisions over 40 years). Mortality at this rate, if realised, would have an imperceptible population level effect. No activity was recorded in the 500m turbine buffer during the core part of the breeding season, indicating that birds move to breeding colonies over this period. Improved grassland habitat, a foraging opportunity, is widely available throughout the region and it is considered that any displacement effects will be imperceptible. Mitigation not required. **Potential adverse effects: Potential to impact water-dependent species because of a reduction in water quality due to contaminants, sedimentation and / or spread of invasive alien species with potential to negatively impact wetland / waterbird habitat:** Mitigation required.	
Whooper Swan	Population trend stable or increasing.	These species (whooper swan, teal and lapwing) occurred in very low numbers, and the project would not	Not applicable.

Teal Lapwing	No significant decrease in the range, timing or intensity of use of areas.	result in an adverse effect on the integrity of the SPA. This is based on very low levels of flight activity, and the lack of evidence of the project site being an important foraging area for SPA populations.	
Wigeon Shoveler Dunlin Redshank Black-tailed Godwit Ringed Plover Light-bellied Brent Goose Shelduck Pintail Scaup Grey Plover Knot Bar-tailed Godwit Greenshank	Not applicable.	With respect to: **Collision risk / Barrier effect, and potential disturbance/displacement** – no adverse effect likely. These species are predominately coastal and/or have specific habitat requirements that are not satisfied within the 2 km turbine buffer; and/or had very low levels of recorded usage in the ornithological surveys. Therefore, it can be objectively concluded beyond scientific doubt that SPA populations of following wintering waterbirds will not be affected by the proposed development.	Not applicable.
Wetland and Waterbirds	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation.	With respect to: Potential to impact water-dependent species because of a **reduction in water quality** due to contaminants, sedimentation and/or **spread of invasive alien species** with potential to negatively impact wetland/waterbird habitat.	As per mitigation measures detailed above.
The above table is based on the documentation and information provided on the file and I am satisfied that the submitted NIS, together within the EIAR, associated appendices and the applicant's Response to Submissions has identified the relevant attributes and targets of the Qualifying Interests. In particular, I note those relating to Cormorant, Curlew, Golden Plover, Black-headed Gull and Wetland and Waterbirds.			
Assessment of issues that could give rise to adverse effects view of conservation objectives			

(i) Collision risk / Barrier effect

I note the reference to designed-in mitigation measures i.e. avoidance of sensitive avian habitats, including Annex I bog/wetland habitats used by upland and wetland bird species; and reduced turbine count and repositioned layout to minimise collision, disturbance, and habitat loss.

I note the appended Specialist Ornithological Report prepared by ERM, which acknowledges the clarification of information in relation to the assessment of the impacts on the River Shannon and River Fergus Estuaries SPA. The Response to Submissions confirms that seven qualifying interest feature species of the River Shannon and River Fergus Estuaries SPA were recorded during baseline surveys and could be impacted by the project. Three of these species (whooper swan, teal and lapwing) occurred in very low numbers, and the project would not result in an adverse effect on the integrity of the SPA. This is based on very low levels of flight activity, and the lack of evidence of the project site being an important foraging area for SPA populations. For four species (cormorant, curlew, golden plover and black-headed gull) more detailed assessment is presented, including discussion on the seasonal use of the project site and for cormorant, golden plover and black-headed gull, the results of collision risk modelling.
ERM state that they are satisfied that, based on the information presented across the EIAR, NIS and the Applicant's Response to Submissions, sufficient information has been provided to demonstrate that the project will not undermine the conservation objectives for the River Shannon and River Fergus Estuaries SPA. I accept and concur with ERM's findings.

Mitigation measures and conditions

Having regard to the foregoing, I am satisfied that mitigation measures and/or specific conditions are not required to address collision risk/barrier effect to SCI bird species for River Shannon and River Fergus Estuaries SPA (004077).

(ii) Potential disturbance/displacement

Following my assessment above, I am satisfied that any potential disturbance / displacement as a result of construction works or operation will not result in a significant effect on SCI bird species associated with River Shannon and River Fergus Estuaries SPA (004077). I note the NIS provides for strict timing restrictions (no in-channel works outside 1 July–30 September) to avoid disturbance to breeding birds. In addition, the CEMP requires that tree felling, trimming and site clearance will not be carried out during the bird breeding season which commences on March 1st and finishes on August 31st. All site clearance / enabling works will be preceded by survey and inspection by an Ecological Clerk of Works for the presence of any species or habitats protected by Law.
I concur with the findings of ERM that based on the information presented across the EIAR, NIS and the Applicant's Response to Submissions, sufficient information has been provided to demonstrate that the project will not undermine the conservation objectives for the River Shannon and River Fergus Estuaries SPA.

Mitigation measures and conditions
Having regard to the foregoing, I am satisfied that mitigation measures and/or specific conditions are not required to address disturbance/displacement to SCI bird species for River Shannon and River Fergus Estuaries SPA (004077).

(iii) Potential to impact water-dependent species because of a reduction in water quality and spread of invasive alien species
There is potential for the proposed works to result in water quality degradation. A deterioration in water quality has the potential to indirectly impact waders and waterbirds and impact the habitat for these birds. These species have conservation objective targets relating to water quality and/or habitat quality requirements. I note the proposed suite of mitigation measures to ensure water quality is maintained in the SPA, as detailed in the foregoing table.
I aaccept the findings of ERM that based on the information presented across the EIAR, NIS and the Applicant's Response to Submissions, sufficient information has been provided to demonstrate that the project will not undermine the conservation objectives for the River Shannon and River Fergus Estuaries SPA.

Mitigation measures and conditions
Having regard to the foregoing, I am satisfied that the mitigation measures and/or specific conditions are satisfactory to address potential significant effects on SCI bird species for River Shannon and River Fergus Estuaries SPA (004077) arising from a result of deterioration in water quality, including the spread of invasive species.

In-combination effects
An assessment of cumulative effects with other plans and projects has been carried out in Section 6 of the NIS (Table 8, March 2025). With respect to wind farms in the area, there are a stated 15 wind farms within 20 km of Cloonkett, either operational, approved or planned, as outlined in Table 9 of the NIS. The assessment states that there is no hydrological connectivity between these developments and the watercourses impacted by the project as the AA Screening section of the report screened out likely significant effects of the project on SPA bird species from collision mortality, therefore the in-combination assessment does not assess in-combination collision mortality. Following the assessment, the applicant determined that, with the proposed mitigation measures in place, the project would not adversely affect the integrity of any European Site either alone or in combination with any other plan or project. The NIS concluded that, subject to implementation of mitigation measures, that the proposed development will not have an adverse effect on the integrity of the River Shannon and River Fergus SPA.

ERM, in their Specialist Report on ornithology (appendix 7 to this Report) concludes that the predicted collision mortality for the qualifying interest bird species of the SPA from the project is sufficiently low that in-combination collision impacts will not occur.

While, deterioration of water quality is a risk due to concerns of the efficacy of mitigation measures to prevent same, I am satisfied that the SPA is of sufficient distance from the site, with an abundance of alternative water environment in the surrounding area, that the impact on birds associated with

this downstream SPA is much less likely to have an adverse effect on site integrity. ERM found that the in-combination assessment on cumulative impacts to water quality and hydrology are robust (with respect to SPAs) and no in-combination effects arise.

I am there satisfied therefore that there is no potential for in-combination effects.

Findings and conclusions
The applicant screened in the River Shannon and River Fergus Estuaries SPA (Site Code 004077) for Appropriate Assessment in respect of impacts on wetland habitat which support the bird interest features of this SPA through hydrological connectivity but screened out impacts on all qualifying bird interest features of the SPA, despite seven species from the SPA being recorded during baseline surveys for the project. Having regard to the external Specialist Report prepared by ERM, I have screened in the SPA for assessment to include the potential for likely significant effects on individual bird qualifying features of the River Shannon and River Fergus Estuaries SPA. I concur with ERM that the submitted documentation, including the EIAR, associated appendices and the applicant's Response to Submissions is sufficient to enable an appropriate assessment of this SPA.

Based on the information provided, I am satisfied that adverse effects arising from proposed development on SPA can be excluded and no significant effects are predicted.

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 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.

Mid-Clare Coast SPA (004182)

Summary of Key issues that could give rise to adverse effects (from screening stage):
(i) Collision risk / Barrier effect
(ii) Potential disturbance/displacement

Neither the applicant's AA Screening Report nor the NIS considers the Mid-Clare Coast SPA. I have screened in this SPA for AA. I note that information is included in the EIAR and in the Applicant's Response to Submissions which provides information and assessment to allow

the Commission to reach complete, precise and definitive findings as part of the AA of the implications of the project on the integrity of the Mid-Clare Coast SPA in view of the conservation objectives of this site.			
Qualifying Interest features likely to be affected	**Conservation Objectives** To maintain the favourable conservation condition. **Targets and attributes** (as below, where relevant)	**Potential adverse effects**	**Mitigation measures (summary)**
Cormorant	No significant decline in breeding population, productivity rate, distribution, prey biomass. No significant increase of barriers to connectivity. Human activities should not adversely affect the breeding population.	**Potential adverse effects: Collision risk, disturbance / displacement/ Barrier effect:** The response to submissions states that for cormorant, there was no foraging observed within the 500m turbine buffer and habitat availability was limited to two small streams that were assessed as largely unsuitable (too restricted or shallow) for this species. Single birds were only occasionally recorded on Gortglass Lough, and cormorants were more frequently encountered during counts covering the SPA. Therefore, no loss of habitat or disturbance / displacement effects are anticipated. Cormorant flight activity within the 500m buffer was assessed as relatively low, with periodic commuting flights (17 observations over 3-year study) by small numbers (1-2 birds). Based on flight time in the collision risk zone, predicted collision risk (0.02 collisions per annum, < 1 collision over 40 years) was low and would have an imperceptible population level effect. No mitigation required.	Not applicable
Barnacle Goose	Not applicable	None – not recorded in surveys	Not applicable

Ringed Plover	Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	**Potential adverse effects: Collision risk, disturbance / displacement/ Barrier effect:** This species was not recorded within the 500m or 2 km turbine buffers across all the surveys undertaken; and therefore, it could be objectively concluded that the proposed development would not adversely this species. No mitigation required.	Not applicable
Sanderling	Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	None – not recorded in surveys.	Not applicable
Purple Sandpiper	Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	None – not recorded in surveys.	Not applicable
Dunlin	Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	**Potential adverse effects: Collision risk, disturbance / displacement/ Barrier effect:** This species was not recorded within the 500m or 2 km turbine buffers across all the surveys undertaken; and therefore, it could be objectively concluded that the proposed development would not adversely this species. No mitigation required.	Not applicable

Turnstone	Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas.	**Potential adverse effects: Collision risk, disturbance / displacement/ Barrier effect:** The Supporting CO Document states that the SPA is designated for non-breeding turnstone species. I note the EU Data sheet, that outside of the breeding season the species is mainly coastal, although on migration it may occur inland along dykes or on lake shores. This waterbird species was not recorded within the 500m or 2 km turbine buffers across all the surveys undertaken; and therefore, it could be objectively concluded that the proposed development would not adversely this species. The applicant's Response to Submissions states that as this species can be excluded from more indepth assessment as it is predominantly coastal. No mitigation required.	Not applicable
Wetlands	The permanent area occupied by the wetland habitat should be stable.	No effects likely and no mitigation required.	Not applicable
The above table is based on the documentation and information provided on the file and while the site is not screened in for assessment in the NIS, I am satisfied that the submitted documentation, including the EIAR, associated appendices and the applicant's Response to Submissions is sufficient to enable an appropriate assessment. I have 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) Collision risk / disturbance/displacement/ Barrier effect** I have considered the potential for collision risk for cormorant, ringed plover, dunlin and turnstone. Having regard to the bird surveys undertaken, distance of the development site to the SPA, together with the Conservation Objectives for the SPA, I am satisfied that collision risk will not give rise to adverse effects view of the conservation objectives for these species. No other risk arises to protected species of this SPA. **Mitigation Measures**			

Having regard to the foregoing, I am satisfied that mitigation measures and/or specific conditions are not required to address collision risk/disturbance/displacement effect to SCI bird species for Mid-Clare Coast SPA (004182).

In-combination effects

An assessment of cumulative effects with other plans and projects has been carried out in Section 6 of the NIS (Table 8, March 2025). With respect to wind farms in the area, there are a stated 15 wind farms within 20 km of Cloonkett, either operational, approved or planned, as outlined in Table 9 of the NIS. Having regard to the applicant's CRM, I note and accept the findings that the predicted collision mortality for the qualifying interest bird species of the SPA from the project is sufficiently low that in-combination collision impacts will not occur. In addition, no loss of habitat or disturbance / displacement effects are anticipated. I am there satisfied therefore that there is no potential for in-combination effects.

Findings and conclusions

The applicant did not screen in the Mid-Clare Coast SPA for Appropriate Assessment. I have screened in the SPA for assessment. The submitted documentation, including the EIAR, associated appendices and the applicant's Response to Submissions is sufficient to enable an appropriate assessment of this SPA.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Mid-Clare Coast SPA. No direct or indirect impacts are predicted, and no specific mitigation measures are required beyond those already proposed in the NIS.

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 Conservation Objectives of the Mid-Clare Coast 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 the Lower River Shannon SAC (Site Code 002165), River Shannon and River Fergus Estuaries SPA (site code 004077) and Mid-Clare Coast SPA (Site Code 004182) in view of the conservation objectives of those sites and that Appropriate Assessment under the provisions of S177V was required.

Following an examination, analysis and evaluation of the NIS, EIAR and all associated material submitted, including observations on nature conservation, the internal specialist reports prepared by the Inspectorate Environmental Scientist and Inspectorate Ecologist, and the external Specialist Report on Ornithology prepared by ERM, I consider:

- With respect to River Shannon and River Fergus Estuaries SPA and Mid-Clare Coast SPA, 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.
- With respect to the Lower River Shannon SAC, that adverse effects on the site integrity of Lower River Shannon SAC (site code: 002165) cannot be excluded in view of the conservation objectives of this site and that reasonable scientific doubt remains as to the absence of such effects. My conclusion is based on the following:

  - the conservation objectives applicable to the Cloon catchment;
  - the recognised sensitivity of FWPM to fine sediment and nutrient enrichment;
  - the historical importance of sediment as a limiting factor within the catchment;
  - the findings of the Inspectorate Environmental Scientist's Technical Note regarding mitigation effectiveness including:
    - deficiencies in the design and mitigation proposals of the surface water management plan to appropriately intercept and remove silt generated by the proposed development and the failure to provide any design details, operational protocols, or environmental impact assessments regarding the toxicological risks or secondary ecological impacts of chemical additives (flocculants) could pose to the downstream freshwater pearl mussel;
    - deficiencies in the design of the surface water management plan to retain nutrients generated during this development creates an unassessed risk of nutrient enrichment in the downstream catchment, which could cause eutrophication and jeopardize the critical habitat requirements of the FWPM population; and,
  - the residual uncertainty associated with sediment and nutrient management,
  - the conclusions of the Inspectorate Ecologist that insufficient evidence has been presented to demonstrate that adverse effects on FWPM conservation objectives can be excluded beyond reasonable scientific doubt.

As a result, there is reasonable scientific doubt that the proposed development, individually or in combination with other plans and projects, would not adversely affect the integrity of Lower River Shannon SAC (site code: 002165) in view of the site's conservation objectives and qualifying interests.

Appendix 3: List of Third-Party Observers

1. Bernie Foley
2. Breeda Cotter
3. Cathal Brooks
4. Cathal Crowe **TD**
5. Christina Normoyle
6. Craig Mitchell
7. Currach Rowing Club - Sinead Cusack
8. David Condon
9. David Hayes
10. Eamonn Moloney
11. Elena Chepukova
12. Frank Ranalow
13. Gerard Kelly
14. Henry Wilkinson
15. Irene Brooks
16. Jamie Brooks
17. Janette & Kevin Casey
18. Joe Normoyle
19. John Hayes
20. John Hehir
21. John Joe & Mary Costello
22. John Normoyle
23. John O'Brien
24. Keith Ranalow
25. Kieran Doohan
26. Kildysart, Cranny, Coolmeen, Clonsnaughta Action Group – Michael Duffy
27. Liza Mc Cann & Others
28. Mark Ranalow
29. Mary Costello
30. Mary Hayes
31. Michael Kirrane & Mary Brown
32. Michéal Brooks
33. Noel King
34. Noreen Holland
35. Pat Casey & Others
36. Pat Foley
37. Pat Normoyle
38. Patricia King
39. Peter Ranalow
40. Rita O'Dea
41. Sarah Foley
42. Sarah Keane
43. Sean Costello
44. Tanya Ranalow
45. Thomas Foley
46. Tom & Mary Keane
47. Yvonne Ranalow

Appendix 4: Summary of Conditions Sought by Prescribed Bodies

Table A4: Summary of Conditions sought by Prescribed Bodies	Measures included in the EIAR?
Clare County Council	
Road Opening licences will be required.	Yes (CEMP)
Clerk of works to supervise works from Clare County Council at applicant's expense.	No
The applicant is to provide a community relations officer.	Yes (CEMP)
Reinstatement works in compliance with Standard Drawing SD4 and Drawing SD5 of the Guidelines for Managing Opening in Public Roads, Second Edition (Rev 1) April 2017	Yes (CEMP)
Any cabling laid on local roads shall receive Double Surface dressing	No
Road closures and diversion are to be advertised and agreed in advance of works	Yes (CEMP)
Pre-condition survey to be carried out on all Bridges/Culverts and pipelines along the route to the site	Yes (CEMP)
Damage to any structure will require immediate notification to the Kilrush Municipal District Office - full replacement will be required to damaged structures and pipelines	Partly (CEMP) (Immediate notification not provided for)
Post works surveys of each Bridge/Culvert structures will be required	Yes (ECMP)
Proposed delivery routes, times and dates to be agreed in advance	Yes (CEMP)
Land take/land dedications are the responsibility of the applicant	Yes (EIAR)
Road remediation costs of €2,987,000	No. Include
Department of Housing, Local Government and Heritage	
Mitigation measures in relation to archaeology and cultural heritage as set out in Chapter 14 shall be implemented in full.	Yes

Engagement of an archaeologist to carry out pre-development archaeological testing, submission of an archaeological impact assessment report, to include impact statement and mitigation strategy.	In part, CEMP and Ch. 14 of EIAR. Pre-development testing procedure not provided for.
CEMP to include the location of any and all archaeological or cultural heritage constraints.	No - include
The planning authority and the National Monuments Service to be furnished with a final archaeological report; costs shall be borne by the developer.	Yes (EIAR)
All ecological mitigation measures be clearly outlined in the CEMP	Yes (CEMP)
Department of Defence	
Turbine illumination and obstacle lighting	Yes (CEMP)
Department of Transport	
Identify/agree the routing 'optimal solution' HV Cable(s) along with requirements for traffic management, road opening licencing, times of work, reinstatement, positioning of chambers/ joint bays etc.	N/a - No grid connection cables proposed in the public roads
Comply with all standards and, inter alia the Guidelines for Managing Openings in Public Roads, 2017 in order to ensure orderly development.	N/a
Electricity cabling shall be laid off carriageway where feasible.	N/a
Joint bay structures are best located off the carriageway; where they must be under carriageway, joint bay structures will be to accepted design standards.	N/a
High/ medium voltage transmission underground cables should not be sited on or attached to existing roads structures, masonry bridges/ culverts and the like.	N/a
Location of the cables would be recorded as exactly as possible, include as constructed surveys and record lodged with the local authority and with the ESB Networks.	N/a

Replacement of culverts that have been excavated to include an allowance for the effects of climate change.	N/a
Notify the Roads Authority of the owner of the cables and the controller of the power transmitted along the cables and any subsequent change in ownership.	N/a
HSE	
All drinking to meet requirements of EU (Drinking Water) Regulations	N/a – under different Code
No foul wastewater to ground or surface water. Wastewater to be taken to a licensed treatment facility.	Yes (EIAR)
Site drainage should ensure the protection of surface and ground water during the construction phase.	Yes (CEMP)
Dust minimisation to be continually implemented, complaints investigated and responded to.	Yes (CEMP)
Irish Aviation Authority	
Aeronautical obstacle warning light scheme,	Yes (CEMP)
As-constructed coordinates at each wind turbine location	Yes (Response to Submissions)
Notification re crane operations	Yes (Response to Submissions
Shannon Airport	
Crane activity during construction – advance notice	Yes (Response to Submissions
TII	
Consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul routes traverse to ascertain any operational requirements.	Not explicitly stated in EIAR/CEMP
Referral of all proposals agreed between the road authorities, PPP Concessions and MMaRC Companies and the applicant impacting on national roads	Not explicitly stated in EIAR/CEMP
Mitigation measures identified by the applicant should be included as conditions in any decision to grant permission.	Yes (CEMP)

Assets shall be subject to proper undamaged reinstatement and properly certified	Yes (CEMP)
Works to the N68 / L2158 junction to accommodate abnormally sized loads are for a temporary period only, shall be closed off with a temporary barrier when not in use, and shall be reinstated/permanently closed after use.	No - include
Damage to national road at the access to the N68 / L2158 junction shall be rectified with in accordance with TII publications.	Yes (CEMP)
Road safety audit requirement	No - include
Works to the national road shall comply with TII Publications (formerly NRA DMRB); technical design standards for national roads	No - include
Details of abnormal loads and exceptional loads to be agreed with all planning and road authorities along all proposed haul routes	Yes (CEMP)

Appendix 5: Specialist Report, prepared by Donncha Madden, Inspectorate Ecologist

Appendix 6: Technical Note, prepared by Finbarr Quigley, Inspectorate Environmental Scientist

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Appendix 7: Specialist Report, prepared by ERM

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Appendix 8: Specialist Report, prepared by Sagnetia Aviation