



An
Coimisiún
Pleanála

Inspector's Report

ABP-318782-24

Development

Wind Infrastructure Development

Location

In the townlands of Ballycar (North), Belvoir, Cloghera, Cloonsheera, Cloontra, Cloontra East, Cloontra West, Crag, Derrynaveagh, Derryvinnan, Drumsillagh, Sallybank (Meritt), Droomsillagh or Sallybank (Parker), Gornacullin, Knockbrack Lower, Knockshavno, Kyle, Mountrice, Oatfield and Snaty, Co. Clare.

Planning Authority

Clare County Council

Applicant(s)

Ørsted Onshore Ireland Midco Limited

Type of Application

Application for approval permission under 37E of the Planning and Development Act 2000, as amended

Prescribed Bodies

Clare County Council
Department of Housing, Local Government & Heritage
Irish Aviation Authority

	Shannon Airport Authority
	AirNav Ireland
	Transport Infrastructure Ireland
Observer(s)	See Appendix A and B
Date of Site Inspection	14 th January 2025 and 29 th May 2026
Inspectors	Tomas Bradley & Paul Kelly

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1.0 Introduction

- 1.1. This case concerns an application for strategic infrastructure under Section 37E of the Planning and Development Act, 2000, as amended (PDA). It is made on foot of pre-application discussions with the Commission under ABP-315239-23 for a proposed windfarm development, where the Commission decided that the development would fall within the scope of Section 37A of the Act and would be strategic infrastructure. Issues raised during the pre-application process included hydrological links to the Lower River Shannon Special Area of Conservation (site code: 002165), peat stability, Danes Hole, Poulnalecka Special Area of Conservation (site code: 000030) and the qualifying interest Lesser Horseshoe Bat, Hen Harrier, archaeology, cumulative impacts and in-combination effects, the (then) Draft Clare County Development Plan, 2023-2029 and Volume 6 Clare Wind Energy Strategy.

For information, a timeline of the planning application is set out below:

Table 1: Timeline of the Planning Application	
Lodgement of planning application	December 2023
Close of submissions on planning application	February 2024
Submissions circulated to applicant with request to respond	March 2024
Applicant requests extension of time to respond to submissions	March 2024
Applicant responds to submissions received	June 2024
Further Information Request issued to Applicant	January 2025
Applicant responds to Further Information Request	May 2025
Applicant requested to re-advertise significant additional information received and to send notice of same to the PA and prescribed bodies.	June 2025
Further Information re-advertised	July 2025
Close of submissions on further information	August 2025
FI Submissions circulated to applicant	September & October 2025
Applicant requested to respond to FI submissions	October 2025
Applicant responds to FI Submissions received	November 2025

- 1.2. The proposed development is commonly referred to as 'Oatfield Wind Farm'. The local authority for the area is Clare County Council (CCC). The site of the proposed development is located in areas considered 'strategic' and 'Acceptable in Principle' for wind energy as defined in Volume 6 Clare

2.0 Site Location and Description

- 2.1. The proposed development is located within the townlands of Ballycar (North), Belvoir, Cloghera, Cloonsheerea, Cloontra, Cloontra East, Cloontra West, Crag, Derrynaveagh, Derryvinnan, Drumsillagh, Sallybank (Merrit), Droomsillagh or Sallybank (Parker), Gortacullin, Knockbrack Lower, Knockshanvo, Kyle, Mountrice, Oatfield and Snaty, Co. Clare. The site is in proximity to Broadford (1.3 km south) and Sixmilebridge (4.7 km east) Co Clare.
- 2.2. The proposed development is located within an area of rolling hills and ridges known as the Broadford Hills oriented in a general northeast-by-southwest direction that rises to a max elevation of c. 309m at the summit of Knockanuarha. The site has several distinct areas, which are described in more detail below.
- Western Development Area (WDA)
 - Eastern Development Area (EDA)
 - Grid Infrastructure
 - Turbine Delivery Route

The Commission should note that the proposed development is located in the same upland hill area as the proposed Knockshanvo Wind Farm (ABP-320705-25). This Knockshanvo Wind Farm is directly adjacent and located between the western and eastern areas of Oatfield Wind Farm. The wider hill area is used for recreational purposes, with several trails including the East Clare Way which is a long-distance waymarked trail and other walking trails known as the 12 O'Clock Hills Looped Walks. The Board should note that Shannon International Airport is located approximately 16.6 km west from the site and its operations interact with the proposed location of the wind farm.

The Commission should also note that the proposed development is located approx. 4km north of the proposed Ballycar Wind Farm (ABP-318943-24 refers) which was recently refused permission by the Commission on 7th May 2026 for aviation related concerns. Similar aviation related concerns arise in respect of the consideration of this application.

2.3. Western Area

The western area is located on the southern aspect of the Broadford Hills and is accessed by a local road from the R471 Regional Road. There is a mix of land uses including conifer plantation, transitional woodland scrub, agricultural lands, and peat lands. The site is bounded by the Oatfield Stream (EPA Code: 25007) to the west. The Snatty Stream (EPA Code: 25S34) and an unnamed stream run on the eastern side of this area also. There is a mix of agricultural complexes and single rural dwellings on the roads that adjoin the site including the R471 and local roads and laneways off it. The closest residential property is 602.2m from Turbine 4¹. This is an involved residential property. The nearest non-involved residential property is 729.01m from Turbine T6.

This portion of the site will host seven wind turbines, a meteorological mast, the 110 kV electrical substation, a temporary construction compound and stockpile area and associated access tracks and hardstanding.

2.4. Eastern Area

The eastern area is accessed by an unnamed road via the R465 and R471. The land is predominantly in conifer plantation and transitional woodland scrub. The site is bounded by the Mountrice River (EPA Code: 25M03) to the south. The Gortacullin Bog Natural Heritage Area (NHA) (Site Code: 002401) is located west of this site. There are several built heritage features in proximity to the site including a megalithic tomb and several enclosures. There is a mix of agricultural complexes and single rural dwellings on the roads that adjoin the site. The closest residential property is 740 m from Turbine 9.

¹ Appendix 2.2 'Receptor List' H520 refers.

This portion of the site will host four wind turbines, a temporary construction compound and stockpile area and associated access tracks and hardstanding.

2.5. Grid Infrastructure

The grid infrastructure predominantly relates to underground electricity cables and associated ducting and joint bay infrastructure in the public roads adjoining the site.

A 33 kV Independent Power Producer (IPP) Route runs between the western and eastern site to connect all turbines to the 110 kV substation. It runs along an unnamed and R471 roads as well as some private agricultural lands. The route crosses several watercourses including Snatty (EPA Code: 25S34), West Cloontra (EPA Code: 25W36), O'Neill's Stream (EPA Code: 25O02), Knockshanvo (EPA Code: 25K82), Mountrice 25 (EPA Code: 25M03), Mountrice 25 (EPA Code: 25M38) and East Cloontra (EPA Code: 25E28).

This 110 kV Grid Connection Route connects the wind farm site to the national grid. It follows an unnamed local road to the townland of Ballycar North where it will connect to the existing Ardnacrusha - Ennis 110 kV Overhead Line or the existing Ardnacrusha - Drumline 110 kV Overhead Line. The route crosses several watercourses including Oatfield Stream (EPA Code: 25007) and Blackwater [Clare] (EPA Code: 25B06).

The public roads are typically bounded by hedgerows and trees with several single rural dwellings and agricultural complexes adjoining it. A key feature for both routes is Oatfield Church (St. Vincent de Pauls Church) (Site and Monument Record (SMR) CL052-043----) which is a Site and Monuments Record and a Protected Structure (Record of Protected Structure (RPS) No: 665).

2.6. Turbine Delivery Route

There are minor works required in order to facilitate the abnormal loads for turbine deliveries at the junction of the R471 and R463 in the townland of Knockbrack Lower, Co. Clare near the village of Cloonlara. The site is located

at the Headrace Canal which is associated with the Ardnacrusha Power Station.

3.0 Proposed Development

The application is seeking a 10-year planning permission and 35-year operational period from the date of overall commissioning of the entire wind farm. This application is accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS). The details of the proposed development are set out in the relevant public notices, which accompanied the planning application.

3.1. Development Description

The proposed development consists of the following:

1. 11 no. three-blade wind turbines with an overall ground to blade tip height range of 176.5m to 180m, a rotor diameter range of 133m to 150m and a hub height range of 105m to 110m;
2. Construction of associated reinforced concrete foundations, crane pad hard-standing areas and associated plant/switching gear;
3. Construction of new permanent, internal site tracks and upgrading of existing tracks and associated drainage infrastructure including a clear-span bridge (circa 10m length), concrete culverts and the installation of an on-site Sustainable Drainage System (SuDS);
4. 2 no. temporary spoil storage areas: one in the western development area and one in the eastern development area;
5. Erection of 1 no. permanent meteorological mast in the western development area with a height of 100 m above existing ground level;
6. All associated internal, underground electrical and communications cabling connecting the wind turbines to an on-site substation located in the western development area;
7. Provision of underground interconnecting 33kV IPP cabling and underground cable joint bays circa. every 750-1,000m for circa. 10.4km

(joining eastern and western development areas) within the public road network including the R471;

8. Provision of 1 no. 110 kV onsite substation and parking in the western development area (Townland of Oatfield), along with associated control and switchgear building, associated electrical plant and equipment, associated security fencing, external lighting and lightning protection, security cameras and all associated infrastructure;
9. All works associated with the connection of the wind farm to the national electricity grid, which will be via a loop-in 110kV underground cable connection (circa. 4.3km cable length and joint bays circa. every 750m), to the existing 110kV overhead line in the townland of Ballycar North, with 2 no. new 16m steel lattice end masts & associated overhead line electrical infrastructure, located at the interface with the existing 110kV overhead line;
10. 2 nos. temporary construction compounds, including offices/meeting rooms, parking and transformer;
11. 10 no. individual site access points and tracks to turbines, on-site substation, met mast, temporary spoil storage & temporary construction compound areas from the local road network/public trackway running north of the R471;
12. Forest & tree felling to facilitate construction and operation of the proposed development;
13. Temporary works to accommodate turbine delivery route (TDR) in the townland of Knockbrack Lower;
14. All associated site development works including Construction, Operation and Decommissioning stage site-lighting, fencing and signage.

Once commenced, it is expected that the construction phase will take approximately 18 - 24 months.

3.2. Development Need

The applicant has put forward a statement of need in its planning application particulars which centres on the current energy requirements in Ireland, as well as climate and energy targets which need to be achieved. The proposed development will have an electrical output of between 52.8 – 72.6 Megawatt (MW). The proposed development will improve security of supply through the reduction of energy importation.

3.3. Documents supporting the Proposed scheme

The application to the Commission includes:

- Planning Application Documentation
 - Planning Cover Letter
 - Landowner Consents
 - EIAR Portal Confirmation
 - Confirmation Planning Application Fee
 - Application Form
 - Site Notice
 - Newspaper Notice
 - Planning Report
 - Community Report
 - Schedule of Prescribed Bodies and copy of Notification Letters
- Planning Drawings
- EIAR
 - Volume 1- Non-Technical Summary (NTS)
 - Volume 2- Main Body
 - Volume 3- Appendices
 - Volume 4- Photomontages
- Appropriate Assessment (AA) Screening Report
- NIS (including Appendices)

In June 2024, the applicant submitted information in response to submissions and observers on the file, as requested by the Commission. This included:

- Cover Letter

- Series of Memorandums (addressing planning and environmental topics raised)
- Associated Appendices including:
 - Updated Species and Habitat Management Plan (SHMP)
 - AA Screening for SHMP
 - Bat Survey Report
 - AI Bridges response to AIRNAV Ireland's Submission
 - Updated Outline Construction Traffic Management Plan (CTMP)
 - Additional Photomontages and Wireframes (4 views)

In May 2025, the applicant submitted further information in response to a request by the Commission. This included:

- Cover Letter
- RFI Response Document
 - Appendix 1 – Ai Bridges Technical Response
 - Appendix 2 – Cumulative Impact Assessment Report (final) ('FICAR')
 - Appendix 3 – Updated Photomontage Booklet
 - Appendix 4 – Updated Natura Impact Statement
 - Appendix 5 – Ecology Figures for RFI item No.3
 - Appendix 6 – Letter from Applicant confirming legal interest in SHMP lands
 - Appendix 7 – Updated Planning Drawings

In November 2025, the applicant submitted information in response to the further information submissions and observers on the file, as requested by the Commission. This included:

- Cover Letter
- RFI Response Report (Nov 2025)
 - Appendix 1 - Correspondence between Orsted's Legal Team and AirNav Ireland

The applicant has created a standalone website for the development:

<https://orsted.ie/renewable-energy-solutions/oatfield>. The applicant appointed two Community Liaison Officers (CLOs) and commenced a Programme of Community Engagement in July 2023.

4.0 Consultations

4.1. Chief Executives Report

A submission was received from Clare County Council on 6th March 2024 in accordance with Section 37E(4) and (5) of the Planning and Development Act, 2000 (as amended). It consists of a Chief Executives Report dated 6th February 2024, a submission attached thereto on behalf of the Elected Members of Killaloe Municipal District dated 12th February 2024, and a Record of Proceedings and the Resolution passed at a Plenary Meeting of Clare County Council on 12th February 2024.

4.2. Chief Executive (“CE”) Report dated 6th February 2024

- 4.2.1 The CE report notes the development particulars and the legislative and policy context, before setting out views on specific aspects of the proposed development. In terms of the overall policy position it is noted that the majority of the site is located on lands which are deemed to be ‘*strategic*’ for the purposes of wind energy development and that the remainder is located within an area that is ‘*acceptable in principle*’ in the Clare Wind Energy Strategy (“WES”) as set out in Volume 6 of the Clare County Development, 2023-2029 (“CCDP”). The report confirms that the development of large windfarms (11-25 turbines) can be accommodated in ‘*strategic*’ areas and that a potential wind generation of 150MW is identified for this landscape character area. From a policy perspective it is accepted that the development is in compliance with the designations of the CCDP and WES and has the potential to accommodate a large proportion of the targeted wind generation for this area. However, the report advises the Commission that the WES was first prepared in 2009 and has been incorporated unchanged into subsequent development plans in accordance with Circular Letter PL 20-13. The report submits that it is

concerned that advancements in turbine technology, scale and height are not accounted for in the existing guidelines or WES.

- 4.2.2 Concerns are also raised in relation to the extent of windfarm proposals (at various stages of development) within the general area and that an ad hoc approach is being taken to the development of strategic lands contrary to the WES. It is considered that this presents implications for the satisfactory assessment of cumulative impacts across a range of environmental factors, and it is submitted that it is not clear why this proposal and the proposed ‘*Knockshavno*’ proposal on an adjoining site are being developed as two separate applications.
- 4.2.3 In terms of the overall policy position, the report confirms that it is an objective of the CCDP (11.47) to both encourage and favourably consider proposals for wind energy developments to meet renewable energy targets, reduce CO2 and promote a low carbon economy. Notwithstanding this position, the report submits that in the absence of updated Section 28 Guidelines and with concerns in relation to cumulative impacts, the proposal would result in the ad hoc approach to the development of the wider ‘strategic’ designated lands and therefore it is not favourably disposed to the development. The report proceeds to set out its response under a range of environmental headings which is summarised hereunder.

Visual Amenity

- 4.2.4 The report notes the location of the site within a ‘*settled landscape*’ where larger wind energy developments and high turbines may be accommodated and confirms that the landscape character assessment (LCA), which informed both the CCDP and WES, recognises the northwest and westerly aspects of Slieve Bernagh as being robust and capable of accommodating medium to large windfarms. The landscape impact assessment (LIA) submitted with the application is otherwise noted. Notwithstanding this, the report considers that the height and scale of the proposed turbines will significantly alter the landscape character at this location and will have a significant adverse visual impact both locally and over greater distances, including from amenity

locations. The PA submits that turbines of the scale and height proposed are not representative of the range identified by the 2006 Guidelines or the WES. The PA is also of the view that a single detailed application including the adjoining Knockshavno development proposal, would enable a more comprehensive assessment of landscape and visual impacts and it sustains visual amenity concerns to the proposed development on this collective basis.

Residential Amenity

- 4.2.5 **Shadow Flicker** - The report notes the analysis set out in Section 12 of the EIAR and the conclusion that in a 'real world' scenario the guideline thresholds will not be exceeded. The mitigation proposed in the form of a software control system which will take turbine(s) out of operation in circumstances of exceedance is noted and accepted. The Commission is requested to attach a specific condition in relation to a shadow control system if it is minded to grant planning permission. The report otherwise opines that a single development proposal (with Knockshavno) would permit a more appropriate analysis of shadow flicker.
- 4.2.6 **Noise** - The report notes the noise assessment methodology used including a cumulative assessment of the Knockshavno proposal. It is acknowledged that the proposed development appears to comply with the 2006 Guidelines in relation to noise impacts, but it is submitted that in the absence of updated Guidelines and given the increase in the scale and height of turbines, that the noise requirements of the World Health Organisation maybe a more appropriate assessment reference. The Board is asked to note objective **11.47** of the CCDP which seeks to strike a balance between wind energy development and the protection of residential amenities and to ensure that noise impacts are addressed.

Traffic & Transport

- 4.2.7 The report notes the haul routes for turbines from Foynes Port via the M7,

Killaloe By-Pass, Regional and Local Roads in the context of the 'fairly significant' development traffic movements set out in Table 16.7 of the EIAR. It is submitted that parts of the regional and local road network serving the site are poor in terms of capacity, width and alignment and concerns are raised in relation to the capacity of the regional road to cater for excess loads. Noting the potential adjoining Knockshavno development, further concerns are raised regarding the orderly management of both construction sites, the timing of works, the co-ordination of deliveries and duplication of road/junction improvement works if the developments proceed concurrently. In the event that a grant of planning permission is considered, the CE report specifically states the points raised in the Killaloe MD office report² should be considered and conditioned accordingly. These concern: Road Opening Licences, Road Reinstatement, Road Closures, Bridges/Culverts/Pipelines and wind turbine/blade delivery. It is noted that some of these requirements fall within other codes or consent processes.

Soils & Hydrology

- 4.2.8 The report notes the upland setting of the site consisting predominantly of coniferous plantation forestry with blanket bog, wet heath, rough/wet grassland and agricultural land being the remaining habitat types. The range of peat depths are noted (*0.5m to 1.5m and down to 4m at Turbine 11*) in the context of its low compressive strength, low-density, high-water content and low shear strength once disturbed with risk of long run-out landslides. Having regard to: the extent of tree felling proposed (67ha), the extensive drainage network on the subject site, the extent of crossings proposed for grid connections and cable routes (*39no. crossings and 11 HDD drillings*) the soil type including peat, timing of works in wetter periods, volumes of spoil to be managed on site, nature and extent of construction works, alterations to the hydrological regime of the site, and connectivity with the Lower River Shannon SAC, the report is concerned on the basis of the range and extent of

² Section 5.4 of the CE Report refers.

collective issues that the proposed development would present a significant risk of adverse environmental impacts on sensitive natural habitats including soil/peat slippage, and an unacceptable risk of pollution to surface waters.

Natural Heritage

4.2.9 The report notes the conclusions of the NIS that the project, individually or in combination with other projects, will not affect the integrity of a European site. The report focuses on the bird surveys submitted and notes that the Annex I species Hen Harrier has been recorded nesting (2-3 *nests*) within 350m to 1km of the site, with foraging activity recorded both within and adjacent to the site during breeding and winter seasons. The protected status of the species is noted together with the findings of the recently published NPWS survey “*The 2022 National Survey of breeding Hen Harrier in Ireland*” that the magnitude of decline observed would likely prompt Red-listing of the species on the Birds of Conservation Concern of Ireland. The report opines that the proposed development, together with the Knockshavno development will have a negative effect on this species creating a barrier effect to dispersal, regular movements or migration, resulting in displacement, collision and mortality and that other species such as the Red Grouse may also be affected.

4.2.10 The mitigation measures set out in Section 8.6.3.1.1. of the EIAR to avoid a ‘Significant negative effect’ on this species are noted as including a dedicated Species and Habitat Management Plan (SHMP) which finds that compensation habitat of 114.86ha is required. The proposal to provide 173.66ha and 14.48km of linear habitats as managed compensatory habitats for Hen Harrier and Red Grouse for the lifetime of the windfarm is noted, but the report finds that these locations (mapped in Annex A of the SHMP) are outside the red and blue boundaries of the application and the applicants legal interest is unclear. The enforceability of this compensation measure is therefore considered uncertain. Overall, the report considers that the proposed development, when taken together with other development proposals, would result in habitat loss, fragmentation and displacement of this

Annex I species and the proposed mitigation is not considered sufficient. It is concluded that the proposal would contravene Objective **15.2** of the CCDP in relation to Biodiversity and Habitat Protection.

Amenity

- 4.2.11 The report refers to Objective **10.11** and **10.12** of the CCDP which supports the development of recreational routes throughout the County and opines that there is inadequate discussion within the EIAR on the impacts of the proposed development on the 12 o'clock hills recreational route, which is identified in Appendix 6 of the CCDP.

Conclusion

- 4.2.12 The CE Report accepts that the proposed development is broadly supported by the WES but retains reservations in relation to: outdated nature of Guidelines and WES, piecemeal development, excessive height and scale, residential amenity, traffic safety, soils & hydrology and natural heritage (Hen Harrier) and for these reasons it is not favourably disposed towards the development.

Conditions

- 4.2.13 In the event that a grant of permission is considered, conditions are requested controlling noise, shadow flicker, construction management and oversight, road network, protection of water quality, compensatory habitat, bond conditions and community gain.

4.3. Submission on behalf of the Elected Members of the Municipal District of Killaloe in relation to the Oatfield Windfarm (Strategic Infrastructure Development) dated 12th February 2024.

- 4.3.1 Noting the CE Report, the Members of the Killaloe MD provided their own submission to 'assist and inform the Members of the Planning Authority in the submission of recommendations specified in Section 37E(6) of the Act' and

requested that their submission was included in the submission of Clare County Council to An Bord Pleanála.

The submission of the Elected members of the Killaloe MD holds serious concerns in relation to the proposed development and requests the Commission to refuse permission. The submission largely addresses the same concerns, issues and considerations which are set out in the Chief Executives Report however the Members further reinforce their concerns in relation to aged nature and continued efficacy of the Guidelines and the WES. The submission proceeds to set out its response under a range of environmental headings which are summarised hereunder.

Wind Energy Guidelines 2006

- 4.3.2 The Members are of the view that the 2006 Guidelines were prepared at a time when technology, height and scale of wind turbines were significantly smaller and that environmental, legislative and rural community considerations have since significantly evolved. The Members consider that continued reliance on National Guidelines which are now 18 years old is not an appropriate basis on which to authorise such a significant intervention into a rural community and landscape and that having regard to the lack of updated guidelines consider that permission should be refused for the proposed development.

Clare Wind Energy Strategy (WES)

- 4.3.3 Similarly, the Members are of the view that a WES that is 15 years old and has not been updated (due to its preclusion by Government Circular), is not a sound, rational or robust framework on which to base a planning decision for such a significant development. The Members opine that the considerations which informed the WES have been superseded by a range of environmental and technical factors and that key communities and stakeholders have been precluded in subsequent Development Plan processes from any further engagement on such matters or in the content of the WES. The Members consider that the height of turbines proposed far exceed what was envisaged in the preparation of the WES and that a tip height of 180m is excessive,

visually obtrusive and not in accordance with the WES. In this regard the Members are of the view that to permit a development of the height, scale and MW proposed is not appropriate, there is no sound basis for reliance on such a decision and that in the absence of updated guidelines permission should be refused.

Piecemeal approach

- 4.3.4 Noting another wind energy proposal in the planning process, the Members hold ‘serious reservations’ about a piecemeal approach to the overall development of the lands designated as ‘strategic’ for wind, stating that this is contrary to the WES which requires that the area be developed in a comprehensive manner.

Inadequate approach to community consultation

- 4.3.5 The Members are not satisfied with the approach and level of community consultation on this application and are concerned at the burden placed on communities to respond to separate wind energy developments, lodged at different times, under different legislation and processes as a result of an ad-hoc and piecemeal approach to the development of the area.

Visual Amenity

- 4.3.6 The Members consider that the proposed development, if permitted, would be the first such windfarm in this part of the County introducing a significant alteration and industrial scale structures into the landscape. The Members note that the WES recognises the robustness of the landscapes at the northwest and westerly aspects of Slieve Bernagh but opine that this must be balanced with the impacts on the visual amenities of the wider area and consider that the proposed development, by reason of height and scale, will seriously injure the visual amenities of the area, impacting on views to/from Lough Derg which they describe as a key tourism amenity for the Mid-West Regions and the cornerstone of Ireland’s Hidden Heartlands tourism product.

Residential Amenity

4.3.7 Having regard to the scale and height of the turbines proposed, together with cumulative noise impacts, the Members have concerns in relation to the impacts on the residential amenities of the rural population. In particular the Members highlight:

- The vast scale of what is planned for Southeast Clare with sixty-six 180m turbines if all proposed developments receive planning permission. The Members consider this to be a serious intensification with the area being overwhelmed by industrial scale turbines.
- 280 residential dwellings within 2km of the development affected by noise and nuisance.
- 56 properties will experience continued flicker. 40 houses will exceed the 2006 threshold of 30 minutes per day. Some properties will experience flicker from multiple turbines.
- Many windfarms are not in compliance with conditions and legal ownership is unknown. Once constructed the community will have no safeguards for protection.
- Impact on vulnerable residents.
- Environmental impacts including on protected species and special areas of conservation.

Local Tourism amenities, trails and walkway amenities

4.3.8 The Members consider that there is very little discussion within EIAR Chapter 6 of the implications of the development on the 12 O'clock Hills recreational route and they are concerned that the development will have a significant impact on the tourism amenity of the area. The Members note the emerging walking and mountain bike trails which provide a sustainable rural and tourism-based approach to economic and recreational development in the area and are concerned in relation to the negative impact the development will have.

Other Issues

4.3.9 The Members raise additional concerns in relation to: flooding & landslide risks, impact on drinking water & wells, devaluation and land sterilisation effects, adverse impacts to business and tourism, and mental health impacts.

Conclusion

4.3.10 The Elected Members of Killaloe MD consider that the development will have significant negative effect on the environment and that it is not in accordance with the proper and sustainable development of the area and the Commission is requested to refuse permission for the rationale and reasons set out in their submission.

4.4. Record of Meeting of Clare County Council

4.4.1 The Chief Executive sought the views of the Elected Members of Clare County Council on the proposed application at a plenary meeting of the Council on 12th February 2024 and the views of the Members are summarised as follows:

- It is noted that one Member withdrew from the meeting for this Agenda Item given his involvement with renewable energy. It was confirmed that there was no involvement with this project.
- The Elected Members were in support of the concerns outlined in the Chief Executives Report and the Killaloe MD Members own report and the following points were outlined:
 - Visual impact of the proposed windfarm whereby the height of the turbines at 180m exceeded any such developments permitted elsewhere in the county.
 - The ad-hoc approach to the development of lands in East Clare for wind energy developments.
 - The traffic implications of the development whereby it was outlined that the road network is not of sufficient capacity to cater for the volume and type of construction traffic generated.
 - The lack of appropriate community consultation and that windfarm developments were dividing rural communities.

- Concerns that the 2006 Guidelines were out of date and no longer relevant and that the existing Wind Energy Strategy which has been carried over since 2009 is out of date and Members have not had a chance to review same. There was a call on the Minister to suspend windfarm development until new guidelines have been adopted.
- Impact of development on residential amenities whereby the use of software for mitigation of shadow flicker is not appropriate.
- The impact of the proposal on the recreational amenities of the area including the 12 o'clock Hills.
- Focus should be on the development of offshore turbines and other technologies.

4.4.2 The Members supported the concerns raised in the said reports and resolved “to attach report, signed by Cllr. Tony O’Brien, and submitted by the members under Section 37E(6) of the Planning Act, to the Chief Executive Report, to An Bord Pleanála, in respect of proposed Oatfield Windfarm”.

4.5. Prescribed bodies

Submissions were received from six prescribed bodies and are summarised as follows:

4.5.1 Department of Housing, Local Government and Heritage (“DHLGH”)

A submission was received from DHLGH dated 15th February 2024 which is summarised as follows:

Nature Conservation

- The proposed development is 2km from an SAC. It is noted that 901m of hedgerow, 300m of treelines, and 22m of hedgerow/treelines will be lost. The department raises this in the context of bat conservation for the Danes Hole Pounalecka SAC. The department is concerned about the limited survey effort given the proximity to the SAC. A winter survey is recommended. They are also concerned about the lack of survey for the haul routes.

- The department recommends that the invasive species present on site be treated prior to the commencement of any works to prevent potential spread.
- Hen Harriers are present at this site. The department is unclear on the bird impact assessment/collision risk model reporting for hen harrier. The cumulative impact of planting/felling/deforestation has not been fully considered.
- The biodiversity gain areas do not appear to have been screened for Appropriate Assessment or in the EIA. The SHMP needs to factor in displacement/disturbance habitats of 1km. In addition, it is unclear whether landowners are fully committed to the plan.
- The proposed development will result in the loss of 3.6ha of wet heath and 1.1ha wet heath/scrub. These habitats are listed in the CDP to be protected and enhanced and the works appear to be in contravention of same.

Archaeology

- The department has reviewed the EIAR and requests a condition be included should the Board be minded to grant planning permission in line with the OPR Practice Note (C3, C5, C6).

4.5.2 Transport Infrastructure Ireland (“TII”)

A submission was received from TII dated 25th January 2024 which is summarised as follows:

- TII seeks clarity in respect of issues related to the national road network including the turbine delivery route to ensure traffic safety and protection of the state assets.
- It also sets out a number of conditions which require agreement prior to construction including the requirement for Road Safety Audit, management of abnormal loads, confirmation of the extent of works to the national road network and remediation of damage.

4.5.3 Fáilte Ireland (“FI”)

A submission was received from FI dated 19th February 2024 which is summarised as follows:

- The Fáilte Ireland submission is concerned with both the construction and operational phases of the proposed development.
- In relation to construction phase, they seek appropriate construction management measures to ensure mitigation of all impacts which interact with tourism including inter alia traffic movements and biodiversity in the area.
- During operation, Fáilte Ireland are most concerned with the visual impact and the landscape character of the Slieve Bernagh Uplands (LCA8). It seeks to ensure its qualities as an attractive area to visitors should be taken into consideration. They also seek the assessment of visual impacts to tourism assets like the 12 O’Clock Hills Project which contains three trails.
- The consideration of cumulative landscape and visual impacts is also raised given that there are a number of other wind farms proposed in the area.

4.5.4 Air Nav Ireland (“ANI”)

A submission was received from ANI dated 24th January 2024, which is summarised as follows:

- A review of the Oatfield WF Aviation Review Statement by ANI identifies areas of concern that as a minimum require more analysis, namely: Instrument Flight Procedures (“**IFP**”) and Radar Surveillance Systems Safeguarding (“**RSSS**”).
- In relation to IFP, ANI note that a preliminary assessment indicates that two IFP's are potentially impacted, and that Air Traffic Control Surveillance Minimum Altitude Chart (“**AT SMAC**”) surface is penetrated by some proposed turbines. ANI further notes the recommendation that an IAA approved Aviation Design Specialist needs to be engaged to confirm

potential impacts and undertake a detailed IFP assessment of mitigation measures to offset any potential concerns which might be raised by IAA.

- ANI opines that a certified Instrument Flight Procedures Designer will confirm these findings and may recommend mitigations, but that if these mitigation measures require significant amendments, then they may not be acceptable to ANI.
- In relation to RSSS, ANI note that the Aviation Review Statement finds that according to EUROCONTROL guidelines the Monopulse Secondary Surveillance Radar (“**MSSR**”) at Shannon Airport will not be impacted but that the MSSR at Woodcock Hill may need a confirmatory study to assess if potential impacts occur. It is also noted that the Primary Surveillance Radar (“**PSR**”) at Shannon Airport is outside the 17km assessment range but within the instrumented range of the radar and in partial line of sight and that a confirmatory study maybe required by the IAA.
- ANI state that a deeper assessment of impacts is required and whilst this has been completed for another developer on this site, ANI are not satisfied with previous reports received.
- ANI note the reference to other facilities that have applied mitigations, but state that in their opinion they are not Enroute (High-Level) Radar Facilities, which in this case Woodcock Hill MSSR is. ANI states that significant impacts would be expected on high-level traffic in the altitude range of 10-35,000 feet, which would not be acceptable to ANI.
- ANI say that this is the third occasion that this development has been proposed and that on the previous two occasions when they interacted with other developers, this was also their position.
- On this basis ANI object to the development proceeding.

4.5.5 Shannon Airport Authority (“SAA”)

A submission was received from SAA dated 26th January 2024, which is summarised as follows:

- SAA states that in general terms, the siting of wind turbines at this location may have implications for the operations of the communications,

navigations and surveillance systems used by ANI for the separation and safety of aircraft and may also have implications for the flight paths of aircraft.

- SAA state that they have specific responsibility to define the airspace around its aerodrome which must be maintained free from obstacles to permit aircraft operations to be conducted safely and to prevent the aerodrome from becoming unusable because of the growth of obstacles around it. SAA say this is achieved by a series of obstacle limitation surfaces (OLS) that define the limits to which objects may project into airspace.
- With specific reference to the submitted Oatfield Windfarm Aviation Impact Statement several statements therein pertaining to “safeguarding” at Shannon Airport are highlighted by SAA. These are (in summary):
 - *Annex 14 – Obstacles Limitation Surfaces (OLS) - as there is no penetration of the aerodrome OLS it is unlikely that there will be any Annex 14 OLS impacts due to the proposed windfarm;*
 - *Annex 15 – Aerodrome surfaces – should the windfarm be permitted, the turbines would be within 45km of Shannon Airports ARP (Airport Reference Point) and would be greater than 100m in height, therefore the turbines would be required to be included in the IAA Electronic Air Navigation Obstacle Dataset; and*
 - *Building Restricted Areas (BRA) - the proposed development is over 9km from the BRA’s at Shannon Airport and at this distance there will be no impacts to the BRA’s due to the proposed windfarm.*
- SAA does however note and share the concerns of ANI around technical areas that at a minimum require more analysis, specifically in relation to IFP and RSSS. SAA fully supports the position and serious concerns of ANI and therefore also objects to the development proceeding.
- In the event that the proposed development receives planning permission, SAA requests that several conditions be applied including:
 - Inclusion of the turbines on the IAA Electronic Air Navigation Obstacle Dataset.

- The developer must be required to apply the following standard to the development: *Chapter Q (Visual Aids for Denoting Obstacles)* of the Certification Specifications for Aerodrome Design – Issue 6 as contained in the EASA aerodrome rules, as it would be regarded as an extensive object.
- During the construction phase of the development, any crane must be pre-approved by the completion of the Shannon Airport Crane Operations application form at least 30 days in advance of any crane erection taking place. This is in order for the appropriate level of assessment to be carried out by the airport and ANI against possible interferences by cranes with communications, navigation and surveillance systems.

4.5.6 Irish Aviation Authority (“IAA”)

A submission was received from IAA dated 19th February 2024, which is summarised as follows:

- The submission received from IAA notes that the submitted aviation review statement in relation to Oatfield windfarm has highlighted a number of potential safety issues that could negatively impact the existing systems put in place by Air Nav Ireland (“**ANI**”) and used for the safe provision of an air traffic management service in order to maintain the separation and safety of aircraft operating within the state.
- IAA support and share the concerns outlined by ANI in their submission of 24/01/24, as supported by Shannon Airport Authority “**SAA**” in their submission of 26/01/24, requiring that further specialist analysis be undertaken and documented assurance evidence be produced to the satisfaction of ANI, SAA and the IAA as the aviation safety regulator within the State in respect of the following technical areas: Instrument Flight Procedures (“**IFP**”), and Radar Surveillance Systems Safeguarding (“**RSSS**”).
- The submission fully supports the ANI position that if mitigations require significant amendments, they may not be acceptable. IAA further states

that any potential mitigations put forward must not negatively impact on ANI's ability to maintain the safe provision of an air traffic management service on behalf of the state.

Otherwise, it is also noted that the IAA did not require a confirmatory study of potential impacts on the PSR at Shannon Airport (a possibility suggested by the Aviation Review Statement and noted by ANI).

4.6. Public Submissions

4.6.1 A considerable number of submissions (180 no.) were received from observers during the statutory consultation period. Generally, they are opposed to the principle of the development at this location notwithstanding the designation of the site as primarily 'strategic' in the CCDP. They have raised numerous issues across a range of topics.

A complete list of parties who made submissions can be found in Appendix A for reference. For the purposes of this report, the submissions have been summarised thematically in Table 2 below due to the overlapping issues raised by several of the parties.

4.7. Applicants Response (19th June 2024)

4.7.1 A response to the public submissions was received from the applicant on 19th June 2024. In the interests of readability and brevity, the applicant's response is also set out thematically in Table 2 relative to submissions received.

4.7.2 This is then followed by Table 2.a which sets out the applicant's response to CCC and the prescribed bodies.

Table 2 – Themes & concerns raised in the public submissions received and the applicant’s response of 19th June 2024.

1.	Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations, 2001 (and associated).
	Key Issues Raised:
	▪ Consultation has been inadequate, especially in relation to the proposed substation, grid connection and turbine delivery route (which consisted of a letter drop). The applicant is pre-occupied with climate justification. ▪ Other options include offshore geothermal, smaller turbine options or major retrofitting of homes. Failure to consider alternative delivery routes.
Applicants Response (19th June 2024)	
Memorandum No.1 (Planning & Miscellaneous)	
	▪ The Applicant submitted a summary of its ‘detailed community consultation and engagement strategy’ as part of the design and pre-planning phase of the Proposed Development. ▪ There are barriers to entry within the alternative offshore wind development sector in Ireland. The proposed development is key if Ireland is to meet its renewable energy and GHG emissions targets.
2.	Environmental Topic: Population and Human Health
a.	Key Issue Raised: <i>Sunyata Retreat Centre</i>
	▪ Significant impacts to the operation of the Sunyata Buddhist Retreat and its quiet, natural and rural environment. The development infringes on rights to religious freedom and expression contrary to EC on HR. ▪ The Sunyata Centre has not been treated or assessed as a 'sensitive site' from a noise POV. Core activities will be disrupted or not possible during construction - not considered or mitigated. Not assessed in LVIA or shadow flicker report as a sensitive location yet some (Christian Churches/Graveyards) up to 15km away have been. Discrimination (ECHR). ▪ The variability of turbine model and the lack of specificity regarding noise levels and frequency range means the extent of acoustic disruption to meditation sessions and overall tranquillity cannot be assessed. Similarly visual impact and biodiversity impacts cannot be assessed (because of height range 176.5-180m)
Applicants Response (19th June 2024)	
Memorandum No.8 (Shadow Flicker)	
	▪ The Sunyata Buddhist Centre was recorded in the EIAR receptor database as receptor 177. As the closest proposed turbine to the centre (turbine No.1) is located 1,810m away, it was considered that the centre is located outside the 10-rotor diameter study area for all turbine models, with the potential for shadow flicker very low.

Memorandum No.9 (Noise)

- The Sunyata Buddhist Centre is outside the study area for noise (35 dB LA90 contour) meaning that noise levels are low relative to the guidelines and not likely to lead to significant effects. These locations were therefore not assessed in detail.
- In respect of the Sunyata Buddhist Centre specifically the predicted operational noise levels do not exceed 31 dB LA90, which is 9 dB or more below the lowest noise limits derived in the assessment (EIAR Chapter 13 Table 3.1 refers). The Sunyata Buddhist Centre is closer to turbines likely to be proposed in the Knockshavno WF, but it is for that WF to assess potential cumulative impacts.

Memorandum No.10 (LVIA)

- The 'Sunyata Buddhist Retreat' is located on private land. It would not typically be identified as a publicly accessible receptor for LVIA. Notwithstanding the theoretical visibility potential for the centre is between 1-3 turbines and once screening is accounted for the residual effect is deemed to be no greater than 'slight-imperceptible'.

b. Key Issue Raised: *Tourism*

- Significant impacts to tourism as a result of the location of the wind farm. It will make it unattractive to visitors, particularly hikers using the Twelve o Clock Hills. This will impact a large number of local businesses who rely on this trade.
- Failte Ireland studies (2012) have suggested that tourists do not like wind farms. The project is within 'Irelands Hidden Heartlands' one of Failte Irelands experience brands (along with WAW etc) and Lough Derg is a standout location in this landscape, which is heavily trafficked along the R471 connecting international visitors from/to Shannon Airport. The impact will be significant and adverse contrary to Failte Ireland EIAR Guidelines for Consideration of Tourism and Tourism Related Projects (July 2023).

Applicants Response (19th June 2024)

Memorandum No.1 (Planning & Miscellaneous)

- Fáilte Ireland raised concern about the 12 O' Clock Hills project. The Proposed Development will not hinder or conflict with the growth and development of this important community and tourism project. A Community Benefit Fund may also support the project in future also.

Memorandum No.2 (Population & Human Health)

- There are numerous precedents of national waymarked trails and hiking routes passing adjacent to wind farm developments, especially where conifer forest plantations are one of the more dominant land uses.

Memorandum No.10 (LVIA)

- The landscape has been assessed as one that is heavily modified, informed by a primary agricultural context and an elevated working character that is evident in extensive areas of commercial conifer forestry and which together with anthropogenic built features such as telecommunications masts and overhead line corridors, demonstrate long standing human intervention. All of the scenic routes and views in Clare, Limerick and Tipperary which fall within the ZTV were investigated with the conclusion that the significance of effect at scenic route designations ranged from moderate-slight to slight-imperceptible and that the proposed development will not result in significant visual impacts on scenic designations within the study area.

c.	Key Issues Raised: <i>Property Devaluation</i>
	The proposed development will result in the devaluation of the property in proximity to it. There are several news reports and academic literature to support this claim.
	Applicants Response (19th June 2024)
	Memorandum No.1 (Planning & Miscellaneous) - Property value is a private matter and not a material planning consideration. - One-off rural housing is not encouraged in Ireland, and the issue of 'private benefits' outweighing the national 'common good' should not be a deciding factor in the planning merits of a renewable energy development proposal.
d.	Key Issues Raised: <i>Mental and Physical Health</i>
	<i>(Detailed responses specifically in relation to Noise, Shadow Flicker and Traffic and Transport are set out in the below and in respective Memorandums No.8, 9 and 12).</i>
	- The proposed development will result in an increased toll on human health and those suffering with different conditions including cancer, depression, migraine and other neurological conditions. - There will also be implications for person(s) with respiratory illness. Walking has many accepted mental and physical health benefits, promoted by the peace and tranquillity of walking. The placement of turbines in popular walking and trekking areas diminishes the health benefits they provide. - There is a concern about EMF from the proposed development. and electromagnetic radiation from the proposed development especially as a result of the grid connections which is in proximity to dwellings and population centres. - Unavailability of roads and walking trails during construction with have a negative effect on the health and well-being of the local Community. The current natural beauty of the 12 o'clock Hills as a walking environment will be irrevocably altered/lost. - Autistic children and adults and neurodiverse members of community can demonstrate extreme anxiety if exposed to hyper and hypo sensory overload including sight, sound and tactile stimuli. Shadow flicker and noise is a significant concern in this regard as is the impact of the turbines on an otherwise tranquil and regulating environment.
	Applicants Response (19th June 2024)
	Memorandum No.2 (Population & Human Health) The HSE Position Paper on Wind Turbines and Public Health (February 2017) which examines whether wind farm emissions may affect human health states that the issue is complex, as it relates to the highly variable character of the emissions and the individual perceptions of them. In regard to noise the Paper concludes that there is no direct evidence that exposure to windfarm noise affects physical or mental health and that health effects from noise exposure occur at much higher levels than are likely to be perceived by people living in close proximity to windfarms. The paper cites a WHO publication which states that there is no reliable evidence that sounds below the hearing threshold produce physiological effects.

- Noise limits for all properties will comply with WHO Guidelines (for annoyance), WEDG 2006 or the UK ETSU-R-97 guidelines with reduced operational noise modes applying to turbines 2 and 4 to bring them within limits.
- In relation to shadow flicker the HSE Paper states that there is insufficient direct evidence to draw any conclusions on an association between SF and health effects and that the risk of SF triggering seizures in photosensitive epilepsy is estimated to be extremely low. EIAR Chapter 6 reports that with the use of an SF control system the residual effect on amenity is imperceptible.
- (In relation to electromagnetic radiation) the 2017 HSE Paper states that there is no direct evidence from which to draw any conclusions on an association between electromagnetic radiation produced by windfarms and health effects, and that levels are less than average levels measured inside and outside suburban homes.
- In relation to autism the applicant cites UK sources and publications which state that there is simply no evidence in scientific literature that there is any casual link between wind power and people developing autism spectrum disorders or having existing symptoms made worse.
- A large extent of the looped trails within the 12 o'clock hills are on north facing slopes (of Broadford Hill) with limited potential theoretic visibility of the full extent of the windfarm. Many sections of the trails are contained within dense commercial conifer forestry, and the main aspect of visual amenity relates to broad views across the north and west away from the turbines. (Memorandum No.10 (LVIA) further refers).
- There are numerous precedents where national waymarked trails pass adjacent to windfarm developments, especially where conifer forest plantations are one of the more dominant land uses.
- Based upon actual traffic counts along public roads in the study area, projected change in traffic flows construction of the wind farm is below the 10% threshold, which would create no discernible environmental effect.
- The EIAR Chapter 16 predicts that during construction phase there will be an additional 96 vehicle trips per day on delivery routes. The impact of these additional vehicle movements will have a moderate and short-term effect on pedestrian and cyclists, which will be minimised with the implementation of the mitigation measures.

Memorandum No.9 (Noise)

- There is limited guidance in Ireland or the UK which applies to the external amenity of non-residential areas such as parks or walking paths. The WHO Guideline for outdoor living areas is the only comparable limit (55 db(A)). Predicted noise levels, even in proximity to turbines, is below the WHO guideline levels at approx. 50db(A).
- The addition of the Proposed Development will add to the 'soundscape' of the area. Whether this is judged to be negative or positive will be highly subjective, depending partly on its level and its character but also on the predisposition of the listener towards the source and their expectations of the area.
- Noise limits for all properties will comply with WHO Guidelines (for annoyance), WEDG 2006 or the UK ETSU-R-97 guidelines with reduced operational noise modes applying to turbines 2 and 4 to bring them within limits.

e. *Key Issues Raised: **Agricultural Practices***

- The proposed development will impact farming practices in the area and in particular impact the welfare of animals exposed it. Flooding and landslide risk to farms below the development site. Disturbance of Badgers increases TB risk to livestock.

- There will be a significant impact to the operation of the Hogsprickle Animal Sanctuary which established in this location due to its quiet, natural and rural environment. - There will be an Impact to the equine industry and several equine facilities operating in the area of the wind farm. It is well known that horses are sensitive to disturbance.	
Applicants Response (19th June 2024)	
Memorandum No.9 (Noise) The available research shows that the hearing of horses is less sensitive than human hearing except the high frequency range of 8kHz and above. The character and nature of wind turbine noise is such that no significant disturbance is expected for riders passing the wind farm.	
<i>f.</i>	<i>Key Issues Raised: Schools</i>
- The proposed development will directly impact the operation of schools in the area and in particular those with autism and other conditions. - Broadford & Kilbane NS has 138 children with seven mainstream classes and one special class for children with autism, a key facility for children in southeast Clare since opening 18 years ago. Concerns are raised in relation to the negative impact of noise and shadow flicker on children with sensory difficulties and the absence in the application of research or assessment of this important issue. Applicant has provided unsatisfactory responses to questions on this issue and does not have the technical information to address this issue.	
Applicants Response (19th June 2024)	
- Broadford National School was recorded in the EIAR receptor database as receptor 576. As the closest proposed turbine to the school (turbine No.10) is located 1,671m away, it was considered that the school is located outside the 10-rotor diameter study area for all turbine models, with the potential for shadow flicker very low. - In respect of Broadford NS specifically the predicted worst-case scenario noise levels outside the school would be lower than 30 dB LA90 and (allowing for a further reduction of at least 10dB) predicted noise levels within classrooms will be substantially lower than educational requirements even taking into account special educational needs. - The Broadford and Kilbane National School and the Sunyata Buddhist Centre are outside the study area for noise (35 dB LA90 contour) meaning that noise levels are low relative to the guidelines and not likely to lead to significant effects. These locations were therefore not assessed in detail.	
<i>* See also applicants' response to mental & physical health (above) and shadow flicker and noise (below).</i>	
<i>g.</i>	<i>Key Issues Raised: Decline of Population/Community Wellbeing/Employment</i>
- The proposed development will result in fewer people living in the area and because of this services and associations in the area will be lost. Sterilising effect on land, future generations can't or won't build resulting in rural de-population. - The proposed development contravenes the Broadford Natural Heritage Plan and the Broadford Community Development Plan. The introduction of a windfarm will only exacerbate the depravation and the wellness of our community in the context of the Pobal HP Deprivation Index. The applicant has not addressed the issue of accessibility of vulnerable and disabled people in their EIAR.	

- The proposed development does not generate any meaningful local employment during construction, and the economic benefit is minimal locally once operational. In fact, the loss of tourism may result in the less employment opportunities and negative impacts in the ongoing viability of existing businesses reliant on tourist or visitor trade.
- Existing private retreat business which operates as an energy healer (V95T2H5) will be unviable. Existing business and planned expansion of hypnotherapist and mind coach (V95F4E6) will also become unviable as a result of the proposed development.

Applicants Response (19th June 2024)

Memorandum No.2 (Population & Human Health)

- Whether people will want to move to the area or build a house in the study area of the Proposed Development (defined in EIAR Chapter 6 Section 6.3.1) is a personal preference that is determined by a multitude of factors. Having an operational wind farm nearby can be viewed as either a positive or a negative factor. The study area has experienced population increase between census years 2016 and 2022. Enrolments in the local Broadford & Kilbane national school also evidence an increasing rural population in the study area.

Memorandum No.1 (Planning & Miscellaneous)

- The Proposed Development will enable the surrounding landowners to continue to utilise the land surrounding the Proposed Development for various agricultural needs. It will not sterilise these lands.
- During the 18-month construction phase, the Proposed Development has the potential to create in the range of 57 to 78 construction jobs.

h. **Key Issues Raised: *Shadow Flicker & Risk of Stroboscopic Effect***

- The applicant fails to commit to zero shadow flicker as per 2019 Draft WEDG. They have the software to be able to do this but prefer to exploit more generous thresholds in 2006 WEDG.
- The proposed development will have a significant impact on human health as a result of the nuisance caused. There will be a particular impact on those with autism who are particularly sensitive to changes in the environment.
- The assessment of the proposed development is based on outdated WEDG2006 which are not fit for purpose based on the current available science. The overall methodology, modelling and data is also questioned.
- The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to residents in the context of shadow flicker. Mitigation is not adequate or enforceable.
- There was no specific public consultation in respect of the shadow flicker and minimal monetary compensation to mitigate the effects. This is inadequate.
- There will be a significant mental health impact as a result of shadow flicker from the proposed development. Stroboscopic effect can cause drowsiness, vertigo or seizures. The report submitted in the application relies on the study of a single turbine only with much lesser dimensions (blade diameter 25m/tower height 30m) (A.D.CLARKE, Techno Policy Group, Open University, Walton Hall, Milton Keynes, UK) and therefore the report findings cannot be relied upon in the assessment of this case.
- Shadow flicker assessment incorrectly based on 10 times rotor diameter as opposed to tip height. 'Significant and adverse' shadow flicker predicted this is not acceptable.

- V94HY3F listed as an associated dwelling accepting higher levels of flicker. This is not correct and higher levels of flicker not accepted.

Applicants Response (19th June 2024)

Memorandum No.8 (Shadow Flicker)

- The predicted levels of shadow flicker reported in Chapter 12 of the EIAR (Sections 12.6, 12.9.1.1 and 12.9.1.2) are for a “worst case” scenario. In real life conditions shadow flicker durations will be less than the theoretical levels. A more “likely” prediction was presented in Section 12.6 of Chapter 12. The applicant states that neither the “worst case” nor “likely” scenario for shadow flicker account for mitigation measures.
- The applicant clarifies that residual effects (described in Section 12.8 and 12.9.1.4 of Chapter 12 of the EIAR) account for mitigation measures and that it is these effects that will arise from the proposed development. The applicant submits that as mitigation will be applied to adhere to the Guideline thresholds, no significant residual effects will occur.
- The applicant describes the proposed shadow flicker control system and confirms that a shadow flicker monitoring programme will ensure the effective functioning of the shadow flicker control system.
- The shadow flicker assessment was undertaken in accordance with current guidelines and best practice and that it adheres to the Wind Energy Guidelines (2006) and the CCDP. The proposed shadow flicker control system (set out in Section 12.7 and 12.9.1.3. of Chapter 12 of the EIAR) can be adapted and applied to adhere to revised limitations on shadow flicker should they be adopted during the planning process (subject to a delay allowing for shadow conditions to be confirmed and the turbines to stop).
- The applicant confirms that a study area of 10 times the rotor diameter was used in the shadow flicker assessment and that this is based on current Guidelines that at distances greater than this, the potential for shadow flicker is very low.
- Three shadow flicker assessments were performed, one for each candidate model, corresponding to 1,550m for model 1, 1490m for model 2 and 1330m for model 3. The methodology for producing a database of potential sensitive receptors is set out in EIAR Volume III Appendix 2.1. The applicant confirms that the receptor database itself is provided in EIAR Volume III Appendix 2.2 and that a subset of sensitive receptors is listed in EIAR Volume III Appendix 12.1-12.3 (inclusive) for respective models 1, 2 and 3.
- The applicant notes that submissions were received regarding the labelling of some receptors as associated dwellings. The applicant advises that subsequent to the shadow flicker assessment being carried out, the following amendments have been made:
 - *Receptor 4: It is confirmed that this is not an involved landowner, and the label is amended from ‘associated dwelling’ to ‘residential dwelling’.*
 - *Receptor 520: It is confirmed that this is an involved landowner, and the label is amended from ‘dilapidated dwelling/potential replacement opportunity’ to ‘associated dwelling’.*
 - *Receptor 606: It is confirmed that this is not an involved landowner. Label amended from ‘associated dwelling’ to ‘residential dwelling’.*
- The applicant confirms that the change in labelling does not change the levels of shadow flicker predicted at these receptors, the number of sensitive receptors within the study area or the total levels of predicated shadow flicker, but that it does change how these are described within the chapter text and labelled within tables and figures. The following changes are identified:
 - *EIAR Chapter 12, (Changes to labelling) Figures: 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.8, 12.9 and 12.10*
 - *EIAR Chapter 12 (changes to labelling) Tables: 12.2, 12.3, 12.4, 12.5 and 12.6*
- Textual amendments to how these receptors are described is then set out in Appendix 1, Table A1 to response memorandum No.8.
- The predicted shadow flicker effects associated with the proposed development was carried out using ReSoft WindFarm 4.2.2.2. The potential shadow flicker occurrences were calculated throughout a year and all instances of shadow flicker at sensitive receptors are reported in the assessment. Where the

	results of the assessment predict no shadow flicker at a point in time it does not mean that data is missing or that shadows are not predicted, but that shadows will not be cast over windows of a sensitive receptor. ▪ The methodology described in Section 12.4.6. of Chapter 12 of the EIAR for assigning a north, south, east and west facing window at the centroid of the property to assess shadow flicker is a commonly adopted methodology. ▪ The applicant refers to Chapter 20 of the EIAR and confirms that potential cumulative effects were considered. In respect of the Ballycar Wind Farm the applicant states that at the time the shadow flicker assessment was undertaken the Ballycar Wind Farm was in pre-planning and proposed turbine locations and specifications were not available. The applicant notes that the Ballycar Wind Farm has now been submitted, and the assessment carried out as a part of that application indicates that the 10-rotor diameter shadow flicker study area for Ballycar WF does not overlap with the proposed development and therefore there is no potential for cumulative effects. ▪ In respect of Knockshavno the applicant states that at the time of assessment the Knockshavno WF had not been submitted for planning and finalised information was not available but that an assessment of potential cumulative shadow flicker effects using the latest known project details was presented in Chapter 20 of the EIAR. The applicant submits that it is the responsibility of the Knockshavno WF to consider cumulative impacts having regard to the proposed development and the Guideline thresholds if and when it is brought forward for planning and confirms that if it is necessary, the shadow flicker control system can be operated to curtail the proposed development should it, in combination with Knockshavno turbines, result in exceedances of the Guideline thresholds.
i.	Key Issues Raised: Emissions and Nuisance
	• Dust, emissions and pollution during construction will render private outdoor amenity space unusable and home grown produce inedible. Implications for person(s) with respiratory illness. • The increase in pollution from noise, dust, light and other emissions during construction and operation will render residential amenity space at properties near the site unusable and impact how they use these spaces including domestic horticulture practices. • There has been limited assessment of the negative impacts of light pollution to both humans and biodiversity. • The requirement for aviation warning lights will also have an impact and will be intensified by the cumulative impact of up to 66 wind turbines. The applicant has not clarified what lighting will be required.
Applicants Response (19th June 2024)	
Memorandum No.13 (Air Quality)	
	• With the implementation of mitigation measures presented in Section 17.7.1.1. and 17.7.1.2 of EIAR Chapter 17 no significant air quality effects are anticipated. * See applicants' response to noise below. Otherwise EIAR Chapter 11 confirms that an Aeronautical Obstacle Warning Light Scheme will be required in the event that planning permission is granted in the interests of aviation safeguarding.
j.	Key Issues Raised: Residential Amenity (Traffic & Transport)
	• V94H3F - access route runs along north side of house. Access route for Knockshavno is planned along southern side of house. Residents will be landlocked by construction traffic for 18-24 months.

Applicants Response (19 th June 2024)	
Memorandum No.1 (Planning & Miscellaneous)	
Measures will be put in place to manage access to dwellings and agricultural areas through the CEMP.	
k.	<i>Key Issues Raised: Noise</i>
- The UK Wind Farm Noise Guidelines 'ETSU-R-97' were published over 27 years ago so are completely out of date and not fit for purpose. The assessment relies heavily on L90 Noise Level Measurements which are not the most appropriate approach. - The noise impact will result in the 12 O'Clock Hill trails being unattractive for users and in many parts off limits for use. - The fact that the turbines will operate at a much-reduced capacity in order to mitigate against noise pollution is an acknowledgement that the wind farm cannot operate successfully at this location. - The applicant has misclassified numerous properties as being financially involved – however, this is not the case. - Of the 6 test sites, 4 out of the 6 show a higher noise level from the Wind Turbines as compared to the background noise levels detected. The test locations were strategically chosen and does not represent typical values. - The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to residents in the context of noise. (Low frequency) noise pollution can have particularly harmful effects on children. Can result in annoyance, sleep & concentration difficulties and headaches. (Mechanical & Aerodynamic) The main noise produced by turbines is aerodynamic noise which can lead to sleep disorders and psychological problems related to cardiovascular diseases and mental health conditions. (Infra Noise) Noise just below the threshold of human hearing but enough to make adults and children sick. The submitted report does not address this issue. A scientific article is referenced - Chiu, CH., Lung, SC.C, Chen, N. et al. Effects of low-frequency noise from wind turbines on heart rate variability in healthy individuals. Sci Rep 11, 17817 (2021). https://doi.org/10.1038/S41598-021-97107-8. (Submission of Jonathan Cronin Pg.Dip, BSC(Hons) Qs. Cert PK (Chartered Surveyor)). - Noise monitoring location 6 at H4. (Photo supplied) is beside an open drain with continuous medium to heavy flow rates. H4 is closest to the proposed wind turbines. The data was also measured against H15 as opposed to H4. There is concern that this may not correctly establish existing background noise in accordance with ETSU-R-97. Insufficient locations for such a large area, methodology inadequate, standards used out of date. (Infrasound) There will be a significant impact to human health as a result of excessive noise pollution. This will be particularly problematic at nighttime and outside normal daytime working hours during construction with the proposed HDD exceptions. - There is a concern that the Board's standard condition for noise is open to interpretation from the developers.	
Applicants Response (19 th June 2024)	
Memorandum No.9 (Noise)	
The applicant confirms low frequency noise or infrasound from wind turbines was considered in EIAR Chapter 13 and specifically Annex A of Appendix 13.1 which concluded, inter alia, that whilst it is known that infrasound can have adverse effects on people, these effects only come into play when the infrasound	

reaches a sufficiently high level above the threshold of audibility and that all available information from measurements on current wind turbines indicated that levels emitted lie below the threshold of human perception.

- The 2018 World Health Organisation Guidelines did not provide any recommendations on infrasound or low-frequency noise, but instead recommended control of wind turbine noise in terms of A-weighted noise levels, as has been done in the EIAR. The main health effect identified in the WHO review was annoyance which resulted in a conditional recommendation to control noise at 45 dB Lden which the applicant says is broadly consistent with the noise levels of 35 to 40 dB LA90 referenced in the 2006 Guidelines or the UK ETSU-R-97 guidelines.
- In relation to sleep disturbance the WHO 2018 did not make recommendations for night-time noise guidelines and there is no clear evidence for significant sleep disturbance at levels which do not exceed 43 dB LA90, which is the lower limit set in the 2006 Guidelines and ETSU-R-97 guidelines.
- Annex A of Appendix 13.1 explains that vibration produced in the ground from operational turbines is imperceptible to humans and unlikely to be associated with any effects for receptors around the wind farm.
- Some instances of increased AM noise outside normal range have been observed in specific cases but the relevance of this and the controls which could be applied is subject to discussion and there is no definitive guidance as to the assessment of atypical AM noise in current Irish planning guidelines. This is discussed in EIAR Chapter 13. If operational complaints arise, they will be investigated and appropriate action taken, but that the noise limits which have been considered are relatively stringent and included AM character or “swish”.
- Figure 3.1 (Sound pressure (A-weighted dB or dB(A)) scale and indicative noise levels) demonstrates that although noise levels associated with the development will be audible at times at some of the closest locations, the noise levels at neighbouring noise sensitive properties will be comparable to the range of noise levels in the existing noise environment. In relation to sound power levels from the turbines and the total acoustic energy emitted by the source these are several orders of magnitude lower at short distances from the turbine and decrease to 40 dB and less at neighbouring residential properties.
- The noise assessment in EIAR Chapter 9 focussed on residential properties as highly noise-sensitive in accordance with the Guidelines. There is limited guidance in Ireland or the UK which applies to external amenity areas such as parks or paths, but such areas are generally considered to be less noise-sensitive due to the transient nature of their use. A level of 55dB(A) is referenced as a potential guidance level as it is a threshold for serious annoyance for outdoor living areas in WHO guidance. The applicant refers to Fig. 13.1 of EIAR Chapter 13 which it says shows that predicted levels even in proximity to turbines would be “up to around 50dB(A)” and below the suggested WHO criteria.
- Turbine noise will be another source of noise in the environment experienced by users (of paths and trails) but would not cause significant impacts such as speech interference. Whether this is judged as negative or positive is highly subjective and dependent on the predispositions of the listener and that audible contribution would only be evident under a specific range of circumstances and different to longer term intrusion frequently associated with transport for example.
- At the time of the noise assessment for the proposed development finalised detailed information was not available for the Knockshavno Wind Farm and it is the responsibility of the Knockshavno WF to demonstrate how it considers suitable noise levels can be achieved in practice through the cumulative operation of both sites. The applicant opines that this is considered feasible based on an initial assessment undertaken within EIAR Chapter 13.
- In respect of autism concerns the applicant frames its response in the context of ‘hyperacusis’ which is described as a high sensitivity to noise common in persons affected by autism spectrum disorder (ASD) with stronger reactions to noise than the general population. The applicant states that noise of no more than 40 dB(A) predicted at noise sensitive locations can be compared to the range of noise levels typically experienced in the existing noise environment. There is no clear evidence that hyperacusis sufferers are more sensitive to certain sound frequencies, but that in any case, noise from modern wind turbines is not known to have particular low-frequency character compared to other sources such as distant air or road traffic.

	▪ The concerns raised in relation to potential for significant effects associated with different construction activities is noted but mitigation measures will manage and reduce these impacts in a standard manner such that residual temporary effects will not be significant. ▪ The information provided for anticipated worst-case traffic volumes during construction is corrected. It is confirmed that this will be 96 trips per day as opposed to 76. This is a marginal increase and the worst-case associated increase in the day-time average noise level would still remain below 3 dB corresponding with a minor impact and a short-term minor temporary reversible effect. ▪ The cumulative impacts with the Fahybeg WF will not increase beyond minor, particularly as peak traffic periods are unlikely to coincide. ▪ The experiences reported near other windfarms are not necessarily comparable. ▪ The noise model used to predict noise from the proposed development considered terrain effects including potential enhanced propagation across a valley or “concave sound”. Section 5.4 of Appendix 13.1 of EIAR Chapter 13 refers. ▪ The applicant acknowledges that concerns were raised regarding monitoring location 6 and its proximity to an open land drain. The applicant states that noise from running water was not noted as feature at installation and that if measurements had been affected by running water, then this would have been apparent in the charts, but this was not the case. The applicant is satisfied that measurements were not affected. ▪ Monitoring location 2 was chosen because access to other locations was refused, the location was still considered representative of the locality. Although levels are marginally higher at low wind speeds (compared to other locations) they remain around 30 dB LA90 which is considered low in absolute terms. ▪ Monitoring location 4 was only used to represent the property at which it was installed as confirmed in Table 3 of Appendix 13.1 in EIAR Chapter 13. ▪ The last paragraph of Section 3.1.3 (Mitigation and Residual Effects) of the Non-Technical Summary of EIAR Vol.1, was inserted in error and should be ignored. ▪ Property H4 and H606 are not associated/involved with the proposed development as originally assumed in the EIAR, this does not alter the conclusions of the assessment of operational noise from the proposed development. Updated noise assessment information is presented. For property H4 the predicted noise levels are below derived noise limits at this property without assuming an increased limit. The potential for predicted cumulative noise levels marginally in excess of the derived day-time noise limits at some wind speeds with the Knockshavno WF is indicated at this property, by less than 1 dB. This is unlikely to be perceptible, may not arise due to the assumptions made and, in any event, it is for the Knockshavno WF to address this matter. ▪ For property H606 the predicted noise levels remain below derived noise limits and that cumulative noise levels with Knockshavno WF show either compliance with derived limits or a negligible excess of no more than 0.3dB(A). ▪ Section 13.6.3. of EIAR Chapter 13 assumed the use of a reduced noise operational mode for turbines 2 and 4 and different operational restrictions for other turbine models, because the assessment was based on Vestas 150 as a robust (worst-case) candidate model. This was because the V150 had noisier emissions than other models considered such as Nordex N133 and N149. The effect of noise-reduced modes is to achieve a marginal reduction in maximum noise levels of 1dB(A) at nearest properties, which would be difficult to perceive in practice and may only be required in some wind conditions.
3.	Environmental Topic - Biodiversity, with particular attention to the species and habitats protected under the Habitats and Birds Directives (Directive 92/43/EEC and Directive 2009/147/EC respectively)
a.	<i>Key Issues Raised: Decline of Biodiversity, Loss of Hedgerows, NHA's</i>
	• There will be a significant impact to biodiversity, which itself is in decline generally.

- In order to deliver the proposed turbines, all roads will need to be widened and there will be a direct impact to the hedgerows approach sites. This is not quantified or assessed. Roads are substantially treelined within this area, with meeting or kissing trees. There are no road verges. Therefore, there will be largescale removal of native and naturalised broadleaf trees to facilitate construction traffic. This is not identified or assessed.
- The cumulative impact of the base and foundations and associated habitat removal excessive scale and not properly assessed.
- There will be a significant impact to Gortacullin Bog NHA, Doon Lough NHA. Doon Lough NHA is mentioned in the LVIA but not in the Archaeology and Cultural Heritage report and contains the remains of Doon House, Doon Castle and 3no. submerged canoes estimated to be 2-2,500 years old. WF development should not be permitted in an NHA.
- The alteration of the lands and soil will affect the drainage of the site and in turn the water regime of the Gortacullen Bog NHA. No analysis of this has been carried out. The turbines should not be located within buffer zones of hill slope watercourses.

Applicants Response (19th June 2024)

- On issues such as loss of wildlife, biodiversity, proximity to Gortacullin Bog NHA, presence of bat roosts in properties, potential impact on Doon Lake, inadequacies in bat surveys and assessments, impact to marsh fritillary, consideration of Monterey pine beetle, freshwater pearl mussel, and otters, inadequacies of invasive species surveys, impacts to hedgerows and mature trees along the turbine delivery route and mitigation measures - the applicant is satisfied these issues have been described and assessed in the EIAR.

b. Key Issues Raised: **Bats**

- There is a number of protected bat species in the area of the site, despite it not being designated a Natura 2000 site. Its proximity to such sites, Dane's Hole, Poulnalecka SAC and Ratty River Cave SAC, elevates its importances for foraging and commuting – particularly for lesser horseshoe bats.
- The cumulative impact of the Oatfield, Knockshanvo and Ballycar on the bats commuting between sites will be significant.
- There are at least two additional roosts at Woodfield House and in Santty which are not referenced in the EIAR. Additionally, there was no assessment of bats at the second HDD crossing along the grid connection route. No assessment of bat resting locations.
- Section 7.7 in EIAR which should contain the mitigation measures is completely missing and no assessment can be completed of same.
- The removal of foraging sites, disruption to commuting routes, introduction of noise and light pollution will have a devastating effect on the Lesser Horseshoe Bat species and contravenes the CCDP, NPWS Lesser Horseshoe Bat Species Action Plan 2022-2026 and NPWS Conservation Objectives for Dane's Hole Poulnalecka SAC.
- There is limited information in respect of surveys and there is a lack of seasonal surveys over two years.
- The Horseshoe Bat is present in the 12 o'clock Hills at Dane's Hole. Properties at V94K2XD & V94RDK5 states they have a bat roost in their property not mentioned within the submitted reports (70+ bats and 100+ bats) with foraging range within development site.
- The numbers of protected species in the submitted reporting is understated given the level of unreported activity witnessed in the area. The removal of treelines and hedgerow removes important linear landscape features important to bats (feeding & navigation).
- Rotating blades cause a drop in pressure that makes the delicate lungs of a bat expand, bursting blood vessels known as barotrauma. Red light signals attract bats to operating windfarms and heightened collision risk.

No satisfactory noise assessment carried out in relation to biodiversity, especially of the Lesser Horseshoe Bat. The focus of noise assessment is almost exclusively on human receptors.	
Applicants Response (19th June 2024)	
Memorandum No.3 (Biodiversity)	
- Potential impacts have been thoroughly described and assessed in EIAR Chapter 7. - Additional Potential Roost Assessments (PRA) and emergence surveys were carried out along the Turbine Delivery Route (TDR). These surveys, undertaken on 16th April 2024. The watercourse crossing identified as a confirmed bat roost will not require any structural works and potential disturbance will be consistent with the current usage of the transport infrastructure. - A desk review and field assessment were undertaken that included potential wintering and other roosting structures relating to Lesser Horseshoe Bats in the wider area due to proximity of Danes Hole, Poulnalecka SAC. Bat surveys were undertaken in April and May 2024. The low numbers per night suggest that the locations are being used as commuting pathways for small numbers of Lesser Horseshoe Bat, which confirms the previous assessment presented in the EIAR Chapter 7. A Bat Survey Report May 2024 is appended to the submission.	
c.	<i>Key Issues Raised: Otter</i>
- Two Otter spraints were identified in the EIAR, one spraint is located on the banks of the Oatfield River (EPA Code: 25O07), 55 m west of the loop-in grid connection. These species will be significantly disturbed by the construction of the proposed development. - Relying on “best practice construction measures and ecological supervision” as mitigation measures alone may not be sufficient to prevent negative effects on otter. - No assessment, despite reference to it in EIAR Appendix 7.2, Section 1.9.2, has been carried out on the Lower River Shannon Sac (002165) which is designated for otter. - There will be significant impact on otter as a result of the HDD proposed at Oatfield Church.	
Applicants Response (19th June 2024)	
Memorandum No.3 (Biodiversity)	
- Potential impacts have been thoroughly described and assessed in EIAR Chapter 7. - The applicant has listed a number of pre-construction surveys to be undertaken including hen harrier, otter, badger, bats, general mammals, marsh fritillary and invasive species.	
d.	<i>Key Issues Raised: Invasive Species</i>
The applicant has failed to mention the presence of invasive species like Bark Beetle and Monterey Pine Engraver. Japanese Knotweed present on the R471 at Coolycasey has not been mentioned.	

Applicants Response (19 th June 2024)	
Memorandum No.3 (Biodiversity)	
- Guidance from the DAFM notes that the Monterey Pine Beetle is not thought to be a pest of economic significance and its finding will not affect the movement of Irish spruce logs and timber and other non-pine species. The dominant species to be felled and removed is Sitka Spruce which is unaffected. - The presence of Japanese Knotweed is acknowledged and assessed in EIAR Chapter 7. Pre-construction surveys are referenced in the CEMP and an Invasive Species Management Plan is included as Appendix G.	
e.	<i>Key Issues Raised: Marsh Fritillary</i> - Given the presence of devils bit scabious, the presence of marsh fritillary cannot be excluded on the basis of limited surveys given their population behaviour which fluctuates. Species witnessed in 2022 at V94RDK5. - Marsh Fritillary Butterfly is Irelands only legally protected butterfly and has been recorded within the development area. There is also corresponding areas of Devil's Bit Scabious, suitable habitat, on the site. Due to the highly sensitive nature of the species in terms it will be significantly impact. - The removal of Wet heath habitat which corresponds to Appendix I habitat, 'northern Atlantic wet heaths with Erica tetralix (4010)' will also affect the butterfly. - The proposed mitigation measures are insufficient.
Applicants Response (19 th June 2024)	
Memorandum No.3 (Biodiversity)	
- Whilst no evidence of Marsh Fritillary was recorded within or in close proximity to the proposed development site, grassland within the site was highly suitable for MF containing abundant Devil's Bit Scabious. The site has therefore been identified as potentially being of local importance (higher value) for MF on a precautionary basis. - Embedded mitigation will ensure disturbance effects on MF will not be significant, however construction will cause a decrease in the availability and connectivity of suitable MF Habitat. Additional mitigation is described in Section 7.6.6 of EIAR Chapter 7 which includes the creation of habitats in proportion with the type and extent of habitat loss during construction (Table 7.23). - The surveyor could not access transect 11 due to the presence of livestock. Devils Bit Scabious was present, but the surveyor could not check for larval webs. This is accepted as a constraint, but other areas of suitable habitat did not yield evidence of MF presence. The potential presence of MF is accepted, pre-construction surveys will be undertaken and any required micro-design, retiming of works, vegetation management (or as a last resort) relocation of larval webs will be undertaken. - MF web surveys were undertaken on 6th Sept. Habitat surveys in July and August. The 10 MF webs reported refer to historic NBDC data (not surveys undertaken). - Habitat walkover surveys were repeated on 24th April 2024 to identify the presence of wet heath within the proposed development area. One area identified has a total hectarage of 1.1ha and is located within the footprints of proposed access tracks and drainage, 315m east of T9. This further assessment therefore determines that 1.1 ha of Annex 1 habitat will be lost to the Proposed Development rather than the 3.6 Ha identified in the EIAR Chapter 7.	

f.	Key Issues Raised: <i>Flora and Fauna (generally), Protected Species Decline and Habitat</i>
- The findings in relation to flora and fauna are disputed, particularly with regard to the habit of raptors, in particular Kestrel and Hen Harrier, from observed experience in the area. The veracity of information in relation to Bats is challenged on the basis that it is poor, pro-development and doesn't include many culverts in and around the site. The records contained regarding identification of roosts and observations of roosting is lacking. The omission of Lough Coolmeen from any assessment or surveys is questioned given witnessed presence of Cormorants, Ducks, Moorhens, Whimbrels, Curlews, Cuckoos, Herons and many other species at the lake and its environs. - There are protected butterflies and wildlife within the site including breeding Red Squirrels, Pine Martens, Badgers, Foxes and Roe & Sika Deer at the Protected Drimmeen Woods, and the Kerry Slug, which will be subject to unacceptable disruption and decline during and post construction. - The site and area is home to many protected species which are threatened and in decline. The area should be designated a Special Protection Area in this regard. - The site is of upland blanket bog and wet heath. It is of considerable habitat value and is not suitable for WF development. Risk of landslide. Habitat loss unacceptable. - The amount of deforestation required for the proposed development is excessive and will have an interactive impact on ecology and water. Any afforestation proposed could impact species like the hen harrier.	
Applicants Response (19th June 2024)	
Memorandum No.3 (Biodiversity)	
- Potential impacts have been thoroughly described and assessed in EIAR Chapter 7. Section 7.8 described the residual effects on Key Ecological Features which with the adoption of mitigation measures, including the SHMP, are not anticipated to be significant. - Habitat walkover surveys were repeated on 24th April 2024 to identify the presence of wet heath within the proposed development area. One area identified has a total hectareage of 1.1ha and is located within the footprints of proposed access tracks and drainage, 315m east of T9. This further assessment therefore determines that 1.1 ha of Annex 1 habitat will be lost to the Proposed Development rather than the 3.6 Ha identified in the EIAR Chapter 7.	
Key Issue: National Biodiversity Action Plan	
Proposed development is contrary to same. Deforestation undermines green credentials.	
4.	Environmental Topic: Ornithology
	Key Issues Raised
<i>Hen Harrier</i>	
The species habitat is spread across the whole development area. Three active Hen Harrier nest sites were recorded in 2022. Two active Hen Harrier nest sites were recorded in 202. Each of the nest sites is located less than 1000m's from a turbine	

- There is precedent in the Board's determinations in cases (ABP-311044-21) and (ABP-305163-19) regarding a wind farm being contrary to proper planning as a result of impacts to hen harrier.
- The proposed development has an estimated construction timeline of 24 months and will have a negative impact in terms of noise, light and chemicals. This will potentially lead to population declines.
- The proposed development will result in unacceptable bird mortality as a result of collision with the turbines,
- The assessment of ornithology at the site is inadequate. There have been numerous sightings of hen harriers in the area. The applicant has not assessed the impact on same and underestimated the collision risks.
- The amount of deforestation required for the proposed development is excessive and will have an interactive impact on ecology and water. Any afforestation proposed could impact species like the hen harrier.

Red-listed and other Birds

- There are 12 Red-list bird species and, 4 Amber-list bird species in or in proximity to the site that are also protected under Annex I of the EU Bird's Directive. The wet heath habitat, which is a habitat for a many red-list birds in this area, will be removed despite being listed in Annex I of the Habitats Directive.
- The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to in the context of ornithology.
- There are breeding and wintering Kestrel on the wind farm site as well as turbine delivery route which will be significantly impacted as a result of the collision risk. This is confirmed by the modelling data provided.
- Mitigations stated by the developer appear to be insufficient or non-existent.
- The supporting habitats of Sparrow Hawks, Peregrine Falcon, Buzzards, Woodpecker, Grouse, Long-eared Owls and Kestrel, which have been witnessed on site, will be destroyed. White Tailed Eagle also witnessed 3 years ago.

Applicants Response (19th June 2024)

Memorandum No.4 (Ornithology (including AA and SHMP)).

- The version of the SHMP submitted in December 2023 indicated an area of land not within the landowner agreement schedule (i.e. Figure 1.20, Figure 1.21, Figure 1.22 and Figure 1.24). This was purely a presentation matter and calculations regarding adequacy of compensatory habitats etc. were correct in the original submitted document. The updated SHMP is appended to the response. The proposed SHMP will provide full and effective additional foraging habitat for Hen Harrier, as part of the Proposed Development for the lifetime of the wind farm. No reliance is placed upon Hen Harriers nesting or foraging within 250m of a Proposed Development turbine. This exclusion informed the requirement for the SHMP.
- Section 8.6 of EIAR Chapter 8 included detailed consideration of the potential impacts on Hen Harrier and Red Grouse. These impacts have been minimised where possible through design and embedded mitigation and detailed mitigation including the Species and Habitat Management Plan (SHMP).
- Detailed Collision Risk Modelling using data collected between 2021 and 2023 identified that anticipated Hen Harrier collision fatalities during the operation of the Proposed Development will be 0.01 Hen Harriers per year. This is not nationally significant.
- The potential for significant effects on Red Grouse is relatively limited. The mitigation specified (including mitigation detailed in the SHMP) is considered sufficient to avoid significant effects on Red Grouse.

	▪ It is not possible, however, to undertake comprehensive assessment of cumulative impacts with Knockshanvo Windfarm as there is no publicly available data for Hen Harrier or Red Grouse using the Knockshanvo Windfarm area. The cumulative impact needs to be made as part of the Knockshanvo project application, as the data for the Oatfield windfarm has been made available as part of its planning submission. ▪ The SHMP, as indicated above, will provide managed habitats for foraging Hen Harrier over and above the existing availability of these habitats, providing a net gain for this species, directly supporting action CDP15.12(f) and CDP15.12(a) of the Clare County Development Plan. ▪ It must be noted that the full SHMP was submitted to ABP on the planning application submission date (22nd December 2024). Following this, on 10th January 2024, the NPWS requested that the SHMP be redacted to protect the precise location of the Hen Harrier nest locations. RSK Biocensus and INIS (project ornithologists) concurred with this request and therefore redacted information detailing the precise location of the Hen Harrier nests. ▪ In addition, habitat re-instatement and creation described in the SHMP will have benefit for Kestrel. The proposed SHMP area is outside of the location of the Knockshanvo area, and any other windfarm, and landowners have entered into legally binding commitments to ensure that the mitigation measures are in place.
5.	Environmental Topic - Land, soil, water, air and climate
a.	<i>Key Issues Raised: Soils and Geology</i>
	• The material resource in terms of concrete, stone, water required to build the proposed wind farm is excessive and will result in the removal of a carbon sink, peat bog. • The site has 'extreme' groundwater vulnerability, and the soil cover is thin. The peat probes determined that the peat soil was 0 to 0.5m in depth. It is unclear how the applicant can install turbine foundations without rock breaking. There is no quarrying element to the proposed development. • Soil contamination could have a huge impact on grazing animals (cattle/horses) grazing near these sites. • There is a possible Karst site at Poulnarleca Cave which houses bats and has water springs which may be impacted. • Parameters such as phosphorous, nitrate, dissolved organic carbon and potassium will change as a result of forestry removal. This will impact waters on the site and lead to contamination. • There is also a concern about the use of explosives for excavation which would impact adjoining wildlife and farm animals. • An assessment of soil compaction is required. • The removal, stockpiling and disposal of materials from the site has the potential for the release of contaminants. • There is concern that the depth of excavation will be much deeper than the anticipated 3mbGL and the effects this will have on bedrock and water courses and potential contamination from concrete and other chemicals used. • There is concern about the use of concrete, hydrocarbons and other fluids used for the HDD. Landslides

- Several of the turbines are in areas with a moderately high or high risk of landslides. The proposed development site is in proximity to the location of the Derrybrien bog slide. This issue needs to be considered in full given there is a lack of clarity regarding the depth of peat excavation required. There is a concern that for T.9 and T.10 areas there are within these areas megalithic tombs, holy wells, ring forts and will be impacted directly by any landslides.
- The location of the proposed development on wet lands pose a serious risk for landslides. The proposed development is not that far away from the Derrybrien Wind Farm which had a significant peat bursts which resulted in ecological destruction. V94H3F - deep, moderately deep, shallow and very shallow bog identified in the Eastern site directly behind house, concerned at risk of slide with no natural barriers. Most of the turbines are located in areas of "moderately high" landslide risk with downward gradients and multiple watercourses leaving the site - this is not suitable for WF development.

Methodology

- The EIAR has not provide site specific information to make a decision in respect of geology. The site investigations is not sufficient.

Applicants Response (19th June 2024)

Memorandum No.6 (Land, soils and geology)

- In relation to Land, Soils and Geology the applicant's response is set out in Memorandum No.6. The following issues are addressed, largely through reference to EIAR Chapter 9 of the EIAR as originally submitted:
 - The upland nature of the site and peat and Stability, landslide, mudslide. The risk of a stability issue or landslide at the Proposed Development is low.
 - Excavation, handling, storage and management on site
 - Nature and extent of the construction works
 - Storage of peat and soils
 - Excavation, removal of peat and soil
 - Compaction, erosion and degradation of soil
 - Contamination of soil
 - Replacement of soil and rock with concrete
 - Potential effects of concrete
 - Decommissioning and concrete
 - Clear felling of forestry
- The applicant has also addressed peat stability issues during construction of other wind farms in Ireland including Meenbog and Derrybrien.
- The Proposed Development is not expected to have any effects relating to the land, soils and geology of any designated areas.
- Whenever possible, soil will be re-used on the Wind Farm immediately, thereby reducing the need for double handling, reducing the requirements of stockpiles. No permanent stockpiles will be left on site following the construction phase of the Proposed Development.

	With implementation of the mitigation measures, the residual effects associated with erosion and degradation of soils is not significant.
b.	Key Issues Raised: <i>Hydrology & Hydrogeology</i>
	- There will be a significant impact to watercourses in proximity to the site, all of which drain into the River Shannon. Many turbines are located within buffer zones of watercourses with some almost directly on top of them. One 18acre landholding (not specified) farmed by V94RDK5 contains 8 springs not mapped or reported. - There is limited examination of the hydrological connection to the River Shannon SAC. - The proposed water regime on the site is related to a number of drinking water supplies for a number of residents in the area who use wells. There is no information on wells in the area and those with wells were not consulted. In some cases, this risk is heightened by 'Extreme Vulnerability' classification (V94PX8X). - There will be a significant impact to the drinking water sources in proximity to the site, including private wells and a risk of pollution and contamination. In some cases, this risk is heightened by 'Extreme Vulnerability' classification (V94PX8X). Household well to V94RDK5 is an old open style well vulnerable to pollution and changes in water table. Existing domestic wells not identified. peat removal and excavation activities, road construction proposed upslope of a number of wells. Not identified -not assessed. No GWSS or mains water in this area. Development does not consider the impact to the Castlake Treatment Works. - The proposed development is upstream of towns considered Flood Zone A. The proposed development will result in flood impact elsewhere as a result of the changes to the hydrological regime. The location of the proposed development will generate a flood impact further downstream. - The competency of the authors of the hydrology and hydrogeology are queried. No hydrologist and no hydrogeologist were involved in the EIA for Hydrology and Hydrogeology.
Applicants Response (19th June 2024)	
	Memorandum No.5 (Hydrology and hydrogeology) - In relation to Hydrology and hydrogeology the applicant's response is set out in Memorandum No.5. The following issues are addressed, largely through reference to EIAR Chapter 9 of the EIAR as originally submitted: - The upland nature of the site and the soil type which includes peat; - The high density of drainage channels throughout the site and the upgrade works required for same which will require careful oversight and detailed mitigation measures; - Felling of trees and clearance works. - The timing of construction works outside of the breeding season for birds coinciding with wetter periods (see 'timing of works' in Section 8.5.3 of EIAR Chapter 8 Ornithology); - The nature and extent of the construction works, hardstanding areas, cable connection works, road upgrades and potential alterations to the hydrological regime of the site; - The hydrological connectivity of the watercourses to the Lower River Shannon SAC. - The impact on drinking water and private wells.

	- Surface water quality - Downstream Flooding - Buffers and drainage - Designated areas - downstream areas - Inadequate methodologies, site surveys and water test results - Cumulative effects ▪ Table 3.1 and presented in Figure 3.2 has now been updated to outline all confirmed dwellings with wells. The associated river subbasin is outlined and the nearest turbine in that river subbasin identified. The level of potential contamination is based on the magnitude of works in that subbasin. ▪ The development is at planning stage and includes reasonably detailed layout and design details for the purpose of conducting an EIA, An EIAR is not intended to include detailed engineering design. ▪ The applicant has also addressed the Competency of the authors of the EIAR and set out their professional expertise. ▪ A Surface Water Flowchart was appended to the memorandum.
c.	Key Issues Raised: <i>Air and Climate</i>
	• There is SF6 gas in the wind turbine switchgear as well as toxic (or radioactive) waste in the turbines. • Any gains in terms of climate targets will be offset by the local impact the proposed development will have. Applicant should demonstrate a lifecycle carbon analysis of the turbines and their placement. • The proposed development does not balance the UN's Sustainable Development Goals. It is purely focused on providing renewable energy at the cost of sustainable communities and their health and wellbeing. • The EIAR prepared by RSK are undermined by widespread issues of underestimation, inaccuracies, flawed methodologies, and incomplete reporting. • It cannot be confirmed beyond scientific doubt that this proposed development will not have a negative impact to the health and wellbeing of the people and wildlife who live in this area. • The proposed development will result in an increase in health-related impacts including asthma, bronchitis, cardiovascular problems, cancer, development issues at pregnancy and even mortality. • Air pollutants can harm ecosystems by acidifying soils and water bodies, damaging forests, and reducing biodiversity • There is limited assessment of the construction phase and the impact of Particulate Matter PM2.5 (particles of dust and chemicals of 2.5µm in size or less). • There are no mitigations that can be put in place to completely prevent this exposure and ensure that there is no significant negative impact to human health. • The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to residents in the context of air quality. The EIAR does not consider the cumulative impact with Active Quarries in the immediate locality - within a 10 Km radius of the area.
	Applicants Response (19th June 2024)
	Memorandum No.13 (Air Quality)

- Based on the Institute of Air Quality Management (IAQM) 2023 construction dust guidance, the study area for human receptors is up to 250m from the red line boundary and the study area for ecological receptors is up to 50m from the red line boundary. Receptors beyond the study areas noted above were scoped out of the assessment based on this guidance.
- With the implementation of the proposed mitigation measures presented in Section 17.7.1.1 and 17.7.1.2 of EIAR Chapter 17, no significant air quality effects are anticipated during the construction and decommissioning phases of the Proposed Development.
- Prior to mitigation, the proposed increase in traffic and associated emissions was not considered to have a significant effect on air quality during the construction phase. However, in line with best practice, any insignificant effects on air quality will further be mitigated by the employment of the proposed mitigation measures (Section 17.7.1.1 and 17.7.1.2 of EIAR Chapter 17). Therefore, construction traffic is unlikely to materially impact on local air quality
- The cumulative construction and decommissioning phases effects were not considered to be significant, when appropriate mitigation measures are implemented as per best practice.
- There are eight active quarries within 10km of the Proposed Development and the active quarries are using the same material haul routes as the proposed turbine delivery route. All developments are expected to follow best practice measures to control and minimise emissions from traffic and therefore the cumulative construction phase effects are considered not significant during the construction phase.

Memorandum No.14 (Climate)

- A whole life carbon assessment was carried out to assess the impact of the Proposed Development on climate change (refer to EIAR Chapter 18 Climate Change (hereafter referred to as EIAR Chapter 18)). This was done through assessing the greenhouse gas (GHG) emissions associated with all phases of the Proposed Development.
- Taking the entire lifecycle of the Proposed Development into account, the Proposed Development is predicted to deliver total emissions savings of 1,099,942 tCO₂e over its 35-year operational lifetime against grid mix electricity generation, and 2,635,007 tCO₂e against fossil fuel mix electricity generation. This overall impact was considered to represent a significant and positive beneficial effect.
- A high-level review was carried out at the scoping stage to judge whether the long-term effects of climate change would pose a potential threat to the Proposed Development. This was in respect of weather patterns and rising sea level pressure. It was concluded the impacts from climate change can be scoped out.
- EIAR Chapter 4 Project Need and Alternatives provides a detailed discussion on the need for the Proposed Development. The need is generally supported at all levels of government policy.
- The methodology used for the calculation of emissions relating to the production, transport, operation, and decommissioning of the turbines took into account the transboundary effects of the Proposed Development.

5. Environmental Topic - Material assets, cultural heritage and the landscape

a. Key Issues Raised: **Material Assets (Telecommunications)**

- There is a concern that the proposed development will impact on telecommunication signals in the area. The area already experiences difficulty. May have home working implications.

b.	Key Issues Raised: <i>Material Assets (Aviation)</i>
	• The proposed development will have excessive lighting systems for aviation which will impact the local community at night time. • The proposed development will impact the flight paths to Shannon Airport, civilian and military. IAA is currently studying turbulent effect of rotating turbines on aircraft. A consent is premature before this analysis concludes. • Three separate reports were commissioned by Brookfield in 2016 (Included in Appendix 3, Section 3.2, Scoping responses). All three reports identified negative impacts of the proposed development with smaller turbines than the ones proposed by Orsted. The negative impacts identified were on the Radar infrastructure, the instrument Flight Procedures (IFP's), Instrument Landing System (ILS) and on the ILS calibration flights. • There has been significant objection from IAA about the meteorological masts and previous wind farms proposed in the area • The minimum sector altitudes (MSA) will be impacted, that the minimum safe altitudes that aircraft can fly at were not considered and that communication assets namely Air Traffic control radio equipment located at Woodcock hill were not considered at all. • The applicant has also failed to consider the cumulative effect this proposed development will have on aviation, when combined with other wind farms • The proposed development will undermine the safety of critical national infrastructure at Shannon Airport, • There is a concern that the proposed development will impact on telecommunication signals in the area. The area already experiences difficulty. May have home working implications.
	Applicants Response (19th June 2024)
	Memorandum No.7 (Material Assets (Aviation)) ▪ The applicant's response under this memorandum is set out in the response to ANI at sub-section 9.6.4. of this report. In the interests of brevity, it is not proposed to repeat it here other than to clarify the memorandum also includes the following appendices: - Appendix 1 IFP Safeguarding Oatfield Windfarm Study - Appendix 2 Mitigation Options Study Oatfield Windfarm - Appendix 3 CAP670 Air Traffic Services Safety Requirement - Appendix 4 Meeting Minutes – Brookfield & IAA Feb. 2020 - Appendix 5 PBN Implementation Plan for Ireland - Appendix 6 UK Aviation Plan – Wind Turbines and Aviation Radar - Appendix 7 Newcastle Airport Reference - Appendix 8 Project Marshall - Installation of New and Upgraded Thales RSM970S Radars at MOD Sites in the UK - Appendix 9 Irish State Plan for Aviation Safety 2023 –2025 Vol. II 2.2 Controlled Flight into Terrain - Appendix 10 Concept Designs ATCSMAC
c.	Key Issues Raised: <i>Material Assets (Traffic and Transport)</i>
	• There is not sufficient mitigation to ensure access for residents and agricultural holdings during the construction of the grid connection.

- The local area does not have the road infrastructure to host such a development and the disruption on to daily lives will be significant, particularly during construction and associated with the significant number of predicted HGV movements.
- There are several omissions in the EIAR:
 - No assessment of the Ballybar Bridge crossing and the Oatfield Bridge was not assessed for otter and FWPM And bats and its weight restriction.
 - There are no signed landowner consents on this route for the insertion of 4 major joint bays the exception for this is at the first HDD crossing where one landowner has consented.
 - The grid route follows part of the historical Sarsfield's Ride not referenced at all in the RSK submission.
 - No provisions made for access to residential and agricultural property during the insertion of joint bays.
 - Baseline information is incorrect. R471 carries a lot of Dublin/Tipp traffic avoiding Limerick to go to the Airport. It is narrow and has suffered damage from Coillte Traffic. This has not been taken into account. The road cannot sustain the traffic proposed in terms of capacity or structure.
- The applicant has failed to identify the impact to bus services in the area.
- Widening of elevated road on property boundary may have structural implications for private property (V95K2W2). Roads have weight restrictions, not suitable for HGV construction traffic
- Statement of Authority lacking, vague and uninformative. RSK report selective and not credible regarding local road network and contains irrelevant information padding. IEMA Environmental Assessment for Road Traffic, 2023 not followed - serious concerns omitted, issues cherry picked. Dust & noise not adequately assessed, consultation lacking. RSK provides no evidence or data of roads 'further afield' considered in traffic analysis, does not include quarry traffic, cumulative WF traffic, employee traffic or traffic associated with clear felling 54ha of conifer forest. Basis or evidence for Trip generation estimations not provided. Assumptions and decisions are justified on the basis of 'professional judgement'.
- Contradictions re: accident data as report both states that accident data was reviewed and separately that it was not available from RSA. Basis for calculating AADT flawed and not validated. Properties incorrectly categorised. RSK acquired NOD and Inis Environmental in March 2022 - is anything independent? An error on Page 11 of Orsted Report (Project Ref.604569) identifies the project in Kerry and not Clare, bringing veracity of findings into question.
- Baseline information is incorrect. R471 carries alot of Dublin/Tipp traffic avoiding Limerick to go to the Airport. It is narrow and has suffered damage from Coillte Traffic. This has not been taken into account. The road cannot sustain the traffic proposed in terms of capacity or structure.
- The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to residents in the context of traffic and transport particularly in the context of the extensive interactive impacts identified by the applicant.
- The applicant did not identify any residual impacts, however there will inevitably be residual impacts for drivers, cyclists and pedestrians and Bus Eireann and school transport.
- There is no explanation in 16.8 or in the Pinnacle Engineering appendices that are linked to this of how the development flows for each site are calculated.
- The proposed development does not consider the Broadford Village Sewage Scheme, The Limerick Link Road, Clare County Plan Sixmilebridge South Relief Road.
- There is no information from the RSA which means no weight can be placed on the assessment accidents.
- There are numerous local incidents which occur that impact traffic including in 2017 Urgent remedial works at Cloontra Bridge (R471), an incident with hay bales obstructing the road and forest fires in 2023.

- Quite local area roads will be subject to significant disturbances over 37 different nights if each of the 110 hauls needed for the turbines can only be permitted to travel in a convey of 3 with Garda, caution vehicles and blade lifters as part of that convey. It is unclear what level of hedge cutting there will be and the impact this will cause.
- Failure to consider alternative delivery routes
- V94H3F - access route runs along north side of house. Access route for Knockshanvo is planned along southern side of house. Residents will be landlocked by construction traffic for 18-24 months.

Applicants Response (19th June 2024)

Memorandum No.12 (Traffic and Transportation)

- The applicant is satisfied its turbine delivery route can be accommodated by Direct Route who operate the motorway and Limerick City and County Council and have provided details of engagement with these parties. Any loads exceeding weight restriction may use an alternative route, or an application will be made to TII their sign-off.
- The Applicant accepts the conditions proposed by TII and will include them as part of the construction contract if the planning application is approved.
- To address road safety concerns, the Applicant will carry out various road safety audits, as detailed in TII GE-STY-01024 - Road Safety Audit, at the various stages of project development.
- The applicant is satisfied that there are a range of mitigation measures available to minimise impact on public transport including timing of deliveries to avoid peak times, speed limits and adherence to haulage routes.
- A desktop study was undertaken in May 2024 to locate potential pinch points along the proposed haul route that may require mitigation measures. This desk top study was based on the haul route identified in Figure 10 of the Outline CTMP. An updated Outline CTMP is included in Appendix 3. Mitigations include stop/yield systems.
- The applicant has clarified the quantum of trip generation. The CEMP estimates that construction phase for the entire Proposed Development will lead to 18,190 additional large goods vehicle (LGV) and HGV trips (two- way) over the duration of the construction works. This consists of 12,545 HGV trips and 5,645 LGV trips. This results in an average increase of 44 vehicles per day with a maximum increase of 96 vehicles during the busiest month.
- As noted in the observations, traffic surveys may not give a true reflection of actual traffic volumes at Site 5A. Therefore, additional traffic surveys were carried out on the 30th of April 2024. The count locations are shown in Figure 3.5. It should be noted that Carmody's Cross was included in the updated assessment for completeness. The supplementary traffic counts are included in Appendix 2 of the memorandum.
- Based on the feedback from the submissions, revised traffic counts were done on Site 5, Site 5A and the Carmody Cross. The traffic volumes recorded at Site 5A was less than what was assumed in the EIAR. The statements made in the EIAR is still valid.
- The applicant has provided justification for the access locations identified as well as restating its plan to maintain existing pavement conditions.
- During the construction phase, it is predicted that the additional traffic will have a moderate and short-term effect on existing road users, which will be minimised with the implementation of the mitigation measures outlined in Section 16.9.2 of EIAR Chapter 16 and the Outline CTMP (EIAR Volume III, Appendix 5.2). This conclusion is based on the guidance provided in IEMA's Environmental Assessment for Road Traffic, 2023.
- There will be a moderate and short-term effect on pedestrian and cyclists, which will be minimised with the implementation of the mitigation measures outlined in EIAR Chapter 16, Section 16.9.2.

	▪ A moderate and short-term effect on pedestrian and cyclists, which will be minimised with the implementation of the mitigation measures outlined in EIAR Chapter 16, Section 16.9.2. The risk for accidents can also be adequately mitigated. ▪ The 12 O'Clock Hills purple walking trail is an offline trail and unlikely to be affected by the proposed haul routes. There are no proposed construction works North of the Proposed Development area in the vicinity of the 12 O'Clock Hills Trails and all construction activities will take place within the red line boundary of the Proposed Development.
d.	Key Issues raised: <i>Archaeology, Architectural & Cultural Heritage</i>
	• There will be an impact to Oatfield Church and its archaeological setting as a result of the proposed development, particularly as a result of mast, substation and high voltage cables. It is a Protected Structure (RPS665) and a recorded monument (CL052-043). • The engineering works will have a significant impact on the archaeological setting of this location, an area roamed by Brian Boru and containing much recorded and unrecorded archaeology including an ancient wedge tomb "Diarmid and Grainne's Bed", and an intact Fulacht Fia, Ballycullen Castle, medieval Dolmen, Ring Fort's and Cregans House. • There is specific concern about the impact to Knockshanvo Wedge Tomb & Penal Mass Site, Gortacullin enclosure, Penal Mass Sites, Early Modern Landscape: Famine Road & Stone Cabins, Formoyle Hillfort, Coolycasey Rock Art, Knocknatober Fort & Tobermochulla Holy Well, Mythological Landscapes, Oatfield Barn Church. • There are several placename/townland errors in the report.
	Applicants Response (19th June 2024)
	▪ The subject site was selected as it is both a '<i>strategic</i>' area for wind and a location where windfarm developments are '<i>acceptable in principle</i>' in the CCDP. The assessment of potential direct and indirect effects of the proposed development on archaeology, architectural, cultural and built heritage in EIAR Chapter 15 states that it has been assessed that there will be no significant effects to the historic environment following a mitigation strategy that will be agreed with the LA and National Monuments Service as a condition of permission. ▪ In respect of the wider landscape the development was designed to avoid direct effects to all known archaeological sites and built heritage structures using standard baseline data sets and site visits were undertaken to ensure that, as far as possible, potential unregistered heritage assets were also avoided. ▪ The assessment of potential direct and indirect effects of the proposed development on archaeology, architectural, cultural and built heritage in EIAR Chapter 15 states that it has been assessed that there will be no significant effects to the historic environment following a mitigation strategy that will be agreed with the LA and National Monuments Service as a condition of permission. ▪ None of the monuments or buildings specifically referenced in the submission documents will be directly affected by the proposed development. In relation to 19th century sites of potential heritage significance specifically referenced in the submission documents, these are all located several hundred metres away from the red line boundary of the site and the proposed development was otherwise designed on the basis of impact avoidance as informed by site visits. ▪ The potential effects from parts of the proposed development that cross surviving historic field boundaries and sections of potential 19th century roads/tracks will be addressed through the mitigation strategy.

- In relation to the potential for currently unknown buried archaeological remains, the potential effects will be addressed through a mitigation strategy, all archaeological fieldwork will be carried out by a suitably qualified licenced archaeologist, and all groundworks and mitigation will comply with relevant statutory legislation.
- In relation to cumulative effects, the assessment within EIAR Chapter 14 and 15 describes the likely cumulative effect on the settings of Architectural Conservation Areas (ACAs), Protected Structures and National Inventory of Architectural Heritage Sites as 'Significant' and '*an effect which by its character, magnitude, duration or intensity, alters a sensitive aspect of the historic environment*'. The overall cumulative significance of effect on Recorded Monuments will likely remain '*neutral*' and on unregistered buildings, earthworks and field boundaries of heritage interest will likely be '*moderate adverse*' which the applicant describes as '*an effect that alters the character of the historic environment in a manner that is consistent with existing and emerging baseline trends*'. This is primarily due to potential cumulative loss of unregistered features in the locations of windfarm developments.
- In relation to place-name analysis the applicant accepts that different translations of placenames can be made which can change how they are interpreted, but that the examples cited in the submissions, does not materially change the assessment of potential effects or the outline mitigation strategy within EIAR Chapter 15.
- The applicant states that the SMR/RMP database used in the writing of EIAR Chapter 15 was correct and up to date at the time of writing, and states that the example cited in the submissions (rock art panel in Coolycasey) was omitted as it was outside the study area.
- NHA is a basic designation for wildlife and for this reason NHAs like Doon Lough are not included in receptors assessed in EIAR Chapter 15. Doon Lough NHA does contain upstanding and potential archaeological, and heritage features but the development will not directly affect any of these as they are located outside the development areas including the grid connection and turbine delivery route.
- The applicant notes several recorded monuments in the vicinity of Doon Lough which were considered as having medium sensitivity to the effects of the development on their setting, but which were not individually assessed within the study area as they are located more than 1km from the red line boundary of the site.
- The development will have a long-term low magnitude of change effect on the setting of recorded monuments around Doon Lough and an adverse indirect effect on their significance which will be reversible and at worst 'not significant adverse'. The proposed development will have no significant effects on the archaeological, architectural and cultural heritage significance of recorded monuments in the area of Doon Lough.
- EIAR Chapter 15 identifies and recognises the significance of St. Vincent de Paul (Oatfield) Church as a Protected Structure (RPS number 665) and as a recorded monument on the Sites and Monuments Record (SMR Number CL052-043). It has been assessed that the only part of the development with potential to directly affect buried archaeological remains associated with the Church is the Grid Connection Route which will be dug through the existing public road adjacent to and within 100m of the Protected Structure and archaeological monument. There will be no direct effect on the building or monument during construction but there is potential for unknown buried archaeological remains associated with the Church to be present within the public road and outside of the modern curtilage of the church and churchyard which could be truncated and removed by ground works for the cable trench at this location. It is likely that there are already existing buried services within this public road which will have truncated and removed deposits to the depths of the foundations of the road and/or service trench and therefore the potential direct effect is considered to be 'No change-Low' and at worst 'Not Significant'. Ground works at this location will be subject to a programme of archaeological monitoring to ensure that potential buried archaeology is identified and avoided or mitigated and a maximum set back will be applied to avoid the possibility of structural damage from groundworks.
- An analysis of wireframe and photomontage views was produced in the assessment of potential effects on the setting of the Church within Section 15.6.3.4.5. of EIAR Chapter 15. This confirms wind turbines will not be visible in views looking south and south-west from the R471 public road, in views looking westwards from the entrance of the church or in views from the Derrynaveagh road directly east towards the entrance of the Church, and the

proposed development will not change the way the Protected Structure is normally viewed and understood in its setting. Changes to views looking north from the Church and carpark are not considered likely to affect any significant historic views or sightlines that contribute to the significance of the siting of the Church. The effects of any increase in construction traffic will be temporary, confined and managed. For these reasons it is assessed that the windfarm may have a long-term medium effect on the setting of the Church and its curtilage and an adverse indirect effect on its significance which will at worst be moderate adverse.

e. **Key Issues Raised: *Landscape and Visual***

- There will be significant impact to the landscape of this part of Co. Clare which hosts sensitive biodiversity, agriculture holdings and very little pollution. Given the number of wind farms and turbines proposed in the area, it is likely that certain properties will be surrounded by a ring of turbines. The character of the landscape will materially change. The sheer scale and number of turbines in an elevated setting will have an overbearing impact on the: the rural landscape; the scale of existing activities; the peace and tranquillity of the environment; biodiversity and will represent the largest structures in the region dramatically in excess of urban development(s). Unacceptable scale and change to landscape.
- The relevant guidelines for landscape and visual were not prepared for the wind farms of this scale or nature.
- The photomontages are misleading, and location selected to minimise the appreciation of the impact or to obscure the views. Views of recognised scenic value have been omitted including two local scenic routes (SR25 and SR26). Local community and heritage viewing points (including settlement areas) have not been adequately addressed.
- The applicant determines that the landscape is defined as transitional marginal land per the Draft 2019 Wind Energy Guidelines. The draft guidelines however determine that turbine heights for transitional marginal land should be generally medium and short. In addition, the applicant omits key classification definitions of transitional landscapes in their the EIAR, Chapter 14.
- The cumulative impact from the all the permitted, proposed and planned wind farms in the area is of significant concern to residents in the context of landscape.
- The proposed site meets Clare County Councils classification as a heritage landscape and therefore, every effort should be made to reduce visual impact.
- The selection of the substation location is concerning and there is a lack of mitigation measures associated with it.
- It also noted that one observer to the file has submitted Photomontages and a Landscape and Visual Report which they have prepared to counter that of the applicant's assessment. The photomontages were prepared using 'Wind planner' software. In addition, an Archaeological And Environmental Report and Noise Assessment was appended to the submission.

Applicants Response (19th June 2024)

Memorandum No.10 (LVIA)

- The landscape has been assessed as one that is heavily modified, informed by a primary agricultural context and an elevated working character that is evident in extensive areas of commercial conifer forestry and which together with anthropogenic built features such as telecommunications masts and overhead line corridors, demonstrate long standing human intervention. All of the scenic routes and views in Clare, Limerick and Tipperary which fall within the ZTV were investigated with the conclusion that the significance of effect at scenic route designations ranged from moderate-slight to slight-imperceptible and that the proposed development will not result in significant visual impacts on scenic designations within the study area.

- The turbines are not out of scale, will assimilate well into the scale of the transitional marginal landscape and mountain moorland within which the development is located and follow a design response in accordance with the 2006 Guidelines including providing for a separation distance from residential properties in excess of that recommended to avoid spatial overbearance. Other examples of Irish and UK windfarms with turbine heights at or higher than those proposed in the development are cited.
- The applicant notes the context and relationship of the proposed development with the 12 O'clock Hills trails and the East Clare Way. There will be some broad distant views where the development will be prominently visible, but turbines are slender structures which will not block or unduly obstruct panoramic views, allowing for a strong degree of permeability. The summit of Knockanaurha and the importance of the view afforded north and west is noted. It is observed that the development will not impact same. There are many precedents where waymarked and local trails pass immediately adjacent to turbines. The permitted Boggeragh II wind farm is referenced and an inspector opinion that development would not significantly affect the recreation value of the walking route.
- Up to ten representative viewpoints were selected to represent tourism, amenity and heritage features (including Bunratty Castle, Co. Clare and King John's Castle in Limerick City) which determined that the turbines will have little influence on notable heritage receptors within the wider landscape which are already influenced by an array of other, nearer, anthropogenic built features and that significant effects would not be generated.
- The response provides clarification and technical detail on the selection, modelling, production and assessment of viewpoints, including the equipment, software and methodology used and confirms that photomontages were produced in accordance with the current Nature Scot Guidelines and guidance set by the British Landscape Institute 2011 – Advice Note 01/11. The selection of viewpoints is guided by Zone of Theoretical Visibility (ZLT) mapping and representation of different distances, angles, contexts and receptor categories and baseline photography was captured in the summer months of 2023.
- The proposed lighting on top of the nacelle has a principal use of identifying obstacles in the sky for aviation-based receptors and will not cast light down diminishing potential effects on ground-based receptors. As visual amenity is at its lowest during dark periods, there will be minimal effect in a landscape context. The site is not located in a designated dark sky area and is already impacted by light spill from a number of sources.
- EIAR Chapter 14 assesses the potential cumulative impacts of the proposed development and concludes that the most notable cumulative effects have the potential to occur in the 'potential future cumulative scenario' with the proposed Knockshavno Wind Farm. The other developments considered include the Ballycar WF 3km south, and the Carrownagowan WD 4km northeast.
- With regard to Knockshavno WF it is acknowledged that together with the proposed development, they will likely be viewed as one large wind energy development. However the dispersed layout of three clusters diminishes the potential scale and intensity, the landscape can well accommodate the combined developments without conflict and once intervening screening is accounted for, aside of summits and ridges, there will be very limited locations within the central study area where clear views will be visible from a near distance.
- In respect of other wind farm developments, including Fahy Beg and Lackareagh it is acknowledged that they will contribute to a notable increase in the intensity of wind farm development in the study area but will present as distinctly separate developments.
- Overall, there will be a notable sense of wind farm proliferation within the central and wider eastern half of the study area contributing to a cumulative effect in the order of 'high-medium' (if all developments proceed) but it is not considered that the proposed development will generate significant cumulative landscape and visual effects.
- The principle mitigation measure employed is the siting of the proposed development within a designated 'strategic' area for wind, mitigation was otherwise employed by avoidance and design and buffering from residential receptors.
- It is not common practice to try to screen turbines with areas of planting which would have little to no effect.

	In response to photomontages submitted with the submissions, the applicant contends that they have not been carried out in accordance with applicable guidance or best practice, are heavily cropped increasing perceived scale, do not differentiate which turbines are associated with which windfarms in cumulative views and present turbines with a dark grey colour that are backlit increasing their visual prominence. The applicant states that the turbines will be finished in an off-white colour where they will often be viewed with a low degree of visual contrast against the sky and points out that additional views have been created in Appendix 1 (of the response memorandum) which clearly differentiate the proposed Oatfield WF turbines and other cumulative developments reinforcing the EIAR Chapter 14 judgements that significant visual effects will not be generated.
6.	Environmental Topic - Major Accidents Key Issues Raised: Fire & Accidents
	- There are numerous examples of wind turbines causing fires and impacting the wider landscape. Forest fires not uncommon in area, turbines will prevent, obstruct or complicate emergency services access and response especially helicopter. - Wildfire conditions in the proposed Windfarm Area are rated as 'High' to 'Extreme', and previous wildfires have been 'Significant' in scale and required fire suppression assistance by helicopters. In 2011 and again in 2023 three helicopter equipped with Bambi buckets were required to suppress wildfires. - The applicants assessment of accidents and health and safety is not sufficient. The proximity of turbine T1 to the 13km purple route hiking trail at 86m raises serious safety concerns for recreational walkers and hikers.
Applicants Response (19th June 2024)	
Memorandum No.1 (Planning & Miscellaneous)	
	a setback from turbines, met mast and substation will be put in place to maintain a fire break and emergency service access. The applicant is committed to upholding high standards for safety in this regard.
7.	Environmental Topic – Cumulative Effects Key Issues Raised:
	- It is noted that approximately an additional 66 turbines and up to seven wind farms are planned in east Co. Clare. This will have a significant cumulative impact across all topics at both construction, operation and decommissioning phases. Carrownagowan WF Fahybeg WF Lackreagh WF Knockshanvo Ballycar WF. - The subject application and the future (Knockshavno) application are two separate applications for a single windfarm development. This is a deliberate tactic and charade, designed to increase the chances of obtaining planning permission and of wearing down local opposition. Case precedents cited regarding obligation to assess cumulative impacts - Case -196/16, 399/14, 275/09, 404/09, 531/13, 142/16 and IEHC 18.

- The submitted particulars does not consider previous afforestation activities or the environmental assessments associated with same - remedial obligation on Board to address this.

Applicants Response (19th June 2024)

Memorandum No.15 (Cumulative Effect)

- Table 2.2 and Table 2.3 of EIAR Chapter 2 EIA Methodology (hereafter referred to as EIAR Chapter 2), included an evaluation of projects that were scoped in for cumulative assessment. EIAR Chapter 20 presents a summary of findings of the cumulative assessments.
- At the time of the submission of the Oatfield Wind Farm planning application, the planning application for the Knockshanvo Wind Farm had not yet been submitted for planning, and no finalised detailed information was available.
- The planning application for Knockshanvo Wind Farm and other upcoming wind farm developments will therefore need to consider the cumulative impacts of this Proposed Development, for which all relevant information has been submitted in the planning system.
- The Ballycar Wind Farm was in its pre-planning phase, with proposed turbine locations and specifications not yet finalised. Thus, specific details were unavailable for a comprehensive cumulative assessment.
- Potential impacts on the Hen Harrier population have been assessed based on information available and impact will be minimised by embedded mitigation and the SHMP. It is not possible, however, to undertake comprehensive assessment of cumulative impacts with Knockshanvo Windfarm as there is no publicly available data for Hen Harrier using the Knockshanvo Windfarm area. The cumulative assessment of impacts to Hen Harrier, therefore, will be part of the Knockshanvo project application.
- The NIS report objectively concluded that, following an examination, analysis and evaluation of relevant information, including in particular the nature of the predicted impacts from the Proposed Development and the implementation of mitigation measures, the Proposed Development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects.
- The AA concluded that the Proposed Development does not have the potential to give rise to significant adverse effects on ornithological features in the River Shannon and River Fergus Estuaries SPA.
- The applicant refers to the cumulative assessment in the original EIAR in respect of other topics raised.

8.	Other Matters
<i>a.</i>	<i>Key Issues Raised: Enforcement</i>
	• There are questions around whether CCC can meaningfully enforce the conditions of a planning permission and particularly enforce noise monitoring and the decommissioning phase in 30 years' time. There is no competent enforcement authority to ensure shadow flicker and noise pollution does not exceed limits or contravention a condition.
<i>b.</i>	<i>Key Issues Raised: Project Splitting</i>

	The proposed development is project splitting with Knockshanvo Wind Farms which should be considered a single development given their overlap. The proposed development is project splitting by Orsted Onshore, Future Energy Ireland and Ballycar Green Energy Ltd.
c.	Key Issues Raised: <i>EIAR (generally)</i> - EIAR categorises the landscape as farmland and forest, which is reductive failing to recognise the Sunyata Centre, rural homes and community, the tourism, recreational and amenity values. It is generic and consists of a cut and paste approach, includes a lack of substantive engagement or consultation, and this brings conclusions into question. Landscape classed as 'utilitarian', which is incorrect. 1000m separation distance required from sensitive receptors - not met. - It is stated that the EIAR was edited after submission to the Board with a page missing from the Species and Habitat Management Plan. This is documented by observers and undermines the credibility of the entire application. - Submissions also raised the issue of transboundary effects given the resources required for the proposed development will originate internationally. - The extent of felling (123 Hectares) has not been properly assessed in the context of visual effects, traffic movement, peat slippage or hydrology.
d.	Key Issues Raised: <i>Procedural</i> During the statutory consultation phase, the public had issues accessing the Board's website from Friday 2nd February 2024 to Tuesday 6th February 2024. This website issues are documented by screen grabs from the website.
e.	Key Issues Raised: <i>Appropriate Assessment</i> - The works for turbine delivery including creation of temporary surfaces in road verges, SUDS, bats has not been included in the Appropriate Assessment. - The NIS uses the 15km radius from the points in which masts will be erected. This has now been thrown out as an appropriate methodology. The actual Source> Pathway> Model has not been applied. The Pathway (transport route) has not been assessed.
f.	Key Issues Raised: <i>Wind Energy & associated Guidelines</i> - There are no up-to -date guidelines and the local population is most vulnerable to the impacts as a result their absence. The current guidelines are based on outdated science and are not best practice particularly in terms of shadow flicker and noise. - The 2006 Guidelines are out of date. They set out guidance in the context of much smaller turbines. The advances in technology and the increase in the scale of turbines was not envisaged and the guidance is now out of date in respect of turbines of such greater scale. - The Board cannot rely on the WEGS as they have not been subject to SEA in any case. - The guidance for noise and shadow flicker are outdated.
g.	Key Issues Raised: <i>Development Plan</i> - CCDP11.47, CPD15.12, CPD14.2, CPD14.7, CPD15.1, CP16.1', Section 1,4 Terms and Definition of the CWES. - Development Plan refers to medium sized windfarms at this location, the proposal is excessively large in scale and not in accordance with this. - The development would seriously injure the visual amenities of the area contrary to CDP 14.2 & CDP 14.7. The development would seriously injure residential amenities by reason of noise and disturbance contrary to CDP11.47(E). The development would have significant negative effects on the

biodiversity of the area contrary to CDP15.12. Development Plan zoning did not envisage future turbines of this super-sized scale. Contrary to CDP14.14 and CDP8.21B regarding inland waterways and River Basin Management Plan. • Contravenes CD 2.1; 8.40, 10.11, 14.3, 14.14, 15.12 • The development plan designation for 'strategic' did not envisage future wind turbines of this size and scale. It is also the view that the specific area objectives and areas designated as "strategic" in the CWES should be developed in a comprehensive manner avoiding piecemeal development like what is currently unfolding. • The proposed development will materially impact and contravene the provisions of the CCDP in relation to scenic routes. The following are noted as having a relationship to the wind farm - Bridgetown to Broadford; O'Callaghan's Mills to Broadford; and Tulla to Kilkishen. • Scenic routes in the vicinity (Bridgetown to Broadford; O'Callaghans Mills to Broadford and Tulla to Kilkishen • Specific Area Objectives p31 CWES states that areas designated as "strategic" should be developed in a comprehensive manner avoiding piecemeal development • The proposed development would be in contravention of objectives CDP2.6, CDP11.26, CDP11.27, CDP15.3, CDP15.4 and CDP18.6 of the Clare County Development Plan 2023-2029	
<i>h.</i> Key Issues Raised: <i>Legal Interest</i>	
• Several properties and homes have been incorrectly listed on planning particulars as 'associated dwelling' which is not correct. Several parties have made submissions stating that consent has not been given for land to be used for any component of wind farm delivery arrangements. This has caused blame, anxiety and upset in the community. • There are several folios with landholder consent letters issues or have issues with Land Registry details. There are also extensive commonage & sporting rights and it is queries whether all 'shareholders' have given consent. • V94YH3F (Teresa & Patrick Derek O'Connell) - dwelling incorrectly listed on submitted particulars as an 'associated dwelling' not correct. Consent not given for land to be used for any component of WF or delivery arrangements. This has caused blame, anxiety and upset. • There is a potential anomaly with the landowner consent for the Folio CE24258F upon which Turbine 9 is sited. The folio is owned by Thomas and Mary Walsh, whereas the landowner consents are from Thomas and Edmund Walsh.	

Table 2.a – Themes & concerns raised in the submissions received from prescribed bodies and the applicant's response of 19th June 2024.	
<i>i.</i> Applicants Response to Clare County Council	
Memorandum No.1 - Planning & Miscellaneous	

- There has been a clear upward trend in the scale and height of wind turbines since the adoption of the 2006 Guidelines, and the LA had several opportunities to update its WES and CCDP in this regard.
- In the absence of updated Section 28 Guidelines on 'Landscape and Landscape Assessment' and 'Wind Energy', and in the absence of a National Landscape Character Assessment (NLCA) and Regional Landscape Character Assessment(s) (RLCA), the Clare LCA, WES and CCDP are the only relevant planning documents to inform the proposed renewable energy development.
- At the time of writing Ireland is still without an NLCA or RLCA despite a requirement under the EU Wind Energy Package and ED Directive RED III for Member states to designate and digitally map 'Renewable Acceleration Areas'. The applicant assumes that 'strategic areas for wind' will be fast tracked as 'Renewable Acceleration Areas'.
- The need for the EU-led wind energy initiative is included in CAP24.
- The EPA has reiterated that Ireland will not meet its GHG emission targets by 2030.

Memorandum No.2 - Population & Human Health

- In relation to Population and Human Health, the responses provided in relation to LVIA, Traffic & Transport and Noise are considered to adequately address the concerns raised by the Chief Executive and Elected Members.

Memorandum No.3 - Biodiversity (see Memorandum No.5 (Hydrology & Hydrogeology))

Memorandum No.4 - Ornithology and AA for SHMP

- The anticipated rate of Hen Harrier collision fatalities (0.01 per year) would not be significant in a population context.
 - Considering the location and level of Red Grouse activity recorded during surveys, the potential for significant effects is relatively limited and it is considered that the mitigation specified is sufficient to avoid significant effects.
 - It is not possible to undertake a comprehensive assessment of cumulative impacts to Hen Harrier and Red Grouse with Knockshavno WF as there is no publicly available data for that WF. Such a cumulative assessment needs to be made as part of the Knockshavno project when it proceeds to planning.
 - The SHMP will provide a net habitat gain for Hen Harrier and aligns with Objective 15.12(a) and (b) of the CCDP.
 - The NIS objectively concluded that the proposed development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects.
- The SHMP has now been screened for Appropriate Assessment with results appended to Memorandum No.4.

Memorandum No.5 - Hydrology & Hydrogeology

- See also Memorandum No.6
- In relation to *'the upland nature of the site and the soil type which includes peat'* the applicant refers to the mitigation measures set out in EIAR Chapter 9, Sections 9.5.1.8, 9.5.2.6, 9.5.2.16 and 9.5.3.1 to reduce any erosion of peat and potential runoff from the site to downstream receptors.
- In relation to *'drainage channels'* the applicant states that buffer zones of 15m have been applied to these receptors. Where in stream works are required, this is assessed separately in Section 9.4.3.17 of EIAR Chapter 9 and mitigation measures are set out in Section 9.5.2.11 to mitigate and reduce any potential impact on the receiving watercourse.
- In relation to the *'felling of trees and clearance works'* the applicant states that this is in line with baseline conditions and is likely to happen with or without the proposed development. Section 9.4.3.2. of EIAR Chapter 9 assesses the potential effects to be of moderate significance, permanent but reversible and adverse. The mitigation measures set out in Section 9.5.2.3 of EIAR Chapter 9 will ensure that potential effects are reduced to slight significance.
- In relation to the *'timing of construction works outside of the breeding season for birds'* it is accepted that works may fall in a 'wetter' period but that the aim is to utilise dry weather and to cease works in response to incoming extreme weather alerts. Monitoring and mitigating during times of intense rainfall is considered relevant throughout the year. Earthworks will be limited to seasonally dry periods and an Emergency Response system has been developed for the early excavation phase (See EIAR Appendix 2.1, Section 5.10).
- In relation to the *'nature and extent of construction works and potential alterations to hydrology'* the applicant states that mitigation by avoidance and design is the first step in reducing the extent of construction works as outlined in specified sections of EIAR Chapter 9. The applicant states that water quality monitoring will ensure changes to the hydrological regime are detected, and that a positive impact is expected compared to baseline conditions promoting a more even distribution of run off, attenuation of run off and a reduction in the hydrological response to rain fall in turn raising bog water levels resulting in wetting of blanket peat.
- In relation to *'hydrological connectivity of the watercourses to the Lower River Shannon SAC'* the applicant states that the mitigation measures outlined in EIAR Chapter 9 will ensure that potential contaminants will remain on site and be processed correctly. The NIS determined that the proposed development will not compromise the ability of waterbodies affected to maintain good status or achieve improved status and that there will be no adverse effect on the integrity of any European site.
In relation to *'impact on drinking water and private wells'* the applicant states that EIAR Chapter 9, Section 9.5.2.4 assesses the risk to groundwater quality as a result of the development as low. Mitigation measures will be introduced to ensure the risk of contamination of drinking water or private wells will be reduced to neutral or slight, with specific mitigation measures for hydrocarbons as they pose the greatest risk.

Memorandum No.6 - Land, Soils & Geology

- Also refer to Memorandum No.5

- In relation to the '*upland nature of the site and peat*' the applicant states that the 'factor of safety' is generally acceptable and the risk of a stability issues or landslide at the development is low. Peat and slope stability investigations indicate that the area has a generally low risk probability with respect to peat slippage and slope failure under the footprint of the development. Mitigation measures will be applied.
 - In relation to '*Excavation, handling, storage and management on site*' the mitigation measures for excavation activities and storage of materials are set out in Chapter 10, Section 10.5.2.5 and 10.5.2.6 respectively. The management, movement and temporary stockpiling of material, including a materials balance assessment and plan is detailed in the CEMP.
- In relation to the '*nature and extent of the construction works*' the applicant states that the land take associated with the development is 16.74ha and had been reduced in so far as practical by design/avoidance. The land take with the turbine delivery route, Grid Connection Route and IPP cable route is minimal. There will be some hedgerow and agricultural land loss at the turn from R463 to R471 and to facilitate HDD.

Memorandum No.8 - Shadow Flicker

- The applicant will adhere to the mitigation measures detailed in Section 12.7.1. and 12.9.1.3 of Chapter 12 of the EIAR consisting of a shadow flicker control system. Through this system the development will adhere to the guidance thresholds of 30 minutes per day, or 30 hours per year.
 - Potential cumulative effects were considered for existing and future projects, but the level of cumulative assessment was reflective of the project information available at the time. For Knockshavno WF this did not include finalised detailed information as the project was at pre-planning stage.
 - It is the responsibility of the Knockshavno Wind Farm to demonstrate how it has considered the cumulative effects of shadow flicker in relation to the Guidance thresholds when it is subsequently brought forward for planning.
- The proposed shadow flicker control system can be operated to curtail the Oatfield turbines, should they exceed the Guideline thresholds in combination with Knockshavno turbines.

Memorandum No.9 - Noise

- Objective 11.47 of the CCDP seeks an appropriate balance between renewable energy generation and residential amenities. The 2006 Guidelines and the ETSU-97 guidelines referenced in EIAR Chapter 13 Noise and Vibration Assessment provide an effective and recognised way of achieving this balance.
 - The guidance referenced in Chapter 13 is broadly consistent with the WHO Guideline recommendations.
- The applicant otherwise notes that the Elected Members expressed concerns in relation to noise adversely affecting residential neighbours within 2km of turbines, however the applicant responds that Chapter 13 presents a detailed assessment and concluded that no significant effects would arise.

Memorandum No.10 - LVIA

- The LA has given a broad brushstroke classification to their position that the proposed development will generate significant landscape and visual effects without clear detail as to how and where these impacts will occur.

- The process of zoning the designated ‘*strategic*’ lands would have given due consideration to landscape and visual considerations and there would be a level of understanding and acceptance that commercial scale windfarm developments could be both accommodated and assimilated into this landscape.
- The increasing scale of wind turbines has been clear for some time and the LA has had several opportunities to update its WES to reflect this trend. It is accepted that some effects at the nearest receptors (Viewpoints VP 12, 16, 17 & 18 are identified) are close to, but below, the significance threshold. A conclusion of no significant landscape, visual or cumulative impacts was reached.

Memorandum No.15 - Cumulative Effects

- Chapter 2 of the EIAR describes the methodology employed in compiling a list of projects for consideration in the cumulative assessment.
- The cumulation of effects with other existing and/or approved projects was described in accordance with EU EIA Directive, specifically Annex IV point 5(e).
- Potential cumulative effects were also considered for (i) projects going through the planning system, and (ii) envisaged projects not yet submitted to planning, however the assessment of projects not yet at planning is curtailed by the level of information available.
- At the time of writing the Knockshavno WF was at pre-planning stage and finalised detailed information was not available. It is therefore for the Knockshavno WF to assess cumulative effects when it is brought forward for planning.
- Notwithstanding this, cumulative assessment for some environmental factors (LVIA & Shadow Flicker) was considered and EIAR Chapter 12 & 14 refer. Chapter 20 of the EIAR presents a summary of findings.

ii. Applicants Response to Failte Ireland

Memorandum No.1 - Planning & Miscellaneous

- Impacts arising from the construction stage of the development will be managed in accordance with a Construction Environmental Management Plan (CEMP) and a Construction Traffic Management Plan (CTMP).
- The EIAR includes a detailed Landscape and Visual Impact Assessment (LVIA) which encompasses the 12 o'clock Hills and assesses the landscape context of the site as “a *working transitional setting that is heavily influenced by extensive areas of commercial conifer forestry and pastoral farmland*” and judges the landscape sensitivity within the central study area as “*medium, with some localised areas of higher sensitivity*”.
- Whilst the proposed development will generate some notable visual effects at the 12 o'clock Hills trails, it is not considered that it will result in significant visual effects at these receptors, and it is not considered that the proposed wind farm will detract significantly from visual amenity afforded at the 12 o'clock Hills. Memorandum No.10 is referenced in respect of these findings.

- The proposed development will not hinder or conflict with the growth and development of the 12 O’Clock Hills Project and the Oatfield Community Benefit Fund (CBF) could contribute to the long-term viability of this project should the community decide to allocate funds.
- The CBF also supports the Sixmilebridge Town Centre First (TCF) Plan, it is envisaged that it would support ‘area-based’ refurbishment and re-purposing of vacant and derelict buildings, and it could also support best practice in Conservation Area Regeneration Schemes.
- The proposed development therefore supports the delivery of UN SDG’s and the governments TCF Policy in addition to renewable energy policy and targets.

Memorandum No.2 - Population & Human Health

- EIAR Chapter 6 and Memorandum No.10 provide a comprehensive response to the potential for recreation and tourism amenities to be impacted during the construction stage of the development.
- In relation to operational stage effects EIAR Chapter 6 concludes that there is an increasing acceptance and more positive views of wind energy in Ireland, and it is anticipated that over time turbines will become a feature of the landscape and will be viewed positively by the community.

Memorandum No.10 - LVIA

- The proposed development is contained along the Broadford Hills which is designated as ‘strategic’ in relation to wind energy development and is much less susceptible to development than the remote areas surrounding Slieve Bernagh.
- Whilst Tourists notice wind farm developments, they do not have a significant bearing on their overall experience of the Irish Landscape. It is not considered that the proposed development will detract significantly from visual amenity afforded at the 12 o’Clock Hills.

iii.	Applicants Response to Department of Housing, Local Government and Heritage
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Memorandum No.3 - Biodiversity

- Additional Potential Roost Assessments (PRA) and emergence surveys were carried out following bat survey concerns raised by DHLGH. Results are present in Appendix 2. These surveys (undertaken on 16th April, 2024) identified two water crossings (WC9 & WC14) with low potential for roosting bats. WC9 was not identified as a bat roost during emergence surveys. WC14 confirmed as a bat roost, will not require structural works and potential disturbance will be consistent with current usage.
- In respect of ‘*requirements for additional Lesser Horseshoe Bat surveys due to proximity of Danes Hole, Poulnalecka SAC*’ additional field assessment was undertaken in April and May 2024. Results suggest location being used as commuting pathways for small numbers of Lesser Horseshoe Bat which confirms the previous assessment presented in EIAR Chapter 7.

- Habitat walkover surveys were repeated on 24th April 2024. A further assessment determined that 1.1 ha of Annex 1 habitat will be lost rather than the 3.6ha identified in EIAR Chapter 7 and the DHLGH submission. This is still assessed as significant at a local level (slight effect) and the impact assessment and proposed mitigation measures in EIAR Chapter 7 remain valid.
- A preliminary list of pre-construction surveys is set out for: Hen Harrier, Otter, Badger, Bats, General mammals, Marsh Fritillary and invasive species.

Memorandum No.4 - Ornithology

- Screening for Appropriate Assessment of the SHMP has been carried out and is present in Appendix 1 (to the Memorandum). This determines that the SHMP does not require AA as it is deemed, on the basis of objective scientific information, that the SHMP, individually or in combination with other projects, will not have a significant adverse effect on any European Sites. It is accepted that the Board is the competent authority for AA.
- The management prescriptions applied under the SHMP are based on the NPWS Farm Plan Scheme. The aim is to provide a net gain of foraging habitat for Hen Harrier for the lifetime of the development as close to nesting and foraging areas as possible. It is concluded that the SHMP will provide full and effective additional foraging habitat for Hen Harrier.
- No reliance is placed on Hen Harriers nesting or foraging within 250m of a turbine. The SHMP explicitly states that all suitable habitats within this area are considered to be no longer available for foraging Hen Harrier and this forms the basis for the area of positively managed Hen Harrier habitat within the SHMP.

Memorandum No.11 - Archaeology, Architectural and Cultural Heritage

- The proposed conditions that would be attached to a planning consent align with the outline mitigation strategy contained in EIAR Chapter 15 and sample conditions C3, C5 and C6 set out in the OPR Practice Note PN03: Planning Conditions (October 2022).

Memorandum No.15 - Cumulative Effects

- EIAR Chapter 5 Project Description defined the areas of tree felling.
- EIAR Chapter 8 Ornithology included detailed consideration of the potential impacts on Hen Harrier during all stages of the proposed development in the context of other site uses in the zone of influence. Memorandum No.4 elaborated on this.
- Cumulative effects were assessed based on potential impacts from the proposed development in the context of other nearby projects in as much detail as was afforded by the level of ornithological information available. This included Knockshavno and Ballycar wind farm developments.
- It was not possible to undertake a comprehensive assessment of cumulative impacts with Knockshavno as it had not been submitted to the planning authorities at the time of writing. The cumulative assessment of impacts to Hen Harrier will therefore be part of the Knockshavno project application.

- EIAR Chapter 9 and 10 address the clearing of forested areas. Memorandum No. 5 & 6 provide clarification. Felling of commercial forestry is considered to be in line with baseline conditions likely to happen with or without the development (do nothing scenario). The mitigation measures in Section 9.5.2.3. of EIAR Chapter 9 will ensure that potential effects are reduced to slight significance.
- Memorandum No.6 clarifies that clear-felling of commercial conifer plantation and replanting will be required in accordance with the licensing requirements of the Forest Service of DAFM.

iv.	Applicants Response to AirNav Ireland, Shannon Airport Authority and the Irish Aviation Authority
Memorandum No.7 - Material Assets (Aviation)	
<i>The applicant's response to ANI is set out in Memorandum No.7 and is substantively set out in a 'response statement' prepared by specialist company Ai Bridges. The technical reports that form part of this response were undertaken by a company named Cyrrus, who are a certified Instrument Flight Path (IFP) Designer with both the IAA and AirNav. It is summarised as follows:</i>	
• The IFP Safeguarding Assessment completed for Oatfield Wind Farm by Cyrrus determined that the proposed WF does impact the currently established IFP's and the ATCSMAC for Shannon Airport. In relation to IFP the assessment demonstrates that there are viable mitigation measures to the issues raised by Air Nav and which can be implemented with further consultation with AirNav and Shannon Airport. These will be subject to the airports Safety Management System (SMS) requirements and the commercial benefit of accepting mitigation. • This is supported by the detailed and documented consultations that have previously taken place, prepared by third party aviation specialists, during the pre-planning stages from 2016-2022 for previous developments within this general area. • In relation to ATCSMAC a 'Concept Designs ATCSMAC Report' demonstrates that there are viable mitigation measures which can be implementable with further engagement with ANI and SAA but that the operational feasibility of the concept design options can only be decided upon by Shannon Air Traffic Control. • The State PBN Implementation Plan (attached in Appendix 5) provides for phasing out of the legacy flight approaches or to their replacement by more modern navigation methods. The IAA themselves have already developed the Performance Based Navigation ("PBN") transition plan applicable to all airspace users as required under EU regulations under the State PBN Implementation Plan for Ireland and this offers a pathway for further discussion with ANI on ways to mitigate out concerns relating to IFP's and ATCSMAC. • In relation to RSSS the Radar Assessment completed for Oatfield by Cyrrus, identified that there would be no impacts to the Monopulse Secondary Surveillance Radar at Shannon Airport. The Primary Radar at Shannon Airport was also assessed and subject to available upgrades by the manufacturer, wind farm impacts can be filtered out which would result in the 11-turbine wind farm at Oatfield having no operational effect.	

- Newcastle Airport and the Project Marshall Radar Upgrade by the UK Military of Defence (MoD) demonstrate a valid upgrade precedent clearly demonstrating that such mitigation has been effectively implemented.
- In relation to the concerns raised by the ANI and IAA that there would be an impact on the MSSR at Woodcock Hill Cyrrus (Mitigations Options Study), conducted a detailed technical assessment with detailed calculations and analysis and showed that there would be no radar shadowing effect caused by the proposed wind farm on the Woodcock Hill Monopulse Secondary Surveillance Radar and no impact on en-route aircraft at 10,000-35,000ft.
- The applicant would welcome the opportunity for engagement with ANI, IAA and SAA to present the redesign and mitigation options and agree the optimum mitigation to ensure the safe and effective vectoring of aircraft at Shannon Airport.
- Also see response to Memorandum No.7.

iv.	Applicants Response to Transport Infrastructure Ireland
Memorandum No.12 – Traffic and Transport	
• The route chosen for turbine delivery is managed by Direct Route who have confirmed that in principle the movement of equipment can be accommodated. Full correspondence with Direct Route is set out in Appendix 4 (to this Memorandum). • Part of the Turbine Delivery Route uses the N69 which is managed by Limerick City and County Council on behalf of TII who have confirmed no concerns with the transportation of turbine components subject to a number of standard requirements. • The route identified in the submitted documentation can be delivered now, subject to proposed mitigation and is not subject to programme. • Any loads approaching or exceeding the 14 tonne per axle weight restriction on the N69 will require sign off by TII. It is anticipated such loads will be transported via Dublin Port, but if required application will be made to TII/Limerick CCC to allow the Port of Foynes to be used. • No greenways are proposed along the Turbine Delivery Route in within Limerick. • At the time of writing no proposed greenways have been published along the TRD within Clare. • The conditions recommended by TII are accepted.	

5.0 Further Information (An Coimisiún Pleanála 17/01/2025)

5.1 Following a review of the application documentation including the Environmental Impact Assessment Report (EIAR), Natura Impact Statement (NIS) and the observations received by the Commission from the prescribed bodies and third-party submissions, it was considered that Further Information was required from the applicant in order to assist with the assessment of this application.

5.1.1 On 17th January 2025 ACP sought further information in accordance with Section 37F(1)(a) of the PDA, 2000 (as amended) for the following:

1. *Significant concerns in relation to aviation safety have arisen given the relationship of the proposed development to Instrument Flight Procedures (IFP), the Air Traffic Control Surveillance Minimum Altitude Coordinates (ATC SMAC) and the Woodcock Hill Radar as set out in the observations received by the Board from Irish Aviation Authority (IAA), Shannon Airport Authority DAC with additional information from AirNav Ireland. Notwithstanding the applicant's response to the observations received and the technical report provided, the applicant is requested to review these submissions further and demonstrate that sufficient consultation with Irish Aviation Authority (IAA), Shannon Airport Authority DAC and AirNav Ireland has been undertaken and all aviation concerns have been addressed to their satisfaction.*
2. *Several other planning applications have been received by the Board for separate wind farms that are in proximity to or adjoining Oatfield Wind Farm, in particular Knockshanvo Wind Farm (ABP-320705-24). The applicant is requested to submit revised/updated information, if any, addressing cumulative and in-combination considerations in the Environmental Impact Assessment Report and Natura Impact Statement respectively, that may arise from the proposed development, other windfarms and activities in the area since its response to submissions and observations in June 2024.*
3. *The Department of Housing, Local Government and Heritage (DHLGH) has concerns regarding nature conservation. Notwithstanding the applicant's response to the observations received and the technical reports provided, the applicant is requested to review this submission further and demonstrate that all issues raised by the DHLGH have been addressed sufficiently and directly. Specifically, it is requested to address the absence of a winter survey for bats and an assessment of potential impacts to stated attributes and targets of the conservation objectives for the Danes Hole, Poulmalecka SAC.*

4. *The applicant is relying on managed areas included in the Species and Habitats Management Plan (SHMP) as a mitigation measure to avoid significant adverse effects on species and habitats. The applicant, as stated in the SHMP, anticipates that the implementation of this mitigation measure will be secured by means of a condition of the planning permission. Notwithstanding the letters of consent submitted, it is unclear to the Board whether the applicant has established a beneficial interest in all the lands based on the site plan drawings submitted in the planning particulars, as these areas are excluded as land to which the application relates. The applicant is requested to address this matter and update documentation and drawings, as relevant, clearly identifying the land to which the application relates and the boundaries thereof and any other land which adjoins, abuts or is adjacent to the land to be developed and which is under the control of the applicant or the person who owns the land which is the subject of the application.*

5.1.2 A response to the further information request (“RFI”) was received from the applicant on 23rd May 2025. It consisted of the following:

- Oatfield Windfarm RFI Response Report
- Appendix 1: Ai Bridges Technical Response
- Appendix 2: Cumulative Impact Assessment Report
- Appendix 3: Updated Photomontage Booklet
- Appendix 4: Updated NIS
- Appendix 5: Ecology Figures in Relation to RFI Item 3
- Appendix 6: Legal letter from the Applicant Confirming Interest in the SHMP Lands
- Appendix 7: Updated Planning Drawings

5.2 Further Information Consultation

5.2.1 On 23rd June 2025 the applicant was requested to publish notice of the significant additional information and to send notice of same to the PA and prescribed bodies in accordance with Section 2(b) of 37F of the PDA, 2000 (as amended). A period of 5 weeks was given for the making of submissions and/or observations.

5.2.2 On 18th July 2025 the applicant confirmed that: (i) a site notice had been erected on site on 15th July, 2025; (ii) a public notice had been placed in the

Irish Examiner on 16th July, 2025, the Clare Champion on the 18th July, 2025 and with the Limerick Leader for 19th July, 2025; and (iii) that a copy of the RFI documents had been delivered to the PA and all prescribed bodies. The closing date for submissions was 22nd August 2025.

5.2.3 A total of 19 no. submissions were received in relation to the applicant's further information response. They are summarised hereunder:

5.3 Further Public Submissions

5.3.1 A total of 13 no. public submissions were received to the RFI. Details of the parties who made submissions is set out in Appendix B. They largely raise general concerns in relation to the proposed development regarding: private wells, wildlife (generally), traffic, flora and fauna (protected species), cumulative impacts, landscape and visual amenity, aviation safety, SHMP, property values, mental health & wellbeing, the Hogsprickle Hedgehog Hospital, recreation, presence of Red Squirrel, absence of winter bat study, enforcement, consultation/community engagement which are not further information specific, and which consist of matters that were already raised in the initial public submissions and summarised in Table 2 above.

5.3.2 The matters which are considered either additional or further information specific are summarised below in Table 3 below in a thematic format consistent with Table 2 above.

Table 3: Themes and concerns raised in the public submissions received concerning the applicant's further information response (May 2025).

1.	<i>Compliance with the Requirements of Article 94 and Schedule 6 of the Regulations, 2001 (and associated)</i> <i>Key Issues Raised</i>
	• Inadequate consideration of alternatives • Baseline information for hydrology and species incomplete or seasonally limited. • Mitigation measures vague and unenforceable.
2.	Environmental Topic: Population & Human Health <i>Key Issues Raised</i>
	• Concerns are raised in relation to Noise Nuisance with reference to the 'Webster v Meenaclogher (2025) Judgement.

	- Concerns are expressed that the applicant has not adequately assessed the unique topography of East Clare, where valleys and ridges will amplify and tunnel sounds, worsening cumulative effects. - Homes lie within potential fall-zone and evacuation areas in the event of turbine collapse, fire or blade throw. There is no personal risk assessment or mitigation measures for families closest to the development. - Concerns are raised that there is no practical alternative housing stock in rural Broadford if homes become uninhabitable due to impacts, effects or nuisance. This creates a disproportionate and discriminatory burden on families.
5.	Environmental Topic: Land, Soil, water, air and climate <i>Key Issues Raised</i>
	- Concerns are raised in relation to peat instability and water contamination in relation to downslope residential property. - Concerns are raised that no cumulative hydrological modelling has been carried out across multiple developments within this sensitive catchment.
8.	Other Matters: <i>Key Issues Raised</i>
	- Legal interest – lands either side of the grid connection before it crosses Ballycar Bridge are in third party ownership and consent has not been requested or given for same. - Legal Interest – Folios CE56078F, CE56079F and CE3690 remain within the site boundary without consent. - Legal Interest – The dwelling at CE56078F remains wrongly listed as ‘associated’. - Legal Interest - a concern is expressed that a dwelling which has been clarified as ‘non-involved’ remains on maps, plans and associated application particulars. - Procedural – the HSE was not notified or consulted on the original application or further information. - Procedural – CCC passed a motion in June 2025 opposing new onshore wind farm applications until new wind energy guidelines are updated. - Procedural – EU Nature Restoration Law (2024) obliges Member States to halt biodiversity decline and restore damaged ecosystems. Approval of the proposed development in upland habitat with confirmed Hen Harrier and White-Tailed Eagle is incompatible with this law. - Procedural – the RFI introduces new material and affected residents have not been afforded proper statutory re-consultation rights. - Procedural - an SEA has not been conducted. - Decommissioning – a binding or enforceable decommissioning plan has not been submitted. - Appropriate Assessment – Mitigation measures are unlawful at screening stage. Hydrological links to SAC/SPA sites including River Shannon & River Fergus SPA demand a more precautionary assessment. - EIAR – does not include specific assessment of sensitive or vulnerable populations (such as children) as required under EIA Directive [2014/52/EU].

5.3.3 Planning Authority

CCC did not provide a response to the RFI.

5.3.4 Prescribed bodies

AirNav Ireland (“ANI”)

The FI submission of ANI (*dated 22/08/2025*) sets out three primary concerns which remain in relation to Instrument Flight Procedures (IFPs), Navigation Aids (NAVAIDs) (particularly Instrument Landing Systems (ILS)) and Surveillance (Radar) Impacts. The Air Nav Ireland submission is supported by the submissions from SAA DAC (*dated 21/08/2025*) and IAA (*dated 22/08/2025*).

In relation to IFPs the submission accepts that mitigations can be incorporated as a part of redesigns to the IFPs serving Shannon Airport. The submission advises that an IFP designer has been engaged but that this redesign process will not be complete until the end of September 2025. In relation to NAVAIDs the submission advises that Flight Calibration Services Limited (FCSL) have been commissioned to complete a deep analysis of the potential cumulative impacts of the proposed development and other wind far developments in East Clare on the ILS serving Shannon Airport. The submission advises that this report is not expected to be complete until the end of September 2025. The submission requests that any decision on the application is delayed until the outcome of the IFP redesign process and the expert review of potential cumulative impacts on NAVAIDs (ILS) is available.

Regarding Surveillance (Radar) Impacts the submission states that in the opinion of AirNav Ireland there are no mitigations possible in relation to Surveillance MSSR beam deflection in the case of Woodcock Hill En Route MSSR. The submission strongly objects to the proposed development on the basis of unmitigable radar deflection impacts.

Shannon Airport Authority (“SAA DAC”)

The submission from the SAA DAC (*dated 21/08/2025*) supports the ANI submission as outlined above.

Irish Aviation Authority (“IAA”)

The submission from the IAA (*dated 22/08/2025*) supports the ANI submission as outlined above.

Department of Housing, Local Government and Heritage

The FI submission from the DHLGH (*dated 22/08/2025*) states that the national population of Hen Harrier has further declined³ (and its range diminished) since its previous comments, such that the nesting pairs recorded within the site in 2022 and 2023 mean the proposed development site is now a nationally important area for Hen Harriers (2-3% of the population). On this basis the DHLGH elaborates on concerns regarding potential impacts on Hen Harries as follows:

- i. Ireland is required to have sufficient protection measures in the wider countryside to ensure the continued survival of Hen Harrier as required by Article 4(4) of the Birds Directive. The Hen Harrier Threat Response Plan was published in September 2024, and the proposed development site is within a non-designated important breeding area (No.14) identified in this Plan. The DHLGH previously raised concerns regarding the Collision Risk Modelling (CRM) undertaken and cites Percival 2003 which recommends that analysis be undertaken as to whether a homogenous area of suitable habitat occurs with which a population may be associated and the density that this area may contain. The DHLGH opines that the boundary for the Regionally Important Breeding Areas (as per the Hen Harrier Threat Response Plan) would be a suitable boundary and that it would have been helpful if the applicant had considered this element in their overall assessment.
- ii. The Species and Habitat Management Plan (SHMP) proposes exclusions zones around Hen Harrier nest of 300-750m, however in Ireland a minimum buffer of 1200m is applied (within SPA's). Furthermore, the differential between 300-750m is large and lacks certainty for the purpose of decision making.
- iii. The proposed mitigation of avoiding active nests between 1 March to 31 July is insufficient. The end date should be 15 August.

³ Informed by the 2022 National Survey, published in February 2024.

- iv. Any proposed management measures that involve the removal/control of scrub (e.g. blackthorn) need to be evaluated on the basis of up-to-date surveys and any future management should follow more up-to-date results-based habitat scoring approach as pioneered by the Hen Harrier EIP Project and subsequently taken forward by the DAFM ACRES Cooperation Projects.
- v. The likelihood of detecting raptor collisions is expected to be low based on monthly avian mortality searches.

Otherwise, the DHLGH recommends that the existing network of commuting habitat for Lesser Horseshoe Bats is enhanced in the Northern Parcel of the SHMP and that gaps of 5m or less in existing hedgerows should be planted with suitable native hedging.

National Office for Environmental Services (“NEHS”)

A submission dated 20th August 2025 was received from NEHS. This submission raised observations in relation to a number of topics which can be summarised as follows:

- *Criteria for Consideration of Likely Significant Effects on Public Health*
 - The NEHS considers likely significant effects on Public and Environmental Health as per the EPA National Guidance: Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022, and particularly Section 3 thereof.
 - Its assessment is based on a ‘population health approach’ and not individual specific sensitivity of a human receptor.
 - It is recommended that the Commission considers established land development and use, service provision and activities within communities and not individual members of communities.
- *Project Specific Guidance for Wind Energy Development*
 - NEHS state that they are aware of the High Court decision in Webster/Rollo v Meenaclogher (Wind) Limited (2024 IEHC 136) 8th March 2024 in relation to the judgement that noise from a windfarm was a private nuisance. NEHS advise that if the Commission considers that they are

under a duty to incorporate the likelihood of a private nuisance into their decision making, then they should consider this judgement.

- Otherwise, the status of WEDG 2006 is noted, with an opinion that there has been significant changes in wind energy development and an increase in the body of knowledge around significant effects on population health since their publication.

- *Chapter 6 Population and Human Health*

- NEHS advises that the main considerations for protection of population and human health are: any likely significant exposure to noise during construction and operation, likely exposure to shadow flicker during operation, likely significant reduction in air quality during construction (particularly dust), protection of ground and surface waters during construction.
- NEHS states that these areas have been identified for assessment and are reported on in the EIAR.
- Otherwise, the NEHS states that the 'HSE Position Paper on wind turbines and public health' has been withdrawn by the HSE and is under review.

- *Consideration of Shadow Flicker*

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

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

- The criteria set out in WEDG 2006 on how to derive noise limits is noted.
- NEHS opines that the most appropriate criteria for assessing significance of predicted noise is 'Environmental Noise Guidelines for the European Region', 2018.
- In the opinion of NEHS use of WEDG 2006 is resulting in a significant volume of complaints from wind turbines post development and suggests that absolute noise exposure limits set in WEDG 2006 do not protect public health in specific development situations as supported by the abovementioned High Court Judgement.
- NEHS notes that the predicted change in the noise environment has not been tabulated, which have been the most informative assessment. It also does not accept that it is appropriate to set the day-time limit at the upper end of the permissible range (40dB(A)). Concerns are also raised in

relation to cumulative noise impacts and the methodology required to protect public health⁴.

- NEHS opines that there is no requirement for additional noise mitigation measures during construction provided the measures identified in the EIAR are implemented in full.

- NEHS recommends that hours of construction are limited to:

Monday to Friday 08.00 to 19.00

Saturday 09.00 to 14.00

No work on Sunday or Bank Holidays

Limited exceptions with permission of Planning Authority.

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

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

- *Additional Considerations*

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

Transport Infrastructure Ireland (“TII”)

TII confirmed in its submission of 25/07/2025 that it had no specific observations to make in relation to the additional information.

⁴ I note that NEHS made these comments in respect of the original EIAR which did not have planning application detail in respect of the proposed Knockshavno Wind Farm. The NEHS did not have regard to the updated cumulative impact assessment report (FICAR) submitted by the applicant as part of its further information response in May 2025.

5.4 Further Information (An Coimisiún Pleanála 23/10/2025)

5.4.1 In view of the remaining aviation safety concerns and the additional nature conservation considerations as set out in the submissions received by the Commission, it was considered necessary to both seek further information and afford the applicant an opportunity to respond to the submissions received.

5.4.2 On 23rd October 2025 ACP sought further information in accordance with Section 37F(1)(a) of the PDA, 2000 (as amended) for the following:

- (i) *Review and address the submissions from Air Nav Ireland, Shannon Airport Authority and the Irish Aviation Authority in relation to the outcome of the IFP redesign process, and expert review of potential cumulative effects on NAVAIDS (ILS), which was due to be completed in September 2025.*
- (ii) *Review and address the submissions from Air Nav Ireland, Shannon Airport Authority and the Irish Aviation Authority that the proposed development will result in unmitigable radar deflection impacts on the Woodcock Hill Radar System.*
- (iii) *Review and address the submission from the Department of Housing, Local Government and Heritage in relation to: the further decline and diminished range of the national population of Hen Harrier (2022 National Survey published in February 2024) and the corresponding national importance of the proposed development site/area for Hen Harriers; the shortcomings of the Collision Risk Modelling which should have applied a cumulative assessment of risk across a wider area including the boundary for regionally important breeding areas as per the Hen Harrier Threat Response Plan (published in September 2004); the inadequacy of the proposed exclusion zone around Hen Harrier nests of 300-750m and the uncertainty this large differential presents for the decision-making process; the insufficient mitigation measures for the avoidance of active Hen Harrier nests which should be extended to 15th August (from 1st March); the re-evaluation of scrub removal/control (e.g. Blackthorn) on the basis of up-to-date surveys, the use of an up-to-date results based habitat scoring approach in future habitat management (as pioneered by the Hen Harrier EIP Project) which should be taken forward by the DAFM ACRES Cooperation Projects; and the low likelihood of detecting raptor collisions on the basis of monthly avian mortality searches.*
- (iv) *Review and address the submission from the Department of Housing, Local Government and Heritage in relation to the enhancement of commuting habitat for Lesser Horseshoe Bats in the Northern Parcel of the SHMP.*

5.4.3 A response to the further information request was received from the applicant on 20th November 2025. It consisted of the following:

- Cover Letter
- RFI Response Report (dated November 2025)
- Appendix 1 – Correspondence between Orsted’s Legal Team and AirNav Ireland.

6.0 Planning History

6.1 A review of the CCC Planning Portal and the Board’s case files was carried out in January 2025 and May 2026 to collate any relevant, recent (within 10 years) planning history for the site. Section 2.3 of the Planning Report included in the planning application states that there were no relevant, recent planning applications on the site. This remains the case.

6.2 Other Wind Farms and Infrastructure

The following wind farms are noted in proximity to the site:

Table 4: Other Wind Farms in the proximity to the site				
Ref	Name	No of WTG	Status	Note
308799	Carrownagowan	19	Granted	
317227	Fahybeg	8	Granted	
318943	Ballycar	12	Refused	Permission was refused on 7 th May 2026 by ACP. This wind farm is approx. 4km south of the proposed development site.
320705	Knockshanvo	9	Undecided	This site adjoins the proposed Oatfield wind farm.
321285	Lackareagh	7	Granted.	Permission was granted by ACP on 11 th July 2025

Table 2.3 and Table 2.4 of the EIAR set out other wind farms in the vicinity of the proposed development also. Table 2.2 of the EIAR outlines existing, planned and proposed projects in the study area. The majority are within 10km from the site and include solar farms, quarries, residential developments and road and land works.

6.3 Other Developments

There are numerous planning applications around the site in respect of residential and small/medium commercial/agricultural developments which is

to be expected in a such a rural location. These are all noted and considered in the assessment below.

7.0 Policy Context

7.1 EU Legislation/Policy

The Revised Renewable Energy Directive (RED III)

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

European Wind Power Action Plan

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

7.2 National

At a high level, the Board should note several national and regional level policies and guidance which will be relied on in in the assessment below. These include:

Climate Action and Low Carbon Development Act, 2015 as amended

Published in 15th April, 2025, 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.

**Department of the Environment, Climate and Communications (DECC)
(2024) *Climate Action Plan 2024 (“CAP24”) and 2025 (“CAP25”)***

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

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

CAP 2025 was published on 15th April, 2025. It re-affirms the previous commitment to increase the share of renewable electricity generation to 50% by 2025 and 80% by 2030 including onshore wind targets of up to 6GWs by 2025 and 9 GWs by 2030.

Department of Housing, Local Government and Heritage (DHLGH) (2021)
Project Ireland 2040: *National Development Plan and DHLGH (2019)*
Project Ireland 2040: National Planning Framework

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. The first revision of the NPF has been approved by both Houses of the Oireachtas, following the decision of the Government to approve the final revised NPF on 8th April, 2025. The 'First Revision' introduces regional renewable electricity capacity allocations for each of the three Regional Assemblies to be achieved by 2030 which for the Southern Regional Area is an additional 978MW, for onshore wind or 40% of the National share in 2030. This is the minimum required for onshore wind energy 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.

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

The most recent approved national adaptation framework, the National Adaptation Framework; Planning for a Climate Resilient Ireland June 2024 (NAF) is Ireland's second statutory National Adaptation Framework (NAF) and was published on 5th of June 2024.

The NAF and its successors do not identify specific locations or propose adaptation measures or projects in individual sectors, but sets out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making.

The NAF identifies 13 (previously 12) priority sectors under 7 lead Departments that are required to prepare sectoral adaptation plans under the Climate Act in accordance with the Sectoral Planning Guidelines for Climate Change Adaptation which were published in 2018 and updated in 2024. The original 12 sectoral Plans prepared in 2019 and a new sectoral Plan for tourism were updated/prepared and new plans were published in 2025.

National Biodiversity Action Plan (NBAP) 2023-2030

Ireland's 4th NBAP sets the biodiversity agenda for the period 2023 – 2030. The NBAP has a list of Objectives which promotes biodiversity as follows, Objective 1 Adopt a whole of government, whole of society approach to biodiversity; Objective 2 Meet urgent conservation and restoration needs; Objective 3 Secure nature's contribution to people; Objective 4 Enhance the evidence base for action on biodiversity; Objective 5 Strengthen Ireland's contribution to international biodiversity initiatives.

These are all directly and indirectly supportive of renewable energy projects which extends to wind energy. It is noted a more detailed setting out of national and regional policy is contained in Planning Report should it be required by the Board.

In addition, this report has considered the Section 28 development management guidelines and the guidelines for wind farms which set out a range of considerations for considering such an application:

- DHLGH (2019) Draft Wind Energy Guidelines (dWEDG 2019)
- Department of the Environment, Heritage, and Local Government (DEHLG) (2006) *Wind Energy Guidelines* (WEDG2006)
- Development Management Guidelines for Planning Authorities, June 2007.

7.3 Regional

In 2020 the Southern Regional Assembly (SWRA) published the *Regional Spatial and Economic Strategy for the Southern Region 2020 – 2032* (RSES).

The following regional policy objectives are noted.

Table 3: Policies and Objective of the RSES	
Regional Policy Objective	Detail
RPO 50 Diversification	It is an objective to further develop a diverse base of smart economic specialisms across our rural Region, including innovation and diversification in agriculture (agri-Tech, food and beverage), the marine (ports, fisheries and the wider blue economy potential), forestry, peatlands, renewable energy, tourism (leverage the opportunities from the Wild Atlantic Way, Ireland's Ancient East and Ireland's Hidden Heartlands brands), social enterprise, circular economy, knowledge economy, global business services, fin-tech, specialised engineering, heritage, arts and culture, design and craft industries as dynamic drivers for our rural economy.
RPO 87 Low Carbon Energy Future	It is an objective to promote change across business, public and residential sectors to achieve reduced GHG emissions in accordance with current and future national targets, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture.
RPO 99 Renewable Wind Energy	Renewable Wind Energy - It is an objective to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines.
RPO 100 Indigenous Renewable Energy Production and Grid Injection	Indigenous Renewable Energy Production and Grid Injection - It is an objective to support the integration of indigenous renewable energy production and grid injection.
RPO 221 a Renewable Energy Generation and Transmission Network	Local Authority City and County Development Plans shall support the sustainable development of renewable energy generation and demand centres such as data centres which can be serviced with a renewable energy source (subject to appropriate environmental assessment and the planning process) to spatially suitable locations to ensure efficient use of the existing transmission network;

7.4 County

The Clare County Development Plan 2023-2029 (CCDP) came into effect on 20th April 2023 and is the relevant plan for the subject site.

7.4.1 Zoning Objective

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

7.4.2 Specific Objectives in respect of Wind Energy

In Volume 1, Written Statement of the CCDP, it is Objective CDP8.12 of CCC *‘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...’*.

Volume 2 Maps also contains Map E Renewable Energy and Associated Infrastructure in which the site of the proposed development is marked as a location considered ‘Strategic Areas (Wind Energy)’ and ‘Acceptable in Principle (Wind Energy)’. Volume 5 and Volume 6 of the CCDP contains the Clare Renewable Energy Strategy (CRES) and Clare Wind Energy Strategy (CWES) respectively. These areas have the following objectives as outlined in Volume 6 Wind Energy Strategy.

Table 5: Objectives of the Wind Energy Strategy	
Objective	Detail
Strategic Areas	These key areas are considered to be eminently suitable for wind farm development and are of strategic importance because of; • Good / excellent wind resources, • Access to grid, • Distance from properties and • Outside any Natura 2000 sites. 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 Wind Energy Development Guidelines, Guidelines for Planning Authorities (DoEHLG, 2006) in terms of siting, layout and environmental studies, • Provide a Habitats Directive Assessment under Article 6 of the Habitat Regulations if the site is located in close proximity to a Special Area of Conservation or Special Protection Area.

	Be developed in a comprehensive manner avoiding the piecemeal development of the areas designated as 'strategic'. Target wind energy generation from strategic areas is 400 MW
Acceptable in Principle	These areas 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. - Designed and developed in line with the Planning Guidelines in terms of siting, layout and environmental studies. - Provide a Habitats Directive Assessment under Article 6 of the Habitat Regulations if situated in proximity to a Special Area of Conservation or Special Protection Area will require. Target wind energy generation from Acceptable in Principle areas is 150 MW

The other objectives and policies related to wind energy are set out below.

Table 6: Policies and Objective of the CCDP	
Policy/Objective	Detail
CDP2.1	Climate Action
CDP2.2	Climate Change Mitigation, Adaptation and Resilience
CDP 2.6	Climate Adaptation
CDP2.14	Transition to a Low Carbon Economy and Society
CDP6.17	Energy Supply
CDP6.20	Agricultural Developments
CDP8.1	Rural Economic Development
CDP8.12	Renewable Energy Development
CDP 11.44	Energy Security
CDP 11.45	Electricity Networks
CDP 11.47	Renewable Energy
CDP 11.48	Renewable Energy Strategy
Development Management Guidelines	A1.2.3 Renewable Energy A1.3.1 Environmental Impact Assessment (EIA) A1.3.2 Habitat Directive Assessment A1.6.1 Cycle Routes, Footpaths and Roads A1.6.2 Sight Distances A1.6.4 TIA, Road Safety Audits and Road Safety Impact Assessments A1.9 Archaeological Heritage A1.10.1 Development Contributions A1.10.2 Cash Deposits and Bonds

The following policy objectives are also noted as they may relate to the proposed development and its impacts.

Table 7: Policies and Objective of the CCDP		
Policy/Objective	Detail	Feature of Note
CDP6.26	Tourism	

CDP8.8	Natural Resources	
CDP8.10	Forestry	
CDP9.1	County Clare Tourism Strategy	
CDP9.2	Promotion of Tourism in County Clare	
CDP10.11 & 10.12	Recreational Routes	East Clare Way - National Waymarked Trail; 12 O'Clock Hills Looped Walks – Blue, Red, Purple Route-Other
CDP 11.1	Motorways, National Roads and Strategic Inter-Urban Roads	R471 Cloverhill – Sixmilebridge;
CDP 11.14	Development of Strategic Regional Roads	R465 Barry's Cross to Broadford settlement boundary
CDP 11.19 (f) (h)	Shannon International Airport	
CDP 11.26 – 11.27	WFD and protection of drinking, ground and surface waters.	
CDP 11.40	Noise Pollution	
CDP 11.41	Air Quality	
CDP 11.42	Light Pollution	
CDP 14.2	Settled Landscapes	
CDP 14.3 & 14.4	Working Landscapes	
CDP 14.7	Scenic Routes	26 R466 between Broadford and O'Briensbridge; 25 Views in and out of Doon Lough; Others
CDP 15.1	National Biodiversity Action Plan, Clare County Heritage Plan.	
CDP 15.2	Natural Heritage, Biodiversity and Built Heritage	
CDP 15.3	European Sites	
CDP 15.4	Appropriate Assessment	
CDP 15.12	Biodiversity and Habitat Protection	
CDP 16.1	Architectural Heritage	

8.0 Legal Context

8.1 Environmental Impact Assessment

Annex I to Directive 2011/92/EU as amended by Directive 2014/52/EU requires as mandatory the preparation of an EIA for all projects listed therein. Projects listed in Annex II to the Directive are not automatically subjected to EIA. Member States can decide to subject them to an assessment on a case-by-case basis or according to thresholds and/or criteria (for example size, location, sensitive ecological areas and potential impact).

The European Union (Planning and Development) (EIA) Regulations 2018 (S.I. No. 296/2018) amended the PDA and the PDR in order to transpose into Irish Law the provisions of Directive 2014/52/EU.

In Ireland, Schedule 5 (Part 1 and Part 2) of the PDR, transposes Annex I and Annex II of the amended EIA Directive. Schedule 7 sets out the criteria for determining whether a development would or would not be likely to have significant effects on the environment, under three headings: characteristics of the proposed development; location of the proposed development; types and characteristics of potential impacts.

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory classes of development and legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment set out in Schedule 7.

The following class in Schedule 5 of the PDR is noted:

Part 2 Class 3 (i)

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

The applicant in this instance has submitted an EIAR.

8.2 Appropriate Assessment

Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora ('the Habitats Directive') is European Community legislation aimed at nature conservation. The Habitats Directive requires that where a plan or project is likely to have a significant effect on a European site(s) (i.e. Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)), (and where the plan or project is not directly connected with or necessary to the nature conservation management of the European site), the plan or project will be subject to AA to identify any implications for the European site(s) in view of the site's Conservation Objectives

Case law of the European Court of Justice (ECJ) has determined that AA is required if likely significant effects cannot be excluded on the basis of

objective information. Case law has also clarified that measures intended to avoid or reduce harmful effects on European sites, must not be considered when determining whether it is necessary to carry out an AA.

The applicant in this instance has screened in the requirement for AA.

9.0 Planning Assessment

9.1 Given the variety of issues raised within the submissions received, these have been considered on a themed or locational basis within the relevant sections of the report hereunder. The entire contents of the file including the Planning Report, EIAR, NIS and all supporting documentation submitted with the application, including further information received, have been read. The subject site and its surroundings were visited on several occasions. The observations submitted in respect of the application including the third-party observations, the observations from the planning authority and the observations from prescribed bodies have been read in full, including the applicant's response to submissions. I consider the critical issues in determining the current application before the Commission are as follows:

- Principle of the Development
- Other Development Plan Considerations
- Impact to Shannon International Airport/Aviation
- Impact to Biodiversity
- Impact to Ornithology
- Impact to Residential Amenity
- Adequacy of Consultation
- Other Matters

9.2 Having regard to the requirements of the PDA, the wider assessment of the proposed scheme is divided into three main parts: planning Assessment, EIA and AA. In each assessment, where necessary, reference is made to issues raised by all parties. There is an inevitable overlap between the assessments, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In the interest of brevity, matters

are not repeated but such overlaps are indicated in subsequent sections of the report.

9.3 Principle of the Development

- 9.3.1 As a relevant body, An Coimisiun 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 to make their decision within that framework.
- 9.3.2 As outlined in respect of policy at Section 7.0 above, CAP 2025 was published on 15th April, 2025 and re-affirms the previous commitment in CAP 2024 to increase the share of renewable electricity generation to 50% by 2025 and 80% by 2030 including onshore wind targets of up to 9GWs by 2030. There is clear support for the development of wind energy within this context. Ireland's long-term Climate Action Strategy, entitled Ireland's Long-term Strategy on Greenhouse Gas Emissions Reductions 2024, sets out indicative pathways, beyond 2030, towards achieving carbon neutrality for Ireland by 2050. The Strategy provides a pathway to a whole-of-society transformation and serves as a vital link between shorter-term Climate Action Plans and Carbon Budgets and the longer-term objective of the European Climate Law and Ireland's National Climate Objective.
- 9.3.3 The National Adaptation Framework; Planning for a Climate Resilient Ireland (June 2024), (NAF) is Ireland's second statutory National Adaptation Framework (NAF) and was published on 5th of June 2024. The NAF sets out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making. The NAF identifies 13 (previously 12) priority sectors under 7 lead Departments that are required to prepare sectoral adaptation plans under the Climate Act in accordance with the Sectoral Planning Guidelines for Climate Change Adaptation which were published in 2018 and updated in 2024 with 13 sectoral Plans prepared in 2025 including an Electricity and Gas Sectoral Plan. It is noted that the

furtherance of the national climate objective is a central tenet of the above referenced Plans and strategies as is the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State. I will address the regional and local policy context in the following section(s), but I would refer to the conclusion therein that the proposal would comply with the provisions of the Renewable Energy Strategy for Clare.

9.3.4 Otherwise I am satisfied that the proposed eleven wind turbines have an estimated maximum export capacity (MEC) of 52.8 – 72.6 Megawatt (MW), depending on the final turbine technology installed. Based on this nominal MW, it is considered that such development would contribute to achieving the Climate Action Plan's target of achieving 80% renewable electricity and reducing greenhouse gas emissions by 51% by 2030. The nature and export capacity of the proposed development accords with National Policy Objective 55 of the National Planning Framework (NPF) also, which seeks to promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.

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

9.3.6 At county level, Section 2.4 of the CCDP sets out how CCC will seek to take a lead role regarding renewable energy technology to assist in meeting national, regional and county targets in energy consumption and CO₂ reduction. It includes Objective CDP 2.1 which seeks to support the implementation of the National Climate Action Plan and to transition County Clare to a low carbon and climate resilient county. Table 2.2 of the Development Plan sets out renewable energy resource targets for County Clare to 2030 and sets a target of 550 MW and 1,590 GWh/y. This target is

included in the Clare Wind Energy Strategy (2023) (CWES). One of the core objectives of the CWES is to promote economic development through wind energy and other renewables in the County, underpinning the need for energy security, the promotion and establishment of a low carbon economy and the development of green business within the County (Section 1). The proposed development with an estimated maximum export capacity (MEC) of 72.6 MW would contribute to the CCDP renewable energy resource targets and is in accordance with Objective CDP 2.1.

9.3.7 The Commission should note that the majority of the proposed wind farm, ten turbines, site falls within a 'Strategic Area' for wind energy called Knockaunnamoughilly as defined in CWES, Volume 6 of the CCDP. CCC consider these 'eminently suitable for wind farm development'. One of the turbines falls just outside this strategic area but is still in an area designated 'Acceptable in Principle'. CCC considers these areas suitable also.

9.3.8 Observers to the file raise issue with the terms and definitions in relation to these designations set out in Section 1.4 of the CWES. Their argument is that individually, this wind farm may be 'large' (over 100 m to blade tip) in terms of height and 'large' (11 to 25 turbines) in terms of the number of turbines, but when considered cumulatively with the adjoining proposed Knockshanvo wind farm, it should be considered a 'very large' (more than 25 turbines) wind farm. However, on my own reading, a 20-turbine wind farm is plainly 'large'.

9.3.9 This consideration of the size of the wind farm is important when considering Table 4A of the CWES where strategic guidance is provided on landscape capacity and the appropriate size of wind farms. The wind farm site is located in the Sliabh Bernagh Landscape Character Area which encompasses the Broadford Hills. 'Large' wind farms are considered appropriate in this area.

9.3.10 I note Section 6.11 of the CWES also which addresses cumulative impacts and states areas identified as 'Strategic or 'Acceptable in 'Principle' were considered to have capacity for medium wind farm developments. While

this is noted, it is not a prescription or a limit on what the capacity is at this location rather a baseline assessment. It is also a direct contradiction of Table 4A. The CWES is clear that heights of turbines area increasing and each application will be assessed on its own merits against planning policy, objectives and legislation. It is intended to proceed on this basis.

9.3.11 There is equally concern in observations about the piecemeal development of wind farms in this area, given there are several live or consented applications. It is a specific requirement (criteria) of the CWES designation to develop these areas in a comprehensive manner. While the makeup of the planning applications may appear piecemeal, I am satisfied that the approach is comprehensive and Oatfield Wind Farm has considered neighbouring wind farms comprehensively in their siting, design and associated environmental assessments, particularly in the FICAR, and considered in the EIA section of my report. The makeup of the planning applications, while procedurally and administratively complex for observers, is an extraneous issue and is not an uncommon approach in development management. The comprehensive manner of the proposed development and its cumulative relationship to other wind farms is assessed in detail in the EIA section of my report.

9.3.12 Both CCC and several observers make the point that the CWES was first prepared in 2009 and has been incorporated unchanged into subsequent development plans in accordance with Circular Letter PL 20-13. CCC in particular is concerned that advancements in turbine technology, scale and height are not accounted for in the existing guidelines or CWES. While this is noted, I am satisfied that the proposed development can continue to be considered having regard to the proper planning and sustainable development of the area and compliance with the relevant policies and objectives, standards and requirements as set out in this CCDP, guidelines issued in accordance with Section 28 of the PDA and guidance issued by other government bodies and in particular the WEDG 2006 and draft WEDG 2019. These combined provides sufficient basis for an assessment. On this basis,

continued assessment of the proposed development in subsequent sections is considered appropriate.

9.3.13 Having regard to the overriding policy provisions at a national and regional level and the specific wind related development plan policies which apply specifically to the area, it is clear that the principle of the proposed development is accepted, however, and impacts on the environment of the area will require examination in order to determine the overall suitability of the proposed development.

9.4 **Other Development Plan Considerations**

The observers have highlighted a number of objectives in the development plan which they consider will be materially contravened as a result of the proposed development. These include, inter alia, Objectives CDP 2.1, 2.6, 10.11, 10.12, 11.19, 11.26, 11.27, 11.47, 14.2, 14.3, 14.7, 15.1, 15.2, 15.3, 15.4, 15.5, 15.12 and 16.1. The substantive assessment of the material considerations arising are addressed in the separate topics of the EIA which follows. I have however summarised the relevant conclusions in respect of the compliance position with development plan objectives hereunder.

Objective CDP 11.19 concerns Shannon International Airport and this is considered in the next section of my report in relation to impacts on Shannon Airport/Aviation.

9.4.1. **Flood risk assessment and management**

Objective CDP 2.6 of the CCDP is concerned with flood risk assessment and management. It requires, inter alia, that development proposals have regard to the relevant guidelines, consider climate change, are supported by an appropriately detailed hydrological/flood risk assessment and integrate sustainable water management solutions.

These matters are comprehensively addressed in Section 17 of the EIA (Hydrology & Hydrogeology) section of my report. The proposed development is supported by a Flood Risk Assessment (Appendix 9.1) which considered climate change and includes a Construction and Environmental Management

Plan (CEMP), Surface Water Management Plan (SWMP), Nature Based Solutions including Sustainable Drainage Systems (SuDS) and a Water Quality Management Plan (WQMP). In relation to flood risk, Section 17 concludes that the drainage infrastructure will be attenuated for greenfield runoff, the proposed development will not increase the risk of flooding elsewhere in the catchment as a result of increased pluvial risk or other, and that there will be no impacts on the hydrology of the site. Accordingly, I am satisfied that the proposed development is not contrary to CDP 2.6 of the CCDP and has been brought forward in accordance with the requirements of same.

9.4.2 Recreational routes and countryside recreation

Objectives CDP 10.11 & 10.12 are respectively concerned with recreational routes, and countryside recreation. They essentially serve to support the maintenance and development of a network of interlinked walking and cycling trails, including access to them and the associated diversification of the rural economy.

The concerns raised primarily related to the East Clare Way (ECW) and 12 o’Clock Hills walking trails which are located adjacent to the proposed development site and also partly pass directly through it. These matters are comprehensively addressed in Section 19 of the EIA (Landscape & Visual) and to a lesser extent in Section 12 (Population & Human Health). These sections of my report concluded, inter alia, that whilst landscape and visual effects will occur in respect of both walking trails, they will not adversely impact the recreational value of the walks/trails which will remain unimpeded. It is considered that impacts are limited to the local presence of turbines within the environment of the proposed windfarm site and are not such that would warrant refusing permission. I am satisfied that the proposed development will not prevent the maintenance or development of walking trails or access to them and is therefore not contrary to CDP 10.11 or 10.12 of the CCDP.

9.4.3 Water Framework Directive (WFD) and water resources

Objectives CDP 11.26 & 11.27 respectively concern WFD and water resources. They require the protection of groundwater, surface water and drinking water sources in accordance with statutory requirements including the WFD.

These matters are comprehensively addressed in Section 17 of the EIA (Hydrology & Hydrogeology) which concludes that the mitigation measures set out in the EIAR, CEMP, SWMP and WQMP are comprehensive, robust and enforceable in relation the drainage, containment, treatment and buffered outfall of waters and pollution control measures and that there will be no significant effects on surface waters, groundwaters, receptors or wells. In relation to drinking water resources specifically there are no designated drinking water rivers or surface water bodies downstream of the windfarm site and the nearest GSS, NFGWSS and GSI public Source of Protection is not hydrologically linked to the proposed development site. Having regard to separation distances, buffer zones and detailed mitigation measures I also concluded that the proposed development would not result in significant effects on groundwater wells.

In relation to WFD I concluded, inter alia, that there is no direct discharge to groundwaters or surface waters as a result of the proposed development, that the qualitative and quantitative status of the receiving GWBs and SWBs will not be altered by the project, that the proposed development will not jeopardise the relevant WFD objectives and is compliant with the requirements of the WFD (2000/60/EC). Accordingly, I am satisfied that the proposed development is not contrary to Objectives CDP 11.26 & 11.27 of the CCDP.

9.4.4. Renewable Energy (and Residential Amenity)

Objective CDP 11.47 sets out the CCDP objective in relation to renewable energy. It provides clear support for the sustainable development of renewable energy, including onshore wind, and requires an appropriate balance between facilitating renewable and wind energy-related development and protecting the residential amenities of neighbouring properties. The LA and observers submitted that the proposed development as a result of (inter alia) scale,

noise, shadow flicker and prominence failed to achieve an appropriate balance and was contrary to this objective on the basis of adverse residential amenity effects.

These matters are addressed in various sections of my report and EIA. The issue of scale relative to the CCDP, CWES and WEDG 2006 is considered above in Section 9 (principle of development) of my report, and the issue of scale and prominence is then further considered in Section 19 (Landscape & Visual) of the EIA. Shadow Flicker is considered in Section 13; noise is considered in Section 14 and residential amenity (generally) is considered in Section 12 (Population & Human Health), Section 21 (Traffic and Transport) and Section 22 (Air Quality & Emissions) of the EIA. As can be seen therefrom I am satisfied that there will be no significant effects on residential amenity as a result of shadow flicker, operational noise, traffic and transport or emissions. In relation to construction noise I am of the opinion that the proposal to carryout HDD works associated with the IPP and GCR outside of standard daytime hours will result in a major significant effect at H49 and other nearby sensitive receptors, however I am satisfied that this can be mitigated and reduced to a minor (not significant) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays if permission is granted. In relation to scale and prominence I consider that the proposed development will give rise to significant landscape and visual effects for a small number of local residential receptors in the immediate area to the south of the site as represented by VP 17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc, however significant residual effects will remain. Notwithstanding, having regard to the need to dial up renewable energy sources (including onshore wind) it was considered that these effects were acceptable and not sufficient to warrant refusing permission for the development.

In terms of striking an appropriate 'balance' between facilitating renewable energy and protecting residential amenity, I am of the view that the matter is

essentially reduced to assessment of the landscape and visual effects on a small number of residential receptors to the south of the site. The renewable energy merits of the proposed development in accordance with national policy and the CCDP have been established above and the principle of development is accepted. I am also satisfied that the proposed development will not result in significant effects on residential amenity as a result of noise, shadow flicker, emissions or traffic and transport for the reasons set out in this report and the EIA. In this regard the overwhelming ‘balance’ of the assessment of both the renewable energy merits and residential amenity effects of the proposed development confirm compliance with Objective 11.47. The development has been sited and designed in accordance with WEDG 2006 and in terms of visual amenity, has been brought forward in accordance the increased separation distances set out in the dWEDG 2019. For these reasons it is determined that whilst significant residual visual effects will remain, they are not such that would warrant refusing permission. For the same reasons I am satisfied that residual landscape and visual effects are not of sufficient materiality that would outweigh the significantly greater balance of considerations in favour of the proposed development or result in a material contravention of Objective 11.47 of the CCDP.

9.4.5 Settled/Working Landscapes and Scenic Routes.

Objective CDP 14.2 concerns the landscape type ‘settled landscapes’ and provides that developments in these areas will be required to, inter alia, avoid visual prominence, reduce visibility from specific receptors including scenic routes and reduce visual impact through design. Objective CDP 14.3 concerns the ‘Western Corridor Working Landscape’ and sets out similar location, siting and design considerations. Objective CDP 14.7 concerns the protection of Scenic Routes.

These matters are comprehensively addressed in Section 19 (Landscape and Visual) of the EIA which finds that the proposed development is located, sited and designed in accordance with WEDG 2006 and dWEDG 2019 and that there is a distinct material absence of sensitive landscape, heritage or

ecological designations or constraints. The EIA agrees with the findings of the applicants LVIA that there will be no significant effects on scenic designations including scenic routes. Accordingly, I am satisfied that the proposed development is not contrary to CDP 14.2, 14.3 or 14.7 of the CCDP.

9.4.6 Biodiversity, National and European Designated Sites.

Objective CDP 15.1 concerns the implementation of the NBAP, and objective CDP 15.12 concerns the protection of biodiversity and habitats generally.

Objective CDP 15.2 and 15.5 concerns the protection of natural heritage, NHAs and pNHAs and Objective CDP 15.3 and 15.4 concerns the protection of European Sites and the requirements for appropriate assessment.

These matters are comprehensively addressed in Section 15 (Biodiversity) of the EIA and in the Appropriate Assessment sections of my report (Appendix 1 & 2). In relation to implementation of the NBAP, general biodiversity and habitat loss the application is accompanied by a Species and Habitat Management Plan (SHMP). The SHMP provides for a total area of 173.66ha of habitats and a total of 14.48km of linear habitats (including hedgerow) significantly exceeding habitat loss and resulting in significant biodiversity gain. The EIA concluded that the loss of habitat within the site is limited and acceptable and with the implementation of the SHMP there will be nett biodiversity gain as a result of the proposed development. In relation to biodiversity generally the EIA concluded the embedded design and mitigation measures proposed, including pre-construction surveys, the proportionate reinstatement and creation of habitat type and extent detailed in the SHMP, timing of works, role of the EcOW, ISMP, control of lighting and monitoring etc, will ensure no significant effects on flora and fauna generally. Having regard to the examination of environmental information set out in Section 15, and otherwise in respect of Ornithology, Hydrology, Hydrogeology and in the Appropriate Assessment (AA) sections of this report, I am satisfied that there is no potential for significant effects on Biodiversity and that the proposed development is in accordance with the NBAP and is not contrary to Objective CDP 15.1. & 15.12 of the CCDP.

In relation to NHAs, including pNHAs, the EIA concluded that there will be no significant effects on Gortacullion Bog NHA (002401) or the species which use it, and otherwise that potential effects on Doon Lough NHA (000337) could be excluded. In relation to European sites, the application is accompanied by an NIS, which was updated as part of the applicant's further information response. Following an examination, analysis and evaluation of the NIS, all associated material submitted, and taking into account observations on nature conservation, the AA section of my report concluded, that adverse effects on the integrity of European Sites could be excluded in view of their conservation objectives and that no reasonable scientific doubt remained as to the absence of such effects. Accordingly, I am satisfied that the proposed development is not contrary to Objectives CDP 15.1 – 15.5 (inc) or 15.12 of the CCDP.

9.4.7 Architectural Heritage

Objective CDP 16.1 of the CDP concerns the protection of Architectural Heritage. This matter is comprehensively considered in Section 20 (Archaeology and Cultural Heritage) of my EIA. The concerns raised in observations mainly related to potential impacts on Oatfield Church (St. Vincent de Pauls) Church) which is a Protected Structure (RPS No. 665) associated with the GCR passing the site. The EIAR found that indirect visual impacts on this structure will not be significant and that given GCR works in proximity to the structure will be limited to trench works within the public road carried out under licensed monitoring, there will be no significant effects on cultural heritage. It was further noted that the statutory report of the DHLGH (February 2024) recommended conditions broadly consistent with the mitigation measures set out in the EIAR.

Accordingly, I am satisfied that the proposed development is not contrary to Objective CDP 16.1 of the CDP.

9.5 Impact to Shannon Airport/Aviation

- 9.5.1 WEDG 2006 and dWEDG 2019 provide guidance relating to 'Aircraft Safety'. Both detail that the siting of wind turbines may have implications for the operations of the communications, navigation and surveillance systems

used for Air Traffic Control (ATC) for the separation and safety of aircraft and that wind turbine siting may also have implications for the flight paths of aircraft. The 2019 draft guidance details that 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). The application site is located c.16.6km east of Shannon Airport and its associated radars. Another radar is located on Woodcock Hill c. 4.8km south/southeast of the application site and c.15km from the airport.

9.5.2 CDP Objective 11.9 concerns Shannon International Airport. This provides, inter alia, that it is an objective of the Plan to:

“safeguard current and future operational, safety, technical and development requirements of Shannon International Airport” (CDP 11.19(f));

“have regard to, and implement, the national land use policies and guidance in relation to the Red Zones and Public Safety Zones for Shannon International Airport, the Irish Aviation Authority (Obstacles to aircraft in flight) Order, 2005” (CDP 11.19(h)); and

“have regard to the advice of the Irish Aviation Authority with regard to the effects of any development proposals in the vicinity of Shannon International Airport on the safety of aircraft or the safe and efficient navigation thereof” (CDP 11.19(i)).

9.5.3 Significant Aviation concerns have arisen throughout the planning application process as raised by AirNav Ireland (ANI), Shannon Airport Authority (SAA), Irish Aviation Authority (IAA) and in the public submissions. These concerns were primarily raised by ANI, with SAA and IAA supporting their position. I am satisfied that the aviation issues raised in the public submissions are captured in the reports of the prescribed bodies. This is reflected in my report which follows.

The main issues raised concern:

1. Instrument Flight Procedures Impacts (IFP) and Navigational Aids (NAVAIDs) Impacts, particularly in relation to the Instrument Landing Systems (ILS) serving Shannon Airport Runway 24, and
2. Surveillance (Radar) Impacts, particularly the Primary Surveillance Radar (PSR) at Shannon Airport and the Woodcock Hill En Route Monopulse Secondary Surveillance Radar (MSSR).

9.5.4 The applicant addresses Aviation in EIAR Chapter 11 (Material Assets) and the associated Appendix 11.2 ‘*Oatfield Wind Farm Aviation Review Statement*’ (ARS) prepared by Ai Bridges. This is a detailed technical report commissioned by the applicant to carry out a screening assessment of all of the aeronautical surfaces, ground based navigational aids, aviation facilities, surveillance equipment and communications infrastructure that could be possible impacted by the proposed development. The Executive Summary concludes:

“..... that in the absence of mitigation some potential aviation issues could arise due to the proposed development and confirmatory detailed technical assessments may be required by the IAA. However, mitigation measures are available to offset any of the possible impacts due to the proposed turbines and can be conditioned in the event of a successful planning application.”

9.5.6 The potential aviation issues identified by the applicant in EIAR Chapter 11 includes Instrument Flight Procedures (IFP), Air Traffic Control Surveillance Minimum Altitude Chart (ATC-SMAC) and Radar Surveillance in respect of the radar station at Woodcock Hill. In the absence of mitigation, the applicant assessed the potential impacts on aviation as adverse, significant and long-term at construction and operation stage.

Mitigation measures are then set out in Section 3 of Appendix 11.2.

9.5.7 Full consideration of all potential significant effects on Aviation is dealt with in the Material Assets (Aviation) section of my EIA report. This section of my report addresses the main material aviation issues which arose during the

application process and in so far as they concern the proper planning and sustainable development of the area.

The matters raised are both technical and complex, therefore in the interests of clarity a summary of the issues which have arisen in the application process is first given under respective 'issue' headings. My assessment then follows.

9.6 Issue No.1: Instrument Flight Procedures (IFP) and NAVAIDs

- ***The original application***

9.6.1 The applicants ARS found that there are nine published IFPs for flights to/from Shannon Airport and that a preliminary assessment of these indicates that two are potentially impacted including for the Instrument Approach Flight Procedures into Runway 24. In addition, the ARS found that the ATC-SMAC which is used by Air Traffic Controllers to vector flights for landing into Shannon Airport is penetrated by two of the proposed turbines. In the absence of mitigation, the applicant assessed the potential impacts on aviation as adverse, significant and long-term at construction and operation stage.

9.6.2 The proposed mitigation measures recommend that confirmatory studies of the potential impact of the proposed turbines on the IFPs be carried out by an IAA approved Aviation Design Specialist who would undertake an IFP Safeguarding Assessment and specify the required changes to the IFP to be implemented by SAA if required. The proposed mitigation measures provides that a confirmatory detailed review of the potential impact of the proposed turbines on the ATCSMAC is also likely to be required to be carried out by an IAA approved Aviation Design Specialist who would undertake an ATCSMAC Safeguarding Assessment which would include a conceptual design that would be presented to Shannon Air Traffic Control for review and consideration for the safe vectoring of flight operations into Shannon Airport.

- ***ANI Position (Report dated 24th January 2024)***

9.6.3 In relation to IFPs and NAVAIDs the initial ANI position was that a certified IFP designer would confirm these findings and may recommended mitigation measures, however, if these mitigations require significant

amendments to IFPs and ATCSMAC, then these may not be acceptable to ANI. The SAA in a submission dated 26th January 2024 supported the concerns of ANI in relation to IFPs. The IAA submission of 19th February 2024 supported the position of both ANI and SAA.

- ***Applicant Response to Submissions (June 2024)***

9.6.4 The applicant responded to the ANI submission in Memorandum No.7 (June 2024) and supporting Appendix 1 (*A technical response prepared by Ai Bridges*). In response to the ANI submission the applicant proceeded to Commission Cyrrus Limited, an IAA/AirNav certified IFP Designer, to conduct a detailed IFP Safeguarding Report. The findings of the Cyrrus Report (*rather confusingly are appended as Appendix 1 to the technical response prepared by Ai Bridges, also Appendix 1*). The Cyrrus report confirms the IFP and ATCSMAC impacts and presents 'viable' mitigation measures to remove these impacts. These mitigation measures are of a detailed technical nature and therefore, are not repeated here. They may be read in Section 3 of the Cyrrus report, and they are also summarised in Section 1.2.10 (IFP mitigation measures) and in Section 1.2.14 (ATCSMAC mitigation measures) of the Ai Bridges Technical Response. In respect of the IFP mitigation measures the applicant states their opinion that they are viable and implementable. In relation to ATCSMAC mitigation measures the applicant states that concept designs are presented which are not exhaustive and would welcome the opportunity to engage with AirNav Ireland, IAA and SAA to agree the optimum mitigation to ensure the safe and effective vectoring of aircraft at Shannon Airport.

- ***Further Information Request (17/01/2025)***

9.6.5 On the 17th January 2025 the Commission sought further information in relation to a number of matters. Notwithstanding the applicant's response to submissions on aviation matters, including the technical report(s) appended thereto, Item No.1 invited the applicant to review the submissions further and demonstrate that sufficient consultation with IAA, SAA and ANI has been

undertaken and all aviation concerns have been addressed to their satisfaction.

- ***Further Information Response (May 2025)***

9.6.6 The applicant's response to the further information request was received in May 2025. It consists of a parent RFI Response Document and a series of appendices. Appendix 1 consists of an '*Ai Bridges Technical Response*' which includes an additional technical impact assessment by Cyrrus Limited. Appendix 2 of the further information response also provides an updated Cumulative Impact Assessment Report (FICAR) in relation to all environmental topics. Chapter 6 thereof deals with 'telecommunications and aviation' and this is addressed in the Material Assets section of my report. The RFI response includes a summary review of stakeholder meetings at Section 1.2, with further details provided in Section 1.4 and Appendices A-C. The applicant states that at a meeting on 20th May 2025 ANI confirmed:

"that the Mitigation Measure Options presented in relation to the IFP Safeguarding Assessment and the Concept Designs Assessment were manageable within the context of the planned updates to the Air Traffic Control Zones Shannon Airport that are scheduled in 2026 and beyond."

- ***ANI position (Report dated 22nd August 2025)***

Instrument Flight Procedures

9.6.7 In its subsequent submission ANI accepted that as part of redesigns of IFPs serving Shannon Airport, mitigations that allow for the proposed new turbines as obstacles can be incorporated. ANI advised that an IFP designer has been engaged to complete this process, but outputs would not be known until the end of September 2025, at which point there would be a definitive position on any remaining negative impacts on the efficiency of IFPs.

NAVAIDs/ILS Protection Areas

9.6.8 ANI advised that they have commissioned Flight Calibration Services (FCSL) to complete a deeper analysis of the impacts of the proposed windfarm and other possible wind farms in the East Clare area on the ILS

protections areas and on minimum certification criteria for these systems to permit them to continue to operationally serve Shannon Airport. The report requests that any decision is delayed until this data has been collated.

The SAA submission of the 21/08/2025 and the IAA submission of 22/08/2025 supports the ANI submission as summarised above.

- ***(Second) Further Information Request (23/10/2025)***

9.6.9 On the 23rd October 2025 the Commission again sought further information in relation to a number of matters. Item No.1 invited the applicant to review and address the submissions from ANI, SAA and IAA in relation to the outcome of the IFP redesign process, and expert review of potential cumulative effects on NAVIADs (ILS), which was due to be completed in September 2025.

- ***Further Information Response (November 2025)***

9.6.10 The applicant's further information response was received in November 2025. In summary the applicant states that it has not received any correspondence from ANI, SAA or IAA in relation to the outcome of the IFP redesign process, and expert review of potential cumulative effects on NAVIADs (ILS) which was due to be completed in September 2025. The applicant therefore was unable to provide any further information.

The applicant otherwise stresses that they have made every reasonable effort to engage constructively with ANI, SAA and IAA in order to progress and close out the outstanding aviation-related matters. The applicant submits a communication timetable in support of this and requests that the Commission acknowledge their efforts. I am satisfied that this matter is not in doubt.

9.7 **Issue No.2 Surveillance Radar Impacts**

- ***The original application***

9.7.1 The applicants original ARS finds that the proposed turbines are deemed to be outside the 15km safe distance from the PSR at Shannon Airport but within the maximum instrumented range and within partial line of

sight. The proposed turbines will be within an Assessment Zone 3 of the EUROCONTROL Guidelines. In respect of the MSSR at Woodcock Hill the ARS finds that the proposed turbines will be within the 16km safe distance and in an Assessment Zone 2 of the EUROCONTROL Guidelines. In the absence of mitigation, the applicant assessed the potential impacts on aviation as adverse, significant and long-term at construction and operation stage

The ARS states that *“Following any statutory state consultation process with the IAA and the Shannon Airport Authority it may be likely that a confirmatory study of the potential for impact of the proposed turbines on the Woodcock Hill Radar Secondary Surveillance Sensor and the Primary Surveillance Radar at Shannon Airport will be carried out by an IAA approved Aviation Design Specialist who will specify the required changes to the Woodcock Hill software to be implemented by Shannon Airport if required.”*

9.7.2 Proposed mitigation measures are specifically addressed in Section 3.3. of the ARS, which are summarised as follows:

- There are a number of evidence-based precedents for mitigation measures that have been adopted in the UK/Scotland and other EU states over the last decade. Most notably Newcastle Airport (UK) where the existing Thales STAR 200 Radar was upgraded and the Marshall Project (UK) which upgraded and optimised over forty Ministry of Defence Thales Radae Surveillance Sensors to mitigate for windfarms.
- The above precedents are referenced in Appendix G of the ARS. There have been considerable advancements in Radar Surveillance Data Processing since that time and Thales have been to the forefront in developing filter algorithms to minimise degradation and clutter impacts of wind farms.
- Should the confirmatory studies determine that mitigation measures are required, then the solution may require upgrades and enhancements for the radar systems at Woodcock Hill (MSSR) and Shannon Airport (PSR).

- The radar systems Thales RSM970 (MSSR at Woodcock Hill) and Thales STAR 2000 (PSR at Shannon Airport) have sophisticated capabilities to process and handle impacts due to ground obstacles including wind turbines. It is likely that a conditions-based survey would be required by the manufacturer to determine what levels of upgrades are required to mitigate the effects of the proposed wind farm.

- ***ANI position (Report dated 24th January 2024)***

9.7.3 ANI reported that a deeper assessment of impacts is required. In respect of the mitigation precedents referenced in the ARS, ANI does not accept that they are Enroute (High-Level) Radar facilities such as Woodcock Hill. ANI states that significant impacts would be expected on high-level traffic in the altitude range of 10,000ft to 35,000ft which would not be acceptable. ANI objected to the development proceeding on this basis. The SAA in a submission dated 26th January 2024 supported the concerns of ANI. The IAA submission of 19th February 2024 supported the position of both ANI and SAA.

- ***Applicant Response to Submissions (June 2024)***

9.7.4 The applicant responded to the ANI submission in Memorandum No.7 (June 2024) and supporting Appendix 1 (A technical response prepared by Ai Bridges). In response to the ANI submission the applicant proceeded to Commission Cyrrus Limited to carry out a detailed Mitigation Options Study of the possible impacts to the Primary Radar at Shannon Airport and the Secondary Radar at Woodcock Hill. This was carried out according to EUROCONTROL Guidelines. The applicant states that this study shows that there will be no impact to Woodcock Hill (MSSR) Radar Surveillance of En-route aircraft at heights of 10,000 to 35,000ft and no operational effect at the PSR at Shannon Airport subject to available upgrades by the manufacturer. The study concludes by stating that a condition survey of both the MSSR at Woodcock Hill and the PSR at Shannon Airport could be carried out by the Manufacturer to determine what type of mitigation upgrade and software updates (if any) are required. The applicant again states that it would welcome

the opportunity to engage with AirNav Ireland, IAA and SAA to discuss and explore Woodcock Hill mitigation measures.

- **Further Information Request (17/01/2025)**

9.7.5 On the 17th January 2025 the Commission sought further information in relation to a number of matters, including aviation as described above at Section 9.6.5 of my report.

- **Further Information Response (May 2025)**

9.7.6 The applicant's response to the further information request was received in May 2025 as summarised above at 9.6.6 of my report. In respect of surveillance radar impacts the applicant states that at a meeting on 20th May 2025 ANI confirmed:

"their acceptance of the findings of the updated Mitigations Options Study relating to shadowing and reflections impacts on the WCH Secondary Surveillance Radar. ANI are still of the understanding that there will be a "deflections" impact from the proposed development on the WCH Secondary Surveillance Radar. Cyrrus presented on the findings of their updated assessment and demonstrated that while historically "deflections" was a concern it is no longer an issue due to lack of evidence. Cyrrus stated that deflected radar signals from wind farms would have the same characteristics as reflected signals and be removed using the same radar processing method. Cyrrus stated in the meeting that in the UK the National Air Traffic Services (NATS) no longer require the assessment of deflection risk."

- **ANI position (Report dated 22nd August, 2025)**

9.7.7 ANI responded to the applicant's further information response in a report dated 22/08/2025. In this report ANI state that their view that no mitigations are possible in relation to Surveillance MSSR beam deflection at Woodcock Hill and that in the absence of in-service evidence that wind turbines erected within comparable ranges of enroute radar system do not generate deflections, ANI cannot support the proposed development. ANI further advise that the shadowing effect of turbines will introduce coverage gaps in controlled airspace and that this will result in a change to the

surveillance functional system and degradation of the probability of detection. ANI advises that it does not allow for functional systems changes that are less safe than the original system. On this basis ANI strongly objected to further progress of the proposed development.

9.7.8 The report also rejects studies undertaken by the developer and which reference similar developments in the UK and Europe on the basis that they relate to a different application of radar services. The report refutes any suggestion that ANI should apply an EU type radar service that would remove radar deflection issues. ANI stress that the application of radar systems serving Irish airspace reflects the Country's geographical location as an island and the interface with airspace to the west (high seas), which hinders the ability to receive radar feeds from neighbouring states (to the west) that would serve to mitigate such impacts. ANI firmly states that any inference that its safety analysis in relation to radar application should be changed is neither realistic nor acceptable. The SAA in its submission of 21/08/2025 and the IAA submission of 22/08/2025 supported the position of ANI.

- ***(Second) Further Information Request (23/10/2025)***

9.7.9 On the 23rd October 2025 the Commission sought further information in relation to a number of matters. Item No.2 invited the applicant to review and address the submissions from ANI, SAA and IAA that the proposed development will result in unmitigable radar deflection impacts on the Woodcock Hill Radar System.

- ***Further Information Response (November 2025)***

9.7.10 The applicant's further information response was received in November 2025. In summary the applicant states that the issue of deflections is a key issue which can only be resolved through modelling of actual radar data related to apparent observed deflections. The applicant states that ANI initially agreed to provide the required radar data but then indicated that they were unable to do so due to confidentiality reasons. The applicant states that they are committed to working with ANI, SAA and the IAA to clearly identify the

impacts which are likely to occur through modelling in an empirical manner and to identify an optimum mitigation solution should this be required. The applicant further states that it believes that the methodology and approach adopted within its Mitigation Options Study, prepared by Cyrrus, should be sufficient to form the basis of further discussions with ANI, SAA and ANI to collaborate and explore upgrade options. To support its belief the applicant gives further examples of precedents where a mitigation option was identified and implemented consisting of the provision of a new additional MSSR which provided coverage of any area potentially impacted with integration into the EuroControl ARTAS system ensuring full radar tracking of all aircraft to the satisfaction of the ANSP. On this basis the applicant believes that mitigation options are credible and that they can provide a simulation model that quantifies empirically the exact levels of impacts that may be caused by the proposed development on the Woodcock Hill MSSR. Ultimately the applicant accepts that the decision on the most suitable mitigation solution has to be decided by ANI.

9.7.11 The applicant concludes by stating that if ANI, SAA or IAA feel they are unable to withdraw their objections or participate with the applicant to identify a solution, they would request that the Commission give consideration to exercising its right to convene a “limited agenda” oral hearing with both parties. The applicant states that it would be amenable to the Commission inserting a planning condition to consult and agree with ANI, SAA and IAA, an optimum solution for the MSSR at Woodcock Hill, which would be submitted to an agreed in writing with the relevant planning authority. The applicant states that it would be willing to contribute its share of the costs associated with any implementable and viable mitigation measures solution as required on a pro-rata basis with other relevant projects.

- **Correspondence from the Applicant (17/06/2026)**

9.7.12 On 17th June 2026 the Commission received unsolicited correspondence from Mason, Hayes & Curran on behalf of the applicant. This correspondence essentially sets out the specifics of radar data which is

required (by the applicant) to further investigate ‘deflection issues’ in respect of the Woodcock Hill MSSR. The correspondence states that this data was requested from AirNav Ireland but was not provided due to its “*sensitive nature as it contains national security (military) operations*”. The correspondence requests the Commission, having regard to its obligations under the Climate Act, to exercise its powers under Section 131 of the PDA, 2000 (as amended) to request that ANI submit the radar data to the Commission. The Commission requested AirNav Ireland to make a submission based on this correspondence on 22nd June 2026.

- **Response of AirNav 10th July 2026.**

9.7.13 ANI its response of 10th July, 2026 confirms that the requested radar data has not been released as it contains national security (military) information. ANI further responds that the requested radar data is otherwise currently subject to requests under the Freedom of Information Act, 2014 and the European Communities (Access to Information on the Environment) Regulations, 2007. ANI states that in order to avoid interference with the statutory decision-making process in respect of those requests, it does not consider it appropriate to provide substantive comment on the merits of the requests.

Otherwise, ANI responds that its obligations under the Climate Act do not amend, override or displace the statutory frameworks governing access to information under the FOI Act or the AIE regulations, nor do they override countervailing factors in the consideration of proposed developments including significant adverse effects on the performance of ANIs safety-critical ATM/ANS functional system, and the impact on aviation safety.

In conclusion, ANI sets out a summary of its technical concerns in relation to the proposed development, which confirms its position that the proposed development will cause significant and adverse impact on aviation safety through interference of its functional system, being IFPs, the Shannon Airport Runway 24 Instrument Landing System and surveillance radar systems.

9.8 Summary of Aviation Issues

IFPs and NAVAIDs

- 9.8.1 It is clear that these matters are unresolved and that a final position is dependent on the outcome of a redesign of IFPs serving Shannon Airport and a deeper analysis of cumulative impacts on ILS protection areas and on minimum certificate criteria for these systems to permit them to continue operationally serve Shannon Airport. ANI has requested that any decision is delayed until this data has been collated and there is a definitive position on any remaining negative impacts on IFPs.

Surveillance Radar Impacts

- 9.8.2 In summary the end ANI position is that no mitigations are possible in relation to Surveillance MSSR beam deflection at Woodcock Hill and that in the absence of in-service evidence that wind turbines erected within comparable ranges of enroute radar system do not generate deflections, ANI cannot support the proposed development. ANI further advise that the shadowing effect of turbines will introduce coverage gaps in controlled airspace and that this will result in a change to the surveillance functional system and degradation of the probability of detection. ANI advises that it does not allow for functional systems changes that are less safe than the original system. On this basis ANI strongly objected to further progress of the proposed development.

- 9.8.3 The applicant's position is that the issue of deflections concerning the Woodcock Hill MSSR is a key issue which can only be resolved through modelling of actual radar data related to apparent observed deflections. The applicant states that ANI initially agreed to provide radar data but then indicated that they were unable to provide radar data due to confidentiality reasons. The applicant states that they are committed to working with ANI, SAA and the IAA to clearly identify the impacts which are likely to occur through modelling in an empirical manner and to identify an optimum mitigation solution should this be required. The applicant further states that it believes that the methodology and approach adopted within its Mitigation

Options Study, prepared by Cyrrus, should be sufficient to form the basis of further discussions with ANI, SAA and ANI to collaborate and explore upgrade options. The applicant suggests a limited agenda 'Oral Hearing' to address this impasse and otherwise states their willingness to accept a condition in respect of an optimum mitigation measure.

9.9 Relevant Precedent

9.9.1 In this regard the recent planning history at this location is particularly relevant. ABP-318943-24 refers to an application for a 12-turbine wind farm known as 'Ballycar Wind Farm' approx. 4km to the south of the subject site (nearest turbine to nearest turbine⁵). Planning permission was refused for this proposed wind farm on the 7th May 2026 in relation to aviation related concerns. This decision was made after a limited agenda oral hearing was held on aviation related matters. I have examined this case, the detailed report and recommendation of the inspector, and I have noted the similarities therein in respect of the aviation concerns which have arisen in this case, not least the parties involved. In my opinion this case is directly relevant to the assessment and determination of the subject case and includes findings which are materially relevant.

9.9.2 In the case of the Ballycar Wind Farm, aviation concerns also arose in relation to Instrument Flight Procedures (IFP), Instrument Landing Systems (ILS) and Woodcock Hill (MSSR). ANI in their submissions to that application did not accept UK precedents and expressed greatest concerns in relation to radar beam deflections on Enroute Surveillance Radar.

9.9.3 The Inspector reached a position in his assessment, that 'at least significant' aviation impacts were likely to arise from the proposed development unless adequate mitigation measures are proposed and implemented. The Inspector noted that ANI and SAA did not accept that the mitigation measures proposed by the applicant addressed their concerns particularly in relation to surveillance radar. The Inspector in respect of the

⁵ The site boundaries are approx. 600m apart at the nearest point (GCR Oatfield WF and nearest Turbine Ballycar WF).

Ballycar Wind Farm was supported by an independent external consultant commissioned by An Coimisiún Pleanaála (Sagentia Aviation) who contended that mitigation measures do exist to address aviation concerns, including to existing radar installations, but the information submitted did not provide a state of measurable evidence to remove the concerns of ANI and SAA. The consultant did opine that an Aviation Mitigation Scheme could be developed allowing for objections to be removed and replaced with planning conditions.

9.9.4 It is clear that the Inspector was not at all satisfied on the basis of the information available at that time, that the matter of an 'Aviation Mitigation Scheme' could be dealt with by planning condition for reasons I will revisit in due course. Having considered this position, and the Commissions obligations under Section 15 of the Climate Act, the Inspector recommended a limited agenda Oral Hearing to allow points and arguments in relation to *"the Aviation related issues relevant to Shannon Airport and the Woodcock Hill radar."* The Oral hearing originally scheduled for 20th November 2025, was adjourned to 22nd January 2026 to facilitate further engagement between the parties.

9.9.5 The Inspectors report on the matter is complex, detailed and technical and it is available both on the public record and to the Commission should they wish to review. For the purposes of this assessment, I am largely taking the Inspectors Report as read, certainly as regards process and procedure. In revisiting his assessment post oral hearing the Inspector states that the main purpose of the hearing was to determine if the matter of proposed mitigation measures could be agreed between the applicant, ANI and the SAA/SAG⁶ to such an extent that should the Commission decide to grant permission, it could do so with a planning condition requiring an Aviation Mitigation Scheme to be agreed subsequent to the decision. The Inspector found that no party disputed that mitigation measures were required, however ultimately the Oral Hearing and additional points and argument did not resolve matters and ANI and SAG maintained their position that the mitigations proposed were not acceptable.

⁶ Shannon Airport Group

9.9.6 Accordingly, the Inspector concluded that “*imposing a condition for all aviation related mitigation measures to be agreed with the relevant Prescribed Bodies, where the implementation of such measures is required to lands outside the control of the Applicant and where the consent of the relevant prescribed bodies for such measures to be implemented has not been demonstrated (notwithstanding their objections) would not be appropriate having regard to S.34(4)(a) of the PDA, 2000 (as amended)*”⁷. The Inspector further concluded, with regard to Section 15 of the Climate Action and Low Carbon Development Act, 2015 (as amended 2021) that a decision to grant a permission with such a condition would be ‘impracticable’.

9.10 **Assessment**

Surveillance Radar

9.10.1 I propose to deal in the first instance with the issue of Surveillance Radar and particularly the MSSR at Woodcock Hill, as it impacts on this radar which remains the fundamental reason for the objection of ANI to the proposed development. In my opinion the concerns which arose in relation to this MSSR in the proposed Ballycar Wind Farm and the subject Oatfield Wind Farm are materially the same concerning deflection, shadowing and degradation impacts as detailed above, and in the respective ANI submissions received, as a result of proximity⁸. It is clear in respect of the proposed Ballycar Wind Farm, and in this case, that there is no dispute that significant and adverse impacts will occur on the Woodcock Hill MSSR which require mitigation. What remains in dispute is whether or not mitigation measures are possible or can be agreed. In my opinion it is also clear from the submissions received in respect of the subject application and from the evidence available in respect of the assessment of the Ballycar Wind Farm that ANI do not accept

⁷ The Commission will note that whilst this is an application under Section 37E of the Act, Section 37G (7) of the Act provides that the Commission may attach a condition to a permission for development under Section 37E with regard to any of the matters specified in Section 34(4). Accordingly, the provisions of S.34(4)(a) are applicable.

⁸ I note that ANI expressed a view that a proposed wind farm outside the range of 6-10km would not have the same impact as a wind farm development at <6km. Meeting Minutes of 20th May 2025 refer provided as part of Appendix 1 of the applicants further information response (May 2025).

that mitigation in relation to Surveillance MSSR beam deflection at Woodcock Hill is possible.

9.10.2 This leaves the applicant with little recourse to any remedy other than to persuade ANI that mitigation is possible but this was clearly further explored within the Oral Hearing on the Ballycar Wind Farm and it is clear from the outcome of that process, that additional points and argument did not resolve matters and ANI and SAG maintained their position that the mitigations proposed were not acceptable. I accept that the evidence available in relation to the Ballycar Wind Farm oral hearing included a deeper dive into the range of mitigation options which were possible. Indeed, the Inspector describes these as a 'cascade'. However, in my opinion they serve only to speak against further exploration of this matter, as this deeper dive only resulted in an end position that effective mitigation was not possible. In this regard I would draw the Commissions attention to Section 12.4.36.13 – 12.4.36.14 (Inc) of the Inspectors Report which sets out the significant (in my opinion) limitations of some of the measures proposed (by the applicant) and the extent of aviation operational impacts they will incur. This led the Inspector to conclude that should the development be permitted, it will lead to impacts on radar performance or degradation of existing radars as advised by ANI, regardless of mitigation measures proposed. In this regard the Inspector concluded that the extent of these impacts or degradation which may be permissible is a matter for ANI to adjudicate upon in Ireland, and it was undoubtedly the case that the proposed mitigation measures were not acceptable to ANI.

Importantly I am satisfied that in the common matter of whether or not measures exist to mitigate the significant, adverse and long-term effects on the MSSR at Woodcock Hill to the satisfaction of ANI, the end position is unequivocal and conclusive.

Limited Agenda Oral Hearing

9.10.3 Whilst the applicant has suggested that the Commission should also use its powers to hold a limited agenda Oral Hearing in respect of the proposed Oatfield Wind Farm to further explore the option of agreement on

mitigation measures, I do not consider that there is any basis for doing so. In the circumstances of this case the evidence from the Ballycar Wind Farm oral hearing is available and conclusive, and there is no material change in circumstances in this case, especially the unequivocal position of ANI, which would justify a further hearing on this matter. In my opinion this would only serve to revisit an issue which has already been determined. A further difficulty arises, in that there is clarity in this case that advance modelling is first required before an optimum mitigation measure could be identified (in relation to beam deflection) which would then be subject to further discussion with ANI, however any such modelling is dependent on the applicant receiving radar data which ANI are not prepared to provide. Indeed, I note that ANI have said that such data cannot be released as it relates to matters of National Security (Military Operations⁹). This being the case and having regard to all of the aforesaid, I am of the view that there is no reason to hold a limited agenda Oral Hearing in this case, and that there is sufficient information on the written record to both assess and determine the application. On this basis I recommended to the Commission in a memo dated 17th June 2026, that it was not necessary for an Oral Hearing to be held in respect of this case. On the 23rd June 2026 the Commission decided to determine the application without an Oral Hearing.

Condition of Permission

- 9.10.4 The applicant also suggests that it is open to the Commission to grant permission subject to a condition requiring that the optimum mitigation measure in respect of the Woodcock Hill MSSR (and other aviation matters) be agreed between the applicant and ANI etc, with the matter also subject to the written agreement of the relevant planning authority. The Inspector in his report on the proposed Ballycar Wind Farm sets out in detail why the imposition of such a condition would be inappropriate. The Inspectors position was based on a number of considerations which are summarised as follows:

⁹ ANI letter dated 31st October 2025 to the applicant's legal representatives. This is provided as part of Appendix 1 to the applicant's second further information response (November 2025).

- Planning and Development Act, 2000 (as amended): The location of Shannon Airport including the Shannon PSR radar and the location of the Woodcock Hill MSSR radar do not adjoin, abut and are not adjacent to the lands to be developed. Nor are they under the control of the applicant, all as required by Section 34(4)(a) of the PDA, 2000 (as amended). The inspector therefore concluded that the imposition of such a condition does not seem legally possible, particularly in the context of ANI and SAA/SAG submissions who control both radars, manage Irish air space and airport operations.
- Case Law: The Inspector referred the Commission to extract '4-235' taken from Westlaw-Browne, Simons on Planning Law 3rd edn (2021) which states that *"in the case of land not under the control of the applicant and thus outside of S.34(4)(a) it may be possible to impose a negative condition specifying that no development shall be carried out until certain matters are attended to on other land but that conditions of this type should be used sparingly and only in circumstances where there is a reasonable prospect of the condition being fulfilled....."* The Commission was further referred to extract '4-243' from the same publication which states *"where a condition is deemed to be unlawful, then the question arises as to whether it is severable. If so, the condition(s) must be struck out and the permission will then continue to be effective. However, if the unlawful condition is not severable then the permission itself must have been invalid ab initio."*
- Development Management Guidelines, 2007: The Inspector also finds that where it is clear that the developer cannot obtain the consent of ANI or SAA/SAG, such a condition would not be reasonable having regard to test set out in Section 7.3.5 of the Guidelines. The Inspector also finds that such a condition would not be appropriate having regard to the provisions of the Guidelines in respect of other 'codes' as set out in Section 7.8 and the provisions of Section 7.9 which clearly state that conditions requiring matters to be the subject of consultation with, or to be agreed with, another public body should not be attached to a permission.

9.10.5 I am in agreement with the findings of the Inspector that based on the provisions of the Planning and Development Act, 2000 (as amended), case law and Section 28 Ministerial Guidelines, it would not be appropriate to apply such a condition.

Conclusion

9.10.6 Accordingly, in my opinion there is no basis on which to further explore the possibility of agreement on mitigation measures in respect of 'unmitigable radar deflection impacts'¹⁰, shadowing effects and degradation of Woodcock Hill MSSR and no legal basis for the imposition of a condition attached to a grant of permission dealing with such a matter. In the case of ABP-318943-24 and the proposed Ballycar Wind Farm this resulted in a decision by the Commission that planning permission be refused for the aviation related reasons set out in Refusal Reason No.1. In the circumstances of this case, the material considerations arising are materially the same, and there is no logical reason or basis to arrive at an alternative decision. Accordingly, in the absence of mitigation of the significant and adverse effects on the Woodcock Hill MSSR I also recommend that planning permission be refused.

Climate Act

9.10.7 In relation to the Commissions obligations under Section 15(1) of the Climate Action and Low Carbon Development Act 2015 as amended by Section 17 of the Climate Action and Low Carbon Development (Amendment) Act 2021, I am satisfied that a decision to refuse permission on the basis of significant, adverse and negative aviation safety concerns is not inconsistent with the Climate Act, on the basis that it would clearly not be practicable to grant permission or deal with matters by condition for the reasons already stated above.

Remaining matters

9.10.8 There are remaining matters which are also unresolved in relation to the IFP's and ILS (NAVAIDs). As I am recommending that permission be

¹⁰ As described by ANI in report dated 22/08/2025.

refused on the basis of concerns in relation to the Woodcock Hill MSSR, there is no opportunity for further consideration of these matters, and therefore I recommend that these matters are also included in the decision to refuse permission.

9.10.9 The Commission will note the provisions of CDP objective 11.19 as set out above in Section 9.5.2 of my report. In the circumstances of this case a substantive refusal reason is recommended based on technical aviation matters and for this reason I do not consider that it is necessary to include additional CDP Objective content in the decision to refuse permission. I am influenced in this regard by the fact that CDP Objective 11.19 is largely framed in the preceding CDP text by reference to the 'Red Zones'¹¹ and 'Public Safety Zones (PSZs)¹² which are designated for the airport, and I note that the proposed development is not located within either of these designations. Accordingly, I do not consider that the position in relation to contravention of CDP Objective 11.19 is clear or certain, and I am satisfied that the substantive technical aviation reasons for refusal are sufficient. If the Commission does not agree, they may consider the inclusion of CDP objective content further.

9.11 **Impact to Biodiversity**

This is addressed in Section 9.4 (9.4.6) (*other development plan considerations*), Section 15 (*Biodiversity*) of the EIA section of my Report, and the Appropriate Assessment Section of my Report (Appendix 1 & 2).

9.12 **Impact to Ornithology**

This is addressed in Section 16 (Ornithology) of the EIA section of my Report, and in the Appropriate Assessment Section of my Report (Appendix 1 & 2).

9.13 **Impact to Residential Amenity**

This is addressed Section 9.4 (9.4.4) (*other development plan considerations*) and EIA Sections 12 (*Population & Human Health*), 13 (*Shadow Flicker*), 14

¹¹ Map I11 of CDP Vol.2 (Maps) refers.

¹² Available at 'assets.gov.ie'.

(Noise), 19 (Landscape & Visual), 21 (Traffic and Transport) and 22 (Air Quality and Emissions) of my Report.

9.14 Adequacy of Consultation & related matters

Consultation

I have addressed the adequacy of consultations in the EIA Section of my report. Some parties to the appeal raised concerns in relation to the redaction of certain material from the application particulars. This concerned the redaction of precise nest locations for Hen Harrier from the SHMP. I note that this redaction was requested by NPWS¹³. I am satisfied that the information redacted from the SHMP is not such that would militate against the ability of the public to discern the likely environmental effects of the proposed development on Hen Harrier.

Design Flexibility

Some observers raised a concern that the variation in turbine models proposed prevented an adequate assessment of landscape, visual, noise and shadow flicker effects. The application has been brought forward on the basis of turbine parameters and the EIAR assesses three different turbine scenarios as detailed in Table 4.5 of Chapter 4 of the EIAR. I am satisfied that the range of parameters set out for the proposed turbines and the three scenarios which were assessed in the EIAR, allowed for a full and robust assessment of the likely environmental effects of the proposed development irrespective of the final confirmed turbine model.

9.15 Other Matters

Legal Interest

There are a number of concerns expressed in terms of property ownership and wayleaves. There is reference to an absence of wayleaves from property owners for cables under roads with ownership of roads extending to middle of the road for adjacent owners which appears to refer to landowner consent

¹³ Applicants response to submissions Memorandum No.4 refers.

and appropriate permissions along the grid connection route. I would refer the Commission to Section 37H (6) of the Planning and Development Act 2000, as amended where it is clearly stated that *“a person shall not be entitled solely by reason of a permission under this section 37G (for which an application is made under S.37E) to carry out any development”*. Otherwise, I am satisfied that the applicant has demonstrated sufficient legal interest in the lands the subject of the proposed development, for the purposes of assessment of the planning application.

Involved Properties

Observers raised concerns that some residential properties were incorrectly listed in the EIAR as ‘associated dwellings’. Residential property H4 and H606 as identified, inter alia, in Appendix 2.2 of the EIAR refer. The owners of these properties submitted that they did not give consent for their respective properties to be subject to higher levels of noise or shadow flicker in excess of the guidelines (as an involved property), nor did they give consent for their property to be included within the ‘blue line’ landholding of the application particulars. In responding to the submissions received the applicant acknowledges this error in Memorandum No.2 (Theme 5), Memorandum No.8 (Theme 5), and Memorandum No.9 (Theme 13). The necessary corrections are made. I have considered the residential amenity implications in the shadow flicker, noise and traffic and transport sections of my report and I am satisfied that the relevant properties will not be subject to noise or shadow flicker in excess of the relevant guidelines. Otherwise in relation to the inclusion of these properties within the blue line boundary of the site, I would note that the proposed development works do not appear to be dependent on the associated folios and I would again refer to the legal interest position as set out above in respect of Section 37H(6) of the Act.

Enforcement

Third party observers express a concern that there is no evidence of effective enforcement within the state which ensures compliance with proposed mitigation measures and conditions of a planning permission in respect of

wind energy developments. A wide range of enforcement powers are available to Planning Authorities under the PDA, 2000 and the efficacy or otherwise of these powers or the performance of a Planning Authority is not a material consideration for the Commission. The Commission does not have enforcement powers, or an enforcement role and this matter is not within the jurisdiction of the Commission.

SEA Directive

Third parties expressed concerns that the proposed development was not subject to Strategic Environmental Impact Assessment (SEA). In this regard I consider the context of the existing legal environmental framework encompassing environmental assessment to be of relevance, noting that the NPF First Review, RSES and CCDP including the CWES have all been subject to SEA. At a project level, I am satisfied that the proposed development has been subject to environmental assessment under the EIA Directive and considering environmental tiering, I note that the proposed development is consistent with the Wind Energy Strategy of the CDP (refer to Section 9.0 above). Furthermore, I am satisfied that the proposed development has been subject to assessments under the Habitats and Birds Directives and assessment under the Water Framework Directive, as per Appendix 1 & 2 (Appropriate Assessment) and EIA Sections 15 (Biodiversity), 16 (Ornithology) and 17 (Hydrology & Hydrogeology) of this report respectively.

National Biodiversity Action Plan and Loss of Forestry

Some concerns were raised in the public submissions that the loss of habitats, including forestry, as a result of the proposed development would result in unacceptable biodiversity impacts contrary to the NBAP.

I have considered the loss of habitat(s), including forestry, in the EIA section of my report. As can be seen therefrom I consider that the proposed development will result in nett biodiversity gain with 173.66ha of managed habitats, and 14.48km of linear habitats provided and managed within the SHMP significantly in excess of habitats lost. In relation specifically to forestry

I note that the greatest habitat loss as a result of the proposed development is coniferous forestry and note that the applicant proposes 8.683ha of managed conifer habitat within the SHMP and commits to replanting new conifer plantation of a type and extent proportionate with that lost in accordance with forestry licencing¹⁴. Accordingly, I am satisfied that the proposed development is not contrary to the NBAP.

10. Environmental Impact Assessment (“EIA”)

10.1 Statutory Provisions

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

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

3. Energy Industry

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

¹⁴ At a distance of at least 10km from the proposed development site.

The proposed development with a total of 11 no. turbines and with an estimated combined generating capacity of 72.6MW exceeds these thresholds and is therefore subject to mandatory EIA.

10.2 EIA Structure

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

Section 171 of the PDA 2000 defines EIA as:

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

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

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

- Population and human health,

- Biodiversity, with particular attention to species and habitats protected under the Habitats Directive 92/43/EEC and the Birds Directive 2009/147/EC,
- Land, soil, water, air and climate,
- Material assets, cultural heritage and the landscape,
- The interaction between the above factors, and
- The vulnerability of the proposed development to risks of major accidents and/or disasters.

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

10.3 Issues Raised in Respect of EIA

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

- Adequacy of expertise and independence of authors
- Adequacy of alternatives
- Adequacy of consultation
- Project Splitting and Transboundary Effects
- Impacts on population and human health (shadow flicker, noise, property values, community, business and tourism, agriculture, and safety concerns), biodiversity (loss of habitats, Lesser Horseshoe Bats, Marsh Fritillary and flora and fauna generally), Birds (including impacts on Hen Harrier), land and soil (including risk of peat slide), water (including pollution risks. WFD, water resources and downstream impacts on Natura 2000 sites), climate and air (including emissions, and carbon footprint), traffic (including inadequacy of road infrastructure, legal interest and accident data), cultural and heritage assets (including archaeology and protected structures), landscape and visual effects (on residential amenity

and from designated scenic roads), material assets (including telecommunications and aviation).

- Cumulative effects with other wind energy developments (permitted and proposed), particularly in relation to residential amenity, landscape and visual, traffic and transport, biodiversity, and ornithology.

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

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

Article 94(a) Information to be contained in an EIAR (schedule 6, paragraph 1)
A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development (including the additional information referred to under section 94(b)).
A comprehensive description of the development is contained in Chapter 5 of the EIAR including site location and environs, wind farm layout, elements of the proposed development (inc. access, temporary works, grid connection, biodiversity enhancements and community benefit fund), construction methodologies, operation and decommissioning.
A description of the likely significant effects on the environment of the proposed development (including the additional information referred to under section 94(b))
An assessment of the likely significant effects of the development (direct, indirect and cumulative) on the different environmental parameters, is carried out for each of the technical chapters (topic Chapters 6 to 19) of the EIAR. EIAR Chapter 2 sets out the overall approach to assessment of effects, including cumulative effects and interactions of effects and this is further addressed under each topic and in the Cumulative Impact Assessment Report (Final) submitted as Appendix 2 to the further information response in May 2025. I am satisfied that the assessment of significant effects is comprehensive and robust and enables decision making.
A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development (including the additional information referred to under section 94(b)).
The EIAR includes embedded design measures and mitigations measures to address potential adverse effects identified in technical studies. Embedded design measures are described in EIAR Chapter 5. Mitigation measures and arrangements for monitoring, are summarised in Chapter 21, Table 21-1 of the EIAR (Summary of mitigation measures) and are otherwise set out in the relevant Chapters of the EIAR and Appendix 5.1 (CEMP) which includes Appendix A (WQMP), Appendix B (SMP), Appendix C (SWMP), Appendix D (RWMP) and Appendix E (ERP), Appendix 5.2 (CTMP), Appendix 7.1 (SHMP), and Appendix 7.8 (ISMP). Measures comprise standard good practices and site-specific measures and are largely capable of offsetting significant adverse effects identified in the EIAR.
A description of the reasonable alternatives studies by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment (including the additional information referred to under section 94(b)).

A description of the project need and alternatives considered is contained in Section 4.2 and 4.4 of Chapter 4 of the EIAR. The alternatives considered include, 'do nothing', alternative processes, alternative locations (site selection process), alternative turbine heights and models, alternative site layouts and evolution of design, alternative grid connection options and routes, alternative turbine delivery routes and alternative site access roads. The main reasons for opting for the current proposal were based on minimising environmental effects. I am satisfied therefore, that the applicant has studied reasonable alternatives in assessing the proposed development and has outlined the main reasons for opting for the current proposal before the Commission and in doing so the applicant has taken into account the potential impacts on the environment. Further detail on the alternatives considered is set out below.

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

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

A description of the baseline environment is included in each technical chapter of the EIAR and an assessment of the likely evolution of it, in the absence of the development.

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

The methodology employed in carrying out the EIA, including the forecasting methods is set out, in each of the individual chapters assessing the environmental effects. The applicant has indicated in the different chapters where difficulties have been encountered (technical or otherwise) in compiling the information to carryout EIA. I comment on these, where necessary in the technical assessment below and for the reasons stated, I am satisfied that forecasting methods are adequate in respect of likely effects on biodiversity etc. I have not identified any areas where any significant impediments to the assessment are evident. I note that in the course of the application AirNav Ireland did not release specific radar data requested by the applicant to investigate further the issue of adverse effects on surveillance radar. I am satisfied that this arose during the course of the application as a result of engagements which developed in relation to the potential for mitigation of potential adverse effects on surveillance radar and is not to the detriment of the EIAR as originally presented in the application. This matter is addressed in my report.

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

This issue is specifically dealt with in Chapter 19 of the EIAR. Specific risks have been identified in relation to the project's vulnerability to extreme weather, mass movement event, wildfire and structural/technical failures. These risks are reasonable and are assessed in my report. The applicant has failed to describe or assess the potential major accident consequences of adverse effects on aviation safety. This is perhaps understandable in the context of the applicants EIAR which concludes that with mitigation measures there will be no significant residual effects on material assets including aviation. However, in the course of the application mitigation of potential adverse effects on aviation safety has not been agreed. I have therefore concluded in my assessment that risks of major accident(s) as a consequence of unmitigated aviation safety issues are unknown. This is assessed in my report.

Article 94c A summary of the information in non-technical language.

This information has been submitted as a separate standalone document 'Non-Technical Summary' and as Volume I of the EIAR. I have read this document, and I am satisfied that the document is concise and comprehensive and is written in a language that it easily understood by a lay member of the public.

Article 94(d) Sources used for the description and the assessments used in the report.

The sources used to inform the description, and the assessment of the potential environmental impact are set out in each chapter. I consider the sources relied upon are generally appropriate and sufficient.

Article 94(e) A list of the experts who contributed to the preparation of the report.

A list of the various experts who contributed to the report are set out in Section 1.10 and Table 1.2 in Chapter 1 of the EIAR. Where relevant the 'statement of authority' section of each of the individual chapters within the EIAR also includes biopics setting out individual expertise, qualifications and experience demonstrating the competence of the person in preparation of the individual chapters within the EIAR. I am satisfied that the EIAR has been prepared by experts with competency in the technical subject areas.

10.5 Adequacy of expertise and independence of authors and Cumulative Considerations

These matters are addressed in each respective environmental topic of my EIA.

10.6 Alternatives Considered.

10.6.1 Do nothing – In this scenario the existing land use would continue. The site would not be used to contribute to County Clare's renewable energy resource or in meeting EU and national targets for the production and consumption of electricity from renewable resources.

10.6.2 Alternatives processes – Several alternative sources of energy generation were considered at a high level by the applicant prior to initiation of the project. This included solar, hydro and bioenergy, however these options were not considered viable options for the subject development site due to topography, heavy forestry cover, absence of large waterbodies and presence of peatlands.

10.6.3 Alternative locations (site selection process) – a technical review of potential candidate sites for the proposed wind energy development was conducted by the applicant in order to achieve an economically viable project. The site selection process was informed by a number of criteria including: available wind resource, access to the national electricity grid, available land, achievable set back from residential receptors and planning policy. The high-level site selection criteria are set out in Table 4.4 of EIAR Chapter 4. This process resulted in the selection of the subject 'Oatfield' site as it has a quality

prevailing wind resource in an elevated location with a suitably unconstrained land area, feasible grid connection options and from a policy perspective is predominantly designated as a 'Strategic Wind Development Area'. The proposed development site was then subject to site-specific assessments, including site visits and surveys, to determine visibility and landscape character, identify other potential constraints, confirm potential presence/absence of sensitive habitats and protected species and assess potential turbine transport routes. The purpose of these assessments was to determine the suitability of the site for preliminary engineering design and environmental assessment.

10.6.4 Alternative turbine heights and turbine models - The EIAR considers three different turbine models, namely the Nordex N133, Nordex N149 and Vestas V150 with varying turbine layouts depending on turbine model. The details of each turbine model considered are presented in Table 4.5 of EIAR Chapter 4 with information presented on output (MW), hub height, rotor diameter and tip height as detailed in the table below.

Turbine Type	Output (MW)	Hub Height (m)	Rotor Diameter (m)	Tip Height (m)
Nordex N149	5.7	105	149	179.5
Nordex N133	4.8	110	133	176.5
Vestas V150	6.0	105	150	180.0

* *extract from Table 4.5 of EIAR Chapter 4.* Planning permission is being sought for the envelope of turbines detailed in Table 4.5 of EIAR Chapter 4 (and as set out in the table above).

10.6.5 The assessment of residential amenity effects was based on a precautionary approach which applied an amenity buffer distance of 720m from non-financially involved dwellings based on four times the maximum tip height (in accordance with dWEDG 2019). This determined the site area available for wind energy development. The assessment of landscape and visual effects was also based on the highest possible combination of tip height (180m) and hub height (105m) being the Vestas V150. For noise effects, a

preliminary noise model for each turbine type was created, which informed appropriate locations for baseline noise monitoring. The NIA was then informed by the Vestas V150 which was determined to be the noisiest of the three potential candidate turbine models. In respect of shadow flicker effects, a study area 1,500m was applied (based on ten times the rotor diameter of the maximum turbine model Vestas V150). However full shadow flicker assessments were conducted for all three candidate turbine models.

10.6.6 Alternative site layouts and evolution of design – This is considered in Section 4.4.7 of the EIAR Chapter 4. The layout of the proposed development has been informed by a collaborative process with input from the range of technical specialists and consultation with landowners and various stakeholders. The design evolved to respond to detailed constraints and mapping (Fig. 4.1 and 4.2) to minimise potential environmental effects, maximise the energy yield of the wind resource available resulting in the current 11 turbine layout (from an original 12 turbine layout). The proposed final 11 turbine layout went through 7 separate iterations and Figures 4.3 to 4.9 gives an indication of the design process, with the description and reason for changes at each iteration set out in Table 4.6. The chosen option has been designed to avoid or mitigate impacts on (inter alia) residential amenity, farm operations, hydrology, archaeology, biodiversity, soils and subsoils.

10.6.7 Alternative Grid Connection Options and Routes – Three grid connection route options were considered, and these are detailed in Figure 4.10. Option 1 proposed a connection to the existing overhead 110kV line at Ballycar via a loop in connection c. 3.3km south of the proposed development. Option 2 proposed a connection to the Drumline 110kV substation c 13km south-west of the proposed development. Option 3 proposed a connection to the Ardnacrusha 110kV substation c 9km south of the proposed development, however this was ruled out at an early stage as it was determined that other projects in the area were more advanced in the planning process (at the time of evaluation) and the remaining connection bay would be unavailable. The ‘loop in’ Option 1 (the chosen route) was favoured as it required fewer nodes

for accommodation works to overcome pinch points and design issues, minimised disruptions to traffic (associated with accommodation works) and would be most cost effective.

10.6.8 Alternative Turbine Delivery Routes – Section 4.4.9 examines alternative options for turbine delivery, with wind turbine components being imported from overseas and transported overland to the site. The Port of Foynes was chosen as the Port of entry with its roll-on roll-off facilities and as the closest commercial port to the proposed development site. Four turbine delivery route options were considered (TDR Option 1a, 2, 3 and 3a) and these are described in Section 4.4.9.2. Option 3a was preferred as it made use of the existing road network insofar as possible.

10.6.9 Alternatives for site access roads – These are considered in Section 4.4.10. Two options for access to the Eastern part of the proposed development site were considered (Option A and Option B) as illustrated on Fig. 4.11 and 4.12 respectively. Option A was ruled out due to third party land constraints and an identified archaeological feature. Option B, which requires the construction of a new access road was selected. Due to uninvolvement of third-party landholdings, other access road options to the Eastern part of the site were limited. A single feasible access route option (Option C) as illustrated in Fig. 4.13 was identified for access to the Western part of the proposed development site. This consists of an upgrade (from 2m to 5m) to an existing public road off the R47. Again, other access road options were limited by third party lands. The primary concerns informing the selection of site access options were the safety of road users, protection of rural character, protection of natural and cultural features of importance and conservation of biodiversity.

10.7 Project Splitting and Transboundary Effects

The application is supported by the submission of an EIAR, which together with the FICAR submitted in May 2025 adequately considers potential cumulative effects with other existing, planned and consented projects. There is no question of project splitting or seeking to avoid the obligations of the EIA

Directive. Given the location of the proposed development, the issue of transboundary effects with another state does not arise.

10.8 Adequacy of Consultations

10.8.1 The application has been submitted in accordance with the requirements of the PDA 2000 and the PDR, 2001 in respect of public notices. Details of the applicants scoping work and consultations are set out in sections 3.2, 3.3 and 3.4 of the EIAR Chapter 3. The applicant appointed two Community Liaison Officers (CLOs) to lead community engagement and Appendix 1 of the Planning Report (Part 1, Section 8 of the planning application) provides details of the community engagement programme that has been carried out. The applicant has carried out public consultation beginning in July 2023 and consisting of the launch of a project website, newsletter drops to households within 2km including door-to-door engagement and invitation to a public exhibition. The Project website was launched on 13th July 2023 with contact information for the CLOs. A Community Consultation and Exhibition Event was held in Dagger's Bar, Ardnacrusha, Co. Clare on 23rd August 2023. This event was advertised in advance in a local newspaper with attendance of 52 persons. Following the event, CLOs met with those who requested further consultation. A summary of the queries and concerns raised during the community engagement event and feedback provided by the applicant is presented in Table 3.3 of EIAR Chapter 3. Future community engagements are planned as described in Section 3.4.7 of EIAR Chapter 3.

10.8.2 Submissions have been received from statutory bodies and third parties and are considered in this report, in advance of decision making.

I am satisfied, therefore, that appropriate consultations have been carried out and that third parties have had the opportunity to comment on the proposed development in advance of decision making.

10.9 Compliance

Having regard to the foregoing, I am satisfied that the information contained in the EIAR, and supplementary information provided by the developer is sufficient to comply with Article 94 of the PDR, 2001.

11.0 Assessment of Likely Significant Effects

This section of the report sets out an assessment of the likely environmental effects of the proposed development under the following headings, as set out in Section 171A of the PDA, 2000 (as amended):

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

In accordance with Section 171A of the PDA, 2000, which defines EIA, this assessment includes an examination, analysis and evaluation of the application documents, including the EIAR and submissions received and identifies, describes and assesses the likely direct and indirect significant effects (including cumulative effects) of the development on these environmental parameters and the interaction of these. Each topic section is therefore structured around the following headings:

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

12. Population and Human Health

Issues Raised

Issues raised in respect of population and human health are the effects of the development on population profile and community growth, impacts on residential amenity (Visual impacts, noise, shadow flicker), property values, landscape and visual effects, impacts on primary schools, retreat centres, wildlife sanctuaries effects during construction (noise, emissions, traffic, disruption) and health effects including on those with ASD syndrome (including low frequency noise, infrasound and AM, sleep disturbance and anxiety), business effects and safety concerns.

The issues raised in relation to noise, landscape and visual effects and traffic (inc. emissions) are dealt with in different technical chapters of the EIAR and addressed in the corresponding environmental topic sections of this report.

12.1 Examination of the EIAR

Context

12.1.1. Chapter 6 of the EIAR deals with population and human health. It assesses the likely effects of the development on population and human health, and the key issues examined in this chapter includes population, employment, land use, recreation and tourism, human health and amenity. Chapter 12 of the EIAR deals with Shadow Flicker and Chapter 13 deals with Noise and Vibration and these matters are considered Section 13 and 14 of my report respectively.

12.1.2 The assessment is undertaken in accordance with guidance set out by the European Commission (EC), the Environmental Protection Agency (EPA), and National and International policy and guidance.

The Community Report (Part 4, Appendix 1 of the Planning Report) and Section 5.2.11 of the EIAR sets out details of the proposed Community Benefit Fund (CBF). Consistent with the terms of the Renewable Energy Support Scheme (RESS) and in line with CBF Guidelines governed by SEAI it proposes a contribution of €2 for each megawatt hour (MWh) with 50% of the investment going to local clubs.

Statements of Authority are included.

12.1.3 The applicant's response to submissions in respect of Population & Human Health is set out in Memorandum No.2 (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR). Chapter 2 of the FICAR addresses Shadow Flicker.

12.2 **Baseline**

12.2.1 The EIAR describes a study area encompassing the proposed windfarm site, grid connection route (GCR) and turbine delivery route (TDR) defined by the Electoral Divisions (EDs) of Kilseily, Castlecrine, Cloontra and Cloghera (Fig.6.1 of EIAR Chapter 6 refers).

12.2.2 The EIAR refers to population in Section 6.4.1. and describes population trends in the context of the 2016 and 2022 census, with an increase reported for the study area during this period of +7.4% to 2,207 persons consistent with County (+7.7%) and State +8.1%) figures for the same period. The EIAR describes the study area as not being in a densely populated area of County Clare, with Cllontra ED the least densely populated with 13 persons per km² and Kilseily ED the most densely populated with 29 persons per km². People of working age (15-64) make up 65.1% of the study area population which is similar to County (63.6%) and State (64.3%) levels, with those aged 10-14 making up 9.4% compared with 7.3% (County) and 7.4%) for the State. During the census periods the dependency ratio for the study area decreased by 6.52% against a marginal rise for County (+0.29%) and State (+0.92%) for the same period.

12.2.3 In terms of employment (Section 6.4.2.) the EIAR describes 47% of people within the study area of working age (15-64) compared with 43.9% for the County and 45.1% for the State, with employment across the Professional Services, Commerce and Trade and Manufacturing sectors.

12.2.4 The EIAR describes land use (Section 6.4.3) within the study area as mainly consisting of pasture, transitional woodland scrub, coniferous and mixed forests, agriculture and natural vegetation with smaller areas of peat

bogs. The EIAR considers that the settlement pattern surrounding the proposed development is evident in the sensitive receptors map (Fig. 6.10) which shows a distribution of rural dwellings along local and regional roads and a cluster of dwellings in the settlement of Broadford. The GCR will primarily be constructed within the public road corridor, with the lands adjoining same mainly farmlands and private residential dwellings.

12.2.5 In terms of recreation and tourism the EIAR (Section 6.4.4.) lists notable attractions and activities within 10km of the proposed wind farm site in Table 6.6 and Fig 6.11. Major tourist and amenity attractions are listed as King John's Castle, Bishop's Palace and Thomond Park in Limerick and Bunratty Folk Park in Clare.

12.2.6 The EIAR refers to human health in Section 6.4.5 and the definition of health in the Healthy Ireland Framework 2013-2025 as "*everyone achieving his or her potential to enjoy complete physical, mental and social wellbeing. Healthy people contribute to the health and quality of the society in which the live, work and play*". The EIAR notes that overall 90.9% of people in the study area rated their health as being 'good' and 'very good' (Census, 2022) compared to 77% for the County and 83.1% for the State. In terms of amenity (Section 6.4.6) the EIAR considered 306 no. sensitive receptors¹⁵ of which there are none within 500m, 36 no. within 1km, 98 no. within 1.5km and all 306 no. within 2.1km.

12.3 **Potential Effects**

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

Table PHH1: summary of potential effects (*population and human health*)

¹⁵ EIAR Chapter 2 – Methodology. Sensitive receptors include occupied dwellings, unoccupied dwellings (excluding dilapidated properties), planning permission sites, places of worship, schools and community buildings,

Project Phase	Potential Effects
Construction Phase	<i>Population</i> - Any jobs created or supported would be temporary in nature during the 18mth construction stage. This is not expected to result in changes to the population or demographic trends. No effects are predicted. <i>Employment</i> - Using SEAI¹⁶ and EWEA¹⁷ references it estimated that the installed capacity of 52.8MW – 72.6mw could create 71 to 79 direct jobs during construction. Direct employment for people in construction related roles is likely, with indirect employment opportunities in the retail and service establishments of nearby towns. Material will be sourced locally where possible. Short-term positive effect on employment profile of study area and short-term slight positive effect on local businesses and services. This was updated to 112 to 154 jobs in the applicants FICAR with the same assessment of effects. This was not considered significant. <i>Land use</i> - Forestry operations and farming activities (of involved landowners) temporarily disrupted within the red line site boundary. Residential, agricultural and commercial land uses along the GCR will be briefly affected by access restrictions during rolling traffic management measures. Land use activities along the TDR may be affected by temporary accommodation works and access restrictions during transport of components. This is likely to result in brief to temporary slight to moderate negative effects on land use activities. <i>Recreation and Tourism</i> No effects on major tourism or amenity attractions within 10km, inc. no impacts on tourism numbers or revenue. - Local amenities and attractions may be impacted by construction traffic and landscape change with effects predicted to be overall slight to moderate and negative. <i>Human Health (Emissions & safety)</i> - Accidental release of suspended solids, hydrocarbons, contaminants and cementitious material could pollute ground and surface waters which may be the source of water supplies with potential for adverse effects on human health. - There is potential to negatively impact groundwater quality when using poured concrete. - The risk of impacts from dust are determined to be low. - The short-term increase in vehicle emissions is considered to be not significant. Emissions to atmosphere of exhaust gases are considered short-term and not significant.

¹⁶ 'A Macroeconomic Analysis of Onshore Wind Development to 202' (June 2015)

¹⁷ European Wind Energy Association 'Wind at Work' (January 2009)

	- Potential hazards at pinch points on public roads is considered to have a temporary moderate, negative effect on public safety along the GCR and TDR. <i>Amenity - Noise</i> - Construction activities would mostly occur at relatively long distances from relevant noise sensitive receptors, likely to result in negligible impacts. - Higher worst-case levels (<i>tracks, off site works, GCR etc</i>) would occur for brief periods of time, quickly diminishing as works progress and move. Due to the short-term nature of construction activity, the impact will be of minor magnitude at most, representing a short-term minor temporary adverse effect. - HDD in worst-case conditions would represent a major impact on some highly sensitive receptors and represents a short-term major temporary reversible adverse effect, which is significant. - The predicted increase in peak traffic noise corresponds to a negligible impact with the exception of the worst-case day-time increase at site assessment point 5 which corresponds with a minor impact representing a short-term minor temporary reversible adverse effect. <i>Amenity – Traffic</i> - The effects on pedestrian severance, delay, amenity, fear and intimidation and driver delay would be temporary, slight and negative and not significant. - The effects on accidents and safety would be temporary, moderate, negative and not significant.
Operational Phase	<i>Population</i> - No change expected. Effects will be imperceptible. <i>Employment</i> - Based on the abovesaid SEAI reference, there is potential to create 22 jobs in the long term. This would have a long-term beneficial effect. <i>Land Use</i> - Permanent change of 28.2ha from forestry and pasture to wind farm infrastructure. This represents a slight effect on land use. Land outside of the infrastructure will continue to be used for forestry and farming as a result there will be minimal impact on land use. - The Species and Habitat Management Plan (SHMP) will result in major beneficial effects on land use. - Repair, replacement and associated accommodation works should they occur, will be brief and therefore neutral to slight in effect. <i>Recreation and Tourism</i> - The operational stage landscape impacts are considered to be significant (Substantial-Moderate/Negative/Long-term) within and

	immediately around the site, reducing to moderate, slight and imperceptible at increasing distances. There will be no significant visual impacts in respect of tourism, heritage and amenity features. <i>Human Health</i> • A windfarm is not a recognised source of pollution; there are no ongoing significant emissions to the environment. There is no potential for negative human health effects. • Turbines pose no threat to the health and safety of the public¹⁸. <i>Amenity – Shadow Flicker</i> • In a worst-case scenario 40 receptors may experience shadow flicker in excess of WEDG 2006 thresholds for Candidate Turbine 1, and 2. For Candidate Turbine 3 this is 31 receptors. It is considered that there will be moderate significant amenity affects from shadow flicker. <i>Amenity – Noise</i> • Predicted noise levels (wind turbines) comply with noise limits for all properties and all locations. This represents a long-term permanent reversible adverse effect which is not significant. • Predicted noise levels (substation) will be below the most stringent noise limit recommended in NG4 guidance at the nearest non-involved residential properties. This represents a long-term permanent reversible adverse effect which is not significant. <i>Amenity – Landscape & Visual</i> • It is not considered that the proposed development will give rise to significant visual impacts on local community receptors.
Decommissioning Phase	The potential effects of the decommissioning stage are the same as those associated with the construction stage but reduced in magnitude.
Cumulative and In-Combination Effects	The applicant updated its consideration of potential cumulative effects in its FICAR which was submitted in May 2025. <i>Construction Stage</i> <i>Population</i> No cumulative effects predicted. <i>Employment</i> In a cumulative context where the wind farms listed in Table 1.2 of the FICAR would be constructed during similar or overlapping timeframes, the effect would be a direct sustained significant positive effect on the employment profile of the study area and wider region and a significant positive effect on local business and services in the study area and wider region (indirect effects). Additionally, if the solar farm, road and residential building projects listed in Table 1.1 of the FICAR were to be constructed

¹⁸ Section 5.7 WEDG 2006.

	in the same time frame, this would extend the significant positive effects on the employment profile and local businesses in the study area and wider region. <i>Land use</i> In a cumulative context, if the proposed Knockshanvo Wind Farm were to be constructed in the same time frame, the negative effects on land use activities in the study area would be moderate to significant negative, however temporary in duration. <i>Recreation and Tourism</i> If the proposed Knockshanvo Wind Farm were to be constructed in the same time frame as the Proposed Oatfield Development, there is potential for recreation and tourism amenities located in the study area to be impacted. These would relate mainly to landscape impacts arising from landscape change and traffic impacts. In relation to landscape, cumulative impacts on recreation and tourism would be Substantial-moderate, negative and short-term within and immediately around the site, reducing to moderate, slight and imperceptible at increasing distances as the wind farm developments. <i>Human Health</i> No significant cumulative effects are predicted on human health with regard to Air Quality. As Knockshanvo WF is located in a different catchment/sub catchment, there is no potential for significant cumulative effects on hydrology or hydrogeology which might affect human health. It is envisaged that construction stage management measures would reduce other potential hydrology and hydrogeology effects with other projects to not significant. <i>Noise</i> An updated noise assessment is presented in Section 8 of the FICAR. When assessed against the relevant noise criteria the predicted results represent a negligible, minor, short-term temporary, reversible effect which is not significant. <i>Landscape and Visual</i> No significant cumulative effects predicted at construction stage. <i>Traffic and Transport</i> The updated traffic and transport cumulative assessment presented in Section 11 of the FICAR examined the potential traffic generation from four other wind farms. This predicts that overall, the effects to transport and access during construction would be temporary, slight and adverse for pedestrian severance, delay, amenity, fear and intimidation; and driver delay. For accidents and safety, the effects to transport and access during construction would be temporary, moderate-significant, adverse and not significant. <i>Operational Stage</i>
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	<i>Population</i> No cumulative effects predicted. <i>Employment</i> A long-term beneficial effect is predicted which is not significant. <i>Land use</i> No significant cumulative effects predicted. <i>Recreation and Tourism</i> See Landscape & Visual Section of this report. No significant cumulative effects predicted. <i>Human Health</i> No significant cumulative effects are predicted on human health are predicted at operational stage. <i>Shadow Flicker</i> Section 7 of the FICAR presents an updated cumulative shadow flicker assessment. In a predicted 'worst case' scenario with Knockshavno WF, it was concluded, in the absence of mitigation, that cumulative SF effects at 13 receptors would be significant and adverse. <i>Noise</i> An updated noise assessment is presented in Section 8 of the FICAR. This predicts no significant cumulative noise effects having considered the Knockshavno, Ballycar, Lackareagh and Fahybeg wind farms (proposed and permitted). <i>Landscape and Visual</i> No significant cumulative effects predicted at operational stage. See landscape and visual section of this report. <i>Traffic and Transport</i> No significant cumulative effects are predicted at operational stage. <i>Decommissioning Stage</i> Similar to Construction Stage but with reduced magnitude.
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12.4 Mitigation

12.4.1. Chapter 20 of the EIAR contains a summary of the mitigation which will be implemented during the pre-commencement, construction, operational and

decommissioning phases of the proposed development and all mitigation measures are summarised in Table 21.2 thereof. A Construction Environmental Management Plan (CEMP) has been prepared for the proposed development (Appendix 5.1 of the EIAR). The CEMP includes an Emergency Response Plan (ERP), Spoil Management Plan (SMP), Surface Water Management Plan (SWMP), Water Quality Management Plan (WQMP), Waste Management Plan (WMP) and Decommissioning Plan (DP). A separate Construction Traffic Management Plan (CTMP) is included at Appendix 5.2 of the EIAR.

12.4.2. All mitigation and monitoring measures are set out in the relevant topic chapters of the EIAR. Chapter 6 of the EIAR concludes that no mitigation measures are required in relation to Population, Employment and Land Use.

12.4.3. There are no specific measures set out in Chapter 6 of the EIAR concerning population and human health specifically, rather the mitigation measures set out in EIAR Chapters **5** (*Description of Proposed Development*), **9** (*Hydrology & Hydrogeology*), **12** (*Shadow Flicker*), **13** (*Noise*), **16** (*Traffic & Transport*), **17** (*Air Quality*) and **18** (*Climate*) are relied upon in relation to the Recreation and Tourism (*from construction traffic only*), Human Health and Amenity effects identified in the EIAR and Table **PHH1** above.

Mitigation measures include:

- Traffic management measures set out in the Construction Traffic Management Plan (CTMP) (Appendix 5.2)
- Best practice environmental management measures prescribed in the CEMP and SWMP to prevent pollution and prevent surface and groundwater quality.
- Dust control and exhaust emission measures.
- A shadow flicker control system to curtail the operation of turbines during periods where shadow flicker could occur.

- Community notification and best practice measures in the selection and use of equipment, work practices and noise reduction measures at construction sites.
- Operation of T6, T8 and T9 in a reduced mode at 6m/s (v^{10}) wind speed, during daytime periods (07:00 to 23:00hrs) when wind directions are 220 to 340 degrees from north (*broadly westerly winds*) to ensure noise levels comply with criteria at House 17.

12.5 Residual Effects

12.5.1 With the implementation of mitigation measures, the residual effects are set out in Section 6.8.1 to Section 6.8.6 of Chapter 6. The EIAR predicts no residual effects for a number of areas such as population, employment, land use, recreation and tourism, and operational noise. The following residual effects are predicted:

- Hydrology & hydrogeology – temporary, adverse and neutral (in relation to the mitigated release of pollutants during construction with potential for impacting ground and surface water quality).
- Traffic and Transport (construction phase) – temporary and not significant.
- Air Quality – not significant.
- Climate – direct, long-term minor adverse effect (construction stage). Direct, long-term significant beneficial effect at operational stage.
- Shadow Flicker – imperceptible.
- Construction noise and vibration– temporary slight negative (wind farm site) and brief, significant and negative (GCR).

12.5.2. These provide that no significant negative residual effects on population and human health will arise with the exception of construction noise and vibration associated with HHD works at the GCR and a **brief, significant negative effect** is predicted. A **direct, long-term significant beneficial effect** is predicted on climate at operational stage.

12.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 6 of the EIAR, all of the associated documentation and submissions on file in respect of population and human health. 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 EIA and EIAR.

The effects of the development on shadow flicker, noise and vibration, landscape & visual and traffic and transport are addressed in separate technical chapters of the EIAR and primarily considered in the corresponding environmental topic sections of this report. Relevant conclusions are however carried across in this section.

In general, given the location of the proposed development in a rural area with a low population density, I am satisfied that the construction and operation of the development will not give rise to significant adverse effects on employment in the area, settlement or land use patterns, baseline population or demographic trends. There will be economic benefits associated with the proposed Community Benefit Fund and opportunities for employment during construction and operational stages and I acknowledge the SEAI and EWIA reports to which the applicant refers in this regard. Parties to the appeal have raised a number of issues in respect of population and human health which I address below under the following substantive headings:

12.6.1 Shadow Flicker

This matter is addressed in the 'shadow flicker' section 13 of this report. Having regard to my examination of the environmental information in respect of shadow flicker it is considered that subject to the implementation of the full suite of mitigation measures, no significant adverse effects will arise. However, in the interests of best practice consistent with recent decision making by the Commission, I recommend that a condition is imposed requiring zero shadow flicker in accordance with dWEDG 2019.

12.6.2. **Operational Noise**

This matter is addressed in the 'noise & vibration' section 14 of this report. For the reasons stated I am satisfied that background noise monitoring consistent with best practice guidelines has been carried out, that a conservative approach has been taken to model the worst case scenario, assuming downwind propagation from every turbine to every receptor at the same time, accounting for attenuation due to geometric spreading, atmospheric absorption, barrier and ground effects, the potential effect of site-specific wind shear and exclusion of periods affected by rainfall in accordance with IOA GPG guidance. The proposed noise limits are in accordance with WEDG 2006. Whilst it is generally accepted that there are incidences of wind energy giving rise to adverse effects on residential amenity, by way of noise, these cases are few and site specific. In this instance, the applicant has demonstrated that the proposed wind farm can operate within the noise limits set out in WEDG 2006, including in a cumulative scenario with Knockshavno WF. If permission is granted, the applicant will be subject to these noise limits. Any exceedances would be in breach of the permission granted, and subject to enforcement action.

Some observers raise concerns in relation to recent High Court judgements pertaining to operational wind farms and noise nuisance. Whilst I note the concerns raised, I do not consider these judgements directly applicable to the appeal given the very specific site and individual circumstances surrounding these cases. The matter of noise limits and noise characteristics in relation to WEDG 2006 has been addressed in Section 14 (noise) of my report.

12.6.3 **Residential Amenity (Construction Noise, Traffic & Emissions)**

Construction noise is addressed in section 14 of this report. Having regard to my examination of the environmental information I am of the opinion that construction noise will result in a major significant effect outside of standard daytime working hours as a result of Horizontal Directional Drilling (HDD) works associated with the Independent Power Producers (IPP) cable and Grid

Connection Route (GCR) at H49 and other nearby residential noise sensitive receptors. For the reasons stated in Section 14 of this report I am satisfied that this effect can be mitigated and reduced to a minor (not significant) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays only if permission is granted.

Landscape and Visual effects are addressed in Section 19 of this report. For the reasons stated therein I consider that the proposed development will give rise to significant landscape and visual effects for a small number of local residential receptors in the immediate area to the south of the site, as represented by VP17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc. however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

Traffic and Transport is addressed in Section 21 of this report. For the reasons stated therein I am satisfied that significant direct, indirect and cumulative effects will largely be avoided by design and management of the project in accordance with a CEMP and TMP. Residual effects will mostly be short-term, temporary, slight and negative and the arrangements for same are acceptable. Accordingly, I am satisfied that there will be no significant impacts on residential amenity as a result of traffic and transport.

Emissions is addressed in Section 22 of this report in respect of 'Air Quality'. For the reasons set out therein I am satisfied that there will be no significant negative effects on Air Quality as a result of the proposed development, and therefore no significant effects on residential amenity.

Whilst lighting was raised as a concern by some observers, this is required to satisfy IAA requirements if permission is granted. I consider that such lighting

will be modest, with an upward orientation and will not result in light pollution or significant impacts on rural or residential amenity.

12.6.4 Property Devaluation

Third parties to the appeal raised concerns in relation to devaluation of residential property as a result of the proposed wind farm development, with reference to several news reports and academic literature to support their concerns. In response the applicant submits that property value is a private matter and should not be a material planning consideration, further opining that 'private benefits' should not be a factor outweighing the national common good when it comes to the planning merits of a renewable energy proposal. Whilst I note the news reports and literature referenced in the submissions, these are not project specific and in the absence of peer review I have not considered these further. In my experience research on this subject points to inconsistent evidence of short-term effects only on property prices (if at all), with potential impacts limited to relatively short distances of a turbine and persuasive evidence of recovery over time. To the contrary there is also evidence of potential positive effects associated with amenity benefits and community gain proposals, so the available research is not conclusive. In my view the pertinent consideration is whether or not the proposed development will result in injury, harm or adverse effects on residential amenity to residential property. In this regard I do not entirely agree with the applicant that potential impact on property values is not a material planning consideration per se, however it follows that there must be evidence of harm, injury or adverse effects for this to be a material planning consideration. In the circumstances of this case the proposed wind farm is located in a rural location with a low population density, with the nearest residential receptor 725m (minimum) away from the proposed turbine layout and with only 36 no. habitable dwellings within 1km of any turbine. Furthermore, I refer my assessment of noise and shadow flicker where it is concluded that no adverse effects are predicted on residential receptors and taking all of these factors into account I am satisfied that there is little potential for injury, harm or

significant effects on residential properties or property values in the area of the site.

12.6.5 Health

This was a significant theme of concern raised across the third-party submissions received, with concerns raised across a range of issues including: mental and physical health and with specific concerns raised in relation to children, vulnerable persons (children and adults) and persons with neuro-divergent conditions. Concerns were generally associated with potential effects from shadow flicker, noise and EMF. The applicant primarily frames its response with reference to the HSE Position Paper on Wind Turbines and Public Health (February, 2017). In relation to noise the applicant states that the HSE paper concludes that there is no direct evidence that exposure to windfarm noise affects physical or mental health, further citing a WHO¹⁹ publication which states that there is no reliable evidence that sounds below the hearing threshold produce physiological effects. The applicant states that noise limits will comply with WEDG 2006. In relation to Shadow flicker (SF) the applicant states that the HSE paper states that there is no direct evidence from which to draw any conclusions on an association between SF and health effects and that the risk of SF triggering seizures in photosensitive epilepsy is estimated to be extremely low. The applicant refers to EIAR chapter 6 and the conclusion that with an SF control system the residual effect on amenity is imperceptible. In relation to autism specifically the applicant cites UK sources and publications²⁰ which state that there is simply no evidence in scientific literature that there is any causal link between wind power and people developing autism spectrum disorders or having existing symptoms made worse. In relation to electromagnetic radiation the applicant states that the HSE paper finds no direct evidence from which to draw any conclusions on an

¹⁹ The applicant states that the HSE Paper cites a WHO publication but does not specify the publication itself.

²⁰ UK Centre for Sustainable Energy Publication 'Common Concerns about Wind Energy' 2nd Edn (June 2017). Other sources used by the applicant are listed in Memorandum No.9 (June 2024) Theme 6.

association between electromagnetic radiation produced by wind farms and health.

I am aware of the body of national, European and international literature which typically concludes that there is no evidence of health-related effects arising from exposure to wind turbines. I note the publications referenced by the applicant and the position that there is currently no published credible evidence to positively link wind turbines with adverse health effects and that anecdotal reports to the contrary are not supported by peer reviewed research. Having regard to the conclusions reached in relation to noise and vibration (in the next section of my report), to the siting of the proposed turbines 725m and greater from any dwelling and the operation of the turbines in accordance with strict noise limits with the absence of shadow flicker, I am satisfied that the proposed development will not give rise to any significant adverse effects on public health. However, for those that are concerned regarding effects or who oppose the development, I accept that psychological stress and/or annoyance may arise.

12.6.6 Schools

Third parties to the application also raised concerns in relation to the potential adverse effects on Broadford & Kilbane National School, particularly in the context of the school size (138 no. pupils) and having a special class for children with autism. Concerns were associated with noise and shadow flicker impacts on children with sensory difficulties. In response the applicant states that the closest turbine to the national school is T10 in the EDA which is 1,671m away and as such it was outside the study area for shadow flicker (10 x times rotor diameter) and noise (35 dB LA90 contour). The applicant states that this means the potential for shadow flicker effects is very low and that noise levels are low relative to guidelines and not likely to result in significant effects. Indeed, the applicant states that predicted worst case noise levels outside the school would be lower than 30 dB LA90 (10dB below derived limits) and (allowing for a further reduction of 10dB) even with windows opened predicted noise levels within classrooms will be substantially lower

than educational requirements even taking account of special educational needs²¹. For context the applicant states that higher background noise levels are likely to be experienced at the school from road traffic on the R465/R466.

I find the response of the applicant to be persuasive, reasoned and evidenced. I note for example that the UK guidance cited by the applicant for acoustic design of schools and educational performance recommends levels of 30-40 dB within classrooms with the lower end of the scale recommended for student with 'special hearing//communication needs'. I am satisfied that the noise levels associated with the proposed development, both external and internal to the school will fall below the thresholds recommended in guidance, will not be significant and will not result in significant effects on the educational environment. I am furthermore satisfied that noise and shadow flicker effects from the proposed development comply with WEDG 2006. In my inspection of the site, I visited the location of this school and noted that as a result of distance, intervening topography, vegetation and built form no impacts on the environment or amenity of the school are likely to arise. I am satisfied that the school will not be affected by noise or shadow flicker effects.

12.6.7 Tourism & Business

Concerns were raised in the submissions received in relation to potential adverse effects on tourism, particularly in the context of impacts on Lough Derg and 'Irelands Hidden Heartlands' (one of Failte Irelands experience brands and the East Clare Way and 12 O'Clock Hills walking routes. In response the applicant states that the proposed development will not hinder or conflict with the growth of the 12 o'clock hills community and tourism project and a Community Benefit Fund could support the project in the future.

The applicant submits that there are numerous precedents where waymarked trails and hiking routes pass adjacent to windfarms without detrimental effects and that the LVIA considered all scenic routes, views and designations in

²¹ The BB93 Guidance (UK Department for Education, February 2025) "Acoustic design for schools, performance standards".

Counties Clare, Tipperary and Limerick with a conclusion of no significant visual or landscape effects.

Concerns were also raised in relation to potential effects on a number of local businesses which specialise in retreat, wellbeing and healing type services including the Sunyata Buddhist Centre. In response the applicant addresses the Sunyata Centre. In respect of shadow flicker the applicant states that the Sunyata Buddhist Centre is recorded in the EIAR receptor database at receptor 177. The closest turbine is T1 in the WDA, which is located 1,810m away, which is outside the 10-rotor diameter study area for all turbine models and with the potential for shadow flicker effects therefore very low. In respect of noise the applicant states that the centre is outside the study area for noise (35 dB LA90 contour) and that predicted noise levels at the centre do not exceed 31 dB LA90 (9dB below derived limits). In relation to LVIA the applicant states that the centre is located on private land and would not typically be identified as a publicly accessible receptor for LVIA.

Notwithstanding the applicant states that the theoretical visibility for the centre is between 1-3 turbines and once screening is accounted for the residual effect is deemed to be no greater than 'slight-imperceptible'.

The available research indicates that wind farms are not having an adverse impact on tourism or tourist attitudes, and I am further satisfied that the proposed development will not negatively impact tourism as it is removed from significant tourism infrastructure and will not injure the visual amenities of the area as discussed in other sections of my report including the assessment of landscape and visual effects(Section 19). In particular the applicants LVIA found that potential visibility of turbines is almost entirely eliminated to the east in the surrounds of Killaloe and Lough Derg as a result of the Glenvagalliagh Mountain.

I find the response of the applicant in respect of the Sunyata Buddhist Centre to be persuasive, reasoned and evidenced. This centre is located on the northern slopes of the Broadford hills, with the development primarily located on the southern slope of the Broadford Hills. As such the centre benefits from

the localised screening effects of higher intervening topography in addition to the mitigating factors of vegetation and distance. WEDG 2006 states that at distances of 500m or more noise is unlikely to be a significant problem at a noise sensitive property and at distances greater than 10 x times the rotor diameters from a turbine (720m in this case), the potential for shadow flicker is very low. At a distance of 1,810m from the nearest turbine I am satisfied that the centre will not be affected by significant noise or shadow flicker effects irrespective of end turbine model used. However, for those that are concerned regarding potential effects or who oppose the development, I accept that some perceived disturbance and/or annoyance may arise.

Parties also raised concerns in relation to impacts on an energy healer at V95T2H5 and a hypnotherapist and mind coach at V95F4E6. Whilst I did not verify the nature of the business at these locations, I did examine each location and I note that it refers to residential property. In this regard an assessment of potential effects on the residential property is considered to be the primary consideration. Property V95T2H5 is located approx. 2.25km to the west of the nearest turbine in the WDA and for the reasons already set out above, I am satisfied that at this distance there will be no significant effects on the amenity of this residential property or any associated business. Property V95F4E6 is located in closer proximity to the proposed development, being located south of the turbines in the WDA and north of the R471. I have been unable to verify exactly which residential receptor reference refers to this property, but it is most likely H20. Appendix 2.2. of the EIAR places receptor H20 974.7m from T4 and using GIS mapping tools I have scaled the distance at 970m. I am therefore satisfied that this property either is H20, or H20 is sufficiently representative of it for the purposes of assessment. The applicants noise impact assessment places predicted noise levels at H20 below the derived daytime and nighttime noise limits in accordance with WEDG 2006 in all scenarios. Whilst the theoretical shadow flicker times for H20²² do show exceedances of the daily limits set down in WEDG, 2006 I am satisfied that

²² Appendix 12.7-12.9

this can be mitigated by turbine control measures and ensured by enforceable condition. Accordingly, for these reasons, and given the separation distances involved I am satisfied that there will be no significant effects on the amenity of this residential property or any associated business.

Concerns were also raised in relation to rural depopulation effects as a result of the proposed development. Whilst the concerns are noted, no relevant studies have been referred to in submissions and I am not aware of any peer reviewed evidence base demonstrating that the presence of wind farm development over the past few decades in Ireland have led to significant, or noticeable, depopulation within rural areas. I have considered the findings of the applicant's EIAR in terms of absence of significant effects on population and potential beneficial and positive effects on employment. Having regard to my conclusions in relation to renewable energy targets and residential amenity, including property or land values, I am satisfied that the proposed development will not result in significant effects on the population trends in the area and that overall, it cannot be demonstrated that the presence of the proposed wind farm will directly result in depopulation within the area.

12.6.8 Agricultural Practices

Parties to the application also raised concerns in the submissions in relation to potential effects on farming practices, the welfare of animals (livestock) and the equine industry. A particular concern was raised in relation to the operation of the Hogsprickle animal welfare Sanctuary. In response the applicant states that research shows that the hearing of horses is less sensitive than humans hearing and that the character and nature of wind turbine noise is such that no significant disturbance is expected.

In the absence of any peer reviewed studies which indicate that wind farms have a negative impact on livestock, equine industry or agriculture, I am satisfied that the proposed development would not have a significant effect on such interests. In relation to the Hogsprickle Animal Welfare Sanctuary I have been unable to identify the exact location for this Sanctuary however I have confirmed that it is located in the townland of Ballykelly, Broadford, Co. Clare

and is associated with an existing residential dwelling. This townland is location on the northern slopes of the Broadford Hills and all properties at this location (residential, agricultural and other) are located at distances which are outside the study areas for both shadow flicker and noise. Accordingly, for the reasons already established above I am satisfied that there will be no significant effects on the amenity of the host residential property or any associated business.

12.6.9 Safety Concerns

Having regard to the position of the 2006 Guidelines that wind turbines do not pose a public safety risk and to the design information mitigating risk of 'ice throw' and 'increased lightning' strike, I am satisfied that no public safety issues arise from the proposed development with the exception of aviation related safety concerns and the potential for major accident(s). The development site is considered stable with little potential for landslide or floodrisk (see water & land, soils & geology section of this report). The residual risk of fire and electrical faults is considered to be low and managed by on site arrangements to comply with health & safety through the CEMP. However, I have concluded in Section 24 of my report (Major Accidents and Natural Disasters) that the potential consequences for major accident(s) of the significant, adverse and long-term effects on aviation safety are unknown and that it is not possible to say with certainty that the proposed development would not lead to a significant risk of major accident(s). As a direct result, it is also not possible therefore to say with certainty that the proposed development will not lead to a significant risk to population & human health as a result of a significant risk of major accidents associated with adverse effects on aviation safety.

12.7 Conclusion: Direct and Indirect Effects (*Population and Human Health*).

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

- A **major significant effect** outside of standard daytime working hours as a result of Horizontal Directional Drilling (HDD) works associated with the Independent Power Producers (IPP) cable and Grid Connection Route (GCR) at H49 and other nearby residential noise sensitive receptors. This effect can be mitigated and reduced to a minor (not significant) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays only if permission is granted,

AND

- **Significant landscape and visual effects** for a small number of local residential receptors in the immediate area to the south of the site, as represented by VP17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc. however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

AND

- It is considered that the proposed development will give rise to a potential **significant risk** to population & human health associated with a risk of major accident(s) as a result of significant, adverse and long-term effects on Aviation Safety.

13. Shadow Flicker

Issues Raised

Issues raised concern the failure to commit to zero shadow flicker in accordance with the dWEDG 2019, human health including stroboscopic

effect and impacts on persons with epilepsy or neuro-divergent conditions, adequacy of modelling and cumulative effects.

13.1 Examination of the EIAR

Context

13.1.1 Chapter 12 deals with shadow flicker. The shadow flicker assessment was undertaken in accordance with WEDG 2006, IWEA Best Practice Guidelines for the Irish Wind Industry (2012) and with regard to the Clare County Development Plan 2023-2029. A statement of authority is included. A full shadow flicker assessment was conducted for each proposed candidate turbine models and the study area for shadow flicker ("SF") assessment is ten rotor diameters of the turbine locations as summarised in Table SF1 below:

Table SF1: - Turbine Candidate Numbers, dimensions and SF Study Area.

Candidate Turbine Number	Hub Height	Rotor Diameter	Tip Height	SF Study Area
1	105m	150m	180m	1,500m
2	105m	149m	179.5m	1,490m
3	110m	133m	176.6m	1,330m

13.1.2 The assessment considers all identified shadow flicker sensitive receptors within the study area. The methodology employed in identifying sensitive receptors is set out in EIAR Vol. III, Appendix 2.1 and a database of receptors including grid co-ordinate reference, distance to nearest turbine and turbine identifier is set out in Appendix 2.2.

Associated Appendices include:

- Appendix 12.1 – 12.3 (inc) – Input Sensitive Receptors Candidate Turbine 1 -3.
- Appendix 12.4 – 12.6 (inc) – Theoretical Shadow Times per Turbine 1-3.
- Appendix 12.7 – 12.9 (inc) – Theoretical Shadow Time per Sensitive Receptor, Candidate Turbine 1-3.

The applicant's response to submissions in respect of Shadow Flicker is set out in Memorandum No.8 (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR). Chapter 7 of the FICAR addresses Shadow Flicker.

13.1.3 The WEDG 2006 recommends that shadow flicker within 500m of a turbine should not exceed 30hrs per year or 30min per day. For the purposes of assessment, the applicant considers (unmitigated) exceedance of this threshold at any sensitive receptor within the 10-x rotor diameter study area to constitute a significant adverse effect.

Calculations were undertaken using ReSoft Windfarm and assumed that:

- The sun was shining from sunrise to sunset in a cloudless sky,
- Turbine blades were turning 100% of the time,
- The turbine rotor is orientated directly between the sun and the sensitive receptor,
- There is no screening between the turbine and the receptor (excluding topography).

13.1.4 The modelling presents a 'worst case' scenario where the conditions required for shadow flicker to occur are present for all daylight hours throughout the year. The potential annual hours of shadow flicker are also presented for a 'likely' scenario taking into account average sunshine hours²³. In real life conditions, actual shadow flicker durations will be less than the theoretical predicted levels from the model.

13.1.5 Cumulative effects are addressed in Section 12.9 of EIAR Chapter 12. The assessment of cumulative effects was updated in Chapter 7 of the applicants FICAR (Appendix 2), May 2025. For the purposes of initial assessment, it was assumed that if the 10-x rotor diameter study area of the proposed development overlapped with the 10-x rotor diameter study area of

²³ Using historical weather data including sunshine data obtained from the Met Éireann Shannon Airport Station (1991-2020 (most recent 30-year time period available)).

an existing or approved project, then there was potential for cumulative shadow flicker effects. A review was undertaken within a 20km+ radius of the proposed development and as a result the Carrownagown WF, Parteen Turbine, Vision Care Turbine and Fahybeg WF were excluded from cumulative assessment as the shadow flicker study areas did not overlap. On this basis it was determined that there was no potential for cumulative effects.

13.1.6 The EIAR initially determined that insufficient information was available in respect of the pre-planning stage Ballycar WF and Lackareagh WF to determine if the shadow flicker study areas overlapped with the proposed development. The FICAR subsequently determined that the shadow flicker study areas of these wind farms did not overlap with that of the proposed Oatfield wind farm and they were also subsequently excluded from cumulative assessment. Table 1.2 of Section 1.1.2 of the FICAR lists the wind farm projects which were considered for cumulative assessment. Fig 7.1 of the FICAR shows the maximum 10 x rotor diameter shadow flicker study areas for all of these wind farms relative to the proposed development.

13.1.7 The EIAR initially considered that there was potential for cumulative effects with the adjacent Knockshavno WF on the basis that the 10-x rotor diameter study areas overlap. A cumulative assessment was therefore undertaken for the proposed development and the adjacent Knockshanvo WF. The EIAR states that at the time of writing the Knockshavno WF remained at pre-planning stage and therefore the latest known project details were used in the cumulative assessment. This was then subsequently updated in the FICAR to include consideration of the submitted planning application details for the Knockshavno wind farm (ABP-320705-24 refers).

The updated assessment was based on a Knockshanvo turbine envelope which included a rotor diameter range of 149m -163m; hub height range of 102.5m – 110.5m and an overall tip height range of 179.5m – 185m. It is noted that the turbine locations in the updated assessment differed slightly from those used in the original assessment. This is detailed in Table 7.1 of the

FICAR. Two cumulative scenarios were then modelled as summarised in Table SF2 below:

Table SF2: - Cumulative SF Scenarios (*Knockshanvo turbine envelope and Oatfield Turbine Candidate Numbers*).

	Knockshanvo Turbine Envelope			Oatfield Candidate Turbine
	Hub Height	Rotor Diameter	Tip Height	
Cumulative Scenario 1	103.5m	163m	185m ²⁴	Candidate No.1 (See Table SF1 above)
Cumulative Scenario 2	105m	149m	179.5m ²⁵	Candidate No.3 (See Table SF1 above)

13.2 Baseline

13.2.1 There are no sensitive receptors within 500m of any of the candidate turbine types. There are 101 sensitive receptors within the study area (1500m) for Candidate Turbine No.1, consisting of 82 no. residential dwellings, 5 no. associated dwellings, 1 place of worship, 3 sites with planning permission and 10 no. dilapidated dwellings (Fig. 12.1 of Chapter 12 refers). In a conservative approach it is noted that IDs 85, 86 & 87 which were partially within the study area, were moved in the modelling to be fully included in the assessment. For Candidate Turbine No.2 there are 98 no. sensitive receptors within the study area (1,490m), which are the same as for Candidate No.1 with the exception of residential dwellings reducing from 82 no. to 79 no. (Fig. 12.2 of Chapter 12 refer). Again, in a conservative approach ID's, 65, 66, 70, 80, 81, 82, 83 & 84 were moved in the modelling to be fully included in the assessment. For Candidate Turbine No.3 there are 69 no. receptors within the study area (1,330m) which are the same as for Candidate No.1 with residential receptors reduced from 82 no. to 55 no., sites

²⁴ The maximum tip height provided in the turbine envelope.

²⁵ This represents the largest rotor diameter with the highest hub height whilst staying within the turbine envelope.

with planning permission reduced from 3 no. to 2 no. and dilapidated dwellings reduced from 10 no. to 6 no. (Fig. 12.3 of Chapter 12 refers).

13.2.2 In cumulative scenario 1 there are 21 receptors within the cumulative study area, and in cumulative scenario 2 there are 16 receptors within the cumulative study area (Fig. 7.3 and 7.5 (respectively) of FICAR Chapter 7 refers.

13.3 Potential Effects

13.3.1 The potential shadow flicker effects of the development are set out in the EIAR and are summarised in Table SF3 below:

Table SF3: Summary of Potential Effects (Shadow Flicker)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	No Effects.
Construction Phase	No Effects.
Operational Phase	<i>Candidate Turbine No.1 (worst case scenario)</i> Of the 101 receptors within the study area, 56 are predicted to experience some shadow flicker. Of these, 40 may exceed the WEDG 2006 thresholds. This consists of 31 no. residential receptors, 4 no. associated dwellings, 1 no. site with planning permission and 4 no. dilapidated dwellings. This is predicted to be a significant adverse effect. <i>Candidate Turbine No.2 (worst case scenario)</i> Of the 98 receptors within the study area, 55 are predicted to experience some shadow flicker. Of these, 40 may exceed the WEDG 2006 thresholds. This consists of 31 no. residential receptors, 4 no. associated dwellings, 1 no. site with planning permission and 4 no. dilapidated dwellings. This is predicted to be a significant adverse effect. <i>Candidate Turbine No.3 (worst case scenario)</i> Of the 69 receptors within the study area, 43 are predicted to experience some shadow flicker. Of these, 31 may exceed the WEDG 2006 thresholds. This consists of 24 no. residential receptors, 4 no. associated dwellings, 1 no. site with planning permission and 2 no. dilapidated dwellings. This is predicted to be a significant adverse effect.
Decommissioning Phase	No Effects.
Cumulative	<i>Cumulative Scenario 1 (worst case scenario)</i>

<i>*As updated in the FICAR (May 2025).</i>	Of 21 receptors within the study area, 18 are predicted to experience some shadow flicker. Of these, 16 may exceed the WEDG 2006 thresholds, of which 13 no. will be as a result of cumulative shadow flicker effects from Oatfield and Knockshanvo Turbines. With the incorporation of average annual sunshine data in the cumulative assessment to identify the 'more likely' hours per year, 5 no. receptors are predicted to exceed the guideline of 30 hrs per year, and of these 4 no. will be as a result of cumulative effects from both wind farms. This is predicted to be a significant adverse effect. <i>Cumulative Scenario 2 (worst case scenario)</i> Of 16 receptors within the study area, 15 are predicted to experience some shadow flicker. Of these, 13 may exceed the WEDG 2006 thresholds, of which 10 no. will be as a result of cumulative shadow flicker effects from Oatfield and Knockshanvo Turbines. With the incorporation of average annual sunshine data in the cumulative assessment to identify the 'more likely' hours per year, 3 no. receptors are predicted to exceed the guideline of 30 hrs per year, all as a result of cumulative effects from both wind farms. This is predicted to be a significant adverse effect.
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13.4 Mitigation

Mitigation measures are described in Section 12.7.1 of EIAR Chapter 12 and Section 7.4.3 of the FICAR. Where predicted shadow flicker (including cumulative shadow flicker) at a sensitive receptor is shown to exceed the WEDG 2006 thresholds mitigation in the form of a shadow flicker control module will be used to curtail particular turbines when shadow flicker conditions are predicted to occur. The applicant states that the proposed technical solution can be adapted to adhere to any further limitations placed on shadow flicker threshold in any revised guidelines which may be adopted.

13.5 Residual Effects

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

13.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 12 of the EIAR, Memorandum No 8 (June 2024) of the applicant's response to submissions, the FICAR (May 2025), the associated documents and submissions on file in respect of shadow flicker. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of likely shadow flicker effects, including cumulative effects have been identified. Parties to the appeal raised several issues in respect of shadow flicker which I address below under the respective headings. The concerns raised in the submissions in relation to health effects are addressed in the population and human health section of my report. The concerns raised in relation to the aged nature of WEDG, 2006 are addressed in the planning assessment section of my report.

13.6.1 Mitigation Measures

Parties to the application raised concerns that the shadow flicker mitigation measure proposed by the applicant was not adequate or enforceable. In response the applicant states that a shadow flicker control system will be implemented using specialist software to detect when conditions for shadow flicker will occur at a sensitive receptor. Using this system turbines will adhere to the currently adopted WEDG 2006 thresholds of 30 mins per day or 30 hours per year and will be curtailed and brought to a stop. A monitoring programme will ensure the effective functioning of this system.

The applicant's assessment of shadow flicker is conservative, based on theoretical (worst case) conditions and study areas based on 10 x times the rotor diameter of all three candidate turbine models. The proposed Knockshavno wind farm is included in the cumulative assessment. It is predicted that 40 no. receptors may experience shadow flicker occurrence exceeding the WEDG 2006 thresholds in respect of Candidate Turbine 1 and Candidate Turbine 2. For Candidate Turbine 3 this is reduced to 31 no. receptors. In cumulative scenario 1 it is predicted that 13 no. receptors may experience shadow flicker occurrence in excess of the WEDG 2006 thresholds, and for cumulative scenario 2 this is reduced to 10 no. receptors.

The actual occurrence and/or duration of shadow flicker at these properties is likely to be significantly reduced, or eliminated in some cases, by screening, cloud cover, elevational and orientational variations in properties. In terms of mitigation the applicant proposes operation of a turbine control system to ensure that there will be no occurrence of shadow flicker in excess of the thresholds set down in WEDG 2006, cumulative or otherwise, for any property within the study area(s).

I have considered the mitigation measures proposed by the applicant and whilst I accept that compliance with the WEDG 2006 thresholds will ensure that there are no significant residual effects from shadow flicker, I am not satisfied that this represent best practice. The draft Wind Energy Guidelines (2019) advocate zero shadow flicker using a SCADA control system to eliminate shadow flicker using technology. For some time now, zero shadow flicker in accordance with dWEDG 2019 has represented best practice in respect of applications for proposed wind farm developments to the Commission and in decision making by the Commission. I therefore recommend that if the Commission is minded to grant permission, a condition is imposed requiring zero shadow flicker in accordance with dWEDG, 2019.

13.6.2 Cumulative effects

Parties to the application raised concerns in relation to the adequacy of the cumulative assessment of shadow flicker effects. The applicant provided an updated assessment of cumulative (SF) effects in Chapter 7 of the FICAR (May 2025).

I agree that the assessment of cumulative shadow flicker effects was not adequately dealt with by the applicant in the original EIAR. This is clearly the case given that it was based on limited 'pre-planning' information in respect of the adjoining proposed Knockshavno wind farm. Notwithstanding this, the applicant submitted an updated assessment of potential cumulative shadow flicker effects in the FICAR (May 2025), which had regard to accurate project information from the respective planning application (and EIAR) in respect of

the Knockshavno wind farm (ABP-320705-24 refers). I have described the applicant's assessment of cumulative shadow flicker effects in this section of my report, including the potential significant effects, mitigation measures and residual effects. Having regard to same, and my conclusions in respect of mitigation measures above, I am satisfied that the applicant has carried out an adequate cumulative assessment of shadow flicker effects for the purposes of assessment of the application.

13.6.3 Other matters

Parties to the application raised a concern that the shadow flicker assessment was incorrectly based on 10 x times the rotor diameter of turbines, as opposed to 10x times the tip height. The parties are however incorrect in this regard. WEDG 2006 requires that the assessment is undertaken in accordance with 10 x times the rotor diameter of turbines and therefore the applicant's assessment is compliant with WEDG 2006.

I note that property V94YH3F was listed in the original documentation as an 'associated dwelling', but that the applicant has accepted in the response to submissions that it is not. The owner of this property states that they do not accept any 'higher levels' of shadow flicker which may be suggested with an associated dwelling. This property refers to sensitive receptor H4 in the EDA. In response the applicant states that corrections have been to the receptor list which has corrected H4 and H606 to 'residential dwelling' from 'an involved landowner', and receptor 520 from 'dilapidated dwelling' to 'involved landowner'. All textual amendments as a result are identified in Appendix 1, Table 1A of the FICAR. Importantly the applicant states that there is no other consequence to this correction other than a textual change in labelling, with shadow flicker assessed at all sensitive receptors including associated dwellings.

I am satisfied that this is the case. I note that both H4²⁶ and H606²⁷ are beyond 500m from any turbine but are at a location at which shadow flicker is predicted to exceed the WEDG 2006 thresholds in both a development and cumulative scenario. The mitigation proposed by the applicant provides that curtailment would be used such that shadow flicker would not exceed WEDG 2006 thresholds at these properties. It was not proposed in the application to expose these dwellings to higher levels of shadow flicker as an associated dwelling. Notwithstanding, I recommend zero shadow flicker at all sensitive receptors by way of condition (if permission is granted) as set out above and I am satisfied therefore that these properties would not be subject to significant shadow flicker effects.

13.6.4. Conclusion: Direct and Indirect Effects (*Shadow Flicker*)

Having regard to my examination of the environmental information in respect of shadow flicker it is considered that subject to the implementation of the full suite of mitigation measures, no significant adverse effects will arise.

However, in the interests of best practice consistent with recent decision making by the Commission, I recommend that a condition is imposed requiring zero shadow flicker in accordance with dWEDG 2019.

14. Noise and Vibration

Issues Raised

Issues raised are in respect of the adequacy of the noise section of the EIAR (*use of WEDG 2006, noise monitoring locations, involved properties, terrain effects*), impacts on human health (*low frequency noise, infrasound and AM*), operational noise, construction noise and the applicability of relevant assessment guidance including BS:4142 and WHO guidance.

14.1 Examination of the EIAR

Context.

²⁶ 740.98m from T9 in the EDA

²⁷ 774.98 from T4 in the WDA

14.1.1 Chapter 13 of the EIAR deals with noise and vibration. It is supplemented by Memorandum No.9 received 19th June 2024²⁸, and the Final Cumulative Impact Assessment Report (FICAR) received on 23rd May 2025²⁹. It presents a summary of the detailed assessment set out at Appendix 13.1. A Statement of Authority is included. Operational stage vibration effects are scoped out on the basis that operational effects (from turbines) are imperceptible at typical distances of 500m or more. Construction stage vibration effects are also scoped out on the basis that the risk of significant effects relating to ground borne vibration are very low at distances of 200m or more, and the short-term and momentary effects associated with passing vehicles are not sufficient to constitute a risk of significant effect. The study area includes noise sensitive properties closest to the proposed turbines as shown on Fig. 13.1 and which are within distances of 610m to 1.5km. This includes unoccupied/dilapidated properties as a precautionary measure, consented residential developments and financially involved properties which are treated as less noise sensitive. A background noise survey was undertaken in accordance with ETSU-R-97 and IOA-GPG at six locations between 13/09/2023 and 19/10/2023 with the total survey period in excess of the one week minimum required by guidance. It includes the following appendices:

- Appendix 13.1 – Noise Impact Assessment

14.1.2 Construction and decommissioning noise effects were assessed using the detailed guidance set out in BS 5228-1³⁰ (2009, as amended 2014). Vibration effects were assessed using the guidance set out in BS 5228-2. The construction noise assessment is based on worst-case assumptions for noise, with predictions using conservative assumptions including an assumption that plant would operate between 75% and 100% of the working day with no screening effects and assuming ground cover was 50% hard. This results in

²⁸ Applicants Response to submissions.

²⁹ Annex 2 of the applicants RFI response.

³⁰ British Standard – Code of Practice for noise and vibration control on construction and open sites.

upper sound emission levels, with actual noise levels likely to be lower. Predicted noise levels from construction traffic were calculated using the methodology in BS 5228 with regard to the accepted UK prediction methodology set out in 'Calculation of Road Traffic Noise' (CRTN, UK Department of Transport, 1988). De-commissioning is considered likely to involve similar activities but of less intensity and duration, resulting in lower noise. The noise sensitive locations (NSL's) for the construction noise assessment are detailed in Fig. 13.1 and Appendix 13.1 and include those closest to the proposed turbines and alongside access tracks and construction routes.

14.1.3 Table 1 of Appendix 13.1 sets out the relevant impact criteria for assessment of construction and decommissioning effects in detail. It is based on Annex E of BS 5228-1 which suggests that in relatively quiet rural areas sustained construction activities with daily noise levels in excess of 65 dB LAEQ during the week daytime hours (07:00 – 19:00) or Saturday mornings (08:00 to 13:00) would represent a moderate or major impact, which translates to a short-term, temporary adverse moderate or major effect which is significant for residential receptors. Noise levels below this threshold correspond to a negligible or minor impact, which translates to a short-term, temporary adverse negligible or minor effect which is not significant. Changes in traffic noise are assessed using the UK Design Manual for Roads and Bridges (DMRB), Highways Agency, 2019), with short term noise level changes of less than 1dB(A) corresponding to a negligible impact and short-term changes to 1 to 3 dB(A) corresponding to a minor impact representing a short-term, temporary, adverse, minor effect which is not significant.

14.1.4 The operational noise assessment (including the cumulative noise assessment) was carried out in accordance with WEDG 2006, UK ETSU-R-97³¹ and the good practice document IOA GPG, 2013³². The criteria for

³¹ The Assessment and Rating of Noise from Wind Farms.

³² Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013) (IOA GPG).

assessing the significance of operational noise from wind turbines refers to compliance or non-compliance with the total WEDG 2006 noise limits of 45 dB(A) or 5 dB above the background, subject to lower limits of 35-40 dB(A) for day-time periods or 43 dB(A) at night which may apply in low noise environment. The operational noise assessment is based on the Vestas V150 – 6MW model on the basis that it is noisier than the other candidate turbines.

- 14.1.5 Operational noise from the proposed substation is assessed in accordance with EPA Guidance ‘Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities’ (2016). This guidance sets out stringent noise limits of 35 to 45 dB L_{AR}¹ for night and daytime periods respectively in areas of low background noise, with levels in excess of these limits potentially representing significant effects.
- 14.1.6 For vibration it is held that modern turbines do not emit perceptible levels at typical separation distances of 500m or more and therefore this is not considered further.
- 14.1.7 For low frequency noise or infrasound the EIAR states that modern turbines do not emit perceptible levels at typical separation distances of 500m or more and therefore this is not considered further. This is expanded upon in Annex A of Appendix 13.1 and Memorandum No.9 which acknowledges that infrasound can have an adverse effect on people when it reaches a sufficiently high level above the threshold of audibility, but that all available information reveals that infrasound emitted by turbines lies below the threshold of human perception. Research studies and reports³³ are referenced which corroborate this position.
- 14.1.8 For AM the EIAR states that there is no definitive guidance and the matter is the subject of much discussion. The EIAR states that the operational noise limits are determined on the basis of wind turbine noise including some

³³ Simada A, Nameki M (2017), Evaluation of Wind Turbine Noise in Japan, 12th ICBEN Congress on Noise as a Public Health Problem, and an Australian study (Marshall et al,) funded by the National Health and Medical Research Council of Australia (NHMRC) published by the Environmental Health Perspectives (EHP) Journal in the United States (2023).

AM character and that if complaints are received, they will be fully investigated by the applicant.

- 14.1.9. The cumulative noise assessment is updated in the FICAR (May 2025) and Chapter 8 thereof refers.

14.2 Baseline

- 14.2.1 The baseline noise environment is considered to be dominated by natural noise sources such as wind, disturbed vegetation, birdsong and animals. Other sources of noise include intermittent local road and agricultural vehicle movements. The measured noise levels relate to wind speed measurements from a temporary LIDAR wind monitoring system and incorporate site-specific wind shear effects in accordance with IOA GPG (Annex F of Appendix 13.1 refers). The influence of rain and atypical sources was also considered and measured baseline noise levels were considered consistent with a rural environment. Noise limits have been set at the greatest of either the prevailing measured background level plus 5dB or a fixed lower limit of 40 dB(A) and 43 dB(A) for day and night-time periods respectively. For involved or associated properties this was increased to a minimum of 45dB(A).

14.3 Potential Effects

- 14.3.1 The potential noise effects of the development are set out in the EIAR and summarised in Table NE1 below. The assessment of cumulative effects is updated in the Final Cumulative Impact Assessment Report (FCIAR) received on 23rd May 2025.

Table NE1: Summary of Potential Effects (Noise)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	The local noise environment will remain broadly similar to the current baseline.
Construction Phase	- Most construction activities will occur at relatively large distances from residential properties and would not exceed 52 dB L_{Aeq}. This would represent negligible impacts. - Track construction & upgrade works, road widening works, substation connection, grid connection works and daytime HDD drilling will result in higher worst-case levels for brief

	periods of time. The short-term nature of this work will have a minor impact magnitude representing a short-term minor temporary adverse effect which is not significant. - Safety/operational reasons may require some night-time HDD drilling. Under worst-case assumptions this will result in a major impact on some receptors and a short-term major temporary adverse effect which is significant. - Peak construction traffic noise is predicted to result in an increase of less than 1 dB(A) which corresponds to a negligible impact. However, a worst-case increase at traffic site assessment point 5 is predicted to be 1.3 dB(A) in the daytime which corresponds to a minor impact and a short-term minor temporary reversible adverse effect which is not significant.
Operational Phase	<i>Wind farm</i> - Operational noise predictions varied between 22 and 30 dB(A) at low wind speeds and 35 to 40 dB(A) at high wind speeds. Predicted noise levels comply with the noise limits derived from the baseline survey assuming a reduced noise operational mode ("SO2") for T2 and T4³⁴. This represents a long-term permanent reversible adverse effect which is not significant. <i>Substation</i> - Main noise sources are transformers and cooling fans. At 580m to the nearest non-involved residential receptor noise levels will be less than 30 dB LAEQ which is below the stringent limit of 35 dB LAEQ in NG4 Guidance. This represents a long-term permanent reversible adverse effect which is not significant.
Decommissioning Phase	Similar to construction stage but without HDD drilling. This phase would be associated with short-term minor temporary reversible effects which are not significant.
Cumulative	<i>Do Nothing</i> If the proposed development does not proceed there will be no cumulative effects. <i>Construction Phase</i> If the proposed Oatfield and Knockshavno WF overlap at construction stage, there is potential for cumulative noise increases. However, the distance of on-site activities from noise-sensitive locations is such that predicted noise levels for each wind farm are at or below 52 dB LAEQ and cumulatively would result in total noise levels of up to 55 dB LAEQ (at NSLs) which corresponds to a negligible impact. The only exception would be for activities which may occur closer to some properties such as site access track or GCR works where higher noise levels would be experienced for brief periods of time. However, as these works will be undertaken in

³⁴ For other turbine models a different operational restriction (or none at all) maybe required to achieve a similar conclusion.

	different locations for each proposal, additional cumulative effects are considered unlikely. Given the localised and temporary nature of noise effects from construction activities and the separation distance of more than 2km of other cumulative developments considered, it is considered that there would be negligible cumulative construction noise effects. Cumulative road traffic increases and noise effects are also considered in Table 8 of Appendix 13.1 and updated in Table 8.1 of the FCIAR. This finds that the maximum potential temporary increase of just under 2dB(A) in the daytime average at traffic site assessment points 6, 11 and 12 represents a minor impact based on DMRB criteria, and a predicted increase of less than 1dB(A) at all other locations. These short-term changes correspond to a negligible impact. Overall cumulative noise effects will remain negligible to minor short-term temporary reversible adverse and not significant. <i>Operational Phase</i> Section 5.5. of Appendix 13.1 determined that the separation distances from other existing, proposed or consented windfarms in the area is such that cumulative effects would be negligible. This is updated in the FCIAR, which finds that as the nearest turbines in the proposed Ballycar WF are approx. 3 to 4km from the nearest receptors, and the nearest turbines in the proposed Lackareagh and Fahybeg WF are more than 5km from the nearest receptors, and therefore the conclusion is unchanged. Section 5.10 of Appendix 13.1 presented a preliminary cumulative operational assessment for the Knockshanvo Wind Farm. This concluded that predicted cumulative operational levels do not exceed the derived noise limits, with some negligible exceptions which are unlikely to arise in practice. This is updated in the FCIAR which includes consideration of EIAR Chapter 12 of the Knockshanvo WF. The predicted cumulative noise levels for most properties³⁵ are below the lowest noise limit of 40 dB LA90 for daytime periods with negligible exceptions at H4, H6, H7, H8, H12, H13, H528, H530 and H606. A more detailed assessment of the exceptions concludes that both developments can operate cumulatively within the noise limits derived in the Knockshanvo EIAR and that if noise emission levels at each respective windfarm are controlled in accordance with the site-specific individual consent limits, cumulative noise levels will not exceed the derived criteria. As the substations within the proposed development and the Knockshanvo WF are more than 3km from each other, it is concluded that there is no potential for cumulative operational noise.
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³⁵ Table A.2, Appendix 1 of the FCIAR.

	The applicant concludes that cumulative operational noise represents a long-term permanent reversible adverse effect which is not significant. <i>Decommissioning Phase</i> This would result in minor short-term temporary reversible adverse effects at most which are not significant.
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14.4 Mitigation

14.4.1 Mitigation measures are set out in Section 13.7 of EIAR Chapter 13. It includes general measures for the reduction of construction noise and vibration levels at source in accordance with BS:5228-1. Measures are set out in the CEMP (Appendix 5.1, EIAR Chapter 5) and include restricting construction activities to the hours of 07:00 to 19:00 Monday to Friday and 08:00 to 13:00 on Saturdays with the exception of activities likely to produce substantial noise levels, some turbine deliveries and concrete pours unless otherwise first agreed with CCC.

14.4.2 The EIAR states that for safety and operational reasons HDD drilling at nighttime may be required, which would result in a significant effect at the nearest noise sensitive receptors. The following additional mitigation measures are proposed:

- HDD drilling works to be undertaken during standard day-time hours where possible and completed in the shortest practical timescale.
- Use of Best Practical Means to minimise noise generation at nearest residents, including use of quiet drilling/pumping equipment and/or temporary noise barriers installed around trenchless compounds in order to provide screening for sources located at low heights.
- Residents within 200m of HDD works will be kept informed of the likely period during which works will take place, the times and durations of planned works, measures being undertaken to avoid unnecessary noise and of completion of works.

14.4.3 At operational stage the final choice of turbine will comply with the noise limits determined within the assessment (Tables 4 and 5 of Appendix 13.1) or reduced cumulative limits as appropriate. Monitoring is recommended at a sample of representative locations following commissioning in accordance with IOA GPG. At decommissioning stage similar mitigation measures to the construction stage will be employed.

14.5 Residual Effects

14.5.1 With the implementation of mitigation measures the EIAR concludes that the potential impacts of out-of-hours HDD drilling would be reduced to a minor magnitude at most and that the effects of construction noise will be **negligible to minor short term temporary reversible adverse** and therefore **not significant**. At operational stage whist noise from the proposed development may be audible in certain conditions, it will remain acceptable in terms of the guidance and limits set out in WEDG 2006 and therefore represents a **long-term permanent reversible adverse effect** which is **not significant**. At decommissioning stage effects would be **minor short-term temporary reversible adverse** at most and **not significant**.

14.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 13 of the EIAR, the associated Appendix 13.1, Memorandum No.9, the FCIAR and appendices thereto, EIAR Chapter 12 of the Knockshanvo WF and submissions on file in respect of noise and vibration. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts in respect of likely noise effects, including cumulative effects, have been identified. Parties raise several issues in respect of noise which I address under respective headings below.

14.7. Adequacy of Assessment

WEDG 2006

14.7.1 The LA acknowledged that that the proposed development appears to comply with WEDG 2006 in relation to noise impacts, including cumulative noise impacts, but opines that in the absence of updated Guidelines and given the scale and height of the turbines proposed, the noise requirements of the WHO may be a more appropriate assessment reference. The NEHS is concerned that the application of WEDG 2006 criteria could potentially see an increase of up to 15 dB(A) in the noise environment, which would be likely to cause complaints and/or a nuisance and a 'significant' adverse effect according to BS 4142:2014+A1:2019³⁶. NEHS opines that the most appropriate criteria for assessing significance of predicted noise is WHO 'Environmental Noise Guidelines for the European Region', 2018. Otherwise NEHS opines that it is considered wholly inappropriate to set the day-time limit at the upper end of WEDG 2006 criteria (40 dB(A)). NEHS makes further comments in relation to cumulative effects, but this is considered hereinunder. Parties to the application are also generally concerned that WEDG 2006 and ETSU-R-97 are out of date and no longer fit for purpose.

14.7.2. In response the applicant states that the main health effect identified by WHO (2018) was annoyance with the Guidelines including a 'conditional' recommendation to control noise to 45 dB L_{den} , which the applicant states can be considered broadly consistent with the noise limits of 35 to 40 dB L_{A90} referenced in the WEDG 2006 and ETSU-R-97. The applicant otherwise responds that WHO did not make recommendations for night-time noise and that there is no clear evidence for significant sleep disturbance effects from wind turbine noise at levels not exceeding 43 dB L_{A90} , which is the lower limit set in WEDG 2006 and ETSU-R-97.

14.7.3 In relation to the WHO Guidelines I note, as the applicant states, that they express recommendations for wind turbine noise as L_{den} and I am aware that L_{den} is not currently used in Ireland for prediction, measurement or assessment of wind turbine noise and this is reflected in WEDG 2006. In relation to the use of BS 4142 as suggested by NEHS I am also aware that

³⁶ British Standards: Methods for rating and assessing industrial and commercial sound.

ETSU-R-97 references a number of problems with its interpretation and application and that BS 4142 itself confirms that it is not intended to be applied to the rating and assessment of sound from other sources falling within the scope of other standards and guidance. In this regard I am satisfied that the WEDG 2006 remains the current guidance against which noise impacts and effects should be assessed.

Noise Monitoring Locations, Involved Properties and Terrain Effects

14.7.4 Concerns were raised that noise monitoring location (NML) No.6 was located beside an open drain with continuous medium to heavy flows and a risk that this may not correctly establish background noise. In response the applicant states that if measurements had been affected by running water had then this would have been apparent in the charts but this was not the case. I note that this is expanded upon in the NIA (Appendix 13.1) which confirms that there was an absence of identifiable clear data trends suggesting any associated noise influence. The applicant is satisfied that measurements were not affected and I am satisfied that this position is satisfactory particularly in the absence of evidence to the contrary.

14.7.5 A concern was also raised that (background noise) data from NML 6 was measured against noise sensitive receptor H15 as opposed to H4. Fig E11 and E12 of Annex E (NIA) refers. I have considered this matter and note that whilst NML 6 was installed in closest proximity to H4, it was identified as a survey location for property H15³⁷. The results obtained from the six NMLs was used to represent the background environment expected to occur at other nearby assessment locations and the use of data in this way is consistent with guidance provided by ETSU-R-97 and current good practice set out in the IO GPG. Accordingly, I am satisfied that no material deficit exists in the data presented.

14.7.6 A concern was also correctly raised that H4 and H606 were wrongly listed as 'involved properties' in the original application. This was

³⁷ Table 3 of NIA Appendix 13.1 refers.

subsequently corrected in RFI Memorandum No.9. which confirms that H4 and H606 are not financially involved properties. Table 3.2 and Table 3.3 of this memorandum also confirmed that predicted (operational) noise levels remain below the derived noise limits at H4 and H606, with potential limited daytime exceptions (<1dB) in a cumulative scenario with Knockshavno WF which is considered further below. In relation to construction noise, I was concerned from an inspection of the site that the proximity of the site entrance to the EDA might have residential amenity implications for H4, particularly if it is not an 'involved property'. H4 is approx. 50m from the 'east main access track' and I note that H15 is also 50m away with worst case predicted noise levels of 77L_{Aeq}³⁸. This equates with a major impact if construction of the access tracks is carried out at this distance for 4 weeks or more, a moderate impact if carried out for 1 to 4 weeks (07:00 to 19:00 weekdays and 07:00 to 13:00 Saturdays) and a major impact if carried out during 13:00 to 17:00 Saturdays and 07:00 to 19:00 on Sundays (also 1 to 4 weeks duration)³⁹. In this regard the applicant states that the predicted noise levels are likely to present for a very short time period when activity is closest to the receptor, diminishing quickly as track construction progresses, moving the activity further from the property. The short-term nature of this activity is consequently categorised to be of minor magnitude.

Whilst the predicted construction noise levels appear to be a significant concern, I note that the access track moves quickly to a separation distance of 100m+ distant from both H4 and H15 within a very short distance (50-75m), therefore I agree with the applicant that effects will diminish very quickly. I am satisfied that it is reasonable to conclude that worst case predicted noise levels associated with the 'east main access track' will occur within a 1 to 4 week period and therefore can be classified as a moderate effect at worst which is not significant, diminishing to minor and negligible thereafter. Whilst I considered recommending a restriction which would

³⁸ Table 6 of NIA (Appendix 13.1)

³⁹ According to the applicants construction noise impact assessment as informed by BS 5228-1 and WHO reference criteria.

exclude limited Saturday or Sunday working, I decided against such a recommendation on the basis that it would be disproportionate given the short duration of the works of material concern in proximity to H4 and H15 and the resultant effect of extending the duration of site access construction works as a result. I note that an access to the Knockshavno WF is proposed approx. 600m to the south of property H4 but at this distance I am satisfied that there is no potential for significant cumulative effects. On balance I am satisfied that the proposed development will not result in significant noise effects, cumulative or other, during construction or operational phase at H4 or H15 and that potential effects can be satisfactorily controlled by the proposed mitigation measures and/or condition if permission is granted.

- 14.7.7 Otherwise, I am satisfied that the noise model took account of terrain effects including potential enhanced propagation across a valley (Section 5.4, NIA, Appendix 13.1 refers).

14.8 Operational Phase Noise

- 14.8.1 I am satisfied that the nearest noise sensitive receptors have been identified and that background noise monitoring consistent with the best practice guidelines (including the Institute of Acoustics Good Practice Guide to the application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise) has been carried out. I am also satisfied that a conservative approach has been taken, for instance, using the Vestas V150 6MW turbine model to consider the worst-case scenario, assuming downwind propagation from every turbine to every receptor at the same time, accounting for attenuation due to geometric spreading, atmospheric absorption, barrier and ground effects, the potential effect of site-specific wind shear and exclusion of periods affected by rainfall in accordance with IOA GPG guidance. I note that a correction factor of +2dB was added to the noise emission data for the V150 turbine in line with IOA GPG advice to address the absence of specific information about uncertainty allowances. I also note that once propagation and spectral characteristics are taken into account, the predicted noise emission levels from the Vestas V150 are noisier at all wind speeds than the

Nordex N133 and N149 turbines. I am satisfied that the applicant has followed industry best practice guidelines for the assessment of background noise, with wind speeds measured on a LIDAR remote wind sensor within the boundary of the site and then calculated at a standardised height of ten metres consistent with the method preferred in IOA GPG (NIA Annex F refers).

14.8.2 Background noise measurements are set out in Figures E1 to E12 of NIA Annex E. The data is presented in a chart format with two plots shown (quiet day time periods and nighttime periods) for each of the six noise monitoring locations. I am in agreement with NEHS that it would be preferable for this data to be presented in tabular format for ease of discernment and assessment but find no material deficiency in the information presented. The WEDG 2006/ETSU-R-97 (derived) noise limits are then set out in Table 4 (Day time) and Table 5 (Nighttime) based on the prevailing measured background level plus 5 dB or a fixed lower limit of 40 dB(A)⁴⁰ for daytime and 43 dB(A) for nighttime, whichever is greater. The fixed daytime limit of 40 dB(A) was adopted based on the determining factors set out in ETSU-R-97 and which include: the low population density of the area, the upwind location of properties to the south of the proposed development, predicted (lower) exposure levels of 38 dB or less to the east (where exposure is predicted for a larger proportion of the time), and the substantial impact on power generation if the lower limit was reduced and I am satisfied that it is justified in the circumstances of this case.

14.8.3 The predicted wind farm noise immission⁴¹ levels at each NAL is then shown in Table 9 and the difference between the derived noise limits (Table 4 and Table 5) and the predicted wind farm noise immission levels (Table 9) is shown in Table 10 (daytime) and Table 11 (nighttime). The results show that the wind farm can operate within the derived noise limits at all receptors in all wind speeds and is well within the derived limits with noise immission levels

⁴⁰ For financially involved properties this was increased to 45 dB(A)

⁴¹ The perceived noise at any receptor.

ranging between -7.7 and -17.2 LA₉₀ (dB) below the derived limits in daytime and -5.2 and -13.5 LA₉₀ (dB) below the derived limits in nighttime.

14.8.4 For the purposes of the noise assessment, modelling assumed selective use of the Sound Optimised 2 (SO2) noise control mode for turbines 2 and 4. The applicant states in RFI Memorandum No.9 that the effect of this was to reduce maximum noise levels by around 1 dB(A) at nearest properties. This appears to be demonstrative as opposed to mitigation with the applicant confirming that similar noise reduction management systems are also offered by other wind turbine manufacturers. In any event, I am satisfied that noise-reduced modes are available if required to meet derived noise limits and that no issue of materiality arises particularly given the margin of negative values in predicted noise levels below the derived limits.

14.8.5 The cumulative noise effects are substantively addressed in the applicants FICIAR, which allows for an updated cumulative assessment having regard to the planning application data, including EIAR Chapter 12 of the Knockshavno Wind Farm. This finds that compliance of the proposed Oatfield wind farm with its individual derived site-specific noise limits would result in cumulative noise levels with the Knockshavno Wind Farm which do not exceed the derived criteria. In relation to H4 and H606 respectively, the FICAR also found that the cumulative noise levels would not exceed the derived site-specific noise limits. Appendix 1 and tables A.3 to A.6 refer.

The FICIAR also gave further consideration to the potential for cumulative noise effects with the Ballycar, Lackareagh and Fahybeg wind farms. In respect of Ballycar it was found that the nearest receptors considered in the subject development were 3 to 4km from the closest Ballycar turbines. At this distance the predicted cumulative noise level would be below 30 dB LA₉₀ and more than 10 dB below the lower fixed limit of 40 dB LA₉₀ applied in this assessment. In addition it was noted that receptors could not be downwind from both of these windfarms in practice and therefore even these noise levels would not occur in practice. In respect of Lackareagh and the Fahybeg it was found that at distances of more than 5km operational noise effects are

likely to be negligible and did not require further consideration. The cumulative assessment of noise concluded that effects with Knockshavno would be long-term reversible adverse and not significant and with Ballycar, Lackareagh and Fahybeg would be negligible and do not require further consideration. I am satisfied that the proposed windfarm can operate concurrently with other proposed and consented wind farm developments in the area in a measurable and enforceable manner in accordance with WEDG 2006.

- 14.8.6 I note the aged nature of the WEDG 2006, however the more stringent controls in the Government's 2019 draft guidelines have not been adopted and therefore WEDG 2006 remains the statutory document for the assessment of wind turbine noise. Whilst the proposed development will change the noise environment of the wind farm site for noise sensitive properties closest to the windfarm, the predicted noise levels are below WEDG 2006 guidelines levels and typically well within and below the derived limits in a worst case/conservative scenario.

14.9 Construction Noise & Vibration

- 14.9.1 In relation to the modelling carried out I note that it is assumed that plant will operate for between 75% and 100% of the working day, that there are no screening effects and that ground cover is characterised as 50% hard / 50% soft, using worst-case sound power levels. Predictions relate to the noise level occurring when an activity is closest to the referenced property representing a worst-case scenario. The methodology outlined in BS 5228 is adopted. The predicted construction noise levels are set out in Table 6 of the NIA. I agree with the applicant that the majority of construction works and activities will result in levels of no more than LAEQ 52 dB at most receptors which falls below the Category A daytime, evening and weekend thresholds set out in BS 5228 (for significant effects) and translates to impacts of negligible magnitude. I note that the construction and upgrade of site access tracks and the re-instatement of road verges may give rise to noise levels in excess of these values, however I am satisfied that these activities will not result in significant effects as the nature of the works is transient, exposure at

any receptor will be short term, works will not take place outside of normal daytime working hours (Mon- Fri 07:00 – 19:00 and Saturday 07:00 – 13:00hrs) and when intermittency of operation is considered. The short-term nature of these activities is categorised by the applicant as minor, and I agree with this assessment.

14.9.2 A possible exception to this position, concerns HDD works. The applicant submits that HDD drilling maybe required to continue outside of standard working hours on the basis that once a bore has been started it may be necessary to continue for (unspecified) safety/operational reasons which results in a potential need for some night-time working. Worst case predicted noise levels show that this would result in noise levels around 69 dB LAEQ at a distance of 70m and the nearest receptor H49. HDD works are proposed at a number of locations on the IPP and GCR, and it is estimated that they are likely to have a duration of less than 4 weeks each. Under worst case assumptions, this is assessed as a major impact on some highly sensitive receptors representing a short-term major temporary adverse effect. Mitigation measures include carrying out HDD works during standard daytime hours where possible, completing works in the shortest possible time, minimising noise generation by using quiet equipment and/or noise barriers, and advance notice and information to closest residents (within 200m). The applicant assesses the residual effects post-mitigation as a minor magnitude at most.

14.9.3 I do not agree with the applicant's assessment in this regard. In my opinion HDD drilling for a duration of up to 4 weeks including continuing work outside of standard daytime hours is a significant effect. Table 1 of the applicants NIA (Appendix 13.1) sets out the applicant's impact assessment scale (based on BS 5228 and WHO reference criteria). This provides that a noise level > 55 dB(A) for a period of 4 weeks or more, and a noise level > 65 dB(A) for a period of 1 to 4 weeks constitutes a major impact⁴². In this regard I consider the timing and equipment mitigation measures proposed by the

⁴² Outside of standard daytime hours.

applicant to be non-committal and lacking the required certainty to reach a conclusion of a minor residual impact. Use of language such as 'where possible' is unsatisfactory and no specific details have been given about the noise attenuating factors of either 'quiet equipment' options or noise barriers. In addition, I am of the view that advance notice and information communications does not constitute meaningful mitigation of a significant impact which has the potential to sustain for a period of 4 weeks, including nighttime activity. In my experience, it is possible to pause HDD works once commenced and it is routine for such works to be limited to the hours of 07:00 to 19:00hrs (Mon-Fri) and 07:00 to 13:00 hrs (Saturday). The applicant has not justified the need for nighttime works or a departure from standard daytime working hours. The predicted noise levels during standard daytime working hours corresponds with a minor impact having regard to the impact assessment scale referenced above and, in my opinion, this is the only effective mitigation which will protect residential amenity. It is my recommendation therefore that a condition is imposed restricting HDD works to standard daytime hours.

- 14.9.4 In relation to construction related traffic the applicant acknowledges that this is a potential source of noise to surrounding properties. In relation to peak construction traffic the predicted increase in noise is generally less than 1 dB(A) which corresponds to a negligible impact, with an exception at site assessment point 5 where an increase of 1.3 dB(A) would correspond to a minor impact. I would acknowledge that during construction, there are likely to be adverse effects from construction noise and an increase in traffic on the local roads particularly from the perspective of some local residents. However, I am satisfied that where these occur, they will not exceed an increase of 1 to 3 dB(A) and a negligible to minor impact⁴³, they will be short term and can be managed to minimise effects to acceptable levels via the good construction practice and mitigation proposed including in the TMP and CEMP.

⁴³ Relative to the criteria set out in the UK Design Manual for Roads and Bridges (DMRB).

14.9.5 In relation to cumulative construction noise, this is addressed in Section 8.3 of the FICAR. The applicant concludes that even if construction works with the Oatfield and Knockshavno wind farms were to coincide the resultant noise levels of up to 55 dB LAeq would still correspond with negligible impacts based on the reference criteria set out above, with noise from cumulative construction traffic assessed as minor and negligible. Overall I am satisfied that with implementation of the embedded design, best practice measures set out in the CEMP that there will be significant effects as a result of cumulative construction noise.

14.10 Low Frequency & Infra Noise

14.10.1 Third party concerns were raised in relation to low frequency noise and infra sound in the context of potential health impacts, including sleep disturbance and adverse effects on persons with autism or neurodivergent conditions. The applicant addresses this in EIAR Chapter 13 and Memorandum No.9. and finds that whilst such noise can have adverse effects on people, this only comes into play when it reaches a sufficiently high level above the threshold of audibility and that all available information indicates that measurements from current wind turbines lie below the threshold of human perception. The applicant also notes that the WHO guidelines did not make any recommendations in respect of infrasound, low frequency noise or sleep disturbance but rather recommended the control of wind turbine noise in terms of A-weighted noise levels which has been done in the EIAR. In terms of sleep disturbance, the applicant notes that there is no evidence of significant disturbance at levels which do not exceed 43 dB LA90 which is the lower limit set in WEDG 2006 and ETSU-R-97. The applicant acknowledges that persons with autism and neurodivergent conditions can be affected by stronger reactions to noise (hyperacusis) than the general population, but that predicted noise levels of no more than 40 dB(A) at noise sensitive locations is comparable to the range of noise levels typically experienced in the existing noise environment. Otherwise, the applicant finds that there is no clear evidence that those who are sensitive to hyperacusis are more sensitive to

certain sound frequencies, but that in any event noise from modern wind turbines is not known to have particular low frequency character.

14.10.2 Although not raised in the submissions, the applicant also addresses AM. There is no definitive guidance for the assessment of atypical AM noise in current Irish guidelines, however the applicant states that the noise limits which have been considered are relatively stringent and included AM character. The applicant states if operational complaints arise, they will be investigated and appropriate action taken. In this regard I am aware of the recent judgement in *Nagle View Turbine Aware Group v An Bord Pleanala* (IEHC 603 (2024)) in which Mr. Justice Humphreys endorsed the Boards treatment of OAM and its decision not to impose a condition addressing OAM given there is currently no method available to predict OAM and no objective basis for the imposition of a condition. I am satisfied that the applicant's position is both reasonable and appropriate having regard to the basis of recent legal judgement on the matter.

14.11 Other matters

14.11.1 Concerns were raised in relation to potential adverse effects on external amenities, including recreation and specifically the 12 O'Clock Hills. I note that there is limited guidance in Ireland or the UK which applies to external amenity areas such as parks or walking paths, but WHO Guidance levels of 55 dB(A) is sometimes used as guidance as it is referenced as a threshold for serious annoyance for outdoor living areas. In this regard I note that predicted noise levels in proximity to the turbines is up to and around 50 dB(A) which sits below the WHO threshold. In this regard I am satisfied that transient public amenity areas do not equate with private external amenity areas and I concur with the applicant's assessment that the addition of turbine noise to the sound environment is not likely to result in a significant effect on recreation or public amenity.

14.12 Conclusion: Direct and Indirect Effects (*Noise & Vibration*)

Having regard to my assessment of the proposed development on noise and vibration, it is considered that:

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

AND

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

- A **major significant effect** outside of standard daytime working hours as a result of Horizontal Directional Drilling (HDD) works associated with the Independent Power Producers (IPP) cable and Grid Connection Route (GCR) at H49 and other nearby residential noise sensitive receptors. This effect can be mitigated and reduced to a minor (not significant) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays only if permission is granted.

15. Biodiversity

Issues Raised

Issues raised concern: decline of biodiversity, habitat loss and loss of hedgerows generally, impacts on Gortacullin Bog NHA and Doon Lough NHA, bats and the adequacy of survey effort (inadequate roost assessments, lack of season surveys over two years, under reporting of activity and species present), barotrauma, adverse commuting and foraging impacts, and impacts

on the populations associated with Dane's Hole Poulnalecka SAC and Ratty River Cave SAC, impacts on Otter and species associated with Lower River Shannon SAC, presence of invasive species (Bark Beetle, Monterey Pine Engraver and Japanese Knotweed), impacts on Marsh Fritillary, impacts on flora and fauna generally including protected species (Red Squirrels, Pine Martens, Badgers, Foxes, Roe & Sika Deer and the Kerry Slug), and the adequacy or absence of mitigation measures. The LA was primarily concerned with impacts on the Hen Harrier which is addressed in the Ornithology section of this report. The NPWS raised concerns in relation to bat conservation in the context of Danes Hole Poulnalecka SAC including the loss of treelines and hedgerow and the survey effort with a winter survey recommended. The NPWS was also concerned about the presence of invasive species on site, consideration of biodiversity gain areas and landowner commitment to the SHMP.

The impacts on Birds are considered separately in the Ornithology section 16 of this report, the impacts on European Sites are primarily addressed in the Appropriate Assessment section of this report (Appendix 1 and Appendix 2 refer) and the impacts on Hydrology are primarily assessed in the Hydrology & Hydrogeological section 17 of this report.

15.1 Examination of the EIAR

Context

15.1.1 Chapter 7 of the EIAR deals with Biodiversity (with the exception of Birds which is addressed in Chapter 8 (Ornithology)). Associated Figures and Appendices are:

- Appendix 7.1 - Oatfield Species and Habitat Management Plan (SHMP)
- Appendix 7.2 – NBDC Data
- Appendix 7.3 – Terrestrial Invertebrate Data
- Appendix 7.4 – Figures
- Appendix 7.5 – Terrestrial Mammals
- Appendix 7.6 – Bats

- Appendix 7.7 – Aquatic Ecology
- Appendix 7.8 – Invasive Species Management Plan (ISMP)

The applicant's response to submissions (June 2024) in respect of Biodiversity is set out in Memorandum No.3 (Biodiversity) which includes Appendix 1 (Updated SHMP) and Appendix 2 (Bat Report). The applicant's further information response of May 2025 includes an updated cumulative impact assessment 'FICAR' (Appendix 2 refers), and updated Bat Ecology Figures (Appendix 5). The applicant's further response to the statutory submissions of the DHLGH (NPWS) in respect of Lesser Horseshoe Bat (LHB) is included in the RFI Response Document of November 2025.

15.1.2 The assessment is undertaken having regard to the requirements for the protection of habitats, species and biodiversity as set out in European legislation and National legislation and policy. In addition, legislation and guidance which applies to the protection of habitats, fauna and water quality in Ireland is also considered. A statement of authority is included.

15.1.3 Assessment methodology- includes determining the zone of influence, desktop studies (habitat ecology, terrestrial invertebrate ecology, terrestrial mammal ecology, amphibian and reptile ecology, bats and aquatic ecology), identification of designated sites, Baseline surveys and Data Gathering including NBDC, NPWS, EPA and IFI sources (Table 7.4 refers), Scoping and Consultation and field surveys. Dedicated surveys include:

- Habitats– conducted according to best practice.
- Invertebrates, Reptiles & Amphibians – Includes walkover surveys conducted in August and September 2023 following 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Roads Schemes (2008).
- Marsh Fritillary – Marsh Fritillary were recorded in hectad R56 and R57 (NBDC, 2023). Surveys were undertaken in September 2023 following relevant guidance (Marsh Fritillary Monitoring Scheme) (NBDC, 2015)).

- Terrestrial Mammals – Walkover surveys conducted in August, October and November 2023. See Appendix 7.5.
- Otters – surveys followed the NRA Guidelines for Treatment of Otters During Construction of National Road Schemes (NRA, 2008). Confirmatory surveys were undertaken in August 2023. The extent of study area was guided by the British Highways Agency Conservation Advice in Relation to Otters HA8199 (Highways Agency, 1999) which dictated a linear search of 300m upstream and downstream of each watercourse crossing.
- Badgers - surveys conducted in accordance with NRA Guidelines for the Treatment of Badgers Prior to Construction of National Road Schemes (NRA, 2005). Surveys for evidence of Badgers within 50m of the proposed works completed in August and September 2023.
- Bats – Field surveys undertaken in accordance with Collins 2023 include: Preliminary roost assessments, bat activity surveys, spring, summer and autumn transect surveys, an ecological appraisal, ground-level roost assessments, roost surveys, and emergence/re-entry surveys in 2023. Bat roost survey and activity survey results are included in Appendix 7.6.
- Aquatic Ecology – A total of 56 riverine sites were selected for detailed aquatic assessment (Appendix 7.7) Surveys included fisheries assessment (electro-fishing and habitat appraisal), white-clawed crayfish survey, macrophyte and aquatic bryophyte survey and biological (Q-sampling) and macro-invertebrate sweep sampling.

15.1.4 Limitations are considered in Section 7.3.4.5. I note that no significant limitations in the scope, scale or context of the assessment were identified.

15.2 Baseline

15.2.1 The baseline environment is described in section 7.4 of the EIAR. A list of all European and Ramsar sites is provided in Table 7.10, and the European Sites are fully described and assessed in the NIS and considered in the AA section of this report. The nearest Ramsar site to the proposed development (Ballyallia Lough) is at a distance of approx. 18.9km and given the absence of

any hydrological or hydrogeological pathways it is not carried forward for further assessment. All nationally designated sites are listed in Fig. 7.11. National sites deemed to be within the ZOI of the proposed development and requiring further assessment are:

- Gortacullin Bog NHA (Site Code: 002401)
- Doon Lough NHA (Site Code: 000337)

15.2.2 Terrestrial habitats identified on site and their Fossitt codes (Fossitt, 2000) are listed in Table 7.13 and shown in Fig. 7.2 – 7.8. They predominantly consist of conifer plantation, transitional woodland scrub, mixed forest, pasture, agricultural lands and peatlands. No Flora Protection Order species were recorded during habitat walkover surveys. In terms of invasive species, Butterfly bush (*Buddleia davidii*) was recorded adjacent to the IPP cable, with the closest stand 1.5km southwest of T4. Himalayan Knotweed was recorded 664m south of T4. Japanese knotweed was recorded within the proposed site access roads between T1 and T3. Common Rhododendron was also recorded along the IPP connection route.

15.2.3 In terms of invertebrates, Marsh Fritillary is the only Irish insect legally protected and listed on Annex II of the EU Habitats Directive. No Marsh Fritillary were recorded during the larval webs survey; however suitable larval web habitat was recorded. Devil's Bit Scabious was recorded in patches within and adjacent to proposed site access roads in the Western DA, within proposed site access roads and adjacent to the southern boundary in the Eastern DA and a significant patch was recorded 366M east of T9.

15.2.4 In terms of Amphibians & Reptiles it was considered that suitable habitat exists within the study area for Smooth Newt, Common Frog and Common Lizard. No sightings of amphibians and reptiles were recorded during surveys, and suitable habitat is isolated and not extensive. However, NBDC records relating to R56 and R57 record sitings of all three species, with Common Frog last recorded on 26/03/2023 and Smooth Newt and Common Lizard in 2020.

15.2.5 In terms of Terrestrial Mammals general mammal walkover surveys, designated site surveys and camera trap deployments within the study area returned no sightings of Otter. However secondary evidence of Otter was confirmed within or in close proximity to the site (mammal crossing, trail into stream, potential couch/rest spot/spraints) and therefore this species is considered further as a Key Ecological Feature ('KEF'). Badger runs, scat and setts were recorded during the mammal survey in conifer plantation habitat (WD4) and dry-humid acid grassland (GS3), with one Badger recorded foraging 56m southwest of T7. High levels of secondary evidence was recorded within the Western DA including mammal runs, foraging, snuffle hole, scratching posts, prints etc and this species is considered further as a KEF. Six sightings of Irish Hares and Pine Marten were identified during camera traps deployed throughout the site and these species are considered further as a KEF. Five sightings of squirrel (species not identified) were captured during camera trap surveys, and one incidental sighting of red squirrel was recorded during a breeding wader survey in May 2023, 467m west of T8. Due to the confirmed presence of Red Squirrel this species is considered further as a KEF. Due to a lack of sightings Irish stoat, Hedgehog and Pygmy Shrew were not considered further as a KEF. As Red Fox is a common species in Ireland with no protection status and due to the wide availability of habitat this species is not considered further as a KEF.

15.2.6 In terms of Bats surveys indicate that the area of the proposed development is used regularly (high activity) by Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat with lower levels (negligible to low) of the Annex II species Lesser Horseshoe. These species are all considered further as KEFs.

15.2.7 In terms of Aquatic Ecology due to the widespread presence of Salmon with high densities recorded and the high value spawning and nursery habitat in the River Blackwater and Mountrice Rivers, this species is included as a KEF. Due to the widespread presence of Brown Trout and Eel, and the presence of Lamprey (although restricted), these species were considered further as a KEF. Due to the status and secondary evidence of White-clawed

Crayfish (eDNA detected in lower reaches of River Blackwater) the species is considered further on a precautionary basis. Due to the absence of Freshwater Pearl Mussell eDNA during aquatic surveys and sampling, these species are not considered further as a KEF. No rare or protected macro-invertebrate species were recorded in the biological water quality samples taken from the 56 riverine sites and therefore no such species are considered further as a KEF.

15.3 Potential Effects

15.3.1 The potential biodiversity effects of the development are set out in the EIAR and summarised in **Table BDY1** below. The assessment of cumulative effects is updated in the Final Cumulative Impact Assessment Report (FCIAR) received on 23rd May 2025.

Table BDY1: Summary of Potential Effects (Biodiversity)

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	Not assessed.
Construction Phase	<i>Habitat Loss</i> - Table 7.22 details habitat which will be lost to the proposed development⁴⁴. Habitats which are KEFs are listed below: (i) 3.6ha (25.6%) of Wet Heath (HH3), 1.1ha (31%) of Wet Heath/Scrub (HH3/WS1), and 0.3ha of Bog comprising wet grassland/lowland blanket bog (GS4/PB2). (ii) 0.7ha (2.3%) of wet grassland (GS4), 1.6ha (12%) of scrub (WS1) and 1.2ha of dry humid acid grassland (GS3), dry-humid acid grassland/scrub (GS3/WS1), dry-humid acid grassland/dry siliceous heath (GS3/HH1), immature woodland (WS2) and dry-humid acid grassland/wet grassland (GS3/GS4). (iii) 25.25ha (40%) of conifer plantation (WD4), 1.4ha of scrub/immature woodland (WS1/WS2), and 0.4ha of mixed broadleaved woodland (WD1). (iv) 901m (7.9%) of hedgerows (WL1), 300m (5.5%) of treelines (WL2), 21.29m (0.3%) of hedgerows/treelines (WL1/WL2). (v) 211.6m (5.9%) of drainage ditches (FW4). - The anticipated loss and fragmentation of heath and associated mosaic habitats (HH3, WS1, GS4 and PB2) is assessed as a potential long-term slight significant negative effect at a local level. - The anticipated loss and fragmentation of grassland, scrub and associated mosaic habitats (GS3, GS4, WS1, WS2 and HS1) is

⁴⁴ For all turbine options, but worst case assumed for purposes of assessment (Vestas V150). Percentage values are of the habitat lost within the proposed development site.

	assessed as a potential long-term slight significant negative effect at a local level. - Potential for a long-term slight significant negative effect on conifer plantation habitat (WD4) at a local level. - Potential for a long-term slight significant negative effect on hedgerows and treelines (WL1 and WL2) at a local level. - Potential for a long-term slight significant negative effect on drainage ditches (FW4) at a local level. - Other habitats are considered to be of low ecological value and effects are not considered significant. <i>Plant Species (Including Invasive Plant Species)</i> - The potential for spread of Japanese Knotweed, Himalayan Knotweed, Butterfly-bush and Common Rhododendron is assessed as a long-term slight significant negative effect at a local level. <i>Marsh Fritillary</i> - Potential long-term slight significant negative effect on Marsh Fritillary at a local level through habitat loss and fragmentation. <i>Amphibians and Reptiles</i> - No significant effects identified. <i>Terrestrial Mammals (Inc. Otter, Badger, Pine Marten, Red Squirrel and Irish Hare)</i> - No significant effects identified. <i>Bats</i> - Potential long-term slight significant negative effect on foraging and commuting bats at a local level through habitat loss and fragmentation. <i>Aquatic Species</i> - The scope for effects on aquatic species through disturbance, pollution and associated mortality is assessed as not significant.
Operational Phase	<i>Invasive Non-native Plant Species</i> - The potential for spread of Japanese Knotweed, Himalayan Knotweed, Butterfly-bush and Common Rhododendron is assessed as a long-term slight significant negative effect at a local level. <i>Habitats, Plant Species, Invertebrates, Amphibians & Reptiles, Terrestrial Mammals, Bats and Aquatic Species.</i> - No significant effects identified.
Decommissioning Phase	<i>Invasive Non-native Plant Species</i> - The potential for spread of Japanese Knotweed, Himalayan Knotweed, Butterfly-bush and Common Rhododendron is

	assessed as a long-term slight significant negative effect at a local level. <i>Habitats, Plant Species, Invertebrates, Amphibians & Reptiles, Terrestrial Mammals, Bats and Aquatic Species.</i> - No significant effects identified.
Cumulative	The assessment of cumulative impacts was based on windfarm projects within 20km (Table 7.27) and other projects within 10km (Table 7.28) of the proposed development. Only the proposed Knockshavno (0.5km) and Ballycar (4.7km) Wind farm are within 5km of the proposed development site. Other projects included solar farm(s), quarries, residential developments, road works, port works and land disturbance. The assessment of cumulative effects concluded: Habitats - The potential for cumulative impacts associated with habitat loss are not significant. - There is no potential for significant cumulative effects on habitats through disturbance or pollution. Species - The scope for cumulative effects on plant species, Marsh Fritillary, reptiles and amphibians, terrestrial mammals and aquatic species are not significant. There is limited interactions between the Oatfield and Knockshavno wind farms and an absence of pathways for cumulative effects particularly considering timing, embedded design and mitigation. - The constraints -led design approach has minimised the risk of disturbance, displacement and reduced habitat extent/connectivity for bats. Significant cumulative effects on bats through these pathways are not anticipated. Despite the close proximity of the Knockshavno and Oatfield wind farms, taking into account predicted impacts and prescribed mitigation measures including BEMP and SHMP, no cumulative effects on bats are likely to occur. - Biosecurity measures for both the Oatfield and Knockshavno wind farm projects ensure that no significant cumulative effects will occur as a result of invasive species. This assessment was updated in the applicants FICAR, May 2025. Knockshavno WF - Habitats – Taking into account the proposed SHMP and BMP (Knockshavno), no significant effects are predicted. - Invasive Species – with respective biosecurity measures no cumulative effects are predicted. - Aquatic Habitats and Species – Based on limited interactions and absence of pathways between the two project, together with embedded design measures there is no likelihood for significant cumulative effects. - Bats – Despite proximity, taking into account the SHMP, BMP and prescribed mitigation measures including best practice construction, no cumulative effects are predicted. It is noted that the Knockshavno EIAR predicts no significant effects. - Otter, Badger, Red Squirrel, Pine Marten, Irish Hare – due to limited interaction between the proposed development sites and

	embedded design, no significant cumulative effects are predicted. Irish hare was not a KEF for Knockshavno WF. Ballycar WF - Habitats - Taking into account the proposed SHMP and BEMP (Ballycar), no significant effects are predicted. - Invasive Species – with respective biosecurity measures, including ISMPs, no significant cumulative effects are predicted. - Aquatic Habitats and Species – Taking into account SuDS, embedded design and respective CEMPs no cumulative effects are predicted. - Bats - taking into account the SHMP and prescribed mitigation measures, no cumulative effects are predicted. - Otter, Badger, Red Squirrel, Pine Marten, Irish Hare –no significant cumulative effects are predicted. Carrownagowan WF, Lackareagh WF and Fahybeg WF – no significant cumulative effects are predicted due to separation distances, absence of pathways, embedded design, good practice and prescribed mitigation measures etc. No other significant cumulative effects are predicted as a result of multi-project effects.
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15.4 Mitigation

15.4.1 The EIAR refers to the suite of mitigation measures embedded within the design and layout of the proposed development and as set out in Section 7.5 of EIAR Chapter 7. Full mitigation measures are set out in Chapter 21 of the EIAR and are also set out in each topic chapter. Measures are extensive and in relation to Biodiversity include:

- Best practice construction measures to minimise working areas, avoid/minimise the generation of additional noise, dust light, spill and vibration, limit disturbance effects on bats and other nocturnal and crepuscular species and avoid pollution of terrestrial and aquatic habitats as described in the CEMP (Appendix 5.1). Specifically, this includes:
 - No removal of habitats or movement of construction machinery outside of work areas
 - Tree protection barriers around root protection zones. Essential works within such zones will use ground protection (such as cellweb membranes) following consultation with a qualified arboriculturist,

- Retention and protection of trees in line with NRA, 2006 guidance on advice of appointed arboriculturist,
- An Invasive Species Management Plan (Appendix 7.8)
- Storage and disposal of edible and putrescible waste at a licensed facility.
- Excavations covered at night to prevent mammal trap, or means of escape provided.
- All plant and machinery will comply with specific noise legislation (S.I. No. 320/1988 – European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 (as amended)
- Maintenance of a 15m buffer from minor watercourses and land drains.
- Re-use of excavated materials for berms, landscaping and along road margins. Berms will be placed away from drains to avoid flow obstruction or siltation risk.
- A Sustainable Drainage System (SuDS) with on-site flow retention, buffer zones and silt removal techniques to manage run-off and reduce potential siltation.
- Use of environmentally friendly fluids in tunnelling and drilling operations.
- Use of directional lighting and low spill lights.
- Timing of works to avoid/minimise impacts on sensitive species in accordance with best practice. (Where not possible, preceded by and/or accompanied by ecological monitoring and/or supervision).
- Appointment of an appropriately qualified and experienced Ecological Clerk of Works (ECoW). Responsibilities will include:
 - Pre-construction walkover survey of work areas and appropriate buffers,
 - Authority to suspend works,
 - Information talks on sensitive ecological features,
 - Management of ecological issues

- Guidance to contractors to ensure legal compliance with regard to protected habitats and species
- Liaison with consenting authorities/statutory bodies.
- The creation and enhancement of heath, bog, grassland, scrub, hedgerows and conifer plantation in an SHMP. (Appendix 7.1)
- Bat buffer zones
- Detailed monitoring for 15 years post construction including habitat, bats and other species as detailed in the CEMP and SHMP. For bats this will include a fatality monitoring programme on collisions and baropressure effects through frequent carcass searches.

15.5 Residual Effects

15.5.1 With the implementation of mitigation measures, the residual effects are set out in Section 7.8 of Chapter 7. This provides that mitigation and enhancement measures are sufficient to avoid significant effects on KEFs and as such no residual effects are anticipated.

15.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined analysed and evaluated Chapter 7 of the EIAR, Memorandum No.3 (Biodiversity) which includes Appendix 1 (Updated SHMP) and Appendix 2 (Bat Report) (June 2024), the FICAR (Appendix 2), and updated Bat Ecology Figures (Appendix 5) (May 2025), the RFI Response Document of November 2025, and all of the associated documentation and submissions on file in respect of Biodiversity. 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 biodiversity as a consequence of the development have been identified. Parties have raised a number of issues in respect of biodiversity which I address below.

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

15.7.1 Parties raised concerns that biodiversity is in decline generally, and that in this context habitat lost to the development, including trees and

hedgerows, would have a significant adverse effect on further biodiversity decline. Concerns were also raised that the extent of habitat loss was not fully assessed. In response the applicant states that potential impacts have been thoroughly assessed in EIAR Chapter 7 and that with the adoption of the mitigation measures described, including those detailed in the SHMP, effects are not anticipated to be significant.

15.7.2 The baseline habitats within the proposed development site are identified and quantified in Table 7.13 of EIAR Chapter 7, the anticipated habitat loss as a result of the construction of the proposed development is identified and quantified in Table 7.22 and the assessment of construction effects is set out in Section 7.6.3.1. I am satisfied that the assessment has included consideration of temporary landtake, the IPP, GCR and the TDR in addition to the proposed turbines, access roads and substation etc. Habitats of very low ecological value were excluded from further assessment, and this is considered reasonable. The unmitigated impact of habitat loss in respect of KEF's, including hedgerow as a result of the development, is assessed as being of 'small' effect magnitude and of 'long-term slight negative effect' significance at a local level. The habitats of the site are largely dominated by agricultural land, conifer woodland and wet grassland within which the turbines will be located. These habitats are assessed as being highly modified and of low ecological value. The design of the project minimises loss of habitats of greater ecological value such as mixed broadleaved woodland which is limited to 0.4ha. It is proposed that heath, bog, grassland, scrub and hedgerows and conifer plantation habitats will be created and enhanced in proportion with the type and extent of habitat lost during construction with details of the habitat management regimes specified in the SHMP. This provides that a total area of 173.66ha of habitats and a total of 14.48km of linear habitats (including hedgerow) will be managed within the SHMP significantly exceeding habitat loss and resulting in significant biodiversity gain.

15.7.3 I have considered the habitat loss data (Table 7.22) and the managed habitat data (Table 1-6) proposed in the SHMP. I am satisfied that for the relevant KEFs the managed wet heath, wet heath/scrub and mixed broadleaved woodland are commensurate with the habitat which will be lost, and the managed wet grassland, scrub, hedgerows, treelines and drainage ditch habitat is significantly in excess of the habitats which will be lost. In particular I note that managed hedgerows (3355.4m), treelines (3632.85m) and drainage ditches (824.55) far exceed the respective habitat loss of 901m, 300m and 211.6m. The greatest habitat loss within the proposed development site is conifer plantation at 25.25ha and in respect of which the SHMP proposes 8.683ha of managed habitat. Conifer plantation is a habitat of relatively low ecological value, but it was deemed to be of potential value to Woodcock, Hen Harrier, Pine Marten and Red Squirrel. However, having regard to my findings in respect of these species I am satisfied that the nett loss of conifer plantation is not significant. I also note that the applicant is committed to replanting (at a distance of at least 10km) new conifer plantation of a type and extent proportionate with that lost in accordance with forestry licencing.

15.7.4 Overall, I am satisfied that the loss of habitat within the proposed development site is limited and acceptable in the context of the design of the project, and embedded mitigation measures. This is further influenced by my findings of no significant effects in respect of flora, fauna, ornithology, hydrology and the AA sections of my report. With the implementation of the SHMP enhancement measures I am satisfied that overall, there will be nett biodiversity gain as a result of the proposed development.

15.8 ***Impacts on Flora and Fauna generally***

15.8.1 Parties raised concerns that the site and area is home to many protected species which are threatened and in decline including, red squirrel, pine marten, badger, foxes, roe & sika deer at Drimmeen Woods.

Badger

15.8.2 The presence of badger both within and within close proximity of the site is confirmed by high levels of secondary evidence (mammal runs, foraging snuffle hole, scratching posts, prints, scatt etc), however no setts were confirmed within the proposed development site during walkover surveys and camera trap deployments did not return any sightings of badger. It is also noted that the last recorded NBDC sighting was 31/06/2016. It is accepted that the site contains habitat suitable for badger foraging and commuting activity, however given the ecological baseline and the absence of setts I am satisfied that the embedded design and proposed mitigation in the form of pre-construction surveys, best practice construction methods and ecological supervision are sufficient to avoid significant effects on badger as a result of habitat loss, fragmentation or disturbance.

Red Squirrel & Pine Marten

15.8.3 For red squirrel no activity or evidence was recorded during field surveys, but NBDC records include sightings within hectad R56 & R57 as recent as 26/01/2023 and an incidental sighting was recorded by the applicant during a breeding wader survey in May 2023. In addition, camera trap surveys identified five sightings of squirrel in November 2023 but the exact species of squirrel could not be verified. Six pine marten were recorded by camera traps together with an incidental sighting in September 2023. The primary likely impact on red squirrel and pine marten is associated with the removal of 25.5ha of conifer plantation habitat, however this loss is assessed by the EIAR as minimal in the context of the retained habitat within the development site and the wider landscape. In addition, the SHMP will include enhanced conifer plantation habitat which will mitigate the loss within the subject site. Having regard to same, the ecological baseline for both species, the limited signs of species activity within the extents of the subject site, the embedded design which includes buffers from watercourses and the availability of retained habitat within the site and the wider landscape, I am satisfied that there will be no significant effects on these species.

Other species

15.8.4 Otherwise, I note that due to a lack of sightings Irish Stoat, hedgehog and Pygmy Shrew were not considered further as a KEF. Whilst third parties raised concerns in relation to roe and sika deer, I note that neither were recorded in surveys. Roe deer is not a species which has an established wild population in Ireland, and they are generally considered to be absent. It is possible that third party reference to 'roe' deer was in error, with the intention to refer to red deer. Red deer were recorded during field surveys (incidental sightings) in addition to secondary evidence, however due to their high number and availability of suitable habitat they were not considered further as a KEF. Whilst red fox was identified by camera traps within the proposed development site, in addition to secondary evidence, this species was not considered further as a KEF as it is a common species in Ireland with no protection status that is highly adaptable to the habitats within and surrounding the development site and which will be included in the SHMP. This species is also not considered to be in decline. Whilst Irish Hare was also recorded in camera surveys, the EIAR found that there is limited suitable habitat for this species within the proposed development site. Given the limited extent of works which would occur in such habitat, together with embedded design, best practice construction and mitigation measures it was considered that there would be no significant effects on Irish Hare.

15.8.5 I am satisfied that the survey effort in relation to flora and fauna was sufficient and followed best practice. I do not consider that additional survey work is required. I note the ecological baseline as reported in the EIAR and I am satisfied that the embedded design and mitigation measures proposed including pre-construction surveys, the proportionate re-instatement and creation of habitat type and extent as detailed in the SHMP, timing of works, role of ECoW, ISMP, control of lighting and monitoring etc will ensure no significant effects on flora and fauna generally.

15.9 ***Impacts on Gortacullion Bog NHA and Doon Lough NHA***

15.9.1 Parties raised concerns in relation to potential impacts on Gortacullion Bog NHA (Site Code: 002401) which is located approx. 10m west of the

proposed development site. This site is of national importance for its peatland raised bog habitat. Conservation Objectives are not published. No works are proposed within this NHA and therefore I am satisfied that there will be no loss of habitat. Otherwise having regard to my findings in relation to dust, hydrology, hydrogeology and ornithology I am satisfied that there will be no significant effects on this national designated site or species which use it.

Doon Lough NHA (Site Code: 000337) is located approx. 1.6km from the proposed development site and has no hydrological connectivity. I am therefore satisfied that potential effects on the biodiversity of this site can be excluded.

15.10 *Impacts on Bat populations associated with Danes Hole Poulnalecka SAC and Ratty River Cave SAC.*

15.10.1 These considerations are addressed in the Stage 1 Screening Report (Appendix 1) and the Stage 2 AA (Appendix 2) appended to this report. For detailed assessment and reasons set out therein I consider that adverse effects on the site integrity of Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), and Kilkishen House SAC (002319), can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects.

15.11 *Impact on Otter, Atlantic Salmon, Lamprey and species associated with Lower River Shannon SAC*

15.11.1 These considerations are addressed in the Stage 1 Screening Report (Appendix 1) and the Stage 2 AA (Appendix 2) appended to this report. For the detailed assessment and reasons set out therein I consider that adverse effects on site integrity of the Lower River Shannon SAC (002165), can be excluded in view of the conservation objectives of this site and that no reasonable scientific doubt remains as to the absence of such effects.

15.12 *Invasive Species*

15.12.1 Parties were concerned that the applicant had failed to consider the presence of invasive species including Bark Beetle and the Monterey Pine

Engraver and otherwise that Japanese Knotweed was present on site. The applicant acknowledges that the Monterey Pine Beetle was recently discovered within the vicinity of the proposed development and cites DAFM guidance which states that the beetle is not thought to be a pest of economic significance for Ireland with its finding not effecting the movement of Irish spruce logs and other non-pine species. The applicant states that the dominant species of the conifer plantations is Sitka Spruce which is unaffected, and that all felling and replanting works will be undertaken in accordance with DAFM licencing and any restrictions/controls.

15.12.2 In this regard I note that the DAFM issued a notification of the finding in Co. Clare of a non-European bark beetle known as the Monterey pine engraver on 12th December 2023. Although the beetle is not specifically named in legislation, all non-European bark beetles are treated as Union Quarantine Pests under the Plant Health Regulations 2016/2031 regardless of the level of threat associated with a particular species. Pine (*Pinus*) trees are the host of the beetle. In response the DAFM established a 10km demarcated area around the traps where the beetles were found in accordance with the requirements of the EU Plant Health Regulation 2016/2031 and the national plant health legislation (SI No. 459 of 2020) and activated its Generic Plant Health Contingency Plan which carries restrictions on the felling and movement of pine species from demarcated areas. I note that the proposed development site is within the DAFMs Monterey Pine Engraver Demarcated Area, which means that untreated wood and wood products of pine can only leave the demarcated area under the control of the DAFM for treatment and not for direct trade to other parts of the Island or for export. In this regard I note that there is no change to the export requirements for spruce, other than a requirement that the species is specified when making an application for a Phytosanitary Certificate⁴⁵. Accordingly, I am satisfied that the applicant is correct and Spruce (*Picea*) is not a species affected by this specific bark

⁴⁵ Issued by DAFM and required for export/import. An official document verifying plant health standards and freedom from pests/disease.

beetle and that felling and movement operations are otherwise strictly regulated and controlled by the DAFM.

15.12.3 The presence of Japanese Knotweed is otherwise acknowledged by the applicant. Mitigation is set out in the CEMP and includes pre-construction surveys and implementation of an invasive species management plan (ISMP) which will be implemented for all recorded invasive species (Butterfly Bush, Himalayan Knotweed, Japanese Knotweed and Common Rhododendron). The ISMP provides that all staff will be briefed on the presence of invasive species and the requirements of the ISMP, contaminated areas will be marked out and controlled, vehicles will be excluded from contaminated areas, the ECoW will monitor and update implementation of the plan. In accordance with the recommendation of the DHLGH the applicant proposes to eradicate non-invasive plant species prior to the commencement of development.

15.12.4 I note that the occurrences of non-native invasive species is relatively limited, consisting of Butterfly-bush adjacent to the route of the IPP cable and 1.5km southwest of T4, Himalayan knotweed 664m south of T4, Japanese knotweed between T1 and T3 and Common Rhododendron along the IPP connection route. I am satisfied that the survey effort is robust and detailed, and that the ISMP including pre-construction surveys to assess any change in the baseline environment is an appropriate response to the presence of invasive species, providing for the control and eradication.

15.13 ***Marsh Fritillary***

15.13.1 Parties raised concerns that given the presence of Devils Bit Scabious within the proposed development site, the presence of Marsh Fritillary could not be excluded. It was considered that the survey effort was limited, mitigation measures insufficient and the potential impact(s) on the butterfly would be significant given its sensitive nature.

15.13.2 I note that Marsh Fritillary (MF) Web surveys were undertaken in September and habitat surveys in July and August. Whilst MF was not

recorded within or in close proximity to the development site, the applicant acknowledges the 10 MF webs reported in the historic NBDC data. The applicant also identified abundant Devils Bit Scabious (food source of the MF) within the proposed development site and deemed the site to be highly suitable for MF and of local importance (higher value) on a precautionary basis. The applicant finds that in the absence of mitigation, the proposed development will cause a decrease in the availability and connectivity of suitable MF habitat, but that with the implementation of mitigation measures, including the CEMP and SHMP there will be no residual effects on MF.

15.13.3 I note surveys were undertaken at the optimum time having regard to best practice. Mitigation includes pre-construction surveys to revise or confirm occupancy habitat records, micro-design (if required), retiming of works, vegetation management and as a last resort relocation of larval webs under the supervision and advice of an EcOW. Importantly, the suitable MF habitat consists of primarily of wet grassland, and I note that the managed wet grassland habitat within the SHMP is significantly in excess of that which will be lost. I am satisfied that the survey effort is sufficient, that an appropriate precautionary approach has been adopted and that the potential impacts of habitat loss are satisfactorily mitigated and include for habitat enhancement.

15.14 **Bats**

15.14.1 In my opinion, the primary biodiversity concerns arising in respect of the proposed development concerns the potential effects on Bats, specifically the Lesser Horseshoe Bat (LHB) and its connection with Danes Hole, Poulnalecka SAC and Ratty River Cave SAC. Parties, including NPWS, raised concerns in relation to LHB, including the survey effort and absence of winter surveys, cumulative effects with the proposed Knockshavno wind farm and absence of roost surveys in respect of the TDR specifically. These matters were all considered and addressed in the Appropriate Assessment Section of my report, Appendix 1 and 2 refers, and which has already been addressed above.

15.14.2 In respect of other species, the PDS and adjacent land has been identified as being of Local Importance (Higher Value) for foraging and commuting bat species including Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat, Natterer's Bat, Myotis species, Nathusius's Pipistrelle and Brown Long-eared Bat were also recorded during field surveys, but the site was not considered to be important for these species. No bat roosts were identified within the PDS. The proposed development includes best practice construction measures and embedded design measures which have been described above. These measures will minimise loss and fragmentation of suitable bat habitat including woodland, higher quality grassland and hedgerows and will minimise light spill onto suitable foraging habitat and potential roosts. Pre-construction surveys will also be undertaken to identify any potential roost which would be affected by the proposed works with appropriate mitigation adopted (appropriate timing of works, provision of bat boxes to replace tree roosts). On the basis of embedded mitigation, disturbance and direct mortality effects on bats during construction is considered to be negligible and is not predicted to be significant. The decrease in the availability and connectivity of suitable bat foraging and commuting habitat is assessed as a potential small effect magnitude and long term slight negative slight effect which is significant at a local level in the absence of additional mitigation.

15.14.3 At operational stage effects on foraging, roosting and commuting bats through habitat loss, fragmentation and disturbance are not considered significant. In relation to collision risk and barotrauma resulting from close contact with turbine blades, it was considered that three species (Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat) are of high collision risk and LHB, which is considered in the AA section of this report, was of low risk. Other species recorded were not considered of sufficient importance in the context of the PDS to necessitate further consideration. The proposed development again includes embedded design measures in this regard to minimise the risk of collisions and baropressure effects which notably consist of clearing linear tree/hedgerow features and forestry features within 97m of

turbine blade tips, to render the area unfavourable for bats and discourage them from flying through or in close proximity to turbines. Collision and baropressure effects will otherwise be monitored through carcass searching as described in Section 7.9, the CEMP and SHMP. On this basis habitat loss, fragmentation, disturbance and displacement effects at operational stage are assessed as negligible and not significant. Direct mortality effects are assessed as minor and not significant.

15.14.4 I note that the applicant assesses the decrease in the availability and connectivity of suitable bat foraging and commuting habitat at construction stage as a potential small effect magnitude and long term slight negative effect which is significant at a local level in the absence of additional mitigation. In this regard the loss of suitable habitat is limited and the proposed SHMP provides that a total area of 173.66ha of habitats and 14.48km of linear habitats, including 3355.4m of hedgerows and 3632.85 of treelines will be provided as managed habitat. In this regard I am satisfied that the enhanced managed habitat provided in the SHMP will result in nett biodiversity gain to the benefit of bat ecology and that no significant effects will arise as a result of habitat loss, fragmentation or degradation. Otherwise, I am satisfied that the assessment of likely effects is robust and that significant effects on bat species are likely limited to the local effects on local populations for construction. I do not consider that additional survey work is required, or that the loss of habitat areas is significant. Mitigation measures are in accordance with NatureScot guidelines. Appropriately sized bat buffers will prevent significant collision risk and barotrauma and linear vegetation which is lost will be replaced, enhanced and actively managed over the lifetime of the development, particularly through the SHMP.

15.15 ***SHMP & Mitigation Measures***

15.15.1 Concerns were raised that the applicant did not have sufficient control over the necessary lands to give effect to and maintain the SHMP. Additional

concerns were raised that Section 7.7. of the EIAR was missing in relation to mitigation measures, and therefore a finding of no significant effects could not be reached.

15.15.2 In relation to the SHMP and legal interest, this was the subject of the Commission's request for further information on 17th January 2025 (Item No.4 refers). The applicant addressed this matter in their response to further information in May 2025 in the form of the RFI Cover Letter, Appendix 6 and Appendix 7. These matters collectively confirm the legal interest of the applicant in the lands outlined in blue and within which the SHMP is located. The applicant confirms that all lands included in the updated blue line boundary were assessed in the original application and that there is no change in any assessment associated with SHMP lands. I am satisfied that this is the case and that the applicants response addresses the matter of sufficient legal interest. In relation to the absence of mitigation measures in Section 7.7. of the EIAR, I note that in both the hard copy and digital copy, there is indeed no record of mitigation measures. However, given that the proposed development primarily relies on embedded mitigation measures and the SHMP to mitigate potential significant effects, which are satisfactorily described throughout the EIAR and CEMP, and that no other significant residual effects remain which require mitigation, I am satisfied that this omission is not of material importance. In any event mitigation measures for biodiversity Chapter 7 are set out in EIAR Chapter 21 (summary of mitigation measures) and there are no anomalies in this regard.

15.16 Conclusion: Direct and Indirect Effects (*Biodiversity*)

Having regard to my examination of environmental information as set out above, and in respect of Section 16 (Ornithology) and Section 17 (Hydrology and Hydrogeology), Appendix 1 (AA Screening) and Appendix 2 (Stage 2 AA) to this report, I am satisfied that there is no potential for significant environmental effects on Biodiversity.

16. Ornithology

Issues Raised

Parties to the application mainly raised concerns in relation to Hen Harrier including habitat loss, disturbance, collision risk and survey effort. Similar concerns were also raised in relation to Kestrel, Sparrow Hawks, Peregrine Falcon, Buzzards, Woodpecker, Grouse, Long-eared Owls, White Tailed Eagle and other birds of conservation concern on the Red and Amber List, in addition to consideration of cumulative effects. The LA raised concerns that the proposed development, together with the adjacent proposed Knockshavno wind farm, would have a negative effect on Hen Harrier and Red Grouse creating a barrier effect to dispersal, regular movements or migration, resulting in displacement, collision and mortality. The LA noted the applicant's proposal to create a dedicated Species and Habitat Management Plan (SHMP) as managed habitats for Hen Harrier and Red Grouse but was not satisfied that the applicant had sufficient legal interest to implement same. Similarly, the DHLGH was not satisfied with the impact assessment or collision risk modelling for hen harrier, that cumulative impacts had been fully considered or that the commitment to implementation of the SHMP was clear and robust. The DHLGH also raised concerns in relation to AA Screening of the SHMP, however I have addressed this matter in the AA section of my report.

16.1 Examination of the EIAR

Context

- 16.1.1 Chapter 8 of the EIAR deals with Ornithology. The assessment is undertaken having regard to the requirements of EU Birds Directive (2009/147/EC), EIA Directive (2014/52/EU) and the International, European and National Conventions and Legislation set out in S.8.1.3. National and International policy and guidance documents are also referenced including best practice NatureScot guidance (formerly Scottish Natural Heritage, 2017). A Statement of Authority is included.

Associated Appendices are:

- Appendix 8.1 -Collision Risk Modelling
- Appendix 8.2 – NBDC Data
- Appendix 8.3 – Survey Details
- Appendix 8.4 – Figures
- Appendix 8.5 – Survey Data

The applicant's response to submissions in respect of Ornithology is set out in Memorandum No.4 (June 2024).

The applicant's further information response (May 2025) includes the following relevant documents:

- Appendix 2 - an updated cumulative impact assessment report (FICAR). Chapter 3 of the FICAR addresses Ornithology.
- Appendix 6 – Legal Letter from Orsted confirming legal interest in SHMP lands
- Appendix 7 – Updated planning drawings (to scale) with folio numbers clarifying the red and blue line boundaries of the proposed development site as regards the proposed SHMP.

The applicant's second further information response is set out in RFI document (November 2025). Section 2.4 addresses the applicant's response to the DHLGH (FI) submission in respect of Hen Harrier.

16.1.2. I also note the AA Screening Report and NIS originally submitted with the application, and the updated NIS (May 2025), however these documents are considered in the AA section of my report (Appendix 1 & 2 refers) in respect of European sites and qualifying SCI species.

16.1.3 Assessment approach and methodology include determination of the zone of influence, desk study, field surveys, identification of target species, key ornithological features and biodiversity receptors. The following sources and surveys informed the ornithological baseline:

- NPWS website
- National Biodiversity Data Centre (NBDC) (Appendix 8.2 refers)
- BirdWatch Ireland website
- Countryside Bird Survey (CBS) transect surveys during the breeding seasons (April to September Inc. 2022 and 2023) and winter season (October to March inc. 2022/23)
- Vantage Point (VP) surveys during the breeding seasons (2022/23) and winter seasons 2021/22 and 2022/23.
- Breeding Woodcock surveys during the breeding season 2022/23
- Breeding Wader surveys during the breeding season 2022/23
- Breeding Raptor surveys (notably for Hen Harrier) during the breeding season 2022/23
- Breeding Barn Owl surveys during the breeding season 2022/23
- Breeding Kingfisher, Dipper and Grey Wagtail surveys during the breeding season 2023
- Wintering Wetland Bird Surveys (WeBS) during wintering season 2022/23
- Wintering Red Grouse surveys during the winter season 2022/23
- Wintering Hen Harrier roost surveys during the winter season 2022/23.

No significant limitations in relation to the scope, scale or context of the impact assessment were identified.

16.2 Baseline

16.2.1 The baseline ornithological conditions are described in Section 8.4 of the EIAR. A Natura Impact Statement (NIS) was prepared for the proposed development, in accordance with EPA guidance this section of the EIAR provides summary findings only in relation to effects on European Sites. Three European Sites were scoped in for further assessment as Key Ornithological Features (KOF's):

- River Shannon and River Fergus Estuaries SPA (004077)
- Lough Derg (Shannon) SPA (004165)

- Slievefelim to Silvermines Mountains SPA (004058)

There are no RAMSAR sites within 15km of the proposed development site and considered distance and scope for impacts no RAMSAR sites were carried forward for further assessment.

The following Nationally Designated Sites were scoped in as KOF's for further assessment based on their ornithological interest and potential scope for impacts:

- Gortacullin Bog NHA
- Woodcock Hill Bog NHA
- Doon Lough NHA
- Knockalisheen Marsh pNHA
- Garrannon Wood pNHA
- Fergus Estuary and Inner Shannon, North Shore pNHA

One Important Bird Area (IBA) was scoped in as KOFs on a precautionary basis based on its proximity and scope for impacts:

- Shannon and Fergus Estuaries

16.2.2 Targeted Species Accounts are detailed in Section 8.4.3 and are summarised hereunder.

- ***Species Included as KOF:***

Buzzard

Observed on 76 occasions during breeding season 2022 and 2023 VP and CBS transect surveys. Observed on 61 occasions during winter season 2021/22 and 2022/23 VP and CBS transect surveys. Frequent flight activity was therefore recorded, including flights within the proposed development site (PDS), overlapping territories and including adjacent suitable habitat.

Merlin

One individual observed hunting small passerines during breeding season 2022 VP surveys (approx. 94m W of IPP route). Despite no recorded activity within the PDS, and low levels nearby, included as a KOF on a precautionary basis given conservation status (rare breeding species).

Kestrel

Included on BoCCI Red List due to widespread decline. Sighted on 129 occasions during 2022 breeding season. Majority outside PDS, estimating four territories adjacent to the PDS (Gortnacullin Bog NHA & three further east of the EDA). Two confirmed nests during breeding Kestrel suitability surveys, 1.1km and 2.8km from the EDA respectively. A total of four suitable nests (with no nesting activity) confirmed during 2022/23 breeding surveys: one along the IPP Route, 240m east of WDA, two north and east of EDA and 1km from PDS, one within the footprint of the WDA, 424m east of T4. Kestrels are highly active within the PDS both during breeding and wintering periods as described in S.8.4.3.4 and are included as a KOF.

Peregrine

Included on Annex I of the EC Birds Directive and BoCCI green list. Low activity recorded with none within the PDS. Included as a KOF on a precautionary basis.

Hen Harrier

Included on Annex I of the EC Birds Directive and BoCCI amber list. A total of 63 Hen Harrier observations were recorded during breeding surveys in 2022/23 with territories identified overlapping the EDA, WDA, N and NE of the WDA, Gortacullin Bog NHA and IPP connection route. Three active Hen Harrier nest sites were recorded in 2022: 613m north of T3, 356m north of T7 and 1km west of T11. Two active nests were recorded in 2023: 970m west of T11 and 487m south of T8. Twelve sightings of Hen Harrier were recorded during winter season VP surveys in 2021/22 and four sightings in 2022/23 both within and in proximity to the PDS as described in Appendix 8.4, Fig. 8-15). Wintering Hen Harrier roost surveys in 2022/23 returned 11 observations,

with key areas used for foraging including land south of Gortacullin Bog NHA and north of the WDA. No roosts were identified during these surveys. Suitable Hen Harrier (HH) habitat exists within and in close proximity to the PDS, notably heath and forestry plantations. Considering the level of breeding and wintering activity recorded, in particular the presence of active nests and frequently used foraging habitat and the conservation status of this species, HH is included as KOF.

Red Grouse

Included on BoCCI Red List. No Red Grouse were recorded during winter surveys targeting this species. Three Red Grouse were recorded incidentally during breeding wader and raptor surveys in 2023: an adult male flushed from heather approx. 637m north of T7, a pair flying over suitable breeding habitat approx. 469m north of T7, and one calling from suitable breeding habitat approx. 932m north of T6. Gortacullin Bog NHA has been identified as providing suitable habitat for Red Grouse (NPWS 2004) and field surveys confirm their presence and likelihood of using NHA habitat. Observations indicate the presence of 1-2 Red Grouse territories in suitable habitat north of the PDS and considering this and their conservation status the species is included as a KOF.

Woodcock

Included on the BoCCI Red List. Breeding Woodcock surveys undertaken in 2022/23 recorded a total of 21 observations, with all observations in 2022 occurring within a conifer plantation approx. 685m north of the WDA. Conifer plantation within and adjacent to the PDS is highly suitable for Woodcock, both for breeding and wintering and considering the level of breeding activity recorded and the conservation status of the species, it is included as a KOF.

Golden Plover

Included on the BoCCI Amber List. A designated SCI of the River Shannon and River Fergus Estuaries SPA. A peak count of 146 Golden Plovers was observed during the winter season 2022/23 VP surveys. Flightline activity

suggests most activity occurs outside of the PDS within Gortacullin Bog NHA, although some activity was recorded near T11. No Golden Plover were recorded during the breeding seasons 2022/23. Land within and in close proximity to the PDS comprises low quality breeding and wintering habitat but considering the flight numbers recorded and the conservation status of the species, it is included as a KOF.

Snipe

Included on the BoCCI Red List. Ten Snipe observed during 2021/22 and eleven during 2022/23 winter season VP Surveys, all outside PDS. One Snipe was recorded during winter season 2022/23 CBS transect surveys and five Snipe were observed during the 2023 breeding wader surveys, including one partially within the PDS approx. 267m west of T8. Both breeding and wintering habitat is available within and adjacent to the PSD in the form of wet grassland and wet heathland. Based on activity recorded and conservation status, Snipe is included as a KOF.

Passerines and Other Bird Species

Full details of BoCCI Red, Amber and Green listed passerines are provided in Appendix 8.5. Of these passerine and other bird species Meadow Pit, Willow Warbler, Starling and Raven are included as KOFs for the reasons given in Section 8.4.3.18.

- ***Species Not Included as KOF:***

Sparrowhawk

Common, widespread and with stable population trend and breeding range. Breeding season sightings occurred outside the proposed development site boundary. Due to the low level of activity recorded (inc. winter season within the development site), distribution of this activity and conservation status, not included as a KOF. (Section 8.4.3.2 refers).

White-tailed Eagle

Included on the BoCCI Red List. White-tailed Eagle was sighted on four occasions during the winter season 2021/22 VP surveys in November 2021 (within Gortacullin Bog NHA). It is considered that these sightings were associated with the immediately preceding re-introduction and that the birds have now dispersed far from the PDS. No other sightings were recorded. For this reason and the limited suitability of the PDS for this species, it is not included as a KOF.

Barn Owl

Included on the BoCCI Red List. A total of six high suitability potential nest sites were identified during Breeding Barn Owl surveys, with no Barn Owl recorded at any of these sites. No Barn Owls were observed during any field surveys. Considering this, and the suitability of nesting and foraging habitat within the wider landscape, Barn Owl was not included as a KOF.

Curlew

Included on the BoCCI Red List. A designated SCI of the River Shannon and River Fergus Estuaries SPA. Observed twice during 2022 VP breeding season surveys. Not observed during 2023 breeding season or winter season 2022/23. No evidence of breeding activity recorded. Due to low frequency of sightings and the extent and suitability of habitat within and adjacent to the PDS, not included as a KOF.

Lapwing

Included on the BoCCI Red List. A designated SCI of the River Shannon and River Fergus Estuaries SPA. Considering the lack of Lapwing activity recorded and the limited suitability of habitat within or in close proximity to the PDS, Lapwing is not included as a KOF.

Redshank

Included on the BoCCI Red List. A designated SCI of the River Shannon and River Fergus Estuaries SPA. Whilst suitable breeding habitat is present within and adjacent to the PDS, no sightings were recorded during breeding season

2022/23. Considering the level of activity during the breeding and wintering season, Redshank is not included as a KOF.

Lesser Black-headed Gull

Included on the BoCCI Amber List. Considering the level of activity recorded, notably the low level of flight activity over the PDS and the suitability of habitats present, this species is not included as a KOF.

Black-headed Gull

Included on the BoCCI Red List. A designated SCI of the River Shannon and River Fergus Estuaries SPA. Considering the low level of activity recorded during the breeding and winter seasons, the suitability of habitat within and in close proximity to the PDS, this species is not included as a KOF.

Herring Gull

Included on the BoCCI Amber List. Due to the limited suitability of habitat within and adjacent to the PDS and the low level of activity recorded, this species is not included as a KOF.

Other Waterbirds

Other waterbird species recorded during the 2022/23 wintering wetland bird surveys included: Grey Heron, Little Egret, Mallard, Moorhen, Mute Swan, Whooper Swan, Wigeon, Tufted Duck, Cormorant, Coot and Great Crested Grebe. Activity for this waterbird species is described in Section 8.4.3.17 and Appendix 8.4 (Fig. 8-16). Based on the low level of activity recorded none of these species are included as a KOF.

16.2.3 Summary of Key Ornithological Features (KOFs):

Accordingly, the following KOF's have been identified for the purposes of further assessment:

- **Internationally Designated Sites:**
 - River Shannon and River Fergus Estuaries SPA (004077)
 - Lough Derg (Shannon) SPA (004165)

- Slievefelim to Silvermines Mountains SPA (004058)
- Shannon and Fergus Estuaries
- **Nationally Designated Sites:**
 - Gortacullin Bog NHA
 - Woodcock Hill Bog NHA
 - Doon Lough NHA
 - Knockalisheen Marsh pNHA
 - Garrannon Wood pNHA
 - Fergus Estuary and Inner Shannon, North Shore pNHA
- **Raptors:**
 - Hen Harrier (Year-round): National Importance
 - Kestrel (year-round): County/District Importance
 - Buzzard, Peregrine and Merlin (year-round): Local Importance (Higher Value)
- **Red Grouse** (Year-round): County/District Importance
- **Woodcock** (year-round): County/District Importance
- **Waders:** Golden Plover (winter) Snipe (year-round): Local Importance (Lower Value)
- **Passerines:** Meadow Pit, Starling and Raven (year-round), Willow Warbler (breeding): Local Importance (Higher Value)

16.3 Potential Effects

16.3.1 Potential direct, indirect and cumulative effects of the development on KOFs are identified in the EIAR, Section 8.6 for the different phases of the development. These are summarised in Table ONY1 below:

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

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing Phase	Not Assessed

Construction Phase	<i>Hen Harrier (Breeding & Wintering)</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10 and includes loss of habitat of value to breeding and wintering Hen Harrier. Despite larger habitat retainment, the potential loss of suitable nesting habitat and active foraging habitat, including that within the core foraging range of active nests, is considered to potentially have a long-term significant negative effect on breeding and wintering Hen Harrier at a National Level based on a moderate effect on a high sensitivity receptor. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS (with regard to baseline activity and location of nest sites) and the reduced extent of available habitat into which disturbed Hen Harrier could be displaced, it is considered that the proposed development has potential to result in a slight impact on a high sensitivity receptor at a National level through disturbance and displacement resulting in a short-term slight significant negative effect at a National level on breeding and wintering Hen Harrier. <i>Kestrel (Breeding & Wintering)</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10 and includes loss of habitat of value to foraging Kestrels during the winter and breeding season. The majority of Kestrel habitat will be retained, but despite retainment the potential loss of foraging habitat (inc. within the core foraging range of active nests) is considered to potentially have a long-term significant negative effect on breeding and wintering Kestrel at a County/District level based on a moderate effect on a medium sensitivity receptor. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS (with regard to baseline activity) and the reduced extent of available habitat into which disturbed Kestrel could be displaced, it is considered that the proposed development has potential to result in a short-term significant negative effect on breeding and wintering Kestrel at a County/District level as result of a slight effect on a medium sensitivity receptor. <i>Buzzard, Peregrine and Merlin</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10 and includes loss of habitat of value to foraging raptors but does not include the locations of any know raptor nest sites. The majority of suitable raptor nesting and foraging habitat will be retained, but despite retainment the potential loss of nest sites and suitable foraging habitat is considered to potentially have a long-term significant negative effect on Buzzard, Peregrine and Merlin at a Local level based on slight effect on low sensitivity receptors. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS (with regard to baseline activity) and the reduced extent of
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	available habitat into which disturbed raptors would be displaced, it is considered that the proposed development has potential to result in a short-term significant negative effect on Buzzard, Peregrine and Merlin at a Local level as result of a slight effect on low sensitivity receptors. <i>Red Grouse</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10 and whilst this includes the loss of suitable heather-dominated habitat, no Red Grouse observations were recorded in this habitat during detailed field surveys between 2021 and 2023 and much large areas will be retained, including with Gortacullin Bog NHA. Despite this retainment the potential loss of suitable habitat and the resultant effect on habitat availability and connectivity is considered to potentially have a long-term significant negative effect on Red Grouse at a County/District level based on slight effect on a medium sensitivity receptor. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS (with regard to baseline Red Grouse activity, notably the location of breeding territories) and the reduced extent of available habitat into which disturbed Red Grouse would be displaced, it is considered that the proposed development has potential to result in a short-term significant negative effect on breeding and wintering Red Grouse at a County/District level as result of a slight effect on a medium sensitivity receptor. <i>Woodcock</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10 and whilst this includes the loss of highly suitable breeding and wintering habitat for Woodcock (notably conifer plantation), wider areas of suitable habitat will be retained. Despite this retainment the potential loss of highly suitable breeding and wintering habitat is considered to potentially have a long term significant negative effect on Woodcock at a County/District level based on a moderate effect on a medium sensitivity receptor. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS (with regard to baseline activity, notably the locations of breeding territories) and the reduced extent of available habitat into which disturbed Woodcock would be displaced, it is considered that the proposed development has potential to result in a short-term significant negative effect on breeding and wintering Woodcock at a County/District level as result of a slight effect on a medium sensitivity receptor. <i>Waders</i> <i>Snipe</i> Considering the low levels of Snipe activity and embedded mitigation (including retained suitable habitat), effects on Snipe during construction are not significant. <i>Golden Plover</i>
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	No significant use of habitats within or in close proximity to the PDS was identified (nesting, foraging or roosting) for Golden Plover. Considering the level of activity recorded, effects on Golden Plover are considered not significant. <i>Passerines</i> <i>Direct Habitat Loss & Fragmentation</i> Habitat loss is described in Table 8.10. This includes the permanent and temporary loss of habitat of value to breeding and wintering passerines including Meadow Pit, Starling, Raven and Willow Warbler. Whilst the majority of suitable habitat will be retained, the onsite habitat removal will result in permanent and temporary reductions in the availability of suitable habitat used by important breeding and wintering passerine populations and will potentially cause increased fragmentation of suitable passerine habitat. It is considered that the proposed development will potentially have a long-term significant negative effect on breeding and wintering passerines at a local level based on a slight effect on a low sensitivity receptor. <i>Disturbance and Displacement</i> Considering the extent and locations of construction works within the PDS and the reduced extent of available habitat into which disturbed birds would be displaced, it is considered that the proposed development has potential to result in a short-term significant negative effect on breeding and wintering passerines at a Local level as result of a slight effect on a low sensitivity receptor.
Operational Phase	<i>Hen Harrier</i> <i>Habitat Loss & Fragmentation</i> Vegetation removal will be small scale. Effects on breeding and wintering Hen Harrier due to habitat loss and fragmentation during the operational phase are not considered to be significant. <i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance and embedded mitigation, effects on breeding and wintering Hen Harrier due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Considering the high level of baseline Hen Harrier activity at the PDS, the potential for significant effects due to collisions with operational turbines was subject to detailed consideration with the CRM (Appendix 8.1). Modelled Hen Harrier collision fatalities are estimated as 0.01 birds per year, equating to one Hen Harrier collision every 76.15 to 87.42 years. When assessed in the context of the population recorded within the PDS and adjacent land, operational phase collision impacts are assessed as not significant. <i>Kestrel</i> <i>Habitat Loss & Fragmentation</i> Vegetation removal will be small scale. Effects on breeding and wintering Kestrel due to habitat loss and fragmentation during the operational phase are not considered to be significant.

	<i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance and embedded mitigation, effects on breeding and wintering Kestrel due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Due to their size and flight patterns Kestrels can be particularly susceptible to impacts from collisions, considering this and the levels of baseline activity, the potential for significant effects due to collisions with operational turbines was subject to detailed consideration with the CRM (Appendix 8.1). Modelled Kestrel collision fatalities during the breeding season are estimated as 0.23 to 0.26 birds per year, equating to one Kestrel collision every 3.83 to 4.42 years. Modelled collision fatalities during the winter season are estimated as 0.05 to 0.06 birds per year, equating to one Kestrel collision every 15.02 to 18.27 years. It is considered that this would likely equate to less than 1% of the county population which would not be significant compared against the background mortality for this species of 31% in adult Kestrels and 68% in juveniles (BTO, 2023). When assessed in the context of the population recorded within the PDS and adjacent land, and the regional and national status of the species, operational phase collision impacts are assessed as not significant. <i>Other Raptors (Buzzard, Peregrine and Merlin)</i> <i>Habitat Loss & Fragmentation</i> Vegetation removal will be small scale. Effects on breeding and wintering raptors due to habitat loss and fragmentation during the operational phase are not considered to be significant. <i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance and embedded mitigation, effects on breeding and wintering raptors due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Based on the lack of flight activity with the flight risk volume of the proposed turbines, CRM was not carried out for Peregrine or Merlin. Modelled Buzzard collision fatalities during breeding season are estimated as 0.06 to 0.07 bird per year, equating to one Buzzard collision every 13.93 to 15.94 years, Modelled Buzzard collision fatalities during the winter season are estimated as 0.03 birds per year, equating to one Buzzard collision every 32.11 to 36.75 years. When assessed in the context of the population recorded within the PDS and adjacent land, and the regional and national status of the species, operational phase collision impacts on Buzzard are assessed as not significant. <i>Red Grouse</i> <i>Habitat Loss & Fragmentation</i> Vegetation removal will be small scale. Effects on Red Grouse due to habitat loss and fragmentation during the operational phase are not considered to be significant.
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	<i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance and embedded mitigation, effects on Red Grouse due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Due to their typical flight patterns, gamebirds such as grouse are not generally considered susceptible to significant impacts from collisions with new turbines (Thaxter et al., 2017). Red Grouse activity over the proposed turbine locations was insufficient to justify detailed CRM. Collision impacts on Red Grouse during the operational phase are not considered to be significant. <i>Woodcock</i> <i>Habitat Loss & Fragmentation</i> Vegetation removal will be small scale. Effects on breeding and wintering Woodcock due to habitat loss and fragmentation during the operational phase are not considered to be significant. <i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance and embedded mitigation, effects on breeding and wintering Woodcock due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Whilst displaying Woodcock may fly at heights which would potentially bring them into contact with turbine blades, Woodcock flight activity over the proposed turbine locations was insufficient to justify detailed CRM. Collision impacts on Woodcock during the operational phase are not considered to be significant. <i>Waders (Golden Plover, Snipe & Others)</i> Low levels of activity by Golden Plover, Snipe & other wader species was recorded within and adjacent to the PDS. Considering the level and type of activity recorded, effects on waders due to habitat loss, fragmentation, disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Considering typical flight heights Golden Plover have potential to collide with turbines. CRM for this species was therefore undertaken on a precautionary basis. Modelled Golden Plover collision fatalities are estimated as 0.04 birds per year, equating to one Golden Plover collision every 24.46 to 27.63 years affecting less than 1% of the county population. This would not be significant compared against the background mortality for this species of 27% in adult birds (BTO). When assessed in the context of the population recorded within the PDS and adjacent land operational phase collision impacts are assessed as not significant. <i>Passerines (Specifically Meadow Pipit, Starling, Raven & Willow Warbler)</i> <i>Habitat Loss & Fragmentation</i>
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	Vegetation removal will be small scale. Effects on breeding and wintering Passerines due to habitat loss and fragmentation during the operational phase are not considered to be significant. <i>Disturbance & Displacement</i> Considering the limited scale of operational disturbance, the low sensitivity of relevant passerine species and embedded mitigation, effects on breeding and wintering Passerines due to disturbance and displacement during the operational phase are not considered to be significant. <i>Collision Risk</i> Due to their size and typical flight patterns, Passerine species such as those relevant to the PDS are not considered susceptible to significant impacts from collisions with new turbines (Thaxter et al., 2017). As such CRM was not undertaken for these species. Collision impacts on breeding and wintering Passerines during the operational phase are not considered to be significant.
Decommissioning Phase	Likely effects on all KOFs from habitat loss, fragmentation and disturbance during the decommissioning of the proposed development are considered not significant.
Designated Sites	European Sites are considered in the AA section of my report (Appendix 1 and 2 refers) NHA's (including Gortacullion Bog NHA) – considering their lack of ornithological qualifying features potential effects on the NHAs regarding features of ornithological interest are not considered significant. Shannon and Fergus Estuaries IBA – There is no potential for adverse effects.
Cumulative Effects	Cumulative Effects were first considered in EIAR Chapter 8 for all projects within 10km of the PDS and all wind farms within 20km of the PDS. Methodology is set out in EIAR Chapter 2 and 20. The assessment was carried out in accordance with CIEEM (2018) and SNH (2018) Guidance. Seven wind farms were identified within 20km of the PDS as summarised in Table 8.15, these include the single Parteen and Vision Care Turbine(s), the permitted Carrownagown WF, the (then) pre-planning Knockshavno, Ballycar and Lackareagh WF and the appealed Fahybeg WF. In this case other developments include solar farms, quarries and residential developments. The consideration of cumulative effects was then addressed in the applicant's response to submissions (June 2024). Memorandum No.4 and 15 refer. However, this was with reference to the information contained in EIAR Chapter 8. The applicant submitted an updated Cumulative Impact Assessment Report as part of their further information response (May 2025). This report included a detailed consideration of potential cumulative effects for Biodiversity including Ornithology in Section 3.2 including detailed other project information which was not available at the EIAR time of writing. For the purposes of this report, it is referred to as the 'FICAR'. The applicant further addressed cumulative considerations in their second further information response (November 2025) in relation to Hen Harrier and Kestrel. The summary information provided hereunder, and the mitigation measures and residual effects sections

	of my report which follow, have had regard to the totality of the collective cumulative information submitted and in the interests of brevity reflects the most up to date information/assessment. <i>Habitat Loss and Fragmentation</i> The EIAR originally determined that considering baseline activity the potential for cumulative effects with nearby wind farms must be considered. Of the windfarms scoped in for cumulative assessment only Knockshavno is within 2km (approx. 0.5km north). The next nearest is Ballycar approx. 4.7km south. Whilst detailed ornithological information was not available, it was considered that Knockshavno potentially involved the removal or alteration of suitable habitat (conifer plantation, grassland and heath) within the core foraging range of Hen Harrier and Kestrel. Whilst outside the core foraging range other wind farms within 10km could contribute to the loss and fragmentation of habitat used by these species. For these reasons the proposed development could give rise to significant cumulative effects on Hen Harrier (moderate effect on high sensitivity receptor) and Kestrel (moderate effect on medium sensitivity receptor) in combination with other wind farm developments through habitat loss and fragmentation. <i>Updated in FICAR</i> <i>Hen Harrier</i> It was considered that the Knockshavno WF had the potential to result in the removal or alteration of suitable habitat within the core foraging range (2km) of Hen Harrier and that the Carrownagown WF had the potential to contribute to the loss and/or fragmentation of habitat used by these species (within 10km). In respect of the Ballycar WF some foraging habitat would be lost during construction but this would be compensated in the BEMP. No breeding habitat will be lost and significant cumulative effects are not predicted. It was noted that the Fahybeg WF recorded activity at negligible levels and was not considered important for Hen Harrier and that the Lackareagh WF recorded no breeding territories or nesting and low foraging activity with no significant effects through habitat loss anticipated for Hen Harrier. It was not considered that the Fahybeg or Lackareagh WF had potential for significant cumulative effects through habitat loss or fragmentation. Carrownagowan WF EIAR predicted no significant effects at a local or national level. For the Lackareagh Windfarm no significant habitat loss was anticipated for the species. It was not considered that these windfarms had potential for significant cumulative effects through habitat loss or fragmentation. <i>Peregrine</i> Habitats are of low value, no impacts on foraging and nesting Peregrine No Sig. (Knockshavno). For Carrownagowan no significant effects at a national or local level predicted. For Fahybeg WF no suitable nesting, breeding or roosting habitat recorded, and site not deemed important for species. For Lackareagh WF no significant effects through habitat loss expected. It was not considered that these windfarms had potential for significant cumulative effects through habitat loss or fragmentation. For Ballycar WF there is no habitat of significant value and no significant cumulative effects are predicted.
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	<i>Kestrel</i> Some loss of habitat value to foraging Kestrels during breeding and winter season Knockshavno. For Fahybeg WF the EIAR determined that the windfarm would result in the loss of hunting habitat for Kestrel. For Carrownagowan WF the species is classified as 'low sensitivity' and no significant effects at a local or national level are predicted. For Lackareagh WF there will be minimal loss of habitat and significant effects are not anticipated. For Ballycar WF some suitable foraging habitat for Kestrel will be lost, which will be compensated with measures in the BEMP. Significant cumulative effects are not predicted. <i>Snipe</i> Habitat loss not significant. Suitable areas of nesting and foraging for Snipe are not a scarce resource will remain post construction. No Sig. (Knockshavno). Snipe is otherwise not a shared KOF with Carrownagowan, Fahybeg or Lackareagh WF. It was not considered that these windfarms had potential for significant cumulative effects through habitat loss or fragmentation. <i>Woodcock</i> Sig reduction in breeding habitat, but not a significant loss as conifer forestry is widely available (Knockshavno). For Carrownagowan WF the species is breeding in small numbers and no significant effects at a local or national level are predicted. Woodcock was not a shared KOF with Lackareagh WF. For Ballycar WF habitat loss is not significant as commercial forestry is widely available in the surrounding areas. For Fahybeg WF, the EIAR states that the development will not affect breeding woodcock, with habitat loss described as a 'very low significant effect' and local 'long-term imperceptible'. <i>Buzzard (and other Raptors)</i> Felling of forestry will potentially result in loss of nesting habitat, significant areas of breeding habitat will remain on site and in wider area post construction (Knockshavno). For Fahybeg WF the windfarm was not found to be important for Merlin. Permanent habitat loss of 0.04ha of long-established woodland was assessed as a 'very low' and 'long-term imperceptible' effect on Buzzard. For Ballycar WF the majority of Buzzard habitat will be retained, with habitat loss mitigated through enhancement measures (BEMP). Significant effects not predicted. For Carrownagowan WF no significant effects are predicted on Buzzard or Merlin at a local or national level. For Lackareagh WF no significant effects through habitat loss are predicted. <i>Collision Risk</i> Considering the proposed and operational wind farm projects within the potential foraging ranges of Hen Harrier and Kestrel, it was considered that the potential for cumulative effects through turbine collisions must be considered. Notably the potential associated with the Knockshavno wind farm which proposes nine new turbines approx. 0.5km north of the PDS. <i>Hen Harrier</i>
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	The EIAR considered that the estimated collision fatalities for Hen Harrier as a result of the proposed development (as described above for operational phase) are considered sufficiently low such that there is no potential for them to contribute to significant cumulative operational collision fatality effects on Hen Harrier with the proposed Knockshavno Wind Farm or any other project. The FICAR subsequently confirmed that the Knockshavno WF EIAR states that there is no significant collision risk during the operational phase of that windfarm. Accordingly, no significant cumulative effect on Hen Harrier is likely to occur. Significant cumulative collision risks with the Carrownagowan, Fahybeg, Ballycar and Lackareagh WF are not predicted. <i>Red Grouse</i> Flight activity over the proposed turbines within the Oatfield development was considered insufficient to justify detailed CRM. The FICAR subsequently confirmed that the CRM for Red Grouse within the Knockshavno WF EIAR deemed the risk to be 'very low' and 'long-term imperceptible'. No cumulative impacts in regard to collision risk are likely to occur. Red Grouse is not a shared KOF with Fahybeg WF and significant cumulative collision risks with Carrownagowan and Lackareagh WF are not predicted. <i>Peregrine</i> Flight activity over the proposed turbines within the Oatfield development was considered insufficient to justify detailed CRM. The FICAR subsequently confirmed that the CRM for Peregrine within the Knockshavno WF EIAR deemed the risk to be 'very low'. No cumulative impacts in regard to collision risk are likely to occur. CRM was not considered necessary for this species with the Carrownagowan, Ballycar, Fahybeg or Lackareagh WF. <i>Kestrel</i> The EIAR originally considered that if collision fatalities from the Knockshavno wind farm are similar to or lower than those from the proposed development (as described above for operational phase), the combined collision fatalities will still equate to less than 1% of the county population and these increases are considered unlikely to be significant when compared with annual background mortality for this species. As such when assessed in the context of the Kestrel population recorded within the PDS and adjacent land, the regional and national status of the species, cumulative operational collision fatality effects on Kestrel with the proposed Knockshavno wind farm or any other wind farm projects were considered not significant. The FICAR subsequently confirmed that the collision risk at the Knockshavno WF would result in a combined (all seasons) total of 1.86 collisions per year, at the Carrownagowan WF the collision risk was modelled at 0.365 collisions per year or 11 birds over the 30-year lifetime of the project, at Fahybeg the predicted collisions is estimated at 6.34-8.33 for the lifetime of the wind farm, at Ballycar predicted collisions equate to 0.312 collisions per year or 10.935 over the lifetime of the project and at Lackareagh predicted collisions equate to one collision every 3.83-4.42 years (breeding) and one collision every 15.02 to 18.27 years (winter). Overall, it is considered that increases in bird mortality would be significant when compared against background mortality for the species (31% in adults and 68% in juveniles), the
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	context of the county population (c. 519 birds) and the regional and national status of the species and the overall cumulative collision risk was considered not significant. <i>Other Species</i> The EIAR originally assessed that the collision risk for other species (e.g. Buzzard, Golden Plover, Snipe, Woodcock, other raptors, waders and passerines), having regard to flight activity levels, precautionary CRM (where carried out), and their national, regional and local conservation status etc, would not be significant and that there was no potential for significant cumulative effects on these species through operation turbine collisions. The FICAR has subsequently confirmed that the Knockshavno WF EIAR assesses the collision risk for these species to be 'very low' and 'long-term imperceptible' and insufficient to justify detailed collision risk modelling. This was also the case for the Carrownagowan, Ballycar WF, Fahybeg WF and Lackareagh WF with the exception of Buzzard where CRM predicted the risk at 3.5 birds over the lifetime of the project (Carrownagowan) which was not considered significant, 14.958 for the lifetime of the Ballycar project and 10.78 - 13.84 for the lifetime of the Fahybeg project which was considered long-term imperceptible' at a national level. For Lackareagh WF the risk was calculated as one bird every three years, which loss from the local population was considered to be of low significance. Therefore, no cumulative impacts in regard to collision risk are predicted. <i>Disturbance & Displacement</i> The EIAR originally considered that based on the limited scope for effects from the proposed development and the limited scope for effects from nearby windfarm projects within only one within 4km of the PDS, there was no potential for significant cumulative disturbance effects during construction, operation and decommissioning. <i>Updated in FICAR</i> For Knockshavno WF disturbance and displacement effects on Hen Harrier are possible. It is concluded that as both projects involve measures to avoid direct or indirect impacts on active Hen Harrier nests with extensive measures to identify any future interactions, the cumulative impact is not expected to increase the overall magnitude or significance effect on Hen Harrier which is assessed short-term slight significant negative effect at a National level on breeding and wintering Hen Harrier at Oatfield WF. The Knockshavno WF otherwise predicts no significant disturbance effects for Red Grouse, Peregrine, Kestrel, Snipe, or Woodcock. For Buzzard the Knockshavno WF EIAR predicts a measurable reduction in the breeding density of Buzzard onsite and a reduction in the amount of foraging habitat around the site. It is concluded that with embedded design, best practice (CEMP) and enhancement measures the cumulative impact is not expected to increase the overall magnitude or significance of effect on Buzzard which is assessed as potentially a long-term significant negative effect on Buzzard at a Local level based on slight effect on low sensitivity receptor. For Carrownagowan, Ballycar, Fahybeg and Lackareagh WF no significant disturbance or displacement effects are predicted for all species which are shared KOFs. It is considered that the potential for effects is addressed through embedded design and best practice
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	methodologies etc as set out in respective CEMP's in addition to enhancement measures. <i>Grid Connections</i> There is no overlap between the proposed Oatfield GCR and the Knockshavno, Ballycar, Lackareagh or Fahybeg GCR's. Whilst there is an overlap with the Carrownagowan GCR it is minor and localised at the junction of R471 and L-30423 and will not result in significant cumulative effects. <i>Turbine Delivery Routes</i> No significant effects are identified with the TDR for the Knockshavno, Ballycar or Carrownagowan WF. Whilst the TDR for the Lackareagh and Fahybeg WF does identify respective significant effects, and a part of the TDR is shared with the Oatfield TDR, the routes part and there is no overlap of works such that pose a risk of significant cumulative effects. <i>Other Relevant Projects</i> In order to secure planning approval other projects will have required mitigation to avoid any significant loss, disturbance or fragmentation of important habitats for birds. Considering this and their distance from the PDS (at least 4km), coupled with bird activity recorded within the PDS and the scope for effects from the proposed development, it is not considered that there is potential for significant cumulative effects through habitat loss or disturbance during any stages of the proposed development with any other non-wind farm project. Whilst other projects were identified within 250m of the TDR, considering the limited potential for effects on ornithological features due to activities associated with the TDR, there is no potential for significant cumulative effects. <i>Updated in FICAR</i> I note the updated assessment of 'multi-project cumulative effects' in the FICAR (Section 3.2.17) and that this concludes no cumulative impacts are likely to occur including on Avian Species or Avifauna.
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16.4 Embedded Mitigation

Embedded mitigation is described in Section 8.5 and includes best practice construction measures in the CEMP (Appendix 5.1), timing of works outside of peak breeding season with exclusions zones around active nests (if necessary, during peak breeding season), and appointment of an EcOW with responsibility for pre-construction surveys, training, management, guidance and statutory liaison.

16.5 Mitigation

Mitigation measures are described in Section 8.7. A Species and Habitats Management Plan (SHMP) has been produced to provide a framework for the conservation and enhancement of ecological features (notably Hen Harrier and Red Grouse) to avoid potential significant adverse effects and ensure the proposed development is managed in the interests of biodiversity. The SHMP should be read in conjunction with mitigation measures. Mitigation measures include:

Construction Phase (In addition to embedded design measures)

- Habitats will be created in proportion with the type and extent of habitat loss during construction (See Table 8.10). The design and management of the habitats will take into consideration suitability for birds, notably KOFs identified in the assessment and the risk of effects from collisions with wind turbines, with the creation of features which could bring target species into proximity with turbines avoided.
- Detailed habitat re-instatement and creation focusing on Red Grouse and Hen Harrier in the SHMP, which allocates a total of 173.66ha of managed habitats and 14.48km of linear habitats for Hen Harriers during the lifetime of the proposed development. This includes management/creation of grassland, heath, scrub and forestry to the benefit of KOFs.

Operational Phase

- No operational phase impacts were identified requiring targeted mitigation over and above the embedded mitigation.
- Post-construction monitoring as described in Section 8.9 and specified in the CEMP and SHMP. This will include habitat monitoring, bird population monitoring and Avian mortality monitoring.

Decommissioning Phase

- No decommissioning phase impacts were identified requiring targeted mitigation over and above the embedded mitigation.

- Any habitat temporarily cleared during the decommissioning phase will be reinstated on a like-for-like basis and other areas will be restored to the pre-construction baseline conditions.
- At the end of the first year following decommissioning the PDS will be reassessed by a suitably qualified ecologist to assess habitats and species present and inform any further management requirements to ensure the PDS is suitable for bird populations and other flora and fauna long-term.

Enhancement Measures

- Enhancement measures are specified in the SHMP.

16.6 Residual Effects

The assessment of effects on KOFs presented in the EIAR Chapter 8 identified potentially significant construction stage effects as a result of direct habitat loss and fragmentation, disturbance and displacement of passerines, Red Grouse, Hen Harrier, Kestrel, other raptor species and Woodcock, including potential cumulative effects with other nearby developments. Additional mitigation and enhancement measures were proposed in Section 8.7 of EIAR Chapter 8 including measures prescribed within the SHMP which focuses on delivering mitigation and enhancements for Red Grouse and Hen Harrier and other KOFs. It was deemed that these measures will be sufficient to avoid significant effects on the relevant bird populations. As such no residual effects are anticipated.

16.7 Analysis, Evaluation and Assessment: Direct and Indirect Effects

16.7.1 I have examined, analysed and evaluated Chapter 8 of the EIAR and all the associated documentation presented in the relevant appendices, plans and drawings. I am satisfied that the applicant's understanding of the baseline environment, by way of desk and site surveys is largely comprehensive and that the key impacts on birds/ornithology have been identified. Issues raised by parties to the appeal are considered below, and primarily concern Hen

Harrier as set out in the submissions received, the LA CE report and the DHLGH (NPWS) reports.

16.8 Hen Harrier

Baseline Population

16.8.1 In its first statutory report (26/02/2024) the DHLGH raised a number of concerns in relation to Hen Harrier. The DHLGH was concerned that the baseline population had not been adequately determined, given that the population at this location is associated with a 'non-designated' area. The DHLGH states that for protected sites (SPAs) this is usually quite straight forward, but that for non-designated sites an analysis of whether a homogeneous area of suitable habitat occurs and potential density of species in such habitat, within the wider area of the application site is required, following Percival 2003. This would then constitute the baseline against which the magnitude of any predicted effects should be judged. The applicant did not address this issue in its response to submissions (June 2024), or in its further information responses of May 2025 or November 2025. The DHLGH in its second submission states that the Hen Harrier Threat Response Plan was published in September 2024 and that the proposed Oatfield windfarm development is within a non-designated important breeding area (No.14). The DHLGH states that the boundary for this Regionally Important Breeding Area (No.14) would have been a suitable boundary for such an analysis, concluding that it would have been useful if the applicant has considered this in their overall assessment.

16.8.2 The DHLGH concerns in this regard relate to adequate determination of the baseline population with a view to sufficiently informing CRM and the resulting collision and mortality risk for this species. In this regard the applicants CRM is based on data collected from VPs at the proposed Oatfield Wind Farm during the breeding season (March to September inclusive) for two years (2022 and 2023) and two wintering seasons (October 2021 to March 2022 and October 2022 to March 2023), following best practice SNH,

2017 methods. VP surveys include the development footprint plus a 1km buffer which is in excess of the minimum indicated by best practice⁴⁶. The model is conservative, likely to indicate a higher estimate of collision risk based on additional flight lines, with flight data collected in optimal weather conditions and scheduling falling well within the best practice tolerances for such work. In my opinion, this survey effort follows best practice and offers reassurance of a robust evaluation of potential impacts. I am satisfied that the methodology, effort and duration will have sufficiently captured Hen Harrier activity within the PDS and on adjacent land including land associated with any homogenous area at this location. I note that the DHLGH did not continue to sustain this point of objection. Otherwise, I am further reassured that the applicant updated their assessment of cumulative collision risk effects in the context of the local population estimated in 2022 to be 5-9 pairs (Slieve Aughties and Slieve Bernagh to Keeper Hill areas; Ruddock et al 2024) as set out hereunder and that sufficient information was provided to robustly address this issue.

Cumulative or In-combination effects

- 16.8.3 In its first statutory report (26/02/2024) the DHLGH was also concerned that the potential for cumulative effects was not adequately assessed. The DHLGH noted that the potential for cumulative impacts with the proposed Knockshavno wind farm was identified, but no analysis was undertaken of the significance of this impact on the relevant population. Other pressures were also not considered, such as proposed forestry planting and felling applications in the area. The applicant essentially accepted this position on the basis that at the time of writing (the EIAR), a number of wind farm developments remained at pre-planning stage and detailed information was not available to inform a cumulative assessment of effects. The applicant addressed this in their further information response of May 2025 which

⁴⁶ 800m

included an FICAR and in their second RFI response document of November 2025.

Collision Risk & Mortality

- 16.8.4 The collision risk for hen harrier as a result of the proposed Oatfield Wind Farm has been calculated as 0.01 collisions per year which equates to one Hen Harrier collision every 76.15 to 87.42 years. The cumulative CRM for each relevant additional wind farm considered for cumulative effects is set out below in Table ONY2.

Table ONY2: Cumulative Collision Risk(s)

Wind Farm	Collision Risks	Cumulative Collision Risk with Oatfield WF
Knockshavno	0.078 collisions per year.	0.088 collisions per year.
Ballycar	0.0007 collisions per year.	0.0107 collisions per year.
Carrownagowna	0.56 collisions per year.	0.066 collisions per year.
Fahybeg	Hen Harrier not selected for CRM based on negligible level of activity	Not predicted.
Lackareagh	One bird every 584 years.	Not predicted.

- 16.8.5 The total annual collision risk for all proposed and consented wind farms is predicted to be 0.155 collisions per year which equates to a total of 5.6 fatalities during a 30–35-year lifespan. Of this Oatfield contributes 0.46 fatalities over a 35-year lifespan of the project or 8.2%. The applicant assesses this against a local population of 5-9 pairs and finds that the additional impacts arising from the cumulative collision risk associated with all six windfarms would be a 2% increase in background mortality which would be a low magnitude of effect and in EPA terms not a significant impact.
- 16.8.6 I am satisfied on the basis of the collective information received that the applicant has adequately considered the potential cumulative collision risk effects on Hen Harrier, that this includes all relevant wind farms and is assessed against an appropriate baseline population. I am in agreement with the applicant that the predicted collision risk as a result of the proposed

Oatfield development at 0.01 collisions per year or one bird every 76.15 to 87.42 years is not a significant effect. I am also in agreement with the applicant that the increase of 2% in the background mortality rate for this species as a result of the total cumulative collision risk (all windfarms) is not a significant effect. Over the lifetime of the proposed Oatfield wind farm the project is predicted to contribute 0.46 fatalities (over 35 years) to the cumulative fatality figures of all six wind farms assessed as a result of collision risk and I am satisfied that the proposed development will not result in significant cumulative mortality effects on this species as a result of collision risk.

Species and Habitat Management Plan (SHMP)

16.8.7 In its first statutory report (26/02/2024) the DHLGH also raised concerns in relation to the proposed SHMP. Whilst welcoming the plan the DHLGH opined that it had not been screened for AA or assessed in the main text of the EIAR, noting that current suitable nesting/foraging habitat resource lost would not be replaced by enhancing another suitable habitat. The DHLGH also takes issue with the Hen Harrier disturbance zone around each turbine at 250m which equates to an area of 19.7ha. The DHLGH considers that there are grounds to question the efficacy of this mitigation measure⁴⁷ and opines that the proximity of the turbines to nesting and foraging habitats used by local breeding Hen Harriers will likely cause some displacement and disturbance along with likely negative effects on breeding outcomes up to a radius of 1km from the turbines. The DHLGH recommends that this is reconsidered in the SHMP. Finally, the DHLGH was concerned in relation to the applicant's legal interest in the lands associated with the SHMP to assure its implementation and maintenance.

16.8.8 The applicant provides a Stage 1 AA Screening opinion in respect of the SHMP in its response to submissions in June 2024. Appendix 1 refers. The applicant finds that there is no potential for significant effects on any

⁴⁷ Pearce-Higgins et al (2009), O'Donoghue et al (2001), Wilson et al (2015), Fernandez-Bellon et al (2015).

European Sites, individually or in-combination with any other projects. I have addressed this matter the Stage 1 AA Screening section of my report (Appendix 1 refers) and for the reasons set out therein I agree with the applicant that Appropriate Assessment of the SHMP is not required. I note that the DHLGH did not comment further on this matter.

16.8.9 In respect of proposed exclusion or buffer zones (nesting buffers) for Hen Harrier the applicant maintains its position in response to the DHLGH as set ultimately out in RFI document (November 2025). The applicant notes the comments of the DHLGH but states that for non-SPA populations guidance provides for a distance of 300-750m as indicated in NatureScot Research Report 1283 – *‘Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species’* (Goodship & Furness, 2022). The applicant elaborates on the ecology protocol for the construction and operational phases.

16.8.10 For the construction phase the applicant states that the NatureScot report recommends a larger buffer zone between 500-1000m for activities with a high potential for visual and auditory disturbance. In this regard the applicant proposes the employment of a Hen Harrier expert who would advise the construction team on a real-time basis of any potential nest prospecting and viable nests, with construction activities limited within 750m of any confirmed nest during the breeding season (Goodship & Furness, 2022). The applicant advises that this puts a lot of heavy construction activity into the wettest period of the year so it is proposed to caveat this protocol with a provision that the expert would retain the ability to allow certain heavy lifting works to take place during the breeding season in consultation with NPWS, if they are satisfied it would not impact Hen Harrier nests success such as with stage 2-3 week old Hen Harrier chicks. In terms of certainty of this mitigation measure the applicant advises that such a scenario worked successfully on the Ballyhouras Project in Co. Cork where Hen Harriers fledged chicks every year during construction and five years thereafter within 300m of an active turbine.

16.8.11 For the operation phase the applicant states that the NatureScot report states that Hen Harrier will nest at 200 to 300m of an operational wind turbine (Madders and Whitfield, 2006) or closer (Ruddock and Whitfield, 2007). On this basis it is recommended that curtailment is considered within 300m of an active Hen Harrier nest subject to a protocol based on the successful protocol agreed with NPWS on the Ballyhouras Project and which provides that:

- Breeding season vantage point assessment in accordance with SNH, 2017, will commence in February on all suitable breeding habitats, by a suitably qualified ecologist and will continue during the breeding season until the end of August,
- If pre-breeding activity (nuptial flights, nest site prospecting) is noted within 300m of an operational turbine, the site will be given additional survey time to confirm breeding. If breeding is confirmed, NPWS will be notified.
- Mitigation may necessitate curtailment of turbines for some of the breeding season based on assessment by NPWS and advice of the on-site Ornithologist.

Disturbance and displacement

16.8.12 Disturbance and displacement effects were assessed as a short-term slight significant negative effect at a National Level on breeding and wintering Hen Harrier at construction stage. No significant effects were predicted at Operational Stage. Whilst I acknowledge the concerns of the DHLGH in relation to nest buffer zones, I accept that the applicant has provided contemporary evidence to support its position that a buffer zone of 300-800m is appropriate in respect of a non-SPA population. I am further satisfied having regard to the collective information provided by the applicant including the SHMP, ecology protocol measures, predator control measures, Ecologist supervision and a successful precedent case for the implementation of the measures proposed that it can be concluded that the proposed development will not result in significant disturbance or displacement effects on Hen Harrier, in a cumulative scenario or other and that there is a reasonable

expectation of a positive outcome for breeding Hen Harrier on the basis of the measures proposed.

Habitat loss, degradation and fragmentation

16.8.13 The most important habitat types for Hen Harrier consist of bog, open moorland, grasslands, woodland and scrub. Habitat loss as a result of the proposed development is detailed in Table 8.10. of EIAR Chapter 8 and the most significant loss of habitat types relative to the Hen Harrier is summarised in Table ONY3 below⁴⁸.

Table ONY3: Hen Harrier Habitats (lost & retained)

Habitat Type	Pre-construction extent within the PDS	Extent of permanent land take
GS3/GS4 'Dry-humid acid grassland/wet grassland	1.039 ha	0.1301ha
GS4 Wet grassland	30.020ha	0.7184ha
HH3 Wet Heath	14.058 ha	3.6422 ha
HH3/WS1 Wet heath/Scrub	1.110 ha	0.3514 ha
WD1 (Mixed) broadleaved woodland	2.156 ha	0.4114 ha
WN6 Wet willow-alder-ash woodland	1.374 ha	0.0032 ha
WS1 Scrub	13.234 ha	1.6888 ha

16.8.14 In my opinion the habitat which will be lost versus the habitat which will be retained within the site and wider landscape is clearly limited in terms of that which is of value to Hen Harrier. The applicant assesses this as a long-term significant negative effect on breeding and wintering Hen Harrier at a National Level based on a moderate effect on a high sensitivity receptor. With embedded mitigation and the SHMP the applicant concludes that there will be no significant residual effects.

16.8.15 The SHMP provides for full (re)allocation of the more important GS4, HH3, WN6 and WS1 habitats which will be lost to the development as a part of 173.66ha of managed habitats, which far exceeds the quantum of habitats

⁴⁸ Worst case scenario based on all three turbine types

lost and includes detailed management prescriptions based upon the NPWS Farm Plan Scheme. In addition the most significant (worst case) habitat loss as a result of the proposed development is conifer plantation (25.2511ha of 62.186ha), which, especially when mature, are not suitable for Hen Harrier and are considered to contribute to their decline⁴⁹ with such activities prohibited in SPAs.

16.8.16 I note the location of the managed SHMP lands which are selected to provide a net gain of foraging habitat for Hen Harrier over the lifetime of the plan close to nesting and foraging areas, which together with the predator control programme, are expected to collectively benefit breeding Hen Harrier in proximity to the PDS. I note that this is based on the positive results from similar measures operating in the Ballyhouras Wind Farm, with the same design, construction and operational team responsible for these measures and their implementation.

16.8.17 On balance, I am satisfied that with the SHMP the proposed development will not result in significant effects on Hen Harrier as a result of habitat loss, fragmentation or degradation, in a cumulative scenario or other, and I am in agreement with the findings of the applicant in this regard.

16.9 Other Species

16.9.1 Concerns were also raised in the submissions received in relation to other bird species, including passerines, Kestrel and with the LA and NPWS specifically mentioning Red Grouse and Woodcock. In terms of passerines, I am satisfied that the slight negative effect (local) level as a result of habitat loss, and disturbance at construction stage, as described in Table, can be successfully mitigated by the embedded design and best practice measures (extensively discussed above) such that there will be no significant residual effects. I note that no significant effects were predicted at operational stage with Passerine species not considered susceptible to significant impacts from collisions with new turbines (Thaxter et al., 2017). As such CRM was not

⁴⁹ NPWS, Birdwatch Ireland

undertaken for these species and collision impacts on breeding and wintering Passerines during the operational phase are not considered to be significant.

16.9.2 In terms of Kestrel, Woodcock and Red Grouse, I am satisfied that the slight negative effect (County/District) level as a result of habitat loss, and disturbance at construction stage, as described in Table, can be successfully mitigated by the embedded design and best practice measures (extensively discussed above), together with the SHMP which is also specifically designed to provide for Red Grouse, such that there will be no significant residual effects. I note that no significant effects were predicted at operational stage due to habitat loss or disturbance. In relation to collision risk and Kestrel it is considered that the modelled collision risk and predicted fatalities would likely equate to less than 1% of the county population which would not be significant compared against the background mortality for this species of 31% in adult Kestrels and 68% in juveniles (BTO, 2023). When assessed in the context of the population recorded within the PDS and adjacent land, and the regional and national status of the species, operational phase collision impacts are assessed as not significant for Kestrel. In relation to Woodcock, Red Grouse and collision risk flight activity over the proposed turbine locations was insufficient to justify detailed CRM and collision impacts on both species during the operational phase are not considered to be significant.

16.10 Conclusion: Direct and Indirect Effects (*Ornithology*)

16.10.1 Having regard to my examination of environmental information as set out above and in Appendix 1 and 2 to this report, I am satisfied that there is no potential for significant environmental effects on Ornithology.

17. Water (Hydrology & Hydrogeology)

Issues Raised

Issues raised in the course of the planning application concern proximity of works to watercourses, connection to and impacts on the Lower River Shannan SAC, impacts on private drinking water sources (wells), flood risk and competency of authors. The LA raised concerns in relation to potential

downstream impacts on the Lower River Shannon SAC as a result of the extent of tree felling proposed, the extent of the drainage network on site, the extent of water crossings proposed, soil type, timing of works (in wetter periods), volumes of spoil to be managed on site and the nature and extent of construction works.

17.1 Examination of the EIAR

Context

17.1.1 Chapter 9 of the EIAR deals with Hydrology and Hydrogeology. The assessment is undertaken having regard to the requirements of European legislation, National legislation and policy and the relevant guidance set out in Section 9.2.2. A statement of authority is included.

17.1.2 The assessment methodology is described in Section 9.2 and is based on the objective of Nature Based Solutions and Net Benefit Impacts. It includes a desktop study, scoping and consultation and field work including a site walkover, drainage distribution and catchment mapping, field hydrochemistry of the drainage network, baseline sampling of surface water targeting low and high flow conditions and baseline sampling and estimation of surface water flow and discharge rates. The main associated Figures and Appendices are:

- Appendix 9.1 - Flood Risk Assessment (FRA)
- Appendix 9.2 – Site Photographs
- Appendix 9.3 – Surface Water Hydrochemistry Database
- Appendix 9.4 – Surface Water Sampling Laboratory Certificates
- Appendix 9.5 – Conceptual and Information Graphics
- Appendix 9.6 – Figures.

17.1.3 The applicant's response to submissions in respect of hydrology and hydrogeology is set out in Memorandum No.5 (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated

cumulative impact assessment report (FICAR). Chapter 4 of the FICAR addresses hydrology and hydrogeology.

17.2 Baseline

17.2.1 A review of the Corine (2018) and EPA land use maps indicates that the site mainly comprises a combination of peat bogs, pastures, transitional woodland scrub and coniferous forests. As much of the site is mapped as coniferous forest, these areas are significantly impacted by extensive commercial land works, drainage, excavation and manipulation of natural soil profile or horizons. The GCR is comprised of land classified as pasture, agriculture with significant areas of natural vegetation and transitional woodland scrub. The TDR crosses land classified as pasture, transitional woodland scrub, discontinuous urban fabric, agriculture with significant areas of natural vegetation, peat bogs, inland marshes, industrial and commercial units, salt marshes and mixed bogs.

17.2.2 The surface water network draining the site is mapped and presented in Figures 9.2 (a-c). The windfarm is situated within the Lower Shannon Catchment (Code:25; Area 1041.26km²) and Shannon Estuary North (ID:27; Area: 1651.27km²). The GCR is situated solely within the Lower Shannon Catchment. The TDR is situated within the Lower Shannon Catchment and Shannon Estuary South (Code:24; Area: 2033.96km²). Surface water runoff associated with the wind farm site drains into two sub catchments and five river sub basins as shown in Figure 9.4a and Figure 9.5a and summarised as follows:

- Sub Catchment: Shannon [Lower]_SC_100; River Sub Basins: Mountrice_010, Blackwater [Clare]_010 and Owenogarney_030;
- Sub Catchment: Owenogarney_SC_010; River Sub Basins: Broadford_030 and Gournal_010.

17.2.3 The GCR drains into one sub catchment and four river sub basins as shown in Fig 9.4b and Figure 9.5b and as summarised as follows:

- Sub Catchment: Shannon [Lower]_SC_100; River Sub Basins: Blackwater [Clare]_010, Blackwater [Clare]_020, Shannon [Lower]_060, Ballynaclogh_010.

The TDR drains into ten sub catchments and twenty-eight river sub basins as shown in Fig. 9.4c and Fig. 9.5c.

17.2.4 The site is characterised by a relatively extensive network of non-mapped natural and artificial drainage channels and existing surface water runoff is contained within natural and artificial drainage channels including stream and river waterbodies, drainage ditches and other minor natural and artificial manmade drainage features. Together with existing surface water crossings these are presented in Fig. 9.6a. This was informed by lidar survey data, aerial photography and historical mapping.

17.2.5 FRA has determined that the windfarm site is not within a probable flood zone, nor has it experienced historical flooding. The development is categorised as 'less vulnerable' and is considered appropriate in a Flood Zone C. The FRA finds that the site will lead to a nett increase in run off equating to 0.754 m³/second or 0.19% relative to the site area which is considered an adverse but slight impact which is minor in terms of effect. Drainage will be attenuated to greenfield run-off and the flood risk will not increase elsewhere in the catchment. The FRA finds that there is no mapped drainage along the GCR and no areas mapped as being of low, medium or high probability flood risk within or immediately downstream of the GCR. Given the nature of these works there will be minimal land take and no significant impact to run off rates. The TDR is temporary and will not result in significant impact to run off rates.

17.2.6 EPA monitoring points and Q-values are shown in Table 9.12. It is noted that the Broadford River, Gourná River and Mountrice River are 'moderate' and 'at risk' according to the WFD Cycle 3 sub catchment assessment, and the Blackwater (Clare) River is 'good' and 'at risk' and the Owenogarney River 'good' and 'not at risk'. The main pressures are identified as agriculture, forestry and channelisation: altered habitat due to hydrological

and morphological changes. Surface water quality observed at monitoring stations was deemed to be of a generally good quality (as presented in Appendix 9.3) with elevated concentrations of Zinc and Ammoniacal Nitrogen indicative of current commercial forestry land practices. It is noted that the LA Water Programme has prioritised Broadford, Owenogarney and Blackwater catchments as an area of action for restoration. The lake water bodies associated with the surface water network (Duin CE; EU Code: IE_SH_27_121), (Castle CE; EU Code: IE_SH_27_74) have a 'moderate' status, are under review and 'at risk'⁵⁰ with pressures associated with agriculture.

17.2.7 Mapped wells within 20km of the EIAR boundary are shown in Fig. 9.8a and Fig. 9.8b. As this is an incomplete dataset it is conservatively assumed that all dwellings located within 2km of the EIAR site boundary have the potential to maintain a groundwater well for abstraction. In addition, all WFD ground water bodies have been identified as Drinking Water Protected Areas (DWPA) due to potential for qualifying abstractions for human consumption. The Lough Graney GWB (IE_SH_G_157) and Tulla-Newmarket on Fergus GWB (IE_SH_G_229) underlies the EIAR Site boundary and surrounding areas. There are no Drinking water rivers designated in accordance with the European Communities (Drinking Water)((No.2) Regulations 2007 (SI no 278/2007) within the River sub basin or sub catchments associated with the site. There are no surface water bodies designated for drinking water downstream. The nearest GWSS, NFGWSS and GSI Public Source of Protection are not hydrologically connected to the proposed development site.

17.2.8 The Western DA of the wind farm site is underlain by a 'poor aquifer' except for local zones and small areas of 'locally important aquifer'. The Eastern DA is underlain by a 'locally important aquifer'. The GCR is underlain

⁵⁰ WFD 2016-2021.

by the same classification of aquifers. The TDR is underlain by 'regionally important aquifers' in addition to the same classifications.

17.2.9 The proposed location of T1, T3, T6, T10 & T11 are mapped⁵¹ as areas with 'rock near surface' vulnerability and T2, T4, T5, T7, T8 & T9 are in areas of 'extreme vulnerability' as regards the quantity of contaminants that can reach groundwater. The GCR and TDR traverse land with vulnerability ranging from 'low vulnerability' to 'extreme vulnerability'. The site is characterised by low to high recharge rates in overburden (soils/subsoils) and low to very high recharge capacity in the underlying bedrock aquifers. This implies that during seasonally wet or extreme meteorological conditions, the majority of rain water introduced to the site will drain off as surface water run-off and rejected recharge water volumes will likely discharge to surface waters relatively rapidly characterised as a rapid hydrological response to rainfall or a 'flashy regime'. Groundwater flow directions at the site are presumed to follow topography, with the majority circulating in the upper overburden saturated zone recharging and discharging in local zones with a high flow rate. As such the groundwater is considered to be 'young', implying it will be more vulnerable in terms of water quality to a pollution incident.

17.2.10 Designated and Protected Areas associated with the development are detailed in Fig. 9.3 and Fig. 9.12a. The nearest sites are: Gortacullin Bog NHA (Site Code: 002401) 0.1km to the north of the EDA, Doon Lough NHA (Site Code: 000337) 3.81km to the northwest of the EDA and Danes Hole Poulnalecka SAC (Site Code: 000030) 4km to the west of the EDA. The proposed GCR does not traverse a protected area.

17.3 Potential Effects

17.3.1 The EIAR identifies the potential for a range of environmental effects on water. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table WR1 below:

⁵¹ GSI Groundwater Map Viewer

Table WR1: Summary of potential effects (WATER) * effects are pre-mitigation.

Project Phase	Potential Direct, Indirect and Cumulative Effects
Do Nothing	The absolute baseline or (hypothetically) perfect natural conditions have been altered by the existing land-use practice of commercial forestry and agricultural activities. This activity would continue with associated gradual alteration of the existing environment and associated pressures on surface water and groundwater quality as a result of drainage and reconstitution of soils which are likely to contribute nutrients and/or suspended solids to receiving surface water systems particularly after peat cutting or heavy rainfall.
Construction Phase	<i>Increased run off from site due to earthworks</i> - The excavation and removal of vegetation cover and replacement with hardstanding surfaces has the potential to result in an increase in surface water runoff. An increase in surface water runoff or an increased hydrological response to rainfall, has the potential to exacerbate flooding events and impact hydro morphology of waterbodies downstream and/or exacerbate flooding and erosion within the site. This is considered unavoidable, direct, adverse, large in scale, moderate to profound significance, localised and potentially regional which conforms to baseline conditions. - The minor portions of greenfield/verge land take associated with the GCR for shallow cable trench works is considered to be a slight to moderate effect. - The small scale disturbance associated with the TDR accommodation works (shallow excavation, superficial paving), is assessed from slight to moderate down to slight effect with best practice construction methods. <i>Clear Fell of Afforested Areas</i> - T1, T2, T3 & T4 are within afforested areas and will require tree felling together with other site development works of 67ha (commercial conifer), 50.6ha (transitional woodland scrub) and 5.6ha (mixed forest) representing 32.3% of blue line boundary. In a land use context this is considered a moderate impact in line with baseline conditions and therefore overall is considered neutral. - There are a range of potential adverse impacts associated with clear felling which include: (i) soil erosion, compaction and degradation, (ii) changes in geology leading to soil instability, landslides and other geological hazards, (iii) changes in hydrological processes causing changes in water flow rates and patterns, such as lowering water tables, (iv) sediment runoff and nutrient pollution which can impact water quality affecting aquatic ecosystems and downstream waters, and (v) entrainment of solids and/or loss of soil nutrients essential for plant growth. These potential effects are considered to be of moderate significance, permanent but reversible and adverse. However, it is considered that this is minor in comparison to normal forestry activities, and incremental felling will benefit the receiving environment.

	<i>Ground Disturbance and diffuse sediment laden runoff</i> - The primary construction stage excavations (Section 9.4.3.3) have potential to release elevated suspended solids to surface waters, particularly during prolonged rainfall events. This could adversely affect water quality and aquatic habitats downstream. The most vulnerable areas are/arise from: (i) Verge widening and strengthening along the TDR in proximity to roadside drainage systems along the Ardnacrusha Headrace Canal, (ii) verge widening along the GCR as well as at HDD locations, (iii) 2 no. watercourse crossings on the River Blackwater (Clare)_010 on the GCR, and (iv) turbine hardstand and infrastructure development in proximity to waterways. These potential effects are considered to be a direct, indirect, adverse, large moderate to significant effect. They are again considered to conform to baseline conditions. <i>Release of Suspended Solids</i> - During excavation, storage and reuse of materials, it is likely that a high volume of suspended solids will be entrained by surface water runoff and intercepted by surface water networks, particularly during high rainfall events and when in close proximity to receptors. This could adversely affect downstream water quality and ecological attributes and increase turbidity. The aspects of the development most likely to impact surface water quality are: (i) exposed soils/peat generally, new drainage channels, temporary stock piles, (ii) infrastructure in close proximity to surface water receptors and extensive drainage networks with direct connection to mapped surface water features, (iii) infrastructure within surface water buffer zones and/or in stream works, and (iv) earthworks, including reinstatement works. These potential effects are considered to be unavoidable, direct and indirect, adverse, moderate to profound significance and small to moderate scale. They are again considered to conform to baseline conditions. - There is likely to be a significant effect posed by entrained solids on groundwater due to the wells and springs in close proximity to the site. The development will alter drainage at the site which may create new preferential pathways potentially leading to erosion of soils/construction materials and entrainment of solids. This is considered to be an unavoidable, direct and indirect, adverse, moderate to profound significance, moderate scale impact. <i>Ground Stability and Compaction</i> - There is potential for soil compaction, erosion and degradation during construction vehicle movements. This has potential to result in: (i) localised stability issues, (ii) entrainment of suspended solids in surface waters, (iii) obstruction of established drainage networks. This is considered to be an unavoidable, direct and indirect, adverse, moderate to significant, localised and potentially regional effect on receiving waters.
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	- For the GCR and TDR this risk is considered to be a likely, indirect, adverse, small in scale, slight, localised, permanent but reversible effect. <i>Release of Hydrocarbons and Storage</i> - Hydrocarbons are a pollutant risk due to their inherent toxicity to all flora and fauna organisms. Vehicles and plant introduce the risk of hydrocarbon spillages and leaks from fuels and oils, including refuelling. The low permeability of subsoils beneath peat and low recharge rates at the site limits the potential for contaminant movement through peatland and risk to groundwater. Receptors are identified as surface water (quality, ecological sensitivities and WFD status) and groundwater quality for the purposes of extraction. These effects are assessed as a likely adverse, direct and indirect, small in scale, moderate to profound, localised, potentially regional, permanent but reversible effect in terms of the site and TDR in terms of surface water. - For the GCR (in terms of surface water) which will have watercourse crossings/trenched crossings an accidental spillage is considered a likely adverse, indirect, small in scale, moderate to profound, localised, potentially regional, permanent but reversible effect. - In terms of groundwater an accidental spillage is considered to be a likely, indirect, adverse, small in scale, moderate to profound, localised, potentially regional, permanent but reversible effect. <i>Release of Horizontal Directional Drilling (HDD) Materials</i> - HDD techniques and the loss of drilling mud or waste can lead to a local change in hydrochemistry and impact water quality and sensitive ecological attributes. Risks mainly arise from broken hydraulic hoses during the drilling/boring process, drilling fluids used to cool and lubricate drillings rigs and refuelling of plant and machinery. These risks arise with HDD works along the GCR. An accidental contaminant spillage (drill return or frack out) would have a likely, adverse, direct, small in scale, slight, localised (potentially regional) long term to permanent effect on surface waters and a likely, direct and indirect, adverse, small in scale, moderate to profound significance, localised (potentially regional), temporary to long term but reversible effect on ground waters. - Spoil arising from HDD works could be mobilised by rainfall and rapidly transverse with potential to mobilise other contaminants and enter ground and surface water bodies. This potential effect is assessed as direct, adverse, moderate to profound significance. <i>Release of Wastewater Sanitation Contaminants</i> - Temporary sanitation facilities will be required during construction phase which presents the potential for accidental leakage of wastewater or sanitation chemicals. This could adversely impact downstream aquatic flora and
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	fauna and WFD status of receiving waters. Receptors are identified as surface waters (quality, ecology and WFD status) and groundwater (extraction quality). A worst case scenario is assessed as likely, adverse, direct and indirect, localised, potentially regional, small in scale, moderate to significant, temporary to long term but reversible for surface waters, and likely, indirect, adverse, small in scale, moderate to profound, localised (potentially regional), permanent but reversible for ground waters. <i>Release of Construction or Cementitious Materials</i> - The accidental spillage or deposition of construction waste could result in adverse change to hydrochemistry which can adversely impact on sensitive aquatic flora fauna. The risk is greatest with freshly poured or wet concrete and in periods of heavy rainfall. Mechanisms include: accidental spillage, dust generation, transport and washout of material, pouring and forming works and generation of waste. Receptors are surface water quality, ecological sensitivities and WFD status and ground water quality for the purposes of extraction. This is assessed as a likely, adverse, direct and indirect, localised and potentially regional, small to moderate scale of moderate to significant, temporary to medium term effect for surface water, and likely, indirect, adverse, small in scale, moderate to profound, localised (potentially regional) permanent but reversible for ground water. <i>Hydrologically Connected Sites</i> The development site is hydrologically connected to the following sites: - Gortacullin Bog NHA (Site Code: 002401) 0.1km to the N of the EDA - Doon Lough NHA (Site Code: 000337) 3.81km to the NW of EDA - Danes Hole Poulnalecka SAC (Site Code: 002401) 4km to the W of the EDA - Ratty Cave SAC (Site Code: 002316) 6.29km to the W of the WDA - Lower River Shannon SAC (Site Code: 002165) 13.2km to the S - River Shannon and River Fergus Estuaries SPA (Site Code: 004077) 13.2km to the S. Pathways are drainage and surface water. Impacts are the introduction of contaminants to surface waters. This is assessed as a likely, indirect, localised (potentially regional), adverse, moderate to profound, temporary to long term effect which is small to moderate in scale. <i>Drinking Water</i> Pathways, impacts and effects are assessed as above for hydrologically connected sites. This is assessed as a likely, indirect, localised (potentially regional), adverse, moderate
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	to profound, temporary to long term effect which is small to moderate in scale. - <i>Freshwater Pearl Mussel (FWPM)</i> - No known FWPM records in the relevant river sub-catchments. No potential effects are identified. <i>Shellfish</i> - No potential effects are identified. <i>Drilling of Boreholes and Extraction of Groundwater</i> - Borehole drilling will occur during geotechnical testing only. This not considered to have potential for significant effects. All freshwater required during construction phase will be tankered. There is no potential for impacts on groundwater due to extraction. <i>Local Groundwater Supplies and Bog Water Inc. Groundwater and Surface Water Associated with Wind Farm Cabling & Grid Connection Cable Works</i> - The development site, GCR and TDR does not interfere with any Public Source Protection Areas⁵² or Zones of Contribution under the National Federation of Group Water Schemes⁵³ – no potential effects. - There are no dwellings within the redline site boundary or mapped wells within the blue line boundary. The closest dwelling is situated⁵⁴: • 0.68km from T2, • 0.72km from T6, • 0.74km from T7 & T9 • 0.75km from T4, • 0.77km from T10, and • 0.87km from T11. At this distance potential ground water effects will have significantly attenuated in the poorly productive aquifer. The development does not involve groundwater abstraction and excavations associated with hardstands is considered insignificant. The risk of lowering groundwater levels to a significant extent is considered unlikely – no potential effects identified. - A combination of low permeability soils, temporary construction works and moderate recharge rates, is expected to result in a likely, neutral to adverse, slight to moderate significance, localised effect which conforms to baseline (peat cutting drains). - Due to the alignment of internal cable works within proposed site access tracks, shallow trenching, absence of proximal
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⁵² GSI 2022

⁵³ EPA and GSI 2022

⁵⁴ Updated in Memorandum No.5 and considered in my analysis and assessment below.

	groundwater wells and the sealed nature of internal cable works at the two proposed crossings potential impacts are assessed as a likely, adverse, direct and indirect, small to moderate scale, slight significance, localised, permanent but reversible effect. - For the GCR shallow trenching will not breach the groundwater table. Works are temporary and will be back filled. Otherwise, HDD is required at two locations. This is expected to result in a likely, direct and indirect, adverse, small in scale, localised, slight and permanent effect. <i>Excavation Dewatering & Construction Water</i> - The dewatering of open excavations (if required) will result in water discharges elevated in suspended solids. The potential overflow of such waters into receiving downstream surface waters is considered a likely, direct, adverse, potentially moderate to significant, potentially significant/profound weighted significance effect which although temporary is not reversible. - Potential dewatering through advance drainage or dewatering will likely impact on groundwater and hydrogeological flow at a localised scale. This is considered to be a likely, adverse, direct and indirect localised (potentially regional), temporary to permanent effect which is small to moderate in scale and of moderate to profound significance. <i>Constructed Drainage, Diversion or Enhancement of Drainage</i> - The development will likely result in the diversion, alteration and/or enhancement of existing drainage networks at the site. It is considered that these drainage works is an unavoidable, direct and indirect, adverse, localised (potentially regional) and permanent effect, of small scale and moderate to profound significance. <i>Surface Water Crossings – Bridges & Culverts over Mapped Rivers and Non-Mapped Drains and Inc. In stream works</i> - 42 no. watercourse crossings inc. 1 bridge⁵⁵ are required for site access tracks in addition to new and existing culverts⁵⁶. Mechanisms and impacts are listed in S.9.4.3.17 with receptors which includes surface water quantity & flood risk, quality, ecological sensitivities, WFD status, and groundwater/bog water quality for water dependent terrestrial habitats. Potential effects are considered to be unavoidable, adverse, direct and indirect, small to moderate in scale, moderate to profound significance, localised (potentially regional) and permanent. - The GCR crosses the Blackwater (Clare)_010 River twice, which given the proximity to surface water results in similar impacts but a heightened risk.
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⁵⁵ Over mapped streams, drainage and rivers. Table 9.1 refers.

⁵⁶ Non-mapped surface water features and drains. Appendix 9.2, Tile 16 refers.

	- For the TDR there are no works proposed to watercourse crossings and therefore no potential for effects. - In stream works have the potential to cause significant disturbance to the riverbed and introduce contaminants directly to surface waters. Poor design of drainage features can lead to erosion, changing hydro morphological characteristics and elevated to rapid velocity discharge in areas with no attenuation. Potential effects are considered to be unavoidable, adverse, direct and indirect, small to moderate in scale, moderate to profound significance, localised (potentially regional) and permanent.
Operational Phase	- Ground water risks are limited to infrequent maintenance works. The potential effects on groundwater at operational stage are not considered to be significant. - In a 1 in 100 year scenario the net increase of surface water run off associated with the development (as a result of land take) is c. 0.754 m³/second or 0.19% relative to the site area. This is considered an adverse but imperceptible to slight impact but considering cumulative impacts with regard to increased runoff generally, increasing rainfall amounts and frequency (climate change) and sensitive downstream receptors, any increase is considered significant.
Decommissioning Phase	- Similar to Construction Stage but with reduced effect as foundations, cable joint bays and cabling will be left in situ.
Cumulative Impacts	- The projects scoped in for cumulative impact assessment are listed in and updated in Table 4.2 of the FICAR. - At construction stage, if other projects within the same catchment, sub-catchment or river sub-basin were constructed at the same period there could be slight but significant cumulative effects on surface water (hydrology) and potentially groundwater (hydrogeology), with possible impacts on human health. - No significant cumulative effects are predicted at operational or decommissioning stages. - In terms of the proposed Knockshavno Wind Farm which is the most proximal to the site, there is no potential for cumulative effects on hydrology or hydrogeology as the project lies in a different catchment/sub-catchment.

17.4 Mitigation

17.4.1 The EIAR refers to the suite of mitigation measures embedded within the design and layout of the proposed development and as set out in Section 9.5 of EIAR Chapter 9. Full mitigation measures are set out in Chapter 21 of the EIAR and are also set out in each topic chapter.

17.4.2 Measures are significant, comprehensive and extensive and are focussed on avoidance of sensitive hydrological or hydrogeological receptors, mitigation by design including self-imposed groundwater (100-250m), surface water (50m) and drainage (15m) buffer zones , construction methodologies as detailed in the Construction and Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP), and Nature Based Solutions including Sustainable Drainage Systems (SuDS). The drainage design for the proposed development as set out in the SWMP including passive and active management ‘treatment trains’ with attenuation features, check dams, stilling ponds and promotion of peatland habitats with the objective of maintaining or improving the hydrological regime, mitigating against potential adverse effects to the hydrological response to rainfall, flood risk and water quality. It is noted that there are no Source Protection Areas, Karst Aquifers or Karst Features applicable to this site.

17.4.3 Mitigation Measures which respond to specific threats identified include:

Construction Phase

Increased Runoff (General/Wind Farm Site & GCR)

- Management of excavated material in accordance with a Peat and Spoil Management Plan (PSMP), Appendix 5.1. This is based on establishing material balance, reuse and minimising the time excavated materials are exposed and vulnerable to entrainment.
- Identification of temporary stockpile areas, managed to facilitate orderly segregation of material types, limited on height, covered by plastic sheeting (extended periods/storm alerts) and isolated from receiving surface waters.
- Earthworks limited to seasonally dry periods and an Environmental Response Plan (ERP) including an emergency response system, informed by Met Éireann weather alerts and inspection by Environmental Clerk of Works (ECoW). Measures include cessation of works, plastic sheeting,

sediment fencing, no direct flow paths between stockpiles and watercourses and compliance with SWMP.

- For the GCR, which includes HDD works, additional mitigation measures include vacuum excavation techniques in surface water buffer zones and removal off site of spoil from trenches in public roadways.

Clear Felling of Forestry

- Good practice will be adhered to, with risk assessments on a case-by-case basis.
- A felling licence will be obtained and in line with licence requirements and conditions the following mitigation measures will apply to the management of forestry operations: phased felling approach, use of existing tracks, use of brash for off track areas, following relevant forestry guidance and policies, use of harvest site plans to regulate routes, fuelling, stacking, turning areas etc, drainage measures (design and maintenance), limiting the size of fell areas, minimising drain and stream crossings, undertaking works in dry weather conditions and maintaining 25m riparian zones with addition measured where this cannot be maintained including ECoW monitoring, straw bales, silt screens as detailed in the CEMP & SWMP.

Construction Water Management, Dewatering, Treatment & Discharge of Trade Effluent

Mitigation measures are extensive and somewhat repetitive for the containment, management and treatment of construction waters. The indicative layout and specification for active and passive management treatment trains is set out in Tiles No. 13, 14, 15 & 16 of Appendix 9.5 and include:

- Continuous real time monitoring.
- Advance drainage by sumps to temporarily lower groundwater levels and ensure excavation is carried out in dry and stable conditions.
- Engineered drainage and attenuation features established concurrent with excavation works.

- Dewatering flow or pumping rate controlled by inline gate valve (or similar) to reduce loading on receiving waters and enhance attenuation and settlement. Outside of surface water buffer zones pumped water will be discharged to constructed drainage and in line treatment train or a vegetated surface via a silt bag.
- Within prescribed buffer zones, dewatering will be directed or pumped to a settlement tank before discharge as above.
- No extracted or pumped water will be discharged directly to drainage or surface water network. All pumps, tanks, settlement ponds, dewatering bags and check dams will be regularly inspected and maintained.

17.4.4 Measures for Active Construction Water Management are detailed in Tiles 13-15. This includes containment by means of temporary berms (lined geotextile or similar), bunds (lined) and sumps with contaminated water pumped to a treatment train prior to release or discharge. A schematic is presented for containment and treatment measures which includes:

- Temporary bunds. Gross solids will be deposited here.
- Sump/Pump with discharge to stilling pond.
- Outfall from stilling pond will be buffered to dissipate energy and diffuse discharging water.
- Silt screen down gradient of stilling pond outfall to mitigate peak loads or surcharges.
- Discharge quality monitored at outfall using telemetry systems⁵⁷.
- Discharge By-Pass/Stilling Pond By-Pass. If discharges exceed quality reference limits, or conditions dictate, water will be diverted to the settlement/treatment tank.
- A settlement tank will be provided in line and ready for use, equipped with treatment systems including flocculant agent to promote settlement (fine particles).

⁵⁷ If poor (>25mg/l), additional measures implemented.

- GAC⁵⁸ Vessels will be in line and ready to use as a precautionary measure to filter out low concentrations of hydrocarbons.
- Treated water will discharge to stilling pond for additional clarification, monitoring and buffered discharge to vegetated area.
- Silt bags maybe used in lower risk areas as an alterative to stilling ponds or as an emergency discharge route in the event a stilling pond requires remediation or maintenance.
- Stilling ponds, silt bags and outfalls will be located outside surface water buffer zones. Within buffer zones, waters will be pumped to the treatment train.
- Discharge of non-contaminated storm runoff to vegetated lands will be made in relatively low flow conditions (<2 litres per second) or a discharge licence will be acquired.

17.4.5 Measures for Passive Construction Water Management are detailed in Tiles 13. They include some of the measures in the active treatment train including use of spoil bunds/temporary berms and silt screens. Measures for the release and transport of suspended solids and mitigating runoff quality are detailed in Tiles 13-14 and the SWMP. In addition to the measures already detailed in the treatment train, they include:

- Restricting vehicle movements to the footprint of the proposed development.
- In line Check Dams at c. 20m intervals across drains to reduce the velocity of runoff and potential for erosion (Tiles 3, 4, 5, 6, 7 & 10).
- Surface water discharge to a relatively high number of buffered drainage outfalls to decrease loading and mimic natural hydrology.
- Outfalls will be fanned (Tile 5) with straw bales/silt fences downstream to ensure the effectiveness of attenuation particularly during elevated flow events.

⁵⁸ Granulated Activated Carbon

Ground Stability and Compaction

- Vehicle movements restricted to development footprint.
- Peat cutting in line with best practice.
- Tree felling operations will include spill kits, storage of vehicles in suitable locations during downtime.
- Ground reinstatement (replacing sods), floating platforms/access tracks where necessary.
- Use of terram cover to minimise ground damage.

Release of Hydrocarbons

Measures are largely contained within the CEMP (Appendix 5.1), including an emergency response protocol. They include:

- Control of refuelling, either off site or in designated areas a minimum of 50m from surface water or drainage features.
- Designated areas will be bunded to 110% volume capacity of fuels stored, drained by a petrol interceptor.
- Management, maintenance and disposal measures.
- Oil absorbent booms, spill kits and receptacles for contaminated materials.

Release of HDD Fluid

- Detailed site investigations, method statements and risk assessments.
- Use of inert fluids in the HDD boring process (biodegradable with low to no bentonite concentrations), retention of a chemical register and Material Safety Data Sheets.

Release of Wastewater Sanitation Contaminants

- Wastewater/sewerage will be collected and held in a sealed holding tank with a fitted high-level alarm fill indicator. This will be emptied and tinkered off site by a licensed waste collector to a licensed facility.

Construction and Cementitious Materials

General construction mitigation measures apply as set out above. Specific measures include:

- Advance planning of procurement, transport and use of cement or concrete with the Environmental Manager and supervision by the ECoW.
- Precast concrete used where possible. Where this is not possible there will be minimal use of lean mix concrete, visual inspection of vehicles for excess material before admission to the site, and controlled wash down in a controlled environment.
- Concrete will be poured in dry conditions and will not be poured into standing water. Shuttering will be fully secured with use of plastic sheeting or joint sealing products.
- Surplus concrete will not be stored or deposited on site. Raw or uncured waste concrete will be returned to source location.
- Designated washout will be confined to the batching facility. Only chutes will be cleaned prior to departure at the temporary construction compound with supernatant removed by a licensed contractor.
- Temporary storage of cement bound sand will be on hardstand areas only, with no direct connection to drainage or surface waters and with use of sandbags and geotextile sheeting to contain runoff.
- Spill kits readily available.

Watercourse Crossings

- All crossings over mapped rivers will be clear span bridges in line with 'Engineering in the water environment: Good Practice Guide – River Crossings (SEPA 2010). In stream supports will not be required.
- Design facilitates hydraulic capacity, transport of sediment, adequate freeboard to OPW requirements and minimises the potential for localised bank and bed erosion.
- Abutments will be set back from the river channel and banks to allow continuation of riparian corridors.

- To minimise flood risk, works at the GCR crossings will be undertaken in dry conditions. Exposed soils will have erosion controls and will be reinstated. This will minimise potential for entrainment of soils or other materials in flood events.

Infrastructure over natural or artificial drainage and non-mapped rivers will require in-stream works, specific mitigation measures include:

- Risk assessments and method statements.
- Isolation of construction are during works with upstream dams and diverted downstream. A downstream barrier will ensure contaminated run off in the isolated work area is contained. Associated pumps will have a back-up pump and a generator.
- Where required dewatering or contaminated waters to an inline settlement tank or stilling pond will be carried out prior to discharge of treated waters to a vegetated area. This area will be outside surface water buffer zones and will include silt fences to ensure any residual suspended solids are attenuated.
- There will be no discharge of construction water (trade effluent) directly to surface waters.
- Operation of machinery in-stream will be kept to a minimum. Works will be planned and will be carried out in dry weather conditions.
- Only pre-cast concrete will be used.
- Precautions will be made to mitigate the risk of hydrocarbon spill and settlement tanks will be equipped with hydrocarbon removal functionality (absorbent booms, soil skimmers and GAC filters).

Diversion of Drainage

- As above for in-stream works.

Groundwater Contamination

Measures are broadly as per those described above for the release of Hydrocarbons and as detailed in the CEMP. Additional measures include:

- Use of a drip tray and spill kits for refuelling of large machinery such as cranes.
- Storage of all other liquid based chemicals such as paints, thinners, primers and cleaning products in a secure labelled and banded chemical storage unit.
- Use of self-contained sanitation facilities, with off-site licensed disposal.
- Controlled attenuation of suspended solids will absorb and retain phosphorous and nitrogen in the water column allowing for a reduction of peak inorganic discharges.
- Monitoring of water quality for trace metal concentrations prior to, during and after the construction phase.
- Strict grazing control zones around open excavations.

Water Quality Monitoring

17.4.6 An ECoW will actively and continuously monitor site conditions, advise on environmental issues and monitoring compliance with authority to temporarily stop works and ensure corrective measures are implemented. A detailed inspection and monitoring regime is set out in the CEMP and SWMP, specific measures include:

- Daily inspection of silt traps, buffered outfalls and drainage channels, measurement of total suspended solids, electrical conductivity and PH. Weekly inspections during operational phase.
- Telemetric continuous monitoring, which will travel with active construction areas to ensure discharge quality is acceptable.
- Telemetric continuous monitoring at downstream baseline SW monitoring locations during the construction phase and operational phase to ensure stable conditions in line with baseline conditions.
- Visual monitoring of the effectiveness of the constructed drainage and attenuation system.
- A programme of water quality monitoring as agreed with IFI (including selected parameters and frequency). Daily monitoring during

construction, weekly during operation and phased reduction based on observed stability.

- Monitoring of watercourse crossings, rainfall, turbidity, surface water runoff control measures, pollution control measures, hydrological and ecological impact.
- Environmental risk register, performance reporting.

17.4.7 An Emergency Response Plan is included in the CEMP. It includes response procedures in the event of accidental chemical spillages, sediment overloading of control measures or leaks of contaminants. The CEMP will include a register of corrective actions and emergency response subcontractors as prepared by the ECoW and the ECoW will provide training.

17.4.8 **Operational Phase**

At operational phase measures are focussed on mitigating the increase in hydraulic loading from the proposed development. The construction stage measures, comprehensively described above and which focus on controlling the release of suspended solids, also mitigate the potential for rapid runoff and rapid hydrological responses. These measures (collector drains, check dams, stilling ponds, attenuation lagoons, buffered outfalls, clean and dirty water collector drains etc) will also ensure that the speed of runoff within the drainage network is regulated, the discharge from the network is buffered and the natural hydrological regime is maintained. Preliminary water balance calculations indicate that the worst case net increase in surface water runoff volumes from the development will be 0.19% and the combined attenuation capacity of the proposed drainage infrastructure has been designed to attenuate a net increase in water runoff during a 1 in 100 year storm event +20% for global warming as set out in the FRA (Appendix 9.1).

17.4.9 **Decommissioning and Re-instatement**

At this stage the identified construction stage risks associated with elevated suspended solids and spills of fuels/hazardous chemicals remains although to a lesser extent. The relevant construction stage mitigation measures for these

risks (as described above) will be implemented during this phase as detailed in the CEMP and the Decommissioning Plan.

17.5 Residual Effects

17.5.1 With implementation of mitigation measures the EIAR predicts that there will be no significant direct or indirect negative effects on water at construction stage, operation or decommissioning stage. At construction stage effects are assessed as ranging from direct, adverse, neutral to slight with some beneficial potential and long term to permanent/reversible. At operation stage effects are assessed as direct, neutral to beneficial. At decommissioning stage effects as assessed as insignificant, adverse and permanent. Cumulative residual effects are assessed as not significant to slight.

17.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

17.6.1 I have examined, analysed and evaluated Chapter 9 of the EIAR, Memorandum No.5, the FICAR and all of the associated documentation and observations on file in respect of hydrology and hydrogeology. I am satisfied that the key impacts in respect of the likely effects as a consequence of the development have been identified. Issues raised concern impact to watercourses in proximity to the site and development within buffer zones, consideration of the hydrological connection to the River Shannon SAC, impact on drinking water sources including domestic wells, flood risk and competency of authors. The LA raised concerns in relation to risk of pollution to surface waters including the Lower River Shannon SAC.

17.7 Effects on the Lower River Shannon SAC.

17.7.1 The LA, together with third parties, noted the hydrological connectivity of the site to the downstream Natura 2000 site Lower River Shannon SAC with water dependent habitats and species sensitive to water quality. Concerns were raised in relation to significant pollution risks associated with the release of suspended solids, hydrocarbons and other contaminants particularly associated with clear felling and construction works. These

potential effects are assessed in the Stage 1 AA Screening (Appendix 2) and Stage 2 AA (Appendix 2) appended to this report. In screening the need for Appropriate Assessment, I determined that the proposed development could result in significant effects on the Lower River Shannon SAC (002165), together with other European Sites identified therein, in view of the conservation objectives of those sites and that Appropriate Assessment was required. For the reasons set out in my Stage 2 AA (Appendix 2) I subsequently determined that adverse effects on site integrity of Lower River Shannon SAC, 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.

17.8 Surface Waters

17.8.1 Parties raised concerns in relation to the potential for significant impacts on watercourses in proximity to the site, and the location of turbines within buffer zones of watercourses.

17.8.2 I note that beyond the unmapped streams and drainage of the site, the nearest mapped river which is hydrologically connected to the site is the Oatfield_25 at c. 1km. Duin Loch is 4.33km downstream and Castle Lake is 13.32km downstream. Colmeen and Doon Lake are located upstream and are not hydrologically connected to the site. There will be no direct discharges from the proposed development to surface waters. There are no drinking water rivers within the river subbasin, or sub catchment associated with the proposed development.

17.8.3 I am satisfied that the potential risks to surface waters from increased run off, suspended solids, construction water, dewatering, hydrocarbons, cementitious materials, HDD fluids and sanitation contaminants have been adequately identified and assessed in the EIAR following a source, pathway receptor model. The mitigation measures which are set out in the EIAR, CEMP, SWMP and WQMP are comprehensive, robust and enforceable in relation to the drainage, containment, treatment and buffered outfall of waters

and pollution control measures. I note the comprehensive monitoring proposals, the threshold of <25mg/l total suspended solids and the supervision and authority roles of the ECoW. Whilst I note that the red and blue line boundaries of the proposed development site appear to be located in very close proximity to surface water bodies, I am satisfied that the detailed construction works maintain the proposed surface water (50m) and drainage (15m) buffer zones, and that exceptions to this (watercourse crossings) include additional embedded design, best practice and appropriate mitigation measures.

- 17.8.4 I am satisfied that the findings of the EIAR that with mitigation effects on surface water bodies will be neutral to slight adverse temporary effects and in some cases will be slight adverse to beneficial relative to existing landuse and activities. This is consistent with my assessment findings in respect of WFD and AA and having regard to the baseline conditions I am satisfied that there will be no significant effects on surface waters.

17.9 Drinking Water Sources

- 17.9.1 Parties raised concerns that the water regime on the site was related to a number of drinking water supplies for a number of residents in the area and that there would be significant impacts on drinking water wells including from pollution and contamination.

- 17.9.2 Section 9.3.10 of EIAR Chapter 9 determined that there were no mapped wells (GSI, 2022) within the site, but given the ‘incomplete database’ assumed, on the basis of a worst-case scenario that all dwellings within the vicinity of the site are utilising a private ground water well and that groundwater flow in the underlying aquifer mimicked local topography.

- 17.9.3 The applicant’s response to the submissions received, Memorandum No.5 (June 2024) updates the relevant information to both list and map all confirmed dwellings with wells. Fig.3.2 and Table 3.1 refer. All wells have been allocated a buffer of 250m and the distance of associated dwellings from identified nearest turbines ranges from 0.68km (Dwelling 12 and T2) to

8.51km (Dwelling 16 and T4). To protect ground water, construction on greenfield areas is outside buffers placed on wells.

17.9.4 The EIAR finds that a combination of underlying bedrock geology, the associate aquifer potential, low permeability of soils/peat and the low recharge rates has resulted in the risk posed to groundwater quality to be considered as low. The EIAR also finds that the temporary and shallow nature of excavation works are likely to result in slight localised effects which are highly unlikely to have significant adverse effect on receptors including ground water wells. With the extensive mitigation measures in relation to potential hydrocarbon and non-hydrocarbon contamination set out in the CEMP, SWMP and as described above, no significant effects are predicted on water including quantitative or qualitative effects on groundwaters, receptors or wells.

17.9.5 I note that there are no designated drinking water rivers⁵⁹ or surface water bodies downstream of the windfarm site and the nearest GSS, NFGWSS and GSI Public Source of Protection is not hydrologically linked to the proposed development site.

17.9.6 Having regard to the baseline conditions, the separation distances of receptors from nearest turbine hardstands/foundation works, to the buffer zones and detailed mitigation measures which will be implemented I am satisfied that the proposed development will not result in significant effects on drinking water sources, namely groundwater wells and that the updated information on ground water wells set out in Memorandum No.5 does not introduce new material information which would change these findings.

17.10 Flood Risk

17.10.1 Parties were concerned that the proposed development would result in a downstream flood risk as a result of changes to the hydrological regime, including on towns within flood zone A. The EIAR is supported by an FRA

⁵⁹ European Communities (Drinking Water)((No.2) Regulations 2007 (SI no 278/2007)

(Appendix 9.1). I note that Memorandum No. 5⁶⁰ identifies the nearest fluvial flooding record to be at two downstream river subbasins and therefore considers that any potential downstream flood risk is pluvial. I further note that the applicants FICAR states that the Knockshavno Wind Farm lies within different catchment/sub catchments so there is no potential for cumulative effects on hydrology or hydrogeology.

17.10.2 The stage 1 FRA found that there is no evidence of historic flooding in the areas surrounding the site, that the proposed development resides within 'Flood Zone C' and as a 'less vulnerable development' is appropriate at this location. The Stage 2 FRA found that the development will not increase the risk of flooding elsewhere in the catchment.

17.10.3 In this regard I note that the FRA (Stage 2) includes a preliminary water balance assessment for the purposes of qualifying potential impacts of the development in terms of hydrological response to rainfall and flooding, including a 1 in 100-year storm event and with a +20% factor for climate change. This assessment calculates the net increase of surface water runoff in a storm event associated with the proposed development to be c.0.754m³/sec or 0.191% relative to the blue line site area. It is assessed that this would result in a slight effect and an imperceptible or negligible impact which is not significant. With the implementation of mitigation measures the EIAR finds that the down gradient impact is reduced to neutral. In particular I note that the combined attenuation capacity of the proposed drainage infrastructure will attenuate the net increase in surface water runoff (as calculated in the water balance assessment) including during extreme storm events +20% for climate change, relative to greenfield or baseline run off rates. Together with the comprehensive and detailed mitigation measures described above, and as set out in the CEMP and SWMP, I am satisfied that the hydrological response to rainfall at the site will be reduced, that the

⁶⁰ Applicants' response to submissions June 2024

potential for rapid runoff will be mitigated and that the loading on the receiving surface water network will be reduced.

- 17.10.4 Having regard to the aforesaid, I am satisfied that the conclusion of the FRA and EIAR that the drainage infrastructure, some of which will be permanent for the lifetime of the development, will be attenuated for greenfield runoff, that the proposed development will not increase the risk of flooding elsewhere in the catchment as a result of increased pluvial risk or other, and that there will be no impacts on hydrology offsite.

17.11 Competency of Authors

- 17.11.1 Parties questioned the competency of the authors of EIAR Chapter 9 raising concerns that a hydrologist or hydrogeologist were not involved in the EIAR. This is addressed in EIAR Chapter 9 'Statement of Authority' and in Memorandum No.5 of the applicant's response to the submissions received (June 2024). I am satisfied that the authors of Chapter 9 of the EIAR have demonstrated individual expertise, qualifications and experience in the relevant technical subject area and have expert competency.

17.12 Water Framework Directive

- 17.12.1 Under the WFD the Commission is obliged to ensure that development will not result in the deterioration in status of surface or groundwaters, support the restoration of surface and groundwater to good status, protect and enhance the status of artificial or heavily modified bodies and achieve compliance with the standards and requirements for designated protected areas.
- 17.12.2 I note from EIAR Chapter 9 and EPA sources that the local groundwater bodies⁶¹ which underlie the windfarm site and GCR all achieved 'good' status in all WFD cycles (2007-2012, 2010-2015, 2013-2018, 2016-2021 and 2019-2024) and are not at risk of failing to meet their respective WFD objectives. As set out in the baseline information the mapped surface

⁶¹ Tulla-Newmarket on Fergus (IE_SH_G_229) and Lough Graney (IE_SH_G_157)

water bodies/ivers directly draining the site are Broadford_010, Owengarney_030, Gourn_010 within the Shannon Estuary North surface water catchment and Mountrice_010 and Blackwater (Clare)_010 within the Lower Shannon surface water catchment. Of these the Broadford_010 with moderate status, and the Mountrice_010 and Blackwater (Clare)_010 rivers with good status, are at risk of failing to meet their respective WFD objectives. The main pressures are identified as agriculture, forestry and channelisation. The lake water bodies associated with the surface water network (Duin CE IE_SH_27_121, Caste CE IE_SH_27_74) have a moderate status and are under review/at risk with pressures associated with agriculture. All WFD groundwater bodies are identified as Drinking Water Protected Areas (DWPA) due to potential for qualifying abstractions for human consumption. There are no designated drinking water rivers⁶² or surface water bodies downstream of the windfarm site and the nearest GSS, NFGWSS and GSI Public Source of Protection are not hydrologically linked to the proposed development site.

- 17.12.3 In my opinion the main risks to the status and respective objectives of WFD waterbodies from the proposed development concerns pollution from hydrocarbons/contaminants (ground and surface waters), changes to the hydrological regime (surface waters) and suspended solids (surface waters). In respect of ground waters, I note that the ground water bodies underlying the site are of 'good' status and are 'not at risk'. The EIAR assesses the site as having a 'flashy regime' or rapid hydrological response to rainfall meaning that the majority of rainwater introduced to the site will drain off as surface water runoff. This means that there is low potential for groundwater dispersion and movement within the poorly productive aquifer and that surface water drains, streams and rivers are primarily vulnerable to contamination from development activities. Comprehensive pollution, hydrocarbon and contaminant mitigation measures have been set out in the CEMP, SWMP, Decommissioning Plan and ERP to mitigate and respond to potential identified risks. I am satisfied that they are robust, enforceable and include

⁶² European Communities (Drinking Water)((No.2) Regulations 2007 (SI no 278/2007)

appropriate ECoW supervision, monitoring and authority roles and responsibilities. Groundwater abstraction is not proposed and excavations are both shallow and temporary and I accept the conclusions of the EIAR that they do not present a risk of lowering ground water levels to a significant extent. There is no direct discharge to groundwaters as a result of the proposed development, and I am satisfied that the qualitative and quantitative status of the receiving GWBs will not be altered by the project.

17.12.4 The EIA concludes that with mitigation measures in place for the protection of surface waters during construction, operation and decommissioning phase of the proposed development, there will be no significant residual effects on water as a result of the proposed development. I am satisfied that the conclusions of the EIAR are reasonable in this regard. As stated above, comprehensive mitigation measures are set out in active and passive treatment trains for the mitigation of suspended solids on the basis of containment, treatment, attenuation and buffered disposal and for the mitigation of risks associated hydrocarbons and other contaminants as detailed in the CEMP and SWMP. The site does is not located within a flood zone, does not have a history of flooding and the drainage design includes capacity for extreme storm events and climate change and seeks to maintain a natural hydrological regime. The FRA finds that the proposed development will not increase the risk of flooding elsewhere in the catchment as a result of increased pluvial risk or other, and that there will be no impacts on hydrology offsite. I accept the findings of the EIAR that the operational stage of the development, post implementation of the mitigation measures and drainage infrastructure has the potential to result in a beneficial effect to surface water quality in terms of versus the current land use activities of peat cutting and commercial forestry. There is no direct discharge to surface waters as a result of the proposed development, and I am satisfied that the qualitative and quantitative status of the receiving SWBs will not be altered by the project.

17.12.5 The conclusion of the Stage 2 AA that adverse effects arising from the proposed development can be excluded for the (downstream) River Shannon

SAC and the River Shannon and River Fergus Estuaries SPA, provides further reassurance and confirmation that the proposed development will not result in adverse effects on water quality (surface or ground), will not jeopardise the WFD objectives and that the project is compliant with the requirements of the WFD (2000/60/EC).

17.13 Conclusion: Direct and Indirect Effects (*Hydrology & Hydrogeology*)

Having regard to my examination of the environmental information in respect of hydrology & hydrogeology and to the conclusions of the Stage 2 AA (Appendix 2) appended to this report, it is considered that subject to implementation of the full suite of mitigation measures, no significant adverse effects will arise.

18. Land, Soils and Geology

Issues Raised

- 18.1 Issues raised in the submissions concern the adequacy of site investigations and the baseline information, risk of peat bursts and landslides, and the requirement for rock breaking or use of explosives with excavations. The LA also raised concerns in relation to the risk of soil/peat slippage. Issues raised in relation to ground and surface waters, natural heritage and biodiversity and archaeology are addressed in EIA Sections 15 (Biodiversity), 17 (hydrology & Hydrogeology) and 20 (Cultural Heritage) of my report and under the assessment of the relevant parent environmental topics.

18.2 Examination of the EIAR

Context

- 18.2.1 Chapter 10 of the EIAR deals with Land, Soils and Geology. The assessment is undertaken having regard to the European, international and national legislation, policy and guidance set out in Section 10.2 of EIAR Chapter 10. This includes EIA, EPA legislation and guidance, The Heritage

Act, 1995, IGI⁶³ guidance and Scottish best practice guidance. A Statement of Authority is included.

18.2.2 The assessment methodology including the evaluation of potential effects is also set out in Section 10.2. Desk study assessments were carried out before and after field work of various specified data sources (inc. EPA, G⁶⁴SI, OSI⁶⁵ and NPWS). Field work included site walkovers, bedrock and mineral subsoil outcrop characterisation, peat location confirmation, peat depth probing, slope measurements, GPS co-ordinate recording and digital photography.

18.2.3 A total of 876 no. peat depth probe locations were assessed at the site. These were georeferenced and categorised as presented in Appendix 10.1 - App A. I note that not all areas of the site were peat probed as the Western DA has very little peat present. Shear vane readings were taken which gave variable readings between 20 and 120kPa reflecting the shear strength differences between peat and till subsoil. No bore holes, trial pits, or subsoil sampling/analysis was undertaken during field work. Scenario B of the Site Investigation & Peat Stability Risk Assessment included a +1m surcharge.

Associated Figures and Appendices are:

- Appendix 10.1 - Site Investigation & Peat Stability Risk Assessment
- Appendix 10.1 - App A - Peat Map
- Appendix 10.1 - App B(a) - Peat Database
- Appendix 10.1 - App B(b) - Risk Matrices
- Appendix 10.1 - App C(a) - Factor of Safety Map
- Appendix 10.1 - App C(b) - Risk Ranking Map
- Appendix 10.2 – Oatfield Grid Connection Route Assessment Database
- Appendix 10.3 – Oatfield Turbine Delivery Route Assessment Database
- Appendix 10.4 – Oatfield IPP Connection Route Assessment Database
- Appendix 10.5 – Figures

⁶³ Institute of Geologists Ireland

⁶⁴ Geological Survey Ireland

⁶⁵ Ordnance Survey Ireland

- Appendix 5.1 – CEMP

18.2.4 The applicant's response to submissions in respect of Land, Soils and Geology is set out in Memorandum No.6 (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR). Chapter 5 of the FICAR addresses Land, Soils and Geology.

18.3 Baseline

18.3.1 The baseline environment is described in Section 8.3 of the EIAR. The topography of the site is described as relatively complex (hilly) topography with elevations ranging from c. 130m to 270m AOD. Land use is mainly composed of coniferous forest, transitional woodland scrub, pastures and peat bog with the latter mainly in the EDA. The GCR is predominantly pasture with a small area of coniferous forest and along the TDR land use is mostly pasture with a wide mix of other land uses along or adjacent to the route as described in Section 10.3.3. In terms of bedrock geology 'the Old Red Sandstone' formation is the most dominant bedrock and unconformably overlies the older inliers of Lower Palaeozoic mudstones and siltstones of the 'Broadford Formation' and the 'Cornagoe Formation' as described in Section 10.3.4.1. There are no mapped karst features within or near the vicinity of the site, with the closest feature approx. 4km to the north of the EDA. An east-west fault is present south of T1 and a north-south fault is present to the east of T7 but these are considered unlikely to affect or be affected by the proposed development. The bedrock geology of the GCR and TDR is described in Section 10.3.4.2 – 10.2.4.3.

18.3.2 Soils and subsoils are considered in Section 10.3.5. There is a mix of soil and subsoil types at the windfarm site with the main soil types at each of the main infrastructure units within the wind farm site summarised in Table 10.7 and Subsoils summarised in Table 10.8. This information was collated from GSI, EPA and Teagasc soil maps. Based on GSI Groundwater Vulnerability maps (GSI 2023), ground water vulnerability is mapped as 'rock at or near surface' and 'extreme' giving inferred depth to bedrock or subsoil

thickness of <1m and 1-3m respectively. The peat depth distribution recorded on site from the 876 no. probes is summarised in Table 10.9. The collective soil, subsoil and depth to bedrock summary for the main infrastructure units within the proposed windfarm site is then set out in Table 10.10. This is a particularly useful table in terms of setting out the headline geological data informing the baseline, and therefore it is extracted and set out below:

Table LSG1: Soils, subsoils and depth to bedrock summary for the main infrastructure units. * Source: Table 10.10 of Chapter 10 of the Applicants EIAR.

DA	Turbine No. / Unit	Bedrock type	Soil	Subsoil	Peat depth (m)	Groundwater vulnerability	Depth to bedrock (m)
W	T1	Purple Grits (pg)	AminSW	Bedrock at or close to surface	0.01 - 1	Rock at or near surface	<1
W	T2	Banded mudstone (BF)	Amin PDPT	Till	0.01 - 1.5	Extreme	1-3
W	T3	Sandstone (ORS)	AminPD	Till	0.01 - 0.5	Extreme	1-3
W	T4	Banded mudstone (BF)	AminPD	Till	0.01 - 0.5	Extreme	1-3
W	T5	Sandstone (ORS)	AminPD	Till	0.01 - 0.5	Extreme	1-3
W	T6	Sandstone (ORS)	Amin SRPT	Bedrock at or close to surface	0.01 - 1.5	Rock at or near surface	<1
W	T7	Purple Grits (pg)	AminPD	Till	0.01 - 0.5	Extreme	1-3
E	T8	Sandstone (ORS)	BktPt	Peat	0.01 - 0.5	Extreme	1-3
E	T9	Sandstone (ORS)	BktPt	Peat	0.01 - 1.5	Extreme	1-3
E	T10	Sandstone (ORS)	Amin SRPT	Bedrock at or close to surface	0.01 - 1	Rock at or near surface	<1
E	T11	Sandstone (ORS)	BktPt	Peat	0.01 - 4	Extreme	1-3
W	Substation	Sandstone (ORS)	AminDW	Till	0.01 - 1	Extreme	1-3
W	Met Mast	Sandstone (ORS)	AminPD	Till	0.01 - 2*	Extreme	1-3
W	Compound/ Storage Area A	Sandstone (ORS)	AminPD	Till	0.01 - 0.5	Extreme	1-3
E	Compound/ Storage Area B	Sandstone (ORS)	BktPt	Peat	0.01 - 2	Extreme	1-3

18.3.3 The GSI landslide susceptibility map generally considers the proposed development to be of ‘low risk’ to ‘moderate risk’ of landslide susceptibility, with T6 and T10 considered to be in areas identified as ‘moderately high’ risk

of landslide susceptibility and a potential area of 'high risk' c. 75m to the north of T1. The closest mapped landslide event is c.12km to the northeast which was described as a peat flow. The GCR and TDR are within areas of 'low risk' with some minor areas of 'moderately low' and 'moderately high' risk, and with the nearest event c. 2.5km to the north of the TDR at Killaloe, which was described as a riverbank slide in 1948.

18.3.4 Peat depth across the windfarm site is generally very shallow to shallow and is shallower in the WDA. In the EDA there is some moderately deep peat, and a small pocket of moderately deep to deep peat to the north of T11. Table 10.11 summarises the peat stability risk assessment data. The results presented are for Scenario B where a +1m material surcharge is applied (for construction activity and stock piling) in accordance with best practice. Aligned with Scottish Government guidance a Factor of Safety (Adjusted) Conservative Approach (FoS_{ADJ}) is applied. The conservative approach uses conservative values for moisture content and shear strength instability risk assessment and is highly biased towards worst case environmental conditions in terms of peat and slope stability. FoS_{ADJ} values of 1.0 or greater are considered 'acceptable' in terms of peat stability and ranges lower than 1.0 are deemed 'unstable'.

The results of the Peat Stability Risk Assessment at main infrastructure units is presented in Table 10.11. This is also a particularly useful table in terms of setting out the headline peat, slope, FoS_{ADJ} and distance to sensitive receptor information at each Turbine location, and therefore it is extracted and set out below:

Table LSG2: Peat Depth, Slope, FoS_{ADJ} and risk summary for the main infrastructure units. * Source: Table 10.11 of Chapter 10 of the Applicants EIAR.

DA	Turbine No. / Unit	Peat depth (m)	Slope (°)	FoS _{ADJ} (Factor of Safety adjusted considering site specific conditions)	RR _D (Ranked Risk considering Distance to Sensitive Receptors)	Receptor / Comment
W	T1	0.01 - 1	1.5 - 14	Acceptable	Very low	Risk of landslide to the north of the turbine
W	T2	0.01 - 1.5	1.5 - 14	Acceptable	Very low	
W	T3	0.01 - 0.5	3.5 - 6.5	Acceptable	Very low	
W	T4	0.01 - 0.5	6 - 8	Acceptable	Low	Close proximity to a surface water feature
W	T5	0.01 - 0.5	0.5 - 14	Acceptable	Very low	
W	T6	0.01 - 1.5	0.5 - 5.5	Acceptable	Very low	
W	T7	0.01 - 0.5	1 - 13	Acceptable	Low	
E	T8	0.01 - 0.5	0.5 - 6	Acceptable	Low	
E	T9	0.01 - 1.5	0.5 - 3	Acceptable	Very low	
E	T10	0.01 - 1	5 - 10	Acceptable	Very low	
E	T11	0.01 - 4	1 - 5	Acceptable	Very low	Some deeper peat to the north.
W	Substation	0.01 - 1	1 - 7	Acceptable	Very low	
W	Met Mast	0.01 - 2*	1.5	Acceptable	Very low / low	Inferred from data taken along the track to T2.

DA	Turbine No. / Unit	Peat depth (m)	Slope (°)	FoS _{ADJ} (Factor of Safety adjusted considering site specific conditions)	RR _D (Ranked Risk considering Distance to Sensitive Receptors)	Receptor / Comment
W	Storage Area A	0.01 - 0.5	1 - 12	Acceptable	Low	
E	Storage Area B	0.01 - 2	1 - 3	Acceptable	Very low	

18.4 Potential Effects

Potential direct, indirect and cumulative effects of the development on land, soils and geology are identified in the EIAR (Section 10.4) for the different phases of the development. These are summarised in Table LSG3 below:

Table LSG3: Summary of Potential Effects (Land, Soils and Geology)

Project Phase	Potential Direct, Indirect And Cumulative Effects
Do Nothing	Existing land use practices would continue.
Construction Phase	<i>Land Take</i> - Small-scale, direct, adverse, slight, localised and permanent but reversible (wind farm & associated infrastructure). - Minimal, temporary and not significant to slight (TDR). - Minimal, temporary, not significant to slight and reversible (GCR). - Minimal, negligible to slight and reversible (IPP cable route).

	<i>Clear Fell</i> - Proposed felled areas will consist of approx. 67ha. Potential effects are assessed to be of moderate significance, permanent but reversible and adverse. <i>Compaction, erosion and degradation</i> - Compaction effects are assessed as direct, likely, slight to moderate, permanent and adverse. Erosion and degradation effects are assessed as direct, likely, moderate to significant, permanent and adverse. <i>Ground or soil sealing</i> - Soil sealing effects are considered to be direct, unavoidable, slight to moderate, long term/permanent and adverse. <i>Subsoil and bedrock removal</i> - The overall potential effects for the removal (and replacement) of subsoil and bedrock for turbine and substation construction is assessed as slight to moderate significance, adverse, localised, permanent but reversible. <i>Excavations</i> - Under the footprint of the development in greenfield, natural or peatland areas the overall potential effect of excavation is considered to be of slight to moderate significance, permanent but reversible and adverse. In areas with existing infrastructure such as the GCR and TDR, effects are considered to be neutral to slight. <i>Site Access Tracks</i> - The overall potential effects are assessed as slight, permanent and adverse due to the relatively small footprint of infrastructure and its location. <i>Turbines and hardstand areas</i> - Maximum excavation is predicted to be 3mbGL. Table 10.15 refers. The likely effects associated with excavations is considered to be slight to moderate adverse, permanent and reversible. <i>Bedrock Excavations</i> - The effects associated with bedrock excavations (turbine foundations) are considered to be slight to moderate, adverse, permanent and irreversible. <i>Site cable trenches</i> - The effects associated with site cable trenches and interconnecting 33kv IPP cable are considered to be slight, adverse, temporary and reversible. <i>Turbine Delivery Route</i> - The likely effects associated with excavations on the TDR are considered to be slight, adverse, long term to permanent and reversible. <i>Grid Connection Route</i>
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	- The effects associated with excavations (including HDD) for cable trenches are considered to be adverse, small (scale), slight significance, unavoidable and permanent. <i>Storage and stockpiles</i> <i>Spoil Management</i> - There is potential for a direct adverse effect on localised ground stability and moderate adverse effects on soil due to erosion. Overall, the process of spoil management is expected to have a slight and adverse effects on the receiving environment. <i>Peat stability and slope failure</i> - Any peat slide or slope failure which occurs will likely be localised due to the generally shallow peat and acceptable FoS. Potential indirect soil stability issues, including downgradient of the proposed development, brought about by construction activities are considered to be slight to moderate, adverse, potentially permanent but reversible. <i>Vehicular Movement</i> <i>Compaction, erosion and degradation</i> - Compaction effects are considered to be slight to moderate, adverse and permanent. <i>Peat stability and slop failure</i> - Vehicular movements on site had the potential to trigger soil and slope 'stability' <i>TDR, GCR and Site Tracks</i> - The effects associated with vehicle movements along the TDR are considered to be not significant to slight, permanent and adverse. - The effects associated with vehicle movements along the GCR, IPP (38kV) connection route and site access tracks are considered to be slight, permanent and adverse. <i>Soil Contamination</i> <i>Hydrocarbons</i> - Any accidental contaminant spillage of fuel or oil, depending on the volume, would potentially present a moderate to significant, long term to permanent, adverse effect. <i>Horizontal Directional Drilling (HDD)</i> - A worst-case scenario could possibly result in a direct, adverse, potentially significant, short-term, reversible effect. This could result from a number of indirect anthropogenic sources including inadvertent drill returns containing bentonite clay or by spillages of soil, fuel or drilling fluid disposal. <i>Wastewater and Sanitation</i>
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	- The impacts associated with wastewater and sewerage (temporary sanitation facilities) is considered to be moderate to significant, temporary and adverse. <i>Construction or cementitious materials</i> - The worst case impacts associated with a release of wet or lean mix cementitious materials is considered to be a potentially adverse, direct, profound, likely, long-term to permanent effect. <i>General Waste</i> - The impact associated with waste materials is considered to be slight, permanent and adverse.
Operational Phase	<i>Land Take</i> - The overall potential effects are considered to be of slight to moderate significance, adverse, long-term to permanent but reversible. (Windfarm) - Land take associated with the TDR, GCR and IPP route is considered to be limited to the construction phase of the development. <i>Soil Compaction & Subsidence</i> • The overall potential effects are considered to be of slight to moderate significance, adverse and long-term to permanent.
Decommissioning Phase	• No significant effects on the land, soils and geological environment will occur during the decommissioning stage, with potential issues assessed as infrequent, imperceptible to slight, localised and reversible.
Cumulative	• Projects considered for cumulative impact assessment are set out in Table 5.1 of the FICAR. It is considered that there is no potential for significant cumulative effects.

18.5 Mitigation

18.5.1 Mitigation Measures are set out in Section 10.5 of EIAR Chapter 10.

This includes the design phase and 'mitigation by avoidance' where areas of deep peat, shallow bedrock and steep slopes were avoided, and constraints and buffers were identified, to protect the existing geotechnical and hydrological regime of the site. The EIAR acknowledges that there remain some risks which cannot be mitigated through design, and which need to be managed during construction. Measures are detailed and largely contained

within the CEMP (Appendix 5.1), the SWMP, PSMP and RWMP thereof, and the PSRA (Appendix 10.1) and include:

Construction Phase

- Minimising land take and employing best practice work methods during clear felling including adopting a phased approach to felling, working outside of surface water and other buffer zones, using existing tracks and limiting the amount of exposed soil, vehicular movements, and soil compaction. (*Land take and clear felling*)
- Restricting works to favourable meteorological conditions, avoiding works during or directly after sustained significant rainfall events and mitigating ground or soil sealing with use of geotextile membranes. (*Erosion, degradation and ground/soil sealing*).
- Best practice management of soil and rock excavation including re-use of materials in accordance with the CEMP, (Appendix 5.1). Where excavation may intercept areas of peat that are >1.0m depth, appropriate engineering controls will be followed as set out in the SWMP (Appendix C of CEMP) and a geotechnical engineering geologist will supervise and manage excavation works. (*Subsoil and bedrock removal*).
- The management, movement and stock piling of materials in accordance with the PSMP (Appendix B of CEMP). Excavations will proceed on a phased approach as detailed in Appendix 9.5 (Tile 30 – Tile 34) and surplus materials will be transported off site and reused as a by-product in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations, 2011) or as waste to a licensed facility. (*Storage and stock piles*).
- Best practice management of vehicular movements in accordance with the CEMP (Appendix 5.1). (*Vehicular movements*).
- Best practice ground stability mitigation measures as set out in the PSRA (Appendix 10.1) including: height limits on stock piles, contractors methodology and risk assessment (CEMP) approved by qualified

geotechnical engineer/engineering geologist, tool box talks, groundwater level kept low at all times, advance drainage of saturated peatlands, draining of stock piled peat, peat reinstatement and limiting the construction phase to favourable meteorological conditions. (*Ground stability*).

- A Geotechnical Clerk of Works (GCoW) will be employed during construction to continuously monitor areas of peat. An Emergency Response Plan (ERP) is included at Appendix E of the CEMP and which includes for monitoring, cessation of works, inspection, reporting and prescribe corrective actions. (*Ground Stability*).
- Good practice construction activities as detailed in the CEMP (Appendix 5.1) will address and minimise the potential for soil contamination, including from hydrocarbons, wastewater sanitation contaminants, construction and cementitious materials. Emergency responses to potential contamination incidents form a part of the ERP included at Appendix E of the CEMP. (*Soil Contamination*).
- Waste management measures as detailed in the CEMP (Appendix 5.1) and the RWMP at Appendix D thereof.

18.6 Residual Effects

18.6.1 The residual effects after implementation of all mitigation measures are presented in Table 10.16 of EIAR Chapter 10. They range from negligible/neutral to moderate, with no significant residual effects on land, soils or geology.

18.7 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 10 of the EIAR, Memorandum No.6, the FICAR and all of the associated documentation and observations on file in respect of land, soils and geology. I am satisfied that the key impacts in respect of the likely effects on land, soils and geology as a consequence of the development have been identified. Issues raised include the adequacy of site investigations and the baseline information, risk of peat

bursts and landslides, the requirement for rock breaking or use of explosives with excavations. The LA also raised concerns in relation to the risk of soil/peat slippage.

18.8 Baseline information

18.8.1 Parties to the application raised a concern that the geological baseline was not informed by site specific information and that site investigations were not sufficient. The applicant did not directly address this concern in their response to submissions. In this regard I note that the geological baseline information was informed primarily by GSI data sources and that no boreholes, trial holes, sampling or analysis was undertaken during the site visits. Whilst I acknowledge that geological conditions can influence slope stability, the extent of investigation required in respect of a proposed development site is a matter of judgement on a case-by-case basis. In the circumstances of the case, the applicant has prepared geological maps and derived maps in an iterative manner in accordance with recommended guidance⁶⁶ (Fig 10.3 (a-c), 10.4 (a-c), 10.5 (a-c), 10.6 (a-c) and App A – C(b) of Appendix 10.1 and Fig. 3.1 – 3.8 of Memorandum No.6 refer). This has allowed the applicant to characterise conditions across the site in relation to bedrock type, soils, subsoils, depth to bedrock, depth of peat, degree of slope and groundwater vulnerability⁶⁷. Augmented by a walkover, visual observations and data from 876 peat depth probes, this allowed the applicant to determine a FoS and risk ranking of landslides in accordance with recommended guidance. The findings of the applicants site investigation and peat stability risk assessment (PSRA, Appendix 10.1) found that peat depth across the site is generally very shallow, with no deep peat observed at the site. The FoS at the site was found to be generally 'Acceptable' and the Risk Ranking very low to low in an adjusted worst-case scenario. I note that the mitigation measures proposed by the applicant includes (pre-development) geotechnical testing at turbine and substation foundations (and anywhere that

⁶⁶ Peat Landslide Hazard and Risk Assessment (PHLRA, Scottish Government, 2017)

⁶⁷ See Tables LSG 1 and LSG 2 above.

engineering controls are being used as a mitigation measure), together with geological engineering supervision as detailed in the PSRA and CEMP. In the circumstances of this case, and where it is evident that peat depths across the site are shallow, I am satisfied that the applicants baseline information and characterisation of site conditions is proportionate and sufficient to inform the detailed mitigation measures proposed.

18.9 Excavations

18.9.1 Parties to the application raised concerns that excavations in excess of that proposed by the applicant, and as detailed in the EIAR, would be required and may involve either a quarrying or blasting element which is not assessed in the EIAR.

18.9.2 Land take and excavation depths per wind farm component are set out in Table 10.13 and S.10.4.3.5 of Chapter 10 of the EIAR. This shows that the majority of excavations at the site are <1mbGL (76.8%) with only 2.5% >2 mbGL and with a predicted small adverse effect. Excavations >2 mbGL primarily concern turbine base foundations, which are predicted to a maximum of 3 mbGL, however the land take associated with same is relatively small at 0.49ha in total. The construction methodology is described in Section 5.2.2.4 of EIAR Chapter 5 and this confirms that individual foundations will have a diameter of 12m with a 45° angle of excavation +1m for workspace and will be performed by tracked excavator with occasional rock breaker. No crushing or screening of excavated rock material will be carried out on site and all excavated material will be taken to plant off-site to be crushed and screened, before return and re-use as fill material. Blasting is not proposed. I am satisfied that the EIAR has adequately described, quantified and assessed the excavation works proposed which are proportionate with the required construction of a project of this scale. I am satisfied that blasting is not proposed, and no quarrying type activities (other than excavation/breaking works) are proposed which have not been assessed in the EIAR.

18.10 Risk of Landslide or peat instability.

18.10.1 The LA and parties to the application raised concerns in relation to the risk of landslide due to proximity to the 'Derrybrien bogslide', peat depths, gradients, clear felling and extent of watercourses leaving the site. The applicant responds to this concern in Memorandum No.6 and with reference to the information contained within EIAR chapter 10. In relation to the peat slide which occurred at the Derrybrien Wind Farm the applicant states that the average peat thickness at Derrybrien WF averaged 2.5m and ranged from 0.4m to 5.5m and the event occurred immediately downslope of excavation works where the placement of excavation arisings onto the intact peat slope caused a reduction in shear resistance, lateral load transfer to downslope peat and progressive failure. At the location of the subject site peat depth averages (in the EDA) 0.56m and otherwise ranges between 0.1m to 3.8m, with the majority of peat surveyed very shallow to shallow (<2m) with no deep peat (>5m). The applicant contends that this presents materially different site conditions, and points to the PSRA which finds a low stability risk which is not comparable to Derrybrien. Otherwise, the applicant states that there are a range of mitigation measures proposed to prevent stability issues at the proposed development including management of stockpiled material, drainage, de-watering, monitoring of weather and monitoring by a geotechnical engineer/engineering geologist, with management of saturated peat at very few locations.

18.10.2 This matter was considered within the PSRA which as detailed in the preceding paragraphs found an acceptable margin of safety at all infrastructure locations based on a conservative worst-case scenario. The proposed windfarm is located on transitional marginal lands which primarily consist of coniferous forest, transitional woodland scrub and pastures with some peat bog which is mainly located within the EDA. An examination of the PSRA shows that peat is present only at T8, T9, T11 and Compound Storage Area B. Peat depth is shallow at all locations except T11 where at 0.01 – 4m it is moderately deep. At all locations the angle of slope is gentle ranging from

0.5 - 5°, the FoS is acceptable being in excess of 1.3 and the risk of landslide either very low or low. The EIAR includes recommendations and mitigations measures to ensure ground stability and which include pre-development geotechnical investigation, risk assessment and separate monitoring responsibilities for a geotechnical engineer/engineering geologist and a GCoW. With mitigation measures no significant residual risks are identified. I am satisfied given the environmental conditions of the site, the conclusions of the PSRA and the safe margin for the FoS, that there is no significant risk of peat slide/failure as a consequence of the proposed development.

18.11 Other matters

18.11.1 I note that some parties to the application raised concerns in relation to the proximity of the Gortacullion Bog National Heritage Area (NHA) (Site Code: 002401). This NHA is located approx. 100m to the NW of T11 in the EDA. In terms of land, soils and geology I note that the NHA is located outside the boundary of the site and that no physical development works are located within it, with drainage down gradient to the east and south away from the NHA. Accordingly, I am satisfied that the proposed development will not have any land, soils or geological impacts on the NHA, with hydrological, hydrogeological, biodiversity and heritage considerations addressed in the respective environmental topic chapters of this report.

18.12 Conclusion: Direct and Indirect Effects (*Land, Soils & Geology*)

Having regard to my examination of environmental information as set out above I am satisfied that there is no potential for significant environmental effects on land, soils or geology.

19. Landscape & Visual

Issues Raised

19.1 Issues raised in respect of landscape and visual effects in the observations received relate to concerns that the scale and height of the turbines will result in unacceptable landscape change and will be overbearing, that the

photomontages were not representative and omitted viewpoints/receptors of scenic value including scenic routes (SR25 and SR26), that the landscape has not been correctly classified, nor the windfarm designed, in accordance with WEDG 2006, and cumulative impacts. Other issues raised concerned the location of the proposed development within a heritage landscape and an absence of landscape mitigation associated with the proposed substation. The LA considered that the height and scale of the proposed turbines would significantly alter landscape character with adverse visual impacts and submitted that turbines of the scale and height proposed were not representative of the range identified by WEDG 2006 or the CWES. The LA also raised cumulative concerns with the proposed Knockshavno windfarm. Similar landscape and visual concerns were raised by Failte Ireland in the context of potential impacts on tourism, with specific concerns raised in relation to potential adverse impacts on the East Clare Way (ECW) and 12 o'clock hills trail(s).

19.2 Examination of the EIAR

Context

19.2.1 Chapter 14 of the EIAR deals with landscape and visual effects and includes the Landscape and Visual Impact Assessment (LVIA) of the project. The LVIA methodology uses the EU, EPA, IEMA and NatureScot (2021) guidance described in Section 14.1 in addition to WEDG 2006 and dWEDG 2019. It primarily follows IEMA Guidelines on Landscape and Visual Impact Assessment (GLVIA3). In accordance with the WEDG 2006 and dWEDG 2019 the study area and ZTV radius is 20km⁶⁸ (for blade tip heights greater than 100m). There is a greater emphasis on receptors and effects within the central study areas, which is the landscape within 5km of the site. No sites of national or international importance were identified between the 20-25km radius, and therefore the LVIA study area was confirmed at 20km. The LVIA considers '*landscape sensitivity*' with '*magnitude of change*' to determine the

⁶⁸ From the outer edge of the wind farm site.

likely significance of landscape effects. The LVIA considers '*sensitivity of visual receptors*', '*susceptibility of visual receptors to change*', '*values associated with views*' and '*magnitude of change*' to determine likely significance of visual effects. The quality of effects is also determined. The photomontages were prepared using a turbine envelope of 150m rotor diameter, 105m hub height and 180m tip height which represents the maximum potential turbine envelope for the proposed development. Whilst an alternative set of turbine dimensions is also being considered by the developer it was not considered that the variation in tip height of +/- 3.5m or hub height of 5m would be discernible or result in a notable difference in perceived scale. The LVIA finds that regardless of the difference in alternative turbine dimensions, there will be no material difference in the visual impact and certainly not a higher impact than the base case presented in the LVIA. On this basis separate photomontages/assessment was not prepared for all possible turbine dimensions. A Statement of Authority is included.

Associated Appendices are:

- Appendix 14.1 – ZTV Map with max turbine hub height.
- Appendix 14.2(a) – ZTV Map with 180m turbine tip height
- Appendix 14.2(b) – ZTV Map with 180m turbine tip height and VP locations
- Appendix 14.3 - VP locations
- Appendix 14.4 – Assessment of visual impacts at viewshed receptor points
- Appendix 14.5(a) – ZTV Map with cumulative wind farms (excl. Planning and pre-planning).
- Appendix 14.5(b) – ZTV Map with cumulative windfarms (Incl. planning and pre-planning)

19.2.2 The applicant's response to submissions in respect of LVIA is set out in Memorandum No.10 and Appendix 1 thereto: Additional Photomontages and Wireframes (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR). Chapter 9 of the FICAR addresses LVIA and is accompanied by Appendix 3 'Updated Photomontage Booklet'.

19.3 Baseline

Landscape

- 19.3.1 In terms of landform the EIAR describes the site as being located within an area of rolling hills and ridges known as the Broadford Hills, with the development orientated in a general NE-by-SW direction rising to a max. elevation of c.309m at the summit of Knockanuarha. The principal landscape features in the wider study area include the Slieve Bernagh Uplands and the River Shannon Corridor. The Slieve Bernagh Uplands begin to rise in the eastern periphery of the central study area, with several ridges and summits, the most elevated is Moylussa rising to a max. elevation of 531m AOD. The River Shannon and its wider environs enter the study area to the north in the form of Lough Derg and meander through the eastern, southern and western extents of the study area. Other notable features include Doon Lough approx. 3.5km to the north, which is fed by the Broadford River, with several other small loughs in the NW part of the central study area.
- 19.3.2 In terms of landuse, the site and its immediate surrounds contain typical transitional landuses such as forestry, scrub, moorland and peat bog and as the terrain descends this changes to pastoral farmland bound by mixed hedgerow vegetation. Notable areas of riparian woodland occur in proximity to lakes and watercourses, whilst the settlements of Broadford and Kilkishen are the most notable urban land uses in the CSA. The wider study area encompasses Limerick City, Shannon town and International Airport, Ennis, motorways and national road infrastructure.

Landscape Policy Context

- 19.3.3 The LVIA selects the 'Transitional Marginal Landscape' character type as defined in WEDG 2006 and dWEDG 2019, as being representative of the site. The siting and design guidance of the WEDG's in relation to location, spatial extent, spacing, layout, height and cumulative effect is considered with the view that the proposed development responds well to the guidance notes for this landscape type. It is considered that the turbines are principally located along some of the most elevated hills and ridges within the central

study area and are well offset from areas of lower ground, with irregular spacing responding to the spatial guidance. The turbines maintain the appropriate set back distance from residential receptors of a min. 500m (WEDG 2006) and the increased set back distance of 4 x times the tip height (720m), (dWEDG 2019)⁶⁹.

19.3.4 The proposed development is primarily contained within a 'Strategic Area' for wind in the CCDP with a single turbine partially located in an area 'acceptable in principle' for wind energy development. The CWES of the CCDP states that these areas are considered eminently suitable for wind farm development and are of strategic importance because of good/excellent wind resources, access to the grid, distance from properties and location outside Natura 2000 sites. The CWES also outlines capacities of LCAs in relation to wind energy development. The proposed development is located within LCA-8: Slieve Bernagh Uplands which is designated as being 'appropriate' for 'large' windfarms (defined as 11-20 turbines) with 'medium to low' sensitivity to windfarm development in the CWES. There are two parts of this LCA that are considered highly sensitive, the foothills and mountains overlooking Lough Derg and the unenclosed bogs of Lackareagh and Glengalliagh Mountain. Co. Clare is also divided into three broad categories of 'Living Landscapes' which are: 'Heritage', 'Settled' and 'Working' as designated in the CCDP, with 'Heritage' having the highest sensitivity. The proposed development is located within a designated 'settled landscape' for which one of the envisaged uses in the CCDP is 'energy' and a designated 'working landscape' to the southern extent of the proposed development associated with the areas surrounding the settlements of Ennis and the wider Limerick City Environs. Landscape related policy and designations are also considered in the Limerick and Tipperary CCDPs which are located within the wider study area.

19.3.5 A 10km radius is identified for ecological designations as the proposed development will have a limited landscape effect on these receptors. As a

⁶⁹ SPPR2 also refers. The turbines are set back a minimum of 725m from the nearest residential dwelling.

result 13 no. ecological designations are identified and listed in Section 14.5.2.6.

Visual

19.3.6 A computer-generated Zone of Theoretical Visibility Map, based solely on terrain data (bare earth visibility) and a tip height of 180m was prepared. Fig. 14.6 refers. (Appendix 4.2 provides a large-scale map). The ZTV illustrates the following key findings:

- Due to the location of the proposed development on elevated south facing lands, much of the central study area to the south has the potential for comprehensive views of the proposed development.
- To the north, theoretical visibility is more sporadic. It is screened to the immediate north, but as terrain levels out and rises further north the potential for theoretical visibility increases.
- To the east, the ZTV pattern is similarly sporadic. There is theoretical visibility of up to 6 no. turbines in the settlement of Broadford and its surroundings and some notable areas of comprehensive ZTV visibility in the surrounds of Slieve Bernagh. Many of the WDA turbines are screened by terrain and the potential for visibility is almost entirely eliminated further to the east in the surrounds of Killaloe as a result of the Glenvagalliagh Mountain.
- To the south and southeast there are broad areas of comprehensive ZTV due to the terrain's relatively flat to low rolling nature. Beyond 4-5km south, there is a notable area of no turbine visibility due to elevated lands.
- Within the central study area to the west of the site rolling hills and ridges reduce ZTV to sporadic patterns. Beyond this in typical rolling lowlands in the wider western and northern extents drumlin like formations result in a 'sand-ripple' effect ZTV pattern.

19.3.7 All of the scenic routes (SR) and views in Co. Clare, Limerick and Tipperary that fell inside the ZTV were investigated, and where visibility may occur, a viewpoint was selected for visual impact appraisal. The LVIA

Identified 13 no. such viewpoints, of which 9 no. were scoped in for assessment as detailed in Table 14.6.

19.3.8 The LVIA also used the results of the ZTV analysis to select Viewshed Reference Points (VRP's) to study the landscape and visual impacts of the development in detail. A variety of receptor locations were selected to provide views of the proposed windfarm from different distances, different angles and different contexts using 6 categories of receptor type: Key Views (KV), Designated Scenic Routes and Views (DSR/SV), Local Community Views (LCV), Centres of Population (CP), Major Routes (MR) and Amenity and Heritage Features (AH). On this basis the LVIA selected 26 no. VRPs which are listed and shown in Table 14.7 and Figure 14.7.

19.4 Potential Effects

The EIAR identifies the potential for a range of landscape and visual environmental effects. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table LV1 below:

Table LV1: summary of potential effects (*landscape and visual*)

Project Phase	Potential Effects
Do Nothing	Not assessed.
Construction Stage	<i>Landscape Impacts</i> - The proposed development does not have a significant footprint and will have a modest physical impact on the landscape, with topography and land cover remaining largely unaltered. - The impact of the substation and switch gear building is considered relatively minor and comparable with an industrial farm shed within an area of existing scrub. - The Met mast is a slender free-standing structure, which includes minor ground excavation and shallow foundations. - The felling of c. 54ha of tree felling is considered to be relatively minor in the context of the modified and managed landscape setting, where felling and replanting is commonplace. - The GCR will result in some localised minor landscape effects in the surrounds of two new pylon structures. - Minor and temporary land disturbance associated with haul routes is considered temporary, reversible and not significant.

	- Site activity and construction activities will result in construction stage effects on landscape character, but they will be temporary/short term and not significant. Overall, the magnitude of construction stage landscape impacts within the site and its immediately surrounding context is deemed to be high-medium and of negative quality but short-term duration. Based on a medium landscape sensitivity judgement and a high-medium magnitude of construction stage landscape impact, the significance is considered to be substantial-moderate, negative, long-term within and immediately around the site, reducing to moderate, slight and imperceptible at increasing distances. <i>Visual Impacts</i> - The main visual impacts will arise from heavy vehicle movements, construction machinery, stockpiles of stripped soils and construction materials and the erection of tower cranes. Much of the ground-based construction works will be heavily screened by vegetation. This activity is short-term and likely to result in visual impacts of high/high-medium in the immediate surroundings of the site. Construction stage visual impacts in the immediate vicinity of the site are considered to be in the order of substantial-moderate and moderate, temporary and of negative quality. They will reduce considerably beyond the CSA and are not considered to be significant.
Operational Phase	<i>Landscape Impacts</i> - The principal effect is the introduction of a new land use. - In terms of scale and function, the proposed wind farm is well assimilated within the context of the CSA where the broad-scale landforms and land uses prevent the height and extent of the wind farm causing conflicts of scale. Although the development represents a stronger human presence and level of built development, it will not detract significantly from the working rural character of the surrounding elevated hills and ridges. - The proposed windfarm represents a long term, but not permanent impact on the landscape which is reversible. The magnitude of the operational phase landscape impact is deemed to be high-medium within the immediate site context, reducing to medium within the CSA and low to negligible at increasing distances beyond 5km. Based on a medium landscape sensitivity judgement and a high-medium magnitude of construction stage landscape impact, the significance is considered to be substantial-moderate, negative, long-term within and immediately around the site, reducing to moderate, slight and imperceptible at increasing distances. <i>Visual Impacts</i> Visual effects for each VRP is listed in Table 14.8. They can be summarised as: - VP1, VP5, VP13, VP22, VP25 – slight-imperceptible, negative, long-term

	- VP2, VP3, VP4, VP6, VP10, VP20, VP24 – slight, negative, long-term - VP7, VP15, VP21 – moderate, negative, long-term - VP8, VP14, VP26 – imperceptible, neutral, long-term - VP9, VP11, VP19, VP23 – moderate-slight, negative, long-term - VP12, VP16, VP17, VP18 – substantial-moderate, negative, long-term <i>Community Views</i> Eleven viewpoints were selected to represent the local community views (VP7, 9, 11, 12, 13, 15, 16, 17, 18, 19 & 21) and some of the nearest views to the south of the main ridge. Of these VP12, 16, 17 & 18 were classified with a 'substantial-moderate' visual impact significance, with all others having a moderate-slight or slight visual significance. - VP12 affords a prominent view of the 4 no. turbines in the EDA from an elevated section of local road. There are no residential dwellings at this location, but rural dwellings to the north and south. The turbines present in a dominant manner, but with little notable negative aesthetic effect and do not appear over scaled due to loose spacing, open nature of view and context of extensive conifer forestry. - VP16 is one of the nearest views from community receptors where up to 6 no. turbines in the WDA will be prominently visible. Although a defining feature, they are assessed as not over-scaled and assimilating well within the surrounding broad landscape features and land uses. - VP17 affords an uphill view from the busy R471 within the CSA and linear clusters of dwellings. It represents an open view along this route which is otherwise heavily contained by vegetation. Turbines will present with a dominant visual presence, slightly accentuated by the uphill nature of the view. - VP18 affords a partial view of 3 no. turbines at a local road/R471 intersection in Oatfield. Whilst presenting with some visual ambiguity as to their location, they are only briefly visible. Overall, the turbines will present with a dominant visual presence from some of the nearest community receptors. The dispersed nature of the two distinct arrays limits overall perceived scale, surrounding terrain and intervening vegetation limits clear views of both parcels and the location across a broad ridge with existing conifer forestry helps assimilate the overall scale into the landscape context. For these reasons, it is considered that the proposed development will not generate significant visual impacts for community receptors. <i>Tourism, Amenity & Heritage Features</i> - A section of the East Clare Way (ECW) passes directly through the site and will have clear views of the turbines which will present with a dominant visual presence. The elevated active coniferous nature of the landscape at this location is not considered highly rare or unique. There are some broad distant views afforded from the ECW where the turbines will be clearly and prominently visible and whilst this might slightly detract from the scenic amenity afforded, views will not be blocked or heavily obstructed. - Whilst the ZTV identifies potential for visibility from Doon Lough, the lough is heavily contained by mature woodland with a high degree of containment and there is no clear visibility of the site.
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	- Remaining tourism, amenity and heritage receptors within the study area relate to local churches and graveyards such as Clonlea Cemetery and Kilmurry Graveyard. Both of these receptors have partial visibility of turbines along a distant skyline ridge and the residual visual significance is assessed as 'slight'. - Whilst views of the turbines will be afforded from Bunratty Castle and Folk Park, they present as distant background features with not notable effect on the visual setting of the Castle and views afforded from it. The visual impact significance was deemed 'slight-imperceptible'. - Whilst wireframes indicated the potential for several turbine blade tips to be visible from King Johns Castle in Limerick City, it is considered that they are unlikely to be discerned at this considerable distance (11km) and will have no notable visual impact. Significance is deemed imperceptible. For these reasons it is not considered that the proposed development will result in significant visual impacts in respect of tourism, heritage and amenity. <i>Scenic Routes</i> - The R466 regional scenic route comprises two sections, one to the east and one to the north of the site. The ZTV identified limited potential visibility to the eastern section and this was confirmed by fieldwork. It is not considered that the limited visibility of turbines (if any) will detract from the scenic amenity of this route. The ZTV also identifies limited potential visibility to the north, however as the terrain rises along the northern section of this route, potential for clearer views is offered as represented by VP7. At this location the turbines will be viewed as modest-scale background features from a distance of over 5km and will have a minimal impact on visual amenity. Overall, the significance of visual impact was deemed slight. - Two other scenic routes run NE by SW along elevated terrain NE of the settlement of Cratloe. Broad intermittent views are afforded across the landscape, with the main aspect of amenity to the NW and W. In context, the proposed development is viewed to the NE. VP23 at Woodcock Hill Bog was selected as representative. Turbines will be visible at a noticeable scale at this location albeit screened by nearby conifer plantations and the location is already influenced by radar equipment and telecommunication masts. At this location the turbines do not block any highly sensitive aspects and are offset from the more visually susceptible Slieve Bernagh Uplands. The residual visual impact significance is deemed moderate-slight. - The development will be partially visible from other scenic routes in the study area, presenting as background features with minimal reduction in the degree of scenic amenity. For the more distant scenic designations, the turbines will be difficult to discern and will have a residual visual impact significance deemed slight-imperceptible to imperceptible. For these reasons it is not considered that the proposed development will result in significant visual impacts in respect of scenic designations. <i>Centres of Population</i>
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	- The nearest centre of population is the village of Broadford, c.1.5km to the N of the EDA and VP7 is representative (St. Peters Church). All four of the turbines in the EDA are visible at a prominent scale along the summit ridge. The LVIA finds that they do not appear over scaled or inappropriate along the broad elevated ridge and the residual significance of visual impact was deemed moderate. - The settlement of Sixmilebridge is located on the periphery of the CSA, 5km from the site. Only turbines in the WDA are visible and VP20 is representative (GAA grounds). All 7 no. turbines are visible at a modest but noticeable scale, it is accepted that there is a slight sense of visual clutter from overlap. The residual significance was deemed slight. - Other settlements in the study area will have visibility of some turbines, but they will be a distant feature and will not appear out of place along the broad forestry-cloaked ridge of the background context. For these reasons it is not considered that the proposed development will result in significant visual impacts in respect of centres of population. <i>Major Routes</i> - R471 - Representative view VP17 as above for Community Views. - R466 and R465 – limited opportunities for clear visibility of the turbines from these regional road corridors. - For motorway and national road corridors to the wider and southern extents, views of the turbines (where afforded) will be perceived as distant background features with no notable distraction to the viewer's journey. For these reasons it is not considered that the proposed development will result in significant visual impacts in respect of major routes. <i>Ancillary Elements of the Development</i> - The substation has potential to be viewed from some local community receptors, but will be heavily screened by mature hedgerow vegetation. It will likely be viewed as a distinct element of the wind farm. - The GCR will result in an increase in the intensity of development in a local landscape context but it will likely be viewed as a distinctly separate development. - Both the substation and GCR will likely result in a degree of visual clutter in the local landscape due to the nature of their development comprising electrical infrastructure elements inc. pylons and lightning masts. It is considered that neither will generate significant visual impacts. For these reasons it is not considered that the ancillary elements of the development will generate significant visual impacts.
Decommissioning Phase	<i>Landscape Impacts</i> - Similar temporary impacts as the construction phase.

	Overall, the magnitude of decommissioning phase landscape impacts within the site and its immediately surrounding context is deemed to be high-medium and of a negative quality but short-term duration. Based on a medium landscape sensitivity judgement and a high-medium magnitude of construction stage landscape impact, the significance is considered to be substantial-moderate, negative, long-term within and immediately around the site, reducing to moderate, slight and imperceptible at increasing distances.
Cumulative Effects <i>(As updated in Section 9 of the FICAR (Appendix 2) in respect of Knockshavno and Ballycar WF).</i>	Construction Phase - The potential for cumulative construction impacts on the landscape and visual environment is considered to arise in the context of the proposed Knockshavno Wind Farm. It is considered unlikely that construction would occur simultaneously. Should this happen it is considered that it would result in increased movement of HGVs, storage of construction vehicles and machinery and erection of tower cranes. - These potential impacts associated with an increase in the intensity of development and construction works would be short-term. They would be phased and would not occur all at once. - Impacts would be more notable in the immediate landscape context surrounding the site(s). While there is some potential for notable, temporary cumulative effects during the construction phase with other proposed or consented wind farms, it is not considered that they will generate significant cumulative impacts. Operational Phase <i>Existing Baseline Scenario (Carrownagown WF & 2no. individual turbines (Parteen & Vision Care))</i> - Much of the cumulative visibility will relate to the proposed Oatfield Wind Farm (OWF) and the consented Carrownagown Wind Farm (CWF). Nevertheless, there is a clear separation between the development will limits the potential to generate strong and negative cumulative aesthetic effects such as tack views. - Each of the existing and consented development is clearly defined by the landforms and land uses they are associated with. With respect to the two single turbines, there is very limited potential for these to contribute to any notable cumulative effects. - The East Clare Way (ECW) and the R465 scenic route are most likely to be affected by sequential views. The ECW traverse immediately adjacent to the CWF and OWF with potential for sequential effects to occur. Notwithstanding, the development has clear separation distances of over 4km and will not significantly detract from the recreational amenity afforded along the ECW. - There is some potential for sequential cumulative effects to occur along the R465 north of Broadford, however the CWF and OWF will be viewed as distinctly separate developments, with a high degree of vegetation limiting the potential for clear combined views to be afforded. - There are no other large-scale developments within the vicinity of the site with potential for cumulative effects. It is not considered that more exposed views of turbines as a result of potential

	harvesting activities will result in significant cumulative landscape or visual effects. As result, the magnitude of cumulative effect is deemed to be medium-low and not significant. <i>Potential Future Baseline Scenario (as per existing baseline plus Knockshavno, Ballycar, Fahybeg and Lackareagh Wind Farms (consented and proposed)). *As updated in the FICAR (Appendix 2)</i> - The proposed Oatfield Wind Farm (OWF) and Knockshavno Wind Farm (KWF) are likely to be perceived as one larger-scale development. Whilst the combined developments will result in a marked intensification of development in the local landscape, the KWF will fill existing gaps in the OWF EDA and WDA. As result the two will appear as one consolidated WF along the broad ridge. Turbines are of a similar scale, reducing the potential for a sense of conflict and resulting in a coherent combined view. Nevertheless, the combination will lead to wind farm development becoming one of the more dominant features in the elevated landscape context. - The proposed Ballycar Wind Farm (BWF) is located on sloping lands facing north towards OWF. They will often be viewed in combination, particularly from receptors within the valley between and Woodcock Hill. There is potential for some local dwellings to have views of turbines to the north and south, creating a perception that they are within a windfarm. However, the BWF and OWF are located on elevated lands with lower population densities and are offset from more population areas, such as the R471. - The Fahybeg Wind Farm (FWF) and Lackareagh Wind Farm (LWF) are to the east of OWF with a clear degree of separation some 5.5km east of the site. There will be some clear opportunities for combined views and they will contribute to a notable increase in the intensity of wind farm development in the study area, albeit presenting as distinctly separate developments. - In terms of the sequential cumulative effects identified in the baseline scenario, there will be a notable increase in intensity. Nevertheless, as the OWF and KWF are located adjacent, the effects will not further disperse notably across the study area and instead remain localised to the elevated uplands that contain the proposed development. - Overall, it is considered that there will be a notable sense of wind farm proliferation within the CSA and wider eastern half of the study area. The OWF and KWF will be perceived as one larger consolidated layout of turbines which slightly diminishes perceptual effects. It is considered that the proposed OWF will contribute to a cumulative effect in the order of high-medium which is not considered to be significant. <i>Decommissioning Phase</i> - Similar to construction phase. It is not considered that this phase will generate significant cumulative impacts.
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19.5 Mitigation

19.5.1 Mitigation Measures are set out in Section 14.7 of EIAR Chapter 14. They include best practice construction stage mitigation measures, site selection and embedded design measures which have informed the iterative design process. Measures include:

Construction Stage

- Best practice construction measures to minimise land and vegetation disturbance and dust emissions.
- Appropriate management and reinstatement of excavations in a timely manner.
- Progressive reinstatement and landscaping of the site.

Operational Stage

(Mitigation by Avoidance & Design)

- Site selection within a robust landscape designated as a 'strategic area' for wind energy development,
- Good design in accordance with WEDG 2006 and dWEDG 2019 for a 'transitional marginal landscape',
- Industry standard off-white/light grey semi-matt non-reflective finish, underground electricity lines and Infrastructure, counter rotation of blade sets and removal of existing vegetation avoided.

(Buffering of residential receptors)

- Minimum set back distance of 725m from the nearest residential receptor in excess of WEDG 2006 (500m) and dWEDG 2019 (720m or 4 x times the tip height).

19.6 Residual Effects

19.6.1 The magnitude of construction, operational and decommissioning stage landscape impacts is deemed to be high-medium within and immediately adjoining the site and the significance is assessed as 'substantial-moderate', negative and long term, thereafter, decreasing to

moderate, slight and imperceptible at increasing distances. The residual significance of visual impacts ranges between 'substantial-moderate' to 'imperceptible'. It is not considered that the proposed development will contribute to significant landscape or visual effects, including cumulative effects.

19.7 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 14 of the EIAR, all of the associated LVIA documentation including Memorandum No.10, the FICAR and observations on file in respect of Landscape and Visual Amenity. I am satisfied that the key impacts in respect of the likely effects on landscape and visual amenity as a consequence of the development have been identified. Parties raise a number of issues in respect of landscape and visual amenity which I address below.

19.8 Landscape Classification

19.8.1 Parties raised concerns that large turbines of the scale proposed, were not appropriate in 'transitional marginal' landscapes having regard to the guidance set out in the WEDGs and that certain definitions for this classification were omitted to justify the siting, layout and scale of development proposed. In response the applicant states that the landscape has been assessed as one that is heavily modified, informed by a primary agricultural context and an elevated working character that is evident in extensive areas of commercial conifer forestry and which together with anthropogenic built features such as telecommunications masts and overhead line corridors, demonstrate long standing human intervention.

19.8.2 Having inspected the subject site I am satisfied that the key characteristics of the proposed development site and its immediate surrounds are consistent with a 'transitional marginal landscape' as defined in the WEDG 2006. This is particularly informed by the limited extents of naturalistic mountain moorland at more elevated ground (particularly in the EDA) which transitions quickly (particularly within the WDA) to more organised managed

farmland within the lower levels of the site and its immediate environment where houses and farmsteads are more common. I do not accept that the applicant has been deliberately selective in this regard, and in any event, this would not necessarily be of material consequence as landscape character types are intended to be representative and are provided for guidance purposes only. It is not a requirement of the guidelines that the landscape type must satisfy all of the key characteristics as set out in WEDG.

19.8.3 WEDG 2006 also sets out siting and design guidance for wind turbines in this landscape character type. In this regard I note that the proposed development provides a clear visual separation from the complexity of lower ground, provides for irregular spacing given the complexity of landform/landcover, and a clustered layout on broad hilltops in accordance with the applicable guidance. The submissions suggest that short turbines are recommended by the guidelines within such landscapes, however this is conditional on the location being within small-scale enclosed areas which the proposed development is not. Where the upper ground is relatively open and visually extensive, such as that of the proposed development site, the guidelines state that taller turbines may be more appropriate and I am therefore satisfied that the application has been located, sited, designed and correctly assessed within the LVIA for a 'transitional marginal landscape' having regard to WEDG 2006.

19.9 WEDG 2006 and CWES

19.9.1 Parties raised concerns in relation to the aged nature of both WEDG 2006 and the CWES, submitting that neither envisaged wind turbines of the scale and height now proposed in the subject application.

19.9.2 In terms of height, WEDG 2006 considered blade tips over 100m to be tall, but notes that the notion of what constitutes 'tall' will change over time with technological advances and that there will be a shift in turbine height relative to capacity⁷⁰. As stated above, height guidance in WEDG 2006 for a

⁷⁰ Chapter 6, Section 6.2 'Aesthetic Considerations', WEDG 2006.

transitional marginal landscape accepts that taller turbines maybe appropriate where upper ground is relatively open and visually extensive. The CWES assumes turbine heights of 75m to 125m (blade tip) for commercial operations, defines large turbine heights as being 'over 100m to blade tip' and also acknowledges that turbine heights will change over time. The CWES specifically recognises that '*turbine heights are increasing and there is no prescription in relation to turbine heights*⁷¹' with each application being assessed on its own merits. Accordingly, there is no preclusion in either WEDG 2006 or CWES to turbines of the scale and height proposed and both documents clearly recognise the advancement of taller turbines over time with technological advancements.

- 19.9.3 It is accepted that the WEDG 2006 are at this time aged, and that turbine technology and scale has significantly increased since they were first introduced. Whilst draft guidelines were published in 2019, these have not yet been adopted and it is clear that the 2006 guidelines remain in force. The application has however been brought forward with due and appropriate regard to the draft 2019 guidelines, and in respect of visual amenity and residential receptors compliance with the higher standards of the 2019 draft guidelines (4 x times tip height set back distance) is proposed. The application otherwise has regard to other appropriate government and industry guidelines and best practice. Given the policy context for the urgent and rapid roll out of alternative forms of renewable energy within the state, including the need to dial up onshore wind, I consider that the delay in the publication of revised wind energy guidelines does not of itself preclude decisions on wind energy developments including the granting of permission. I am satisfied that the WEDG 2006, dWEDG 2019, government and industry best practice guidelines continue to provide a robust and reasonable basis for the assessment of applications for wind energy developments (including EIA and AA processes) and on which informed decisions can continue to be made.

⁷¹ Section 1.4 Terms and Definitions, CWES

19.10 Landscape Change

19.10.1 Parties raised concerns that the proposed turbines are of unacceptable scale and that both the scale and number of turbines will result in unacceptable landscape change within an elevated rural environment. In response the applicant states that the proposed 180m tip height turbines are not out of scale in a transitional landscape context which is heavily influenced by large scale landscape features such as the Broadford Hills and Slieve Bernagh Uplands.

19.10.2 In my opinion, the facts of this case are clear and there is a notable absence of material landscape and visual amenity constraints and considerations in respect of the proposed windfarm development at the location of the subject site. As addressed in the policy section of my report the site is located within an area primarily designated as being a '*strategic area*' for wind energy development in the CCPD and CWES, and within the '*Slieve Bernagh Uplands LCA8*' with a medium to low sensitivity to windfarm developments and an accepted capacity for large windfarms. I note that the CCDP states that the sensitive areas of this LCA are considered to be the foothills and mountains overlooking Lough Derg and the unenclosed bogs of Lackareagh and Glenvagalliagh Mountains. In this regard the ZTV confirms that the potential for visibility is almost entirely eliminated to the east and in the surrounds of Killaloe as a result on intervening topography and from my inspection of the site I am satisfied that there will be no adverse visual or landscape impacts on the sensitive foothills and mountains overlooking Lough Derg as a result of the proposed development. The proposed development is otherwise not located within the unenclosed bogs of Lackareagh and Glenvagalliagh Mountains which are removed approx. 8km to the east. There are no features of national or international importance within a 25km radius of the site (beyond 20km) and therefore this consideration was scoped out of the LVIA. The location of the site is otherwise surrounded by designations that are 'acceptable in principle' and 'open to consideration' for wind energy

development in the CCDP and is not considered to be particularly visually or ecologically sensitive.

19.10.3 I have already established, that in my opinion the location of the proposed development has been correctly classified as a 'transitional marginal landscape' and is sited and designed appropriately in accordance with WEDG 2006.

19.10.4 Having inspected the site, and assessed the application particulars, I consider that the collective evidence in relation to landscape and visual impacts is persuasive and I am in agreement with the findings of the LVIA and ZTV mapping that the main potential for comprehensive views of the proposed windfarm are located to the south (10-11 turbines) and immediately to the east (4-6 turbines) within the central study area. Otherwise, I am satisfied that visibility is sporadic and increases with distance such that landscape and visual impacts to the north, further east, and west are not significant and are correctly assessed. I am satisfied that the material considerations arising are limited to impacts on community views & local residential receptors, designated scenic routes and views, centres of population and amenity and heritage features within the central study area. I am satisfied that there will be no significant visual effects on 'major routes' or beyond the central study area for the reasons given in the LVIA.

19.11 Community Views including Residential Receptors

19.11.1 The LVIA selected eleven viewpoints to represent local community views and of these 4 no. (VP12, 16, 17 & 18) were classified with a 'substantial-moderate' visual impact significance, with the others falling between 'moderate-slight' or 'slight' visual significance. The LVIA considered all impacts to fall below the threshold of a significant impact in EIA terms.

19.11.2 Having inspected the subject site I am of the view that the main landscape and visual impacts from the proposed development will be on residential receptors closest to the proposed development site to the south along the R471 and the local roads which travel north-south off it, and to the

east along the (unnamed) local road which travels south-north from 'Cloghera' to the village of Broadford. I am satisfied that these locations are represented by VP16, 17 & 18 (R471) and VP12 (Unnamed local road). I note the location of VP15 and its proximity to turbines in the WDA. This viewpoint is representative of a number of rural dwellings at this location, however from an inspection of the subject site there are limited visual and landscape impacts at this location as a result of existing coniferous planting.

19.11.3 VP 12 affords a view of the 4 no. turbines in the EDA. The LVIA describes this as a prominent view, with the turbines presenting in a dominant manner, but considers that they do not appear over scaled due to loose spacing, open nature of the view and context of extensive forestry. There are limited one-off rural dwellings at this location, with the closest (non-involved property) being approx. 1km east of the closest turbine. These dwellings are sporadic, not directly orientated towards the site and mostly screened by, or contained within, existing vegetation. In my opinion, whilst the turbines will be a dominant feature within a prominent view from this local road, the impacts are correctly assessed given the very limited nature of residential receptors at this location, their remove, orientation and screening.

19.11.4 VP 16-18 (inc) affords views of the turbines in the WDA. The views represented generally depict the views which will be afforded of the windfarm from the R471, travelling east-west/west-east between Sixmilebridge and the R463, which is one of the main routes from which the windfarm will be experienced, perceived and interpreted by the local community. The LVIA describes VP16 as one of the nearest views from community receptors where up to 6 no. turbines will be prominently visible. Although a defining feature they are assessed as not over-scaled and assimilating well within the broad landscape. In my opinion this view represents well the maximum landscape and visual impact that will be experienced by the local community. From an objective point of view, I agree with the findings of the LVIA that the turbines assimilate well within the broad landscape context, they do not read as over-scaled and the irregular spatial arrangement integrates with the more complex

landform. The impacts are correctly assessed. However, they are prominent, dominant and of significant scale and I accept that for some receptors the landscape and visual impacts will subjectively be perceived as significant. VP17 is described by the LVIA as presenting an uphill open view within a linear cluster of dwellings. Turbines are described as having a dominant visual presence, slightly accentuated by the uphill nature of the view. In my opinion VP17 is a satisfactory representation of the relationship between the proposed windfarm and the closest rural residential receptors within the immediate environment. VP17a and VP17b are particularly informative. In my opinion the visual impact of the proposed development at this location is clearly 'substantial' and not 'substantial-moderate' as assessed by the applicant. This brings the effect within the threshold of significant. I base this assessment on the high sensitivity of the residential receptors, the high (major) magnitude of the change and the fact that in my opinion the proposed development '*affects a large proportion of the overall visual composition and views are so affected that the turbines form a new element in the physical landscape*'. Notwithstanding I note that turbines meet the additional set back distance (for visual amenity reasons) from residential receptors of 4 x times the tip height as set out in the dWEDG 2019 and I do not consider that they will be overbearing on any individual dwelling as a result of same, orientation of dwellings⁷², topography, vegetation cover and design.

- 19.11.5 VP18 is of less value. It is described in the LVIA as affording a partial view with turbines presenting with some visual ambiguity, although only briefly visible. In my opinion VP18 demonstrates the perceived scale and proximity of the proposed windfarm development which will be experienced by the local community and travellers on the R471. Although the view is partial and brief, it demonstrates how the proposed development will frequently enter the public realm and impact the view(s) of the local community within the CSA as a result of its scale and location. Notwithstanding this fact, in general I am satisfied that the impact depicted in VP18 and elsewhere (where comparable

⁷² Generally facing south and away from the proposed windfarm development (which is located to the rear).

visibility occurs), is correctly assessed as substantial-moderate and not significant on the basis of a medium sensitivity of receptor (public roads/domain) and medium magnitude of effect (prominent, but moderate/partial change).

19.11.6 I note that the layout of the development provides that turbines will meet the additional set back distance (for visual amenity reasons) from residential receptors of 4 x times the tip height as set out in the dWEDG 2019. Accordingly, no turbines will be located within 720m of any habitable dwelling. I accept that the turbines will be visible and prominent generally when viewed from local residential properties within the immediate area to the south of the site but consider that turbines will not be overbearing on any individual dwelling as a result of separation distances, orientation, topography, vegetation cover and design. I do consider that significant residual visual impacts will remain for a small number of local residential receptors, as represented by VP17:R471 at Cloughoolia but these are not such that would warrant refusing permission.

19.12 Designated Scenic Routes and Views

19.12.1 Parties raised concerns that designated scenic roads were not adequately assessed in the LVIA, however I am satisfied that this is demonstrably not the case. The LVIA assessed the R466 scenic route, together with two other scenic routes in the vicinity of the settlement of Cratloe and with visual effects assessed as 'slight' and 'moderate-slight' respectively. Other scenic routes in the wider study areas were not considered in detail on the basis of effects assessed as 'slight-imperceptible' or 'imperceptible'.

19.12.2 Scenic routes are designated in the CCDP, referenced and described in Appendix 5c thereof. The R466 consists of two separate and distinct routes described as SR25 and SR26 and these are the main designated scenic routes within the wider environment of the site. SR25 is described in the CCDP as '*views in and out of Doon Lough*' and SR26 is described as the '*R466 between Broadford and O'Briensbridge*'.

19.12.3 In respect of SR26 the LVIA states that the ZTV identified limited potential visibility and that this was confirmed by fieldwork. It was not considered that the limited visibility of turbines (if any) would detract from the scenic amenity of this route. The LVIA acknowledged that as terrain rises along the northern section of this route, the potential for clearer views is offered however turbines at this location would be viewed as modest-scale background features from a distance of over 5km with minimal impact on visual amenity. In respect of SR25 and Doon Lough, the LVIA found that the Lough is heavily contained by mature vegetation with a high degree of containment and with no clear visibility of the windfarm site.

19.12.4 Having inspected the subject site, I have assessed the full extent of the R466 in a northbound and southbound direction. SR26 runs in a general SE to NW direction from O'Briensbridge in the south to Broadford in the north. In my opinion this scenic route has a general rural character which is not unique or exceptional, and it is removed from the more important or iconic scenic qualities of the wider area such as Lough Derg and its foothills. At this location the main scenic attributes of the route are towards Lackareagh and Glengalliagh Mountain to the North, and northeast, however the proposed windfarm development is removed to the west and will have no landscape or visual effect on same. Otherwise, I am of the view that the horizontal and vertical alignment of this road is such that the driver is not presented with sustained views of the surrounding environment at any location with outward views limited, brief and localised, especially when considered in the wider context of the landscape and experience of the road network. From my inspection of the site, I found that a view of the proposed windfarm site from the R466 (SR26) is generally restricted by the intervening topography of Formoyle Beg which rise to a local height of 242m. Otherwise I note that the northern limits of the R466 on approach to Broadford, and where intermittent views of the proposed windfarm may open up, is not designated as a scenic route.

19.12.5 The SR25 also runs SE to NW but to the north of Broadford, and between the village and O'Callaghans Mills. The character of the R466 at this location has a general rural character which is not unique or exceptional and with a horizontal and vertical alignment that does not afford sustained views of the surrounding environment at any location. SR25 is designated to protect views in and out of Doon Lough and I am in agreement with the findings of the LVIA, that the Lough is contained by mature vegetation and the proposed development removed to the south will have no material impact on the visual amenity of same. I note in particular that there are no designated views, prospects or available viewing areas from which a view or panorama of particular scenic quality is afforded. The only available 'pull in' area on this route facilitates access to the Lough and has no amenity value.

19.12.6 Other designated scenic routes within the study area include SR22, 23 and 24. SR24 is removed to the northwest of the proposed development site and concerns views of Lough Cullaunyneda beyond the settlement of Kilkishen. VP4 is representative and having travelled this route and inspected this VP I note that it reflects a limited view available at a specific location and is representative of the limited intermittent views available on the R462 generally. I agree with the LVIA that at this distance there will be no adverse visual impacts on the designated scenic route. SR22 and SR23 concern routes travelling north from Cratloe and Bricks Bridge which are removed to the southwest of the proposed development. The ZTV indicates very limited visibility (if any) of the proposed turbines at this location and I am satisfied that this assessment is correct and does not require further consideration.

19.12.7 Overall, the LVIA considers that the proposed development will not result in significant effects on scenic designations and I am in agreement with this assessment.

19.13 Centres of Population

19.13.1 The LVIA finds that the nearest centre of population is the village of Broadford, c. 1.5km to the north of the EDA. The LVIA finds that all 4 no.

turbines in the EDA will be visible at a prominent scale along the summit ridge. VP7 is representative. The LVIA assesses that the turbines do not appear over scaled or inappropriate along the summit ridge and the significance of impact was assessed as moderate. The LVIA otherwise found that all 7 no. turbines in the WDA would be visible from Sixmilebridge, which at 5km would present at a modest but noticeable scale, with some visual clutter and a significance impact assessed as 'slight'. VP20 is representative. No significant effects were identified from any other settlements, due to distance and mitigation of intervening topography and vegetation.

19.13.2 Having inspected the subject site, I am in agreement with the LVIA that the main impacts associated with the proposed development will be on the village of Broadford, albeit this will be limited to the 4 no. turbines in the EDA only. The LVIA assesses the impact as 'moderate'. VP7 is an elevated view and I am satisfied that it represents the maximum impact that will be experienced from this village location. In this regard I note that WEDG 2006 provides that when wind energy development is relatively close and above a small urban node, it should respect the scale of its setting and avoid spatial dominance. In this regard the turbines are removed approx. from the village and are located on the far side of the skyline such that the turbines appear 'shortened'. In this context, and given that the visible turbines are limited to 4 no. only, across a broad ridgeline, I am satisfied that they do not result in spatial dominance relative to the landform or built form of Broadford village, and that the LVIA assessment of moderate visual effect significance is balanced, reasonable and correct. In particular I note from my inspections that the view represented in VP7 is an elevated view from St. Peters Church in the village which accentuates the impact of the turbines, but which is not representative of the views that will be afforded from most of the village environment. Views of the turbines in the EDA will be available from the main street when travelling in a southern direction, and on approach to the village from the west but they will be mitigated by topographical changes, built landform, orientation of view and vegetation such that they will either not all be visible or will appear with reduced scale (due to perspective) and in limited

or intermittent views only. I am satisfied that the proposed windfarm will not be visible from the national school within the village and will have no material landscape or visual effect from the GAA grounds within the village.

- 19.13.3 Otherwise, I have visited Kilbane (VP8), Bridgetown, Tulla (VP2), Kilkishen (VP6), Kilmurray (VP10) and Sixmilebridge (VP20) and I am satisfied that the significance of visual effects from the more distant settlements is correctly assessed as slight.

19.14 Tourism, Amenity and Heritage Features

- 19.14.1 Having inspected the subject site and assessed the application particulars and relevant resources, I am satisfied that the main consideration arising in respect of tourism, amenity and heritage features concerns the East Clare Way (ECW) and 12 O’Clock Hills looped walking trails. The ECW is a long distance walking route and impacts on this route and the 12 O’Clock Hills trail were a concern raised by the LA, Failte Ireland and the submissions received. The LVIA notes that the ECW and 12 O’Clock Hills trail pass directly through and are located adjacent to the site with clear views of turbines presenting with a dominant visual presence. The LVIA finds that the landscape at this location is not highly rare or unique and that views will not be blocked or heavily obstructed. The applicant further responds in Memorandum No.10 that large extents of the walking trail are located in the north-facing slopes of the Broadford Hill and have limited potential for clear theoretic visibility of the full extent of the proposed windfarm. I am of the opinion that walking and recreational trails and routes are not necessarily incompatible with windfarm developments, and in this regard I am mindful of the many national examples of waymarked trails and hiking routes which exist in proximity to windfarms without significant material effect on their continued use. I am also mindful of the evidence submitted in the application, particularly in Memorandum No.10 in response to the submission from Failte Ireland, that there is no correlation between windfarm development(s) and performance in the Tourism sector and that public perceptions, including those of tourists, are broadly positive towards windfarms. Accordingly, whilst I accept that landscape and visual

effects will occur in respect of the ECW and 12 O’Clock Hills I do not consider that they will adversely impact the recreational value of the walks/trails which will remain unimpeded or the outward views afforded from same. I am satisfied that effects are limited to the local presence of turbines within the environment of the proposed windfarm site, are not significant and are not such that would warrant refusing permission.

19.14.2 The most notable Tourism and Heritage features within the wider study area concern Bunratty Castle, Co. Clare and King John’s Castle, Limerick City. Parties to the application raised concerns in relation to the potential impacts on both heritage tourism assets. The LVIA found that whilst turbines would be visible from the location of Bunratty Castle, they present as distant background features with little notable effect on the visual setting of Bunratty Castle or views from it. It was considered that the major route corridor which adjoins the Castle was the most notable influence on the Castle and the significance of the visual effect from the proposed windfarm was assessed as slight. VP25 is representative. In relation to King John’s Castle, this asset is located some 11km south of the windfarm site in Limerick City. The ZTV indicates potential for several turbine blade tips to be visible, however when natural and built screening is taken into consideration the LVIA assesses that visual effects from this considerable distance will be imperceptible. VP26 is representative. I concur with the evidence and findings of the LVIA in both regards and note the significant presence of Woodcock Hill (310m) between the windfarm site and large extents of Limerick City including King John’s Castle.

19.14.3 The LVIA finds that remaining tourism, amenity and heritage features within the study area concern local churches and graveyards including Clonlea Cemetery (VP6) and Kilmurry Graveyard (VP10). The LIVA finds that such receptors have partial visibility of turbines along a distant ridge and the significance of visual effect is assessed as ‘slight’. Oatfield Church is a protected structure, which is located in close proximity to the proposed windfarm site and along the GCR. I am satisfied that the main potential

impacts of the proposed development on this Church concern the GCR works which are addressed in my assessment of architectural and cultural heritage impacts. Significant visual or landscape impacts on Doon Lough were ruled out in the assessment of SR25 above. For all of the reasons outlined above I accept the findings of the LVIA and agree that the proposed development will not result in significant visual impacts in respect of tourism, heritage and amenity.

19.15 Photomontages

19.15.1 Parties raised concerns in relation to the accuracy of the submitted photomontages and the selection of representative viewpoints. In response the applicant confirms that the photomontages were produced by Macro Works in line with current NatureScot Guidelines and guidance set by the British Landscape Institute 2011- Advice Note 01/11. Further detail is given by the applicant in Memorandum No.10, Section 3.4 (June 2024) in relation to the digital camera model, GPS survey, digital terrain modelling and rendering software used in the preparation of photomontages. In terms of the selection of viewpoint locations, the applicant responds that this is guided by GLVIA3, with key viewpoints selected on the basis of the ZTV mapping. The applicant further states that it is not practical to include every single location that includes a view of the development, rather a variety of location types is selected that is representative of different distances, angles and contexts and category of receptor types. The applicant states that in instances where the development is heavily screened from a specific receptor, this has been selected to highlight the degree of intervening screening, that Macro Works always attempts to use the most open views, and that it serves no purpose to present visual impacts which can readily be disproven.

19.15.2 Third party concerns in relation to the range and selection of photomontages is a common and understandable point of submission in relation to applications for wind farm developments. This can often arise as a result of subjective opinions, misinterpretation of material presented or unrealistic expectations. In the circumstances of this case, the applicant has

carried out a LVIA in accordance with the appropriate guidance, informed by ZTV mapping and which includes 26no. viewpoints representative of a range of receptors including key views, amenity views, designated scenic routes, community views, centres of population and major routes. Concerns were specifically raised that the applicant had not adequately addressed or considered designated scenic routes, specifically SR25 and SR26. I am satisfied that this is not the case, with designated scenic routes being one of the categories of receptors specifically addressed in the LVIA and as addressed in my report above. From my inspections of the proposed windfarm development, I am satisfied that the VP's selected by the applicant are fair, accurate and representative having regard to best practice and guidance.

19.16 Cumulative Effects & Other

In relation to cumulative landscape and visual effects I am of the opinion that the primary matter for consideration is potential cumulative effects associated with the adjacent proposed Knockshavno wind farm. In this regard I am in agreement with the findings of the applicants LVIA that the Oatfield and Knockshavno wind farms will read as a single consolidated wind farm along the broad ridge of the Broadford Hills, and with no sense of conflict in scale. As a result the cumulative effects will result in a marked intensification of development on the local landscape but will further disperse the landscape and visual effects and will not otherwise change the findings of my assessment as set out above.

In terms of the proposed Ballycar and consented Carrownagowan, Lackareagh and Fahybeg windfarms, I am of the view that they will be read as distinct and separate wind farms to the proposed Oatfield and Knockshavno wind farms. I agree with the findings of the applicants LVIA that overall, these windfarms will lead to a notable sense of wind farm proliferation within the central study area and wider landscape, however this is consistent with the designation of 'strategic areas' and areas 'acceptable in principle' for wind energy development in the CCDDP and to be expected. The LVIA assesses the

overall cumulative impact in the order of 'high-medium' and not significant. I have established that the proposed development is located, sited and designed in accordance with the CDP and WEDG 2006, and I am satisfied that it will not result in, or contribute to, significant cumulative landscape or visual effects.

Lighting and proposed Substation

I have already addressed 'obstacle lighting' in the population & human health sections of my report, where I have determined that it is necessary, modest and not likely to result in light pollution. In relation to the proposed substation I am satisfied that it will not result in significant landscape or visual effects. The proposed physical structures consist of buildings which are comparable with agricultural structures in terms of scale and mass and electricity infrastructure which is otherwise already present in the wider environment. I am satisfied that visual and landscape effects can be mitigated and or satisfactorily controlled by finishes, landscaping and the hooding, alignment and limited use of security lighting if permission is granted and that significant effects will not occur.

19.17 Conclusion: Direct and Indirect Effects (Landscape & Visual)

- 19.17.1 Overall, I am satisfied that the proposed development is located, sited and designed in accordance with WEDG 2006 and dWEDG 2019. It is located on lands which are primarily designated as a strategic area for wind in the CCDP, with medium to low sensitivity and capacity for large windfarm development. There is a distinct material absence of sensitive landscape, heritage or ecological designations or constraints. The wind farm sits at elevations which range between the contour lines of 180m to 260m and below the nearest summit of Knockanuarha (309m) and is sited across a broad elevated hillside with a clear separation from lower managed farmlands in accordance with WEDG 2006. In the wider landscape the impact of the proposed development is mitigated by Woodcock Hill (310m) to the south and Lackareagh (357m) and Glenvagalliagh Mountain (44m) to the east which

serve to largely screen or mitigate the landscape and visual impacts of the proposed development from Limerick City and Lough Derg respectively.

19.17.2 Having regard to my assessment of the proposed development on landscape and visual effects, it is considered that the proposed development will give rise to significant landscape and visual effects for a small number of local residential receptors in the immediate area to the south of the site, as represented by VP17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc. however significant residual effects will remain. Notwithstanding this, having regard to the pressing need to dial up renewable energy sources (including onshore wind) and reduce GHG emissions, it is considered that these effects are not sufficient to warrant refusing permission for the development and are acceptable.

20. Archaeology and Cultural Heritage

Issues Raised

Parties to the application raised concerns in relation to potential impacts on Oatfield Church and its setting as a result of the GCR and generally in relation to the archaeological and architectural heritage of the site and wider landscape, with a range of records and assets identified. Concerns were also raised in relation to placename/townland errors in the EIAR. The LA did not raise any concerns in relation to archaeology or cultural heritage. The statutory report from the DHLGH (Archaeology) acknowledged the findings of the EIAR and recommended conditions which the Commission will note align with sample conditions C3, 5 and 6 of the OPR practice note PN03: Planning Conditions (October 2022) with appropriate site-specific adaptations.

20.1 Examination of the EIAR

Context

20.1.1 Chapter 15 of the EIAR deals with archaeology, architectural and cultural heritage. It includes an assessment of UNESCO World Heritage

Sites, National Monuments, Recorded Monuments, Site and Monument Records, Protected Structures and NIAH structures. The relevant international and national legislation, policy and guidance for the protection of cultural heritage is set out in Section 15.4.1. and includes the European Convention on the Protection of the Archaeological Heritage (Valletta Convention), the 1985 Convention for the Protection of the Architectural Heritage of Europe (Granada Convention), the National Monuments Act 2023, the Heritage Act 1997, The Record of Monuments and Places (RMP), the National Inventory of Architectural Heritage (NIAH), the DAHG (1999) Frameworks and Principles for the Protection of the Archaeological Heritage and the DEHLGH (2004) Architectural Heritage Guidelines. A Statement of Authority is included.

Associated Appendices are:

- Appendix 15.1 – Impact Assessment and the Cultural Heritage Resource.
- Appendix 15.2 – Mitigation Measures and the Cultural Heritage Resource.
- Appendix 15.3 – Legislation Protecting the Archaeological Resource.
- Appendix 15.4 – Representative Selection of Photos
- Appendix 15.5 – Figures.

20.1.2 The applicant's response to submissions in respect of archaeology, architectural and cultural heritage is set out in Memorandum No.11 (June 2024). Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR).

20.1.3 The assessment methodology included a desk top study of documentary and cartographic sources listed in S. 15.4.2.7 including GIS and ESRI datasets and supported by wireframes and photomontages, ZTV, LiDAR flyover and aerial imagery. A field inspection was carried out on 28th and 29th September 2023 as described in S.15.4.2.8. The methodology for the assessment of likely significant effects is guided by EPA guidelines and is described in S.15.4.2. including study areas, types of effects and magnitude of change.

20.2 Baseline

- 20.2.1 There are no UNESCO WHS within 20km of the proposed development site boundary. There are no National Monuments either within the proposed development site or within 10km of the proposed development site boundary. There are four National Monuments recorded immediately outside the 10km study areas and these are: Bunratty Castle (CL062-001004-) 10,8km SW, King John's Castle (LI005-017014-) 10.6km SE, Fanning's Castle (LI005-017014-) 11km SE and Kilrush Church (LI005-009) 11km S – Fig 15.2, Appendix 15.5 refers. No monuments subject to statutory protection in the Record of Monuments and Places (RMP) or Sites and Monuments Record (SMP) are located within the site boundary.
- 20.2.2 All of the sites and monuments recorded within 1km of the proposed development site boundary are listed in Table 15.7 of EIAR Chapter 15. This includes 10 no. records, the closest of which includes a Megalithic wedge tomb (CL044-041) recorded immediately outside the site boundary and 286m east of T9 and St. Vincent de Paul's Church (Oatfield Church) (CL052-043), which is adjacent to the GCR and is also a Protected Structure (RPS No. 665). There are no other protected structures within 1km of the proposed development site boundary, and 15 no. protected structures within the 5km study area – Fig. 15.3 of Appendix 15.5 and Table 15.8 of EIAR chapter 15 refer. There are eight buildings or structures recorded on the NIAH within the 5km study area as listed in Table 15.9 of EIAR chapter 15.
- 20.2.3 St. Vincent de Paul's Church (Oatfield Church), which is recorded on the RMP and RPS as identified above, is the only cultural heritage asset within 100m of the GCR. There are four protected structures and one Architectural Conservation Area (ACA) on the TDR. These consist of two bridges, one tavern, a house and the Friary Precinct ACA as detailed in Table 15.12 of EIAR Chapter 15. There are 5 no. NIAH structures and SMR's within the TDR study area as detailed in Table 15.13 and 15.14 of EIAR Chapter 15 respectively.

20.2.4 Section 15.5.20 sets out a discussion of the archaeological and cultural heritage background of the site and surrounding landscape across the Prehistoric, early Medieval, Medieval, Post-Medieval and 19th Century to modern periods. It is noted that there are 5 no. undated enclosures, structures and monuments recorded within the 1km study area as already identified in the SMR's listed in Table 15.7⁷³. The findings of the twenty NMI burial excavations within the 10km study area are noted, particularly the findings of the ten excavations ranging from 3.3km to 5.8km from the proposed development site, with the remaining investigations finding nothing of archaeological significance. The findings of cartographic evidence are summarised in S.15.5.28 with the first edition 6 inch OS map of the area (1829-1942) showing the proposed windfarm site in detail for the first time, depicted as enclosed agricultural fields with scattered agricultural buildings and forested areas. The last edition 6 inch OS map (1897-1913) shows relatively little change. Aerial photographic analysis using OS, google earth, aerial and satellite imagery from 1995 onwards shows no discernible change to current field boundary arrangements or land-use. The names of townlands and their Irish translation is presented in Table 15.15 of EIAR Chapter 15.

20.3 Potential Effects

20.3.1 The EIAR identifies the potential for a range of environmental effects on archaeological, architectural and cultural heritage. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table AACH1 below.

Table AACH1: Summary of potential effects (*Archaeological, Architectural and Cultural Heritage*)

Project Phase	Potential Effects
Do Nothing	The site would continue to be managed as existing arable and pasture farmland and forestry land, with potential effects to sub-surface archaeology (if present) and historic structures on site if groundworks took place as part of the management of farmland or forestry land on the site. On the GCR and TDR potential effects could

⁷³ EIAR refers to Table 15.6 in error. Map Id No. 26, 27, 30, 31 and 33 refer.

	also occur as a result of groundworks associated with the management of existing public roads, verges and adjacent fields. Indirect effects would not occur.
Construction Phase	<i>Indirect</i> - These effects happen 'away from the site' and therefore are only possible at operational stage. No indirect effects were identified at the construction stage. <i>Direct (Wind Farm Site)</i> <i>UNESCO WHS, National Monuments, ACAs, Protected Structures, NIAH Structures, RMP or SMP records</i> - There are no such assets recorded within the windfarm site. Therefore, the construction of the proposed windfarm will have a no change direct effect on these assets and the significance of the effect will be neutral. <i>Megalithic Tomb (CL044-041) (ID 32, Table 15.7)</i> - Recorded 286m east of T9 and 106m from nearest site access track. Embedded design provides that no groundworks are required within the vicinity of this monument and a design buffer zone of 50m⁷⁴ is in place. It is considered that the construction of the proposed windfarm will have a no change direct effect on this recorded monument and the significance of the effect will be neutral. <i>Extant Unregistered Historical Structures/Records</i> - Analysis of mapping and field survey indicates there are no extant unregistered historical structures in any parts of the site likely to be truncated or removed by the proposed development. The potential direct effect is assessed as 'no change to low' and the significance of the effect is at worst 'not significant'. <i>Field Boundaries</i> - The potential direct effect of the proposed development on upstanding field boundaries is assessed as low. The significance of the effect will be at worst 'not significant'. - The widening of an existing access road in the WDA will likely result in the loss of high sided field banks suggesting historical use as a cattle droveway. The potential direct effect on this feature is assessed as 'low' and the significance of this effect will at worst be 'not significant'. <i>Modern Stone Clearance Cairns</i> - The construction of the 110kV Substation will remove two features, which have been interpreted as relatively modern stone clearance cairns. These features are not considered to be archaeologically significant. The potential direct effect of the proposed development is assessed as 'negligible' and the significance of this effect will at worst be 'not significant'. <i>Unknown Archaeological Remains</i> - As proposed ground works will be carried out in areas where no known buried archaeological features have been identified and

⁷⁴ Not a mitigation measure.

	due to previous ground disturbance associated with 20th century forestry plantation, the potential effect on unknown buried archaeology is assessed as ranging from 'negligible' to 'very high' and the significance of the effect is assessed as ranging from 'imperceptible' to 'profound'. Direct (GCR) <i>UNESCO WHS, National Monuments, ACAs, NIAH Structures or SMP records</i> - There are no such assets recorded along the GCR or within 100m of the GCR. Therefore, the construction of the GCR will have a no change direct effect on these assets and the significance of the effect will be neutral. <i>St. Vincent de Paul's Church (Oatfield Church) (ID14 Table 15:10 and ID28 Table 15:7)</i> - This church is both a Protected Structure (RPS No. 665) and a Recorded Monument (CL052-043) and it is located within 100m of the GCR. The GCR will pass through the public road adjacent to this Church. There will be no direct effect on the building or monument during the construction phase, but there is potential for currently unknown buried archaeological remains associated with the church to be present in the public road outside the curtilage of the church are which could be truncated or removed by the proposed GCR works. Potential for unknown archaeological remains is considered limited. The potential direct effect is assessed as 'no change to low' and the significance will be likely 'not significant' at worst. <i>Unregistered Stone Bridge</i> - The GCR will pass over an unregistered stone bridge of historic interest immediately SW of St. Vincent de Paul's Church. The construction of the cable across this bridge has potential to truncate or remove architectural fabric of historic interest associated with the bridge. Works will involve limited trenching groundworks. The potential direct effect is assessed as 'negligible to low' and the significance will likely be 'not significant' at worst. <i>Field Boundaries and unknown buried archaeology</i> - Short sections of the GCR divert off the public road and through adjacent fields. This will potentially remove short sections of field boundaries. As the GCR will go through fields where no archaeological or architectural features have been identified and involves short sections of boundary removal, the potential direct effect is assessed as 'negligible to low'. The significance of the effect is assessed as 'not significant' at worst. - Elsewhere the potential effect of the GCR on unknown archaeological/architectural potential of the public road is assessed as a 'no change' direct effect and the significance 'neutral'. Direct (TDR) <i>UNESCO WHS and National Monuments</i>
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	- There are no such assets recorded along the TDR. Therefore, the TDR will have no direct effect on these heritage assets. <i>Architectural Conservation Areas (ACA's) and Protected Structures (PS)</i> - There is one ACA (Friary Precinct) (Map No. 39, Table 15.12) and four PS located along the TDR (Two Bridges, a Tavern and a House (Map No. 35, 27, 26, & 38 on Table 15.12 respectively). As no groundworks are proposed at these locations, the potential direct effect is 'no change' and the significance 'neutral'. <i>Recorded Monuments and NIAH Structures</i> - There are five recorded monuments and NIAH structures located within the study area for the TDR. These are identified on Table 15:13 and Table 15:14 of EIAR Chapter 15 respectively. As no groundworks are proposed at any of these locations, the potential direct effect is 'no change' and the significance 'neutral'. <i>Groundworks</i> - The only area where ground works are proposed along the TDR is at the junction of the R463 and R471. There are no buildings or structures of architectural interest or evidence of unregistered earthworks or buried archaeology at this location. There may be potential for unknown buried archaeology in fields around this junction and groundworks associated with the construction of a temporary access road or widening could truncate or remove any such assets present. As no such features are identified at this location, and not short sections of field boundaries will be removed the potential direct effect is assessed as 'negligible to low' and the significance as likely to be 'not significant' at worst.
Operational Phase	<i>National Monuments</i> <i>Bunratty Castle</i> - This is the nearest national monument outside of the 10km study area, located 10.5km to the SW. Visual assessment of wireframe and photomontage views indicate that significant views of the wind turbines from ground level and lower floor levels will be effectively screened by vegetation and other existing modern buildings. Whilst views will be available from upper floor levels looking NE, they will be long range, visible alongside other modern structures in the skyline and will not change how the Castle is understood or appreciated in its landscape setting. For these reasons the potential indirect effect on the setting of this monument is assessed as long-term negligible, and adverse indirect effect on the significance of the monument, with the significance of the effect assessed as 'slight' at worst. <i>Architectural Conservation Areas (ACA's)</i> <i>Kilkishen ACA</i> - Located over 4.8km to the NW, concerns the village core and is associated with two protected structures: Kilkishen Cultural Centre and Church and a vernacular house known as 'Murphy's'. Analysis and assessment indicate that there will at worst be very restricted long-range views of turbines looking SE from the edge of the ACA on a clear day. With mature trees and other modern

	buildings effectively screening significant views. For these reasons it is assessed that the wind farm may have a long-term low effect on the setting of this ACA and its PS and a likely adverse indirect effect on the significance of the ACA with the significance of the effect 'not significant' at worst. <i>Sixmilebridge ACA</i> - Located 5.1km to the SW, concerns the historic town core with the majority of the ACA set around the O'Garney River and the R470, R462 and R471. It is associated with nine PS. These comprise the Little Church of Cratloe (RPS No. 128), the Old House Bar (RPS No. 470), Leverstown House (RPS No. 469), Kilfinaghty Public House (RPS No. 123), Saints Mary and Finaghta's Church (RPS No. 110), Credit Union (RPS No. 468), Waterside Medical Centre (RPS No. 494), the Riverside Inn (RPS No. 471) and Kilbane Bridge (15). Analysis and assessment indicate that the presence of mature trees and other modern buildings on the east side of the town will effectively screen significant views of the turbines from the majority of the ACA at ground level. It is unlikely that there will be any significant views from PS's with the exception of Saints Mary and Finaghta's Church (RPS No.110) where long range views may be possible looking eastwards from the areas of Church View and Lodge Road where turbines may appear on the skyline behind the church on clear days. It is considered that the proposed wind farm will not likely affect any key historic views or sightlines that contribute to the significance of the setting of the ACA. For these reasons it is assessed that the wind farm may have a long-term low effect on the setting of this ACA and its PS and a likely adverse indirect effect on the significance of the ACA with the significance of the effect 'not significant' at worst. <i>Protected Structures (Outside of ACA's)</i> <i>Church of the Mother of God (RPS No.102); Glenomra House and Grounds (RPS No. 427); St. Mary's Church (RPS No.99), Glebe House (RPS No. 428) and Mount Levers House (RPS No. 88)⁷⁵.</i> - Analysis and assessment indicates that there will likely be no views or extremely limited views of the turbines from these PS. For these reasons it is assessed that the wind farm may have long-term negligible effect on the setting of these PS, an adverse indirect effect on their significance, with a significance effect at worst 'imperceptible'. <i>Kilkishen Castle (RPS No.285) and Kilkishen House (RPS No.87)</i> - The wind turbines will not be visible in views looking west from the public road to either of these PS's and will not change the way they are normally viewed and understood in their historic landscape setting. Outward views from the PS looking east (upper portions of turbines visible in medium range views) will not likely affect any key historic views or sightlines that contribute to the significance of the PS. For these reasons it is assessed that the wind farm may have a long-term low effect on the setting of these PS's and a likely adverse indirect effect on their significance with the significance of the effect 'slight adverse' at worst.
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⁷⁵ Map No.1, 2, 3, 6 and 13 (respectively) of Table 15:8, EIAR Chapter 15.

	<i>Hurdlestown House (RPS No.86)</i> - Located south of the village of Broadford. Analysis and assessment indicates that the upper portions of wind turbines will be visible in medium range views looking south and southwest from the front of the house including the garden area. This visual change will have a potential adverse effect on the wider historic landscape setting of the PS and its grounds. The change can be reversed with decommissioning. For these reasons it is assessed that the wind farm may have a long-term medium effect on the setting of this PS and a likely adverse indirect effect on its significance with the significance of the effect 'moderate adverse' at worst. <i>Belvoir House (RPS no.76)</i> - Built c.1820, burnt in 1880 and currently in ruins. Its setting is 19th century Belvoir Demense which includes other historic buildings within the curtilage of the main house and gateway (NIAH). Analysis and assessment indicate that upper positions of the turbines will be visible in medium range views looking south-east from the front of the house. The visual change will have a potential adverse effect on the wider landscape setting of the PS and its historic demesne. However, dereliction and modern changes to the immediate setting of the house have reduced its sensitivity. Visual change can be reduced with decommissioning. For these reasons it is assessed that the wind farm may have a long-term medium effect on the setting of this PS and a likely adverse indirect effect on its significance with the significance of the effect 'moderate adverse' at worst. <i>Mountcashel Castle (RPS No.591)</i> - A 15th century tower house. It has commanding views in all directions from its rocky outcrop location along the R462. Analysis and assessment indicate that the upper portions of turbines will be visible in medium range views looking east along the skyline. Turbines will not be visible in views looking W, SW or NW from the R462 and will not change the way the PS is normally viewed and understood in its setting. The views looking east from the Castle will not likely affect any significant historic views or sightlines that contribute to the significance of its setting. Visual change can be reversed with decommissioning. For these reasons it is assessed that the wind farm may have a long-term medium effect on the setting of this PS and a likely adverse indirect effect on its significance with the significance of the effect 'moderate adverse' at worst. <i>St. Vincent de Paul Church (Oatfield Church) (RPS No.665)</i> - Analysis and assessment indicate that the upper portions of the turbines will be visible along the skyline in close range views from the Church car park looking north. The turbines will not be visible in views looking S and SW from the R471 to the Church, in views looks west from the Church entrance or in views looking east from the Derrynaveagh Road. Therefore, the wind farm will not change the way the PS is normally viewed and understood in its setting. The views looking north will not likely affect any significant historic views or sightlines that contribute to the significance of the setting of the Church. Visual change can be reversed with decommissioning. For these reasons it is assessed that the wind
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	farm may have a long-term medium effect on the setting of this PS and a likely adverse indirect effect on its significance with the significance of the effect 'moderate adverse' at worst. <i>NIAH Structures (excluding PS)</i> - Analysis and assessment indicate that NIAH structures within 1km to 5km of the proposed development will likely comprise some visual changes. It is assessed that the wind farm is likely to have long term negligible to low effects on the setting of NIAH structures and their curtilages and an adverse indirect effect on their significance with the significance of effect ranging from 'imperceptible to moderate'.
Decommissioning Phase	- Any potential effects will have been resolved through mitigation measures. Once the wind farm is decommissioned all indirect visual effects will be reversed. The potential direct effects will be no change (neutral).
Cumulative Effects (*As updated in the FICAR	<i>Construction Stage</i> - As none of the other proposed or consented projects intersect with the proposed development site boundary, there will be no additional direct cumulative effects on archaeology, historic buildings or cultural heritage. - Should two wind farm projects within the study occur simultaneously there is potential for indirect visual effects associated with increased construction activity, including HGV movements and the erection of tower cranes, mostly associated with the proposed Knockshavno WF. It is expected that these effects will be more notable in the immediate historic landscape context surrounding the site. At this location HGV traffic is not uncommon associated with commercial forestry plantations and the immediate landscape contains relatively few upstanding monuments or buildings of historic significance. Therefore, it is considered that the potential for cumulative indirect effects is limited and it is not considered that construction stage effects with other consented or proposed windfarms will generate significant cumulative indirect effects on archaeology, historic buildings and cultural heritage. <i>Operational Phase</i> - As none of the other proposed or consented projects intersect with the proposed development site boundary, there will be no additional direct cumulative effects on archaeology, historic buildings or cultural heritage. - For the purposes of comprehensive cumulative appraisal, a new cumulative zone of theoretic visibility mapping was generated in Appendix 2 of the FICAR together with updated photomontages. The updated assessment notes that there will be a notable sense of windfarm proliferation within the central study areas and in the wider eastern half of the study area. The LVIA found that the perceptual effects would be slightly diminished as a result of the siting of the proposed Knockshavno WF immediately adjacent to the proposed Oatfield WF such that they would read as one larger consolidated layout of turbines. The result of which is no material

	change to the outcome of the originally submitted cumulative assessment of indirect effects which are not significant. <i>Decommissioning Phase</i> - Similar to construction stage. It is not considered that the decommissioning phase effects with other consented or proposed wind farm developments will generate significant cumulative effects.
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20.4 Mitigation

20.4.1 Mitigation Measures are set out in Section 15.7 of EIAR Chapter 15. Mitigation Strategies are set out at Appendix 15.2 and include (inter alia) archaeological test trenching, full archaeological excavation, archaeological monitoring. At operational stage measures include the embedded design mitigation already set out in the assessment of Landscape and Visual Effects (EIAR Chapter 14). For the Construction Stage specific mitigation measures include:

- 50m buffer zones around recorded monuments and unregistered historic buildings closest to the areas of groundworks on site. A visual barrier will be placed around the buffer zones.
- Preservation of field boundaries where possible. Where this is not possible, investigation and recording by archaeologist prior to removal.
- Archaeological monitoring of all major subsurface ground works by a suitably qualified archaeologist under licence in accordance with the National Monuments Acts 2023. This will include liaison with DHLGH, preservation in situ, preservation of the record and submission of a report to DHLGH.
- Licensed archaeological monitoring of any open cut trenching for the GCR required outside of the modern public road and along the public road adjacent to St. Vincent de Paul Church.
- Licensed archaeological monitoring of ground works required outside of the modern public road at the junction of the R463 and R471 associated with the TDR.

- Structural capacity of historic bridges Ballincurra Bridge⁷⁶ (RPS No.1644) and Ferry Bridge⁷⁷ (RPS No.6257) to be confirmed prior to use as part of the TDR.

20.5 Residual Effects

20.5.1 The residual effects after the implementation of mitigation measures are likely to be mitigated or avoided at construction stage with no significant effects predicted. At operational stage residual effects range from none (ACA's) to imperceptible to slight (national monuments), to imperceptible to moderate adverse (Protected Structures and NIAH) with no significant residual effects predicted. At decommissioning stage residual effects are predicted to be 'no change' (neutral) as all effects will be reversed.

20.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

20.6.1 I have examined, analysed and evaluated Chapter 15 of the EIAR, Memorandum No.11 (June 2024), Section 10 of the applicant's FICAR (May 2025), all of the associated documentation, reports and observations on file in respect of cultural heritage. I am satisfied that the applicant's understanding of the baseline environment is comprehensive and that the key impacts of likely effects on cultural heritage as a consequence of the development have been identified. I am satisfied that the cultural heritage assets identified by third parties to the application are removed from the proposed development site and have been adequately assessed in the applicants EIAR. Whilst many submissions raised concerns in relation to Oatfield Church (ST. Vincent De Paul's Church, RPS No. 665) I am satisfied that this has also been adequately assessed in the applicant's EIAR. Having inspected the subject site, I am in agreement with the applicant that the indirect visual effects of the proposed windfarm on this Church at operational stage will not be significant with limited visual impacts restricted to the north and not materially affecting the landscape setting of this historic Church. In my opinion the main concern

⁷⁶ Map No.35 of Table 15:12, EIAR Chapter 15

⁷⁷ Map No.37 of Table 15:12, EIAR Chapter 15

arising in respect of this Church concerns excavation works associated with the GCR which pass within close proximity of the Church and its curtilage. However given that works will be limited to trench works within the public road, where disturbance has already likely occurred as a result of road construction and other existing utilities, I am satisfied that with licensed archaeological monitoring there will be no significant effects. Otherwise having regard to the location of the site, specifically the absence of resources within the development footprint, the distance at which the majority of resources are located, the mitigation strategies and measures proposed including for archaeological testing, preservation and monitoring, I am satisfied that there is no potential for any significant direct, indirect or cumulative effects on cultural heritage as a result of the proposed development. I am further persuaded in reaching this view, by the statutory report of the DHLGH (February 2024) which essentially recommends conditions broadly consistent with the applicants EIAR.

20.7 Conclusion: Direct and Indirect Effects (*Cultural Heritage*)

Having regard to the foregoing and the examination of environmental information in respect of cultural heritage, it is considered that there is no potential for significant environmental effects.

21. Traffic and Transport

Issues Raised

- 21.1 Issues raised in the observations relate to the capacity of the local & regional road infrastructure, volume of HGV traffic, adequacy of baseline information & trip generation calculations, adequacy of Bridge and other historic assessments, accident data, cumulative effects, legal interests, impacts on public transport (bus routes) and landowner, resident and agricultural impacts. The PA was generally concerned that the regional and local road network serving the site was poor in terms of capacity, width and alignment with further concerns expressed in relation to its ability to cater for excess loads and the orderly management of concurrent construction sites if the

Knockshavno WF was to proceed at the same time. The report recommends that the points raised by the Killaloe MD Roads Office reports should be conditioned accordingly in the event that permission is granted. TII sought clarity in relation to the TDR and also recommended conditions in the event that permission is granted.

21.2 Examination of the EIAR

Context

21.2.1 Chapter 16 of the EIAR deals with the likely significant transport and accessibility effects to arise from the construction, operational and decommissioning phase of the proposed development. It includes an assessment of the GCR and TDR. A statement of authority is included. The relevant appendices are:

- Appendix 16.1 – Traffic Survey Data
- Appendix 16.2 – AADT Calculations
- Appendix 16.3 – Traffic Impact
- Appendix 16.4 – Cumulative Effects
- Appendix 16.5 – Turbine Delivery and Grid Connection Route Assessment
- Appendix 5.2 to EIAR Chapter 5, Project Description – Construction Traffic Management Plan (CTMP)

21.2.2 The applicant's response to submissions in respect of traffic and transport is set out in Memorandum No.12 (June 2024) including Appendices 1-4 (inc) as follows:

- Appendix 1 – LCCC Meeting Minutes
- Appendix 2 – Traffic Counts
- Appendix 3 – Amended CTMP
- Appendix 4 – Correspondence with DirectRoute

Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR).

21.2.3 The methodology is described in Section 16.4 and follows the IEMA Environmental Assessment for Road Traffic Guidelines and TII's Traffic and Transport Assessment (TTA) Guidelines (PE-PDV-02045) together with the relevant policy considerations listed in Section 16.5.

21.2.4 The IEMA guidelines consider an increase in traffic flows or HGVs which is less than 30%, or 10% in sensitive areas, to result in imperceptible changes in the environmental effects of traffic. For sensitive areas this includes accident 'black spots', conservation areas, hospitals or links with high pedestrian flows. Otherwise, an increase which is less than 10% is considered to result in no discernible environmental effect. The applicant considers this to be a similar approach to TII's TTA Guidelines which set out advisory thresholds for TTA when:

- Development trips in/out (combined) exceed 100 trips in peak hours
- Development traffic exceeds 10% of turning movements at junctions with and on national roads,
- Development traffic exceeds 5% of turning movements at junctions with national roads if the location has potential to become congested or sensitive.

21.3 Baseline

21.3.1 The WDA will be accessed via local road L3016 via the R471. There is no posted speed limit and the 85th percentile speed was estimated to be between 20km/h and 30km/h. This rural road has no pedestrian or cyclist facilities or public lighting. The EDA will be accessed using an unnamed local road via the R471. There is no posted speed limit and the 85th percentile speed was estimated to be between 40km/h and 50km/h. This rural road has no pedestrian or cyclist facilities or public lighting. The R471 regional road is a single carriageway road linking Sixmilebridge in the west to Cloonlara in the east, via Broadford Village. A speed limit of 80km/h was assumed. The R471 has no pedestrian or cyclist facilities or public lighting in the vicinity of the proposed development.

- 21.3.2 The proposed TDR is from Foynes Port via the N18, M7, and Killaloe Bypass to the proposed windfarm site as shown in Fig 16.4. An assessment of the viability of delivering windfarm components from Foynes to the development site is considered in Appendix 16.5. The proposed GCR includes two connection options, with connection to either the existing Ardnacrusha to Ennis 110kV OHL (Option A) or the existing Ardnacrusha to Drumline 110kV OHL (Option B). Both options are assessed in the EIAR, and the route is shown in Fig. 16.5
- 21.3.3 There are no bus or rail facilities within the vicinity of the development, with the nearest bus stops (Stop 609561 and Stop 336521) located c.8.1km from the proposed development and the nearest rail services c.8.8km at Sixmilebridge. Accident data from the RSA was unavailable at the time of EIAR writing due to an ongoing RSA review of data sharing policies and procedures.
- 21.3.4 No on-site borrow pits are proposed as a result of the proposed development. All materials will be imported to the site, with materials, quantities and sources listed in Table 5.4 of EIAR Chapter 5. All hardcore materials and ready-mix concrete will be sourced from local, appropriately authorised quarries and off-site concrete plants, with the most likely sources listed in section 3.6.2 of the CTMP and shown on Fig.9 thereof. The potential routes for general construction materials is discussed in Section 3.6.3 of the CTMP and shown in Fig. 10 with all routes accessing the site via the R471.
- 21.3.5 Traffic surveys were carried out at sixteen locations on 17th October 2023 as shown in Table 16.1. The recorded data was then converted to AADT figures in accordance with TII Guidelines⁷⁸ as shown in Table 16.2. Due to the proximity of Survey Site 5 and 5A, site 5A was not surveyed and assumed the count for Site 5. Supplementary traffic counts were then carried out on 30th April, 2024 at three locations, which included Site 5, Site 5A and a new site Site 5B (Carmody's Cross). The supplementary traffic count data, converted

⁷⁸ Project Appraisal Guidelines for National Roads Unit 16.1 - Expansion Factors for Short Period Traffic Counts (PE-PAG-02039) (October 2016)

to AADT figures in accordance with TII Guidelines is then shown in Table 3.1 (of Memorandum No.12) together with the original survey data from 17th October 2023. The percentage increase (impact) between the baseline and the construction stage is then shown in Table 3.2 of Memorandum No.12. The impact of cumulative traffic flows during construction is shown in Table 11.3 of the FICAR.

21.4 Potential Effects

Table T1: Summary of Potential Effects (Direct, indirect and Cumulative)
(*Traffic and Transport*)

Project Phase	Potential Effects
Do Nothing	There will be no additional traffic generated or works carried out on the road network and therefore no effects with respect to traffic.
Construction Stage	<i>Windfarm Construction</i> - The overall construction program is expected to last for approx. 18-24mts. The additional traffic during this time will be adverse, resulting in an increase in traffic levels by up to 5.02% on the R471. This is a worst-case daily scenario assuming that all deliveries are made via one route. The effect is assessed as temporary, moderate and not significant. - In accordance with IEMA Guidelines, projected changes in traffic flows of less than 10% create no discernible environmental effect. A projected changes fall below this threshold effects for Pedestrian Severance, Delay, Amenity, Fear and Intimidation; and Driver Delay are considered to be temporary, slight and adverse. - For Accidents and Safety the effects during construction are assessed as temporary, moderate-significant, adverse and not significant.
Operational Phase	The effects of trips generated by maintenance staff (max 16 trips to and from the site per day) is assessed as adverse, long term and imperceptible .
Decommissioning Phase	It is anticipated that turbine foundations, access tracks and hardstanding areas will be left in situ causing less environmental effects than removing them. If removal is required it will be managed in accordance with construction mitigation measures.
Cumulative Effects (as updated in the FICAR, May 2025)	The projects considered in the assessment of cumulative effects are set out in Table 11.1 of the FICAR. It is considered that there are four windfarms with potential for construction and operational stage cumulative effects: Ballycar, Fahybeg, Knockshavno and Lackareagh Windfarms. This is due to proximity, and likely overlapping haulage routes, TDR and GCR. <i>Construction Stage</i>

	- The cumulative traffic flows impacting the road network is shown in Table 11.3 of the FICAR. This shows a maximum uplift in cumulative traffic flows of 12.57% at (survey) Site 5 on the R471 (eastern site access). Having regard to IEMA Guidelines this is assessed temporary, moderate and not significant. - for Pedestrian Severance, Delay, Amenity, Fear and Intimidation; and Driver Delay are considered to be temporary, slight and adverse. - For Accidents and Safety the effects during construction are assessed as temporary, moderate-significant, adverse and not significant. <i>Operational Stage</i> • It is concluded that there will be no perceptible environmental effect. <i>Decommissioning Stage</i> • No significant cumulative impacts are anticipated.
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21.5 Mitigation

21.5.1 Mitigation Measures in respect of traffic and transportation are set out in Chapter 16. They are largely based on the CTMP (Appendix 5.2) and measures include:

- A Traffic Management Co-ordinator, Delivery Programme, Communications plan, Emergency Procedures and Travel Plans,
- Flagmen, gatemen, traffic marshals, signage, speed controls and measures to protect pedestrians
- Restriction on haulage routes which will not pass local schools at the start or end of the day
- Measures to control road closures, traffic management for road works, re-fuelling and complaints handling,
- Measures to protect road conditions, including survey and re-instatement works
- Spoil will be controlled in accordance with the Spoil Management Plan
- Dust and Dirt control in accordance with the Mitigation Measures set Out in EIAR Chapter 17

- Noise control in accordance with the mitigation measures set out in EIAR Chapter 13.
- Protection of Surface Waters in accordance with the mitigation measures set out in EIAR Chapter 9.

21.6 Residual Effects

The residual effects after the implementation of mitigation measures for the construction stage are assessed as not significant for pedestrian severance, delay, amenity, fear and intimidation and driver delay. They are assessed as slight adverse for accidents and safety and not significant. At Operational Stage they are assessed as imperceptible, adverse and not significant and at decommissioning stage as slight, temporary and not significant.

21.7 Analysis, Evaluation and Assessment: Direct and Indirect Effects

21.7.1 I have examined, analysed and evaluated Chapter 16 of the EIAR all of the associated documentation including Memorandum No.12, the FICAR and observations on file in respect of traffic and transport. I am satisfied that the applicants understanding of the baseline environment is comprehensive and that the key impacts in respect of likely effects on traffic as a consequence of the development have been identified. Parties have raised a number of issues in respect of traffic and transport which I address below.

21.8 Adequacy of baseline information (*inc. trip generation calculations, structural assessments and accident data*)

21.8.1 Parties raised a number of concerns in the submissions received in relation to the baseline data. This included queries in relation to trip generation figures, whether or not traffic surveys were representative of traffic flows (on the R471) and the absence of structural assessments for bridges and accident data. In response the applicant refers to Chapter 16 of the EIAR & Appendices and the CEMP (Appendix 5.1) and confirms that the trip generation figures presented within the EIAR are correlated with the site clearance/earthworks and construction works required, are wholly accurate and a true presentation of the anticipated levels of vehicle movements that the

development is likely to generate. The figures presented project that for the duration of the construction phase (18mts) there will be an additional 18,190 large goods vehicle trips (two-way) consisting of 12,545 HGV trips and 5,645 LGV trips. This results in an average daily increase of 28 HGV trips per day and 16 LGV trips per day, or a maximum during the peak month of 60 HGV trips and 36 LGV trips per day. In my experience, this is representative of trip generation calculations associated with a wind farm project of this scale, and I am satisfied that there is nothing in the information submitted which suggests that trip generation figures have been under-represented.

21.8.2 In relation to traffic flows/volumes I note that the applicant undertook a set of classified turning movement traffic counts on 17th October 2023. A total of fifteen sites were surveyed, and their location is shown in Fig. 16.1 of EIAR Chapter 16. The locations were informed by IEMA and TII Guidelines. I note that location 5 and 5A were deemed to be in close proximity to each other, and therefore a single count only was carried out initially (at site 5). In response to the submissions, an additional set of traffic surveys was carried out on the R471 on the 30th April, 2024. The locations are shown of Fig 3.5 of the FICAR and include site 5, 5A and a new location at Carmody's Cross. The supplementary traffic counts are included in Appendix 2 of the FICAR. As a result of the updated traffic flows which were redistributed across the network, the uplift at site 5 went from 5.02% to 5.88% and at site 5A went from 5.02% to 9.84%. The uplift at site 5B (Carmody's Cross) was 2.95%. On the basis of the entirety of traffic survey information submitted in respect of the R471 and all other routes, including surveys in October and April and having regard to the survey site locations chosen as informed by guidance, I am satisfied that the applicant has presented an adequate level of information to inform the baseline and there is no reason to suggest that traffic flows have been undervalued.

21.8.3 In relation to the structural assessment of bridges and accident data, I accept that there is a paucity of information in this regard. The applicant does not directly address these points in response to the submissions, but in

relation to bridges proposes that pre-commencement structural bridge surveys⁷⁹ will be carried out (haul route and TDR) to confirm sufficient structural capacity to bear anticipated loads. I am satisfied that this can be addressed by condition, and I otherwise note that the passage of abnormal loads will also be subject to other consents. In relation to the absence of accident data, I accept that this was the case at the time of writing of the EIAR. However, this data has recently been made available by the RSA. I have consulted the available data and note that there is a single record of a non-serious traffic collision (Sept 2017) and a serious injury traffic collision (May 2020⁸⁰) within the vicinity of the proposed windfarm site, including the R471, with limited, single and non-serious traffic collisions generally recorded in the wider area including Broadford and Sixmilebridge. Whilst I note the fatal traffic collisions recorded in the early hours of the morning on the R465 (Feb 2020⁸¹) and R463 (Jun 2018⁸²), I am satisfied that a material deficit does not arise and that there are no accident black spots which would alter the assessment of traffic and transport considerations. I am satisfied that road and public safety related matters can be addressed by the measures set out in the CEMP, CTMP and in the RSA process which can all be governed by condition. Accordingly, I am satisfied that sufficient baseline information has been provided by the applicant to inform an assessment and evaluation of the proposed development with regard to traffic and transport.

21.9 Capacity of the local & regional road infrastructure (*inc. volume of HGV traffic*)

21.9.1 Both the LA and parties to the application, were generally concerned that the local and regional road network did not have the condition, width or carrying capacity to safely cater for the vehicle movements (type and volume) associated with the proposed development. In the first instance the applicant has submitted a robust suite of evidence which demonstrates that the

⁷⁹ By a qualified structural engineer in accordance with TII Guidance

⁸⁰ Cyclist seriously injured.

⁸¹ Driver fatality

⁸² Passenger fatality

maximum uplift in traffic flows at any location as a result of the development is +12.57% at site 5 in a cumulative scenario. Overall, the available data suggests that the uplift in traffic flows from the proposed development (only) sits below 10% at all survey locations. Having regard to the IEMA and TII thresholds for significance of effect as referenced above, I am satisfied that the uplift in traffic volumes remains imperceptible in all scenarios and that the applicant has sufficiently demonstrated that there is no issue with carrying capacity. In relation to the consideration of width, I agree with the LA and third parties that the local and regional road network serving the site is very narrow and deficient in terms of width with an adverse vertical and horizontal alignment. In response the applicant states that the suitability of local roads to accommodate construction traffic is set out in the CTMP and is based on access location, pavement condition surveys and swept path analysis. In particular I note the applicant's commitment to carryout pre and post construction surveys and re-instatement works as required by the LA.

21.9.2 Having inspected the subject site, I found no reason to determine that the pavement condition of the road network was not adequate to service the proposed development, and I am satisfied that this matter can be addressed and safeguarded by condition. In relation to width and alignment etc, I am satisfied that the local roads which directly provide access to the EDA and WDA are very lightly trafficked with limited sporadic rural dwellings located thereon. I am satisfied that the proposed traffic management measures will be sufficient to manage this localised issue. In my opinion, the main issue arises in relation to the R471 due to its narrow width and poor alignment. It is this road which will carry the majority of the construction relation traffic and additional traffic flows which will primarily interact with baseline traffic. In response to this issue the applicant undertook a study to identify 'pinch points' on the haul route and utilised AutoCAD Vehicle Tracking to simulate a worst-case scenario with two HGV's travelling in opposing directions. This study identified a number of pinch points and they are illustrated in Appendix C of the updated CTMP. Where it is not possible for two HGV's to pass it is proposed that a stop/yield system will be introduced based on a construction

build out, signage and line of sight. It is proposed that these measures will be agreed with the LA and implemented prior to commencement of development. In my opinion this is an appropriate design response and one which is likely to result in a measure which is beneficial to road safety generally, as it addresses an existing constraint. I am satisfied that this measure can be controlled by condition (within the CTMP) and the RSA process.

21.9.3 I acknowledge that the proposed development will introduce an increase in traffic, including HGV traffic, on the local and regional roads that provide access to the wind farm site during construction and that there will be disruption to local traffic associated with the transient construction of the GCR as road management measures are sequentially implemented the duration of the works. However, the GCR is a relatively short route⁸³ on a minor road, which is very lightly trafficked and serving a very limited number of one off-rural dwellings and agricultural practices. Overall I consider that the arrangements for the management of same are reasonable, and that the temporary nature of the impacts associated with the construction of a development of this nature are acceptable.

21.10 Impacts on public transport (*bus routes*)

21.10.1 Parties to the application raised concerns that the proposed development would have an adverse impact on public transport services, particularly bus routes, or that this was not adequately assessed in the EIAR. I am satisfied that the applicant did address this issue in the EIAR⁸⁴ and that there are no public transport routes or services which will be impacted by the proposed development. In response to the submissions the applicant focuses on school bus routes. This is considered in Section 5.5 of the CTMP, which identifies the location of a single school along the haul route: St. Anne's Community College, Killaloe, Co. Clare. The EIAR provides that HGV movements will be restricted between 8:30am and 10:00am to avoid adverse impacts on schools. I am satisfied that there is an absence of school-based

⁸³ 3.8 – 4.1km depending on Option A or B

⁸⁴ Section 3.3.1 (p20) of the CTMP

receptors relative to the haul route and that the measures put in place by the applicant within the CTMP are adequate and proportionate to the considerations arising.

21.11 Cumulative effects

21.11.1 Parties to the application were concerned that the applicant had not adequately assessed the cumulative traffic and transport effects of the proposed development with other projects, including windfarm projects. I am satisfied that the applicant has provided an appropriate assessment of cumulative traffic and transport effects in Section 11 of the FICAR.

21.12 Conclusion: Direct and Indirect Effects (Traffic)

21.12.1 Having regard to my assessment of the proposed development on traffic, it is considered that there will be an increase on traffic on the road network in the area of the site during construction works. Significant direct, indirect and cumulative effects will largely be avoided by design and management of construction in accordance with a CEMP and TMP, which can be agreed with the relevant local authority and An Garda Siochana in advance of construction. Residual effects will most be short-term, temporary, slight and negative. I consider that the arrangements for the management of same are reasonable, and that the temporary nature of the impacts associated with the construction of a development of this nature are acceptable.

22. Air Quality and Climate

Issues raised in the observations relate to SF6 gas in turbine switch gear, health related impacts from emissions and biodiversity concerns from pollutants, absence of a life cycle carbon analysis, limited assessment of particulate matter PM_{2.5}, and inadequate assessment of cumulative effects including with Quarries. No new concerns were raised in the F.I. submissions in relation to air quality or climate.

22.1 Examination of the EIAR

Context

22.1.1 Chapter 17 of the EIAR deals with Air Quality. The assessment is carried out in accordance with the Clean Air for Europe (CAFÉ) Directive which was first published in 2008 and transposed into Irish Legislation by the Air Quality Standards Regulations 2011. The relevant standards and limit values for the protection of human health are summarised in Table A17.1 of Appendix 17.1. The Gothenburg Protocol and European Directives in relation to Emissions Ceilings and the national programme for the progressive reduction of emissions of transboundary pollutants are also referenced together with Irelands Clean Air Strategy 2023. This strategy commits Ireland to achieving WHO guidelines for air quality by 2040. The methodology otherwise followed the guidance set out in Section 17.4 of Chapter 17 which included an assessment of dust and particulate matter in accordance the Institute of Air Quality Management (IAQM) construction dust guidance V2.1 (IAQM, 2023), a qualitative assessment of exhaust emissions in accordance with LA 105 of the Design Manual for Roads and Bridges (DMRB), 2019 and on which TII Guidance (2022) is based.

Associated Figures and Appendices are:

- Appendix 17.1 – Air Quality Standards
- Appendix 17.2 – Construction Dust Assessment Methodology
- Appendix 17.3 – Air Quality Assessment Report

22.1.2 Chapter 18 of the EIAR deals with Climate. The assessment provides an estimation of the GHG emissions associated with the manufacture, construction and decommissioning of the proposed development and the contribution which it would make towards the reduction of emissions (otherwise produced by fossil fuels) to indicate a whole-life “carbon balance” with an understanding of the “emissions payback” period. The GHG assessment has been undertaken using the version (V1.7.0) of the Scottish Government’s Carbon Calculator Tool (Appendix 18.1). Results of the assessment are reported in accordance with IEMA⁸⁵s Environmental Impact

⁸⁵ Institute of Environmental Management & Assessment

Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022). A Statement of Authority is included.

- 22.1.3 The applicant's response to submissions in respect of air quality and climate is set out in Memorandum No.13 & 14 (June 2024) respectively. Appendix 2 of the applicant's further information response (May 2025) provides an updated cumulative impact assessment report (FICAR). Chapter 12 & 13 of the FICAR addresses air quality and climate respectively.

22.2 Baseline

(Air Quality)

- 22.2.1 The EIAR establishes that baseline air quality refers to the concentrations of relevant substances that are already present in ambient air. The principal air quality pollutants relevant to the assessment are considered to be NO₂, PM₁₀ and PM_{2.5}, which are associated with vehicular combustion and emissions. They are considered to have the greatest potential to result in human health impacts and are the substances of most concern in the area. A desk-based study was undertaken using (2022) data from the nearest EPA air quality monitoring stations at Ennis, Co. Clare (Station 25) and Ennistymon, Co. Clare (TNO3947). These stations are 22km and 45km to the NW of the proposed development site and monitor PM₁₀ and PM_{2.5} only. The 2022 monitoring data is presented in Table 17.2. This shows no exceedances of the relevant air quality standards (AQS), and therefore exceedances at the site is not expected. Impacts on ecological receptors is not considered applicable as there are no designations within 50m of the site boundary, GCR or TDR.

(Climate)

- 22.2.2 The proposed development site primarily consists of conifer plantation, transitional woodland scrub, mixed forest, pastures, agricultural lands and peat lands. Baseline environmental conditions include existing carbon stored in the site (peat and forestry) which could be impacted by the proposed development resulting in CO₂ and other GHG emissions.

22.3 Potential Effects

The EIAR identifies the potential for a range of environmental effects on air quality and climate. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table AC1 below:

Table AC1: Summary of potential effects (*Air Quality and Climate*)

Project Phase	Potential Effects
Do Nothing	Air Quality Air quality anticipated to remain unchanged from current baseline conditions. Climate No change within the boundary of the site compared to the baseline. The proportion of Ireland's electricity mix through fossil fuel electricity generation would be higher, which may jeopardise Ireland's ability to meet its long-term emissions reductions targets.
Construction Phase	Air Quality <i>Dust Emissions</i> The risk of demolition effects was screened out as no demolition works is proposed. The risk of construction impacts has been determined on the basis of dust emission magnitude⁸⁶ and the sensitivity of the area⁸⁷. This results in the following effects: - Medium to high risk of dust soiling from earthworks and a moderate to significant effect. - Low to Medium risk of dust soiling from construction and a slight to moderate effect. - Low risk of dust soiling from trackout activities and a slight effect. - Low risk to human health from earthworks dust and a slight effect. - Negligible to low risk to human health from construction dust and a negligible to slight effect - Low risk to human health from trackout activities dust and a slight effect. <i>Exhaust Emissions</i> The predicted HGV and LGV generation do not exceed DMRB screening criteria and therefore further assessment is not considered to be required. The short-term increase in vehicle emissions during construction is considered to be not significant. The operation of construction site equipment and machinery will result in emissions to atmosphere of exhaust gases, but with best practice management and controls these are considered to be short-term and not significant. Climate

⁸⁶ Table 17.3 EIAR

⁸⁷ Table 17.4 EIAR

	Taking into account the predicted GHG emissions from wind turbine manufacture, construction and decommissioning alongside savings from improvement of the site (in the SHMP etc), the total net GHG emissions are expected to be 144,133 tCO_{2e}.
Operational Phase	Air Quality The trip generation for the operational phase of the project is anticipated to be minimal and would not exceed DMRB screening criteria. The impact of associated emissions on air quality is expected to be not significant. Climate The lifetime GHG savings over an operational period of 35 years is expected to be 1,244,075 tCO_{2e} with a payback period of 4.1 years against a representative grid mix, and 2,779,140 tCO_{2e} over a period of 1.8 years against a fossil-fuel mix. The total emissions savings over its 35-year lifetime is predicted to be 1,099,942 tCO_{2e} against a representative grid mix electricity generation, and 2,635,007 tCO_{2e} against a fossil fuel mix. This is assessed as a significant and positive effect.
Decommissioning Phase	Air Quality Impacts will be significantly less than the construction phase. No significant effects are identified. Climate As above for construction stage.
Cumulative Effects (as updated in the FICAR, May 2025)	Air Quality <i>Do nothing Scenario</i> There will be no cumulative effects. <i>Construction Phase</i> The IAQM states that beyond 250m the risk of impact from activities can be considered negligible. There are 9 no. developments within 250m of the proposed development site boundary and TDR consisting of solar farms, road works, residential development and the proposed Knockshavno Wind Farm. Concurrent construction could generate concurrent emissions to air, however with CEMPs, DMPs and CTMPs it is expected that dust and exhaust emissions will be adequately controlled and cumulative effects on air quality will not be significant. <i>Operational Phase</i> The exceedance of air quality standards is considered unlikely and cumulative operational phase effects are considered not significant. <i>Decommissioning Phase</i> As above for construction phase. Climate As per IEMA guidance, individual cumulative projects do not require separate GHG assessments since all emissions contribute to the

	same global receptor. The proposed development will reduce fossil fuel use, leading to net emissions savings over its lifetime.
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22.4 Mitigation

22.4.1 Mitigation measures for Air Quality are set out in Section 17.7 of Chapter 17 and rely largely on the measures for controlling dust and pollution set out in the CEMP (Appendix 5.1).

Measures include:

Fugitive Dust Emissions

- Stakeholders communication plan
- Site Management including a complaints log, record of exceptional incidents, regular liaison meetings.
- Monitoring including on-site and off-site inspections to ensure compliance with dust management plan, including dust deposition, dust flux and real-time PM₁₀⁸⁸.
- Preparing and maintaining the site - avoidance of receptors, dust screens & barriers, full enclosure of specific operations, prompt removal of materials and use of cover, seed or fence stockpiles to prevent wind whipping.
- Operating Vehicles/Machinery – sign-posted speed limits, use of electric or battery powered equipment where possible, implement a construction logistics plan and travel plan, and best practice vehicles maintenance and operation measures.
- Construction Operations – use of dust suppression and suitable exhaust ventilation systems on equipment, ensure adequate water supply for suppression/mitigation, use enclosed chutes, conveyors and skips, minimise drop heights, ensure spill kits are readily available.
- Specific to Earthworks – re-vegetation of earthworks, use of hessian, mulches or trackifiers, only remove cover in small areas during work.

⁸⁸ Monitoring locations agreed with LA.

- Specific to Construction – avoid scabbling, ensure sand and other aggregates are stored in bunded areas and not allowed to dry out or otherwise controlled, bulk cement and other fine power materials delivered in enclosed tankers and stored in silos, smaller supplies to be bagged and sealed.
- Specific to Trackout – use water-assisted dust sweepers, avoid dry sweeping, vehicles to have covered materials, haul routes to be inspected and logged, implement a wheelwash system.

Exhaust Emissions

- The CEMP will set emissions control for NO_x, particulate matter and carbon monoxide standards relative to net power in accordance with Regulation (EU) 2016/1628 (as amended), amending Regulations (EU) No. 1024/2012 and (EU) No. 167/2013 and amending and repealing Directive 97/68/EC as a minimum.

22.4.2 Mitigation measures for Climate rely on good practice construction practices and methodologies in accordance with the CEMP. All planting felled during the construction of the project will be replanted in secondary locations in accordance with a felling licence. The impact on GHG emissions from replanting was not considered by the carbon calculator assessment, making the estimate a conservative one.

22.5 Residual Effects

22.5.1 With the implementation of mitigation measures the EIAR predicts that there will be no significant direct or indirect effects on air quality at construction or operational stage. At operational stage the EIAR predicts a significant and positive contribution to long-term climate change mitigation towards Ireland emissions reduction targets as set out in the Climate Action and Low Carbon Development (Amendment) Act, 2021. The overall climate significance of the project is assessed as **beneficial and significant**.

22.6 Analysis, Evaluation and Assessment: Direct and Indirect Effects

22.6.1 I have examined, analysed and evaluated Chapters 17 and 18 of the EIAR, all of the associated documentation including Memorandum No.13 and 14, the FICAR and observations on file in respect of air quality and climate. I am satisfied that the key impacts in respect of the likely effects on air quality and climate as a consequence of the development have been identified. The proposed development will give rise to an increase in greenhouse gas emissions during construction, however these will be significantly offset by the development within approx. 1.8 to 4.1 years of operation and the wind farm will make a substantial contribution to sectoral targets for the reduction of emissions over its lifetime. Parties raise a number of issues in respect of air quality and climate which I address below.

22.7 SF6 Gas

22.7.1 Observations have raised concerns regarding the release of greenhouse gas sulphur hexafluoride (SP6). EU Regulation 2024/573 (F-gas Regulation) came into effect 11th March 2024. Article 13, Part 9 of EU Regulation 2024/573 (F-gas Regulation) is phasing out the use of fluorinated greenhouse gases including SP6 in electrical switchgear in primary and secondary distribution, both publicly and privately owned and includes prohibition dates. In relation to the proposed development, the F-gas Regulations are applicable to switchgear used in the substation and wind turbines. In the event Gas Insulated Switchgear (GIS) equipment is being used then Article 4(10 and 4(3) set out obligations to prevent emissions of F-gas and requires that operator and manufacturers “*shall take all measures that are technically and economically feasible to minimise leakage of the gases.*” In response to the F-gas Regulations, ESB has confirmed that they will not be in a position to commission or connect contestably built switchgear which does not comply with the legislation. Taking account of the requirements of the F-gas Regulations, standard operational requirements of GIS equipment and the lengthy pre-construction timescales associated with windfarm developments, I am satisfied that potential negative effects on

climate from electrical switchgear equipment can be avoided, mitigated and would be not significant.

22.8 Emissions and Pollutants

22.8.1 Parties raised concerns that the impacts of emissions and pollution would increase health-related impacts and would reduce biodiversity. Specific concerns were raised in relation to the assessment of particulate matter PM_{2.5}. An estimation of dust emissions magnitude was carried out in accordance with IAQM guidance and human receptors were identified within 250m of the proposed development site boundary, GCR and TDR and within 50m of the trackout route. In this regard I note that the IAQM finds that most dust deposition occurs within the first 50m. The number of receptors identified ranged from 10-100 for earthworks and construction, and 1-10 for trackout works. The pre-mitigation risk of disamenity due to dust soiling was considered to be a moderate to significant effect for earthworks and slight to moderate for construction with other effects deemed negligible to slight. The pre-mitigation risk to human health due to dust deposition was considered to be negligible to slight. With mitigation measures, the residual effects were assessed in the EIAR as not significant.

22.8.2 In terms of PM_{2.5} I am satisfied that this was considered within the qualitative assessment against the LA105 DMRB guidance screening criteria. PM_{2.5} is released by vehicular combustion processes and emissions and EPA monitoring data confirmed no exceedances of the relevant air quality standards. The EIAR determined that the predicted HGV and LGV trip generation (construction and operational stage) did not exceed the DMRB screening criteria and therefore further assessment of traffic generated emissions was not required. Construction stage emissions were considered short term and not significant and operational emissions were considered minimal and not significant. Emissions from site equipment and machinery were considered short-term and not significant.

22.8.3 In relation to biodiversity, I note that there are no designated or ecologically sensitive sites within the 50m buffer zones for dust deposition recommended by IAQM construction dust guidance, and therefore ecological receptors were screened out of the assessment.

22.8.4 In this regard I am satisfied that an adequate assessment has been carried out. The findings are based on a precautionary approach where a buffer of 250m has been applied from the site boundary, whereas in reality this buffer will be greater when the location of works within the site boundary is considered. In addition, the main potential effects will likely arise from the GCR which is located in closest proximity to residential receptors however these works are transient, temporary and short term. I am satisfied that by virtue of mitigation measures, the limited number of residential receptors within 250m of the windfarm site and the nature of works associated with the GCR, IPP and TDR that no significant effects will arise as a consequence of dust or other particulate emissions.

22.9 Life Cycle Carbon Analysis.

22.9.1 Parties to the application raised concerns that any gains in terms of climate targets would be offset by the local impacts of the development, and that a lifecycle carbon analysis should be demonstrated. Concerns were raised in relation to underestimation, inaccuracies, methodologies and incomplete reporting. In response the applicant states that a whole life carbon assessment was carried out (EIAR Chapter 18 refers) which considered all GHG emissions associated with the construction, operations, maintenance and decommissioning of the project, compared against GHG savings and reported in accordance with IEMA's Environmental Impact Assessment Guide to Assessing GHG emissions and evaluating their significance (2022).

22.9.2 I am satisfied that the entire lifecycle of the proposed development was taken into account, including the local impacts of the development and I note the precautionary approach taken in the EIAR to the calculation of the carbon footprint of the project which did not factor in the SHMP or reforestation

which will reduce the amount of CO₂ lost to the project. I have no concerns in relation to the adequacy of methodologies or reporting and I am satisfied that the applicant has presented a reasonable assessment of the likely net GHG emissions savings arising from the development over its lifetime and set out persuasive evidence as to the renewable energy credentials of the project having regard to the national and sectoral targets for a reduction in GHG and the ‘dialling up’ of renewable energy including onshore wind.

22.10 Cumulative Effects

22.10.1 Parties to the application raised concerns that an adequate assessment of cumulative effects, including from quarries was not carried out. On the 17th January 2025 the Commission requested further information including that the applicant:

“submit revised/updated information, if any, addressing cumulative and in-combination considerations in the Environmental Impact Assessment Report and Natura Impact Statement respectively, that may arise from the proposed development, other wind farms and activities in the area since its response to submissions and observations in June 2024.”

22.10.2 The applicant presented an updated assessment of cumulative effects in its further information response of 23rd May 2025, FICAR (Appendix 2) refers. The FICAR presents an updated list of projects considered in the cumulative impact assessment in Table 1.1 and I note that this includes consideration of quarries 4km south and 6km east of the proposed development site, and 350m south of the TDR. The Quarry 4km south of the proposed wind farm development was scoped on the basis of distance and an opinion that it was part of the baseline, the quarry at 6km south was scoped out on the basis that permitted restoration works commenced in 2019 and are now assumed complete, and the quarry at 350m south of the TDR was scoped out on the basis that an application for restoration works was refused on 9th May, 2024.

22.10.3 The FICAR found that with the implementation of CEMPs, CTMPs and best practice construction activities and methodologies, there would be no significant adverse cumulative effects on air quality. I am satisfied that an adequate assessment of potential cumulative effects has been carried out and that it has included consideration of quarries. I note a further planning consent has been granted for restoration works at the Quarry 6km from the proposed windfarm site (PA.Ref. 24/60530), however notwithstanding same having regard to the IAQM thresholds for impacts, I am satisfied that at this distance there is no potential for significant adverse cumulative effects. Otherwise, I note and accept, the IEMA guidance in relation to the cumulative assessment of climate and GHG emissions.

22.11 Conclusion: Direct and Indirect Effects (Air Quality & Climate)

Having regard to my examination of the environmental information in respect of air quality and climate it is considered that subject to implementation of the full suite of mitigation measures, no significant adverse effects will arise. The development will have a significant positive effect on climate with the net reduction in greenhouse gas emissions over the operational lifetime of the project.

23. Material Assets -Telecommunications, Aviation and other

Issues Raised

23.1 AirNav Ireland (ANI), Shannon Airport Authority (SAA) and the Irish Aviation Authority (IAA) raise significant aviation concerns throughout the planning application process in relation to impacts on IFPs, NAVAIDs and Surveillance Radar. These concerns are comprehensively addressed in Section 9.5 of my report. Aviation concerns are also raised in the public submissions received, which otherwise raise concerns that the proposed development will impact telecommunications signals in the area with implications for home working.

23.2 Examination of the EIAR

Context

23.2.1 Chapter 11 of the EIAR deals with Telecommunications, Aviation and other material assets. A Statement of Authority is provided. A summary of the scoping and consultation exercise is set out in Sections 11.2 and 11.3 and which included consultation with telecommunications operators (2RN, Eir, Enet and Vodafone), Uisce Éireann, ESB, the IAA and SAA. Methodology is described in Section 11.3 and includes consideration of all three wind turbine models proposed.

Relevant Appendices include:

- Appendix 11.1 – Telecommunications Impact Study
- Appendix 11.2 – Aviation Review Statement

23.2.2 The applicant's response to submissions in respect of Aviation is set out in Memorandum No.7 (June 2024) and Appendix 1 thereto (Ai Bridges response to ANI submission) respectively.

23.2.4 The applicant's response to further information (May 2025) includes an Ai Bridges Technical Response (on Aviation) (Appendix 1) and an updated cumulative impact assessment report (FICAR) (Appendix 2).

23.2.5 The applicant's response to further information (November 2025) includes an RFI Response Document, Items No.1 and 2 deal with Aviation matters, and Appendix 1 (Correspondence between the applicant's legal team and ANI).

23.3 Baseline

Waste

23.3.1 A desk top study was undertaken to review licensed waste facilities in proximity of the proposed development and these are presented in Table 11.2 and Table 11.3 (EPA licensed facilities). This includes a list of 26 no. facilities which the applicant states could be used by the contractor during construction, operation and decommissioning of the project based on the likely waste type generated.

Utilities

- 23.3.2 There are no utilities within the proposed development site. Several points were identified in an engineering assessment where cable route options intersect with existing gas and watermain. Confirmatory studies will be undertaken at detailed design stage to ensure the correct avoidance methodology is adopted. EIAR Chapter 5 provides further information.

Telecommunications

- 23.3.3 As part of the Telecommunications Impact Study (TIS), eight telecommunications mast-sites with network infrastructure that could be potentially impacted by the proposed development were identified and a field survey was carried out. During these surveys radio antennas with bearings in the direction of the proposed development were recorded and these are identified in Table 11.4.

Aviation

- 23.3.4 The Aviation Review Statement (Appendix 11.2) identified Shannon International Airport as the closest to the proposed development at 16.6km from the nearest airport reference point (ARP).

23.4 Potential Effects

The EIAR identifies the potential for a range of environmental effects on material assets. The likely significant effects (potential direct, indirect and cumulative) as identified in the EIAR, are summarised in Table MA1 below:

Table MA1: Summary of potential effects (*Telecommunications, Aviation and other Material Assets*)

Project Phase	Potential Effects
Do Nothing	There would be no effect on waste infrastructure or utilities other than that normally arising. There would be no effect on telecommunications or aviation operations other than that normally arising. There would be no interference with electromagnetic signals or aviation.
Construction Phase	Waste

	No demolition is associated with the development. The maximum quantity of excavated material is estimated at 101,091m³ of topsoil, 74,390m³ of subsoil and 15,363m³ of rock (with Grid Option A). It is envisaged that all excavated material will be reused within the site (with the exception of the GCR). Excess material from the GCR will be taken off site by a licensed contractor to a licensed waste facility. Non-hazardous and hazardous waste will be generated including packaging, food waste, municipals wastes etc. If this is not managed by proper segregation and stored correctly in accordance with legislation it could lead to litter and vermin presence. This is assessed as a short-term, significant and adverse effect. The majority of construction materials are either recyclable or recoverable, however if measures are not in place to reduce waste generated and ensure waste management is high up the hierarchy the potential effect on the environment would be short-term, significant and adverse. This would be as a result of natural source depletion impacts or methane production. <i>Utilities</i> The power requirements for the construction phase will be minor. The potential effect on utility infrastructure for the construction phase is neutral, imperceptible and short-term. <i>Telecommunications</i> Cranes temporarily used in the erection of turbines may cause reflection, diffraction, blocking and radio frequency interference. These effects are assessed as negative, not significant and short-term. <i>Aviation</i> Obstacles Limitation Surfaces (OLS): There is no penetration of the aerodrome OLS surfaces, it is unlikely that there will be any impacts. The effect is assessed as neutral, imperceptible and long-term. Aerodrome Surfaces: Turbines are within 45km of Shannon Airports ARP and will be greater than 100m in height. They will require to be included in the IAA Electronic Air Navigation Obstacle Dataset. The applicant will provide turbine coordinates to the IAA if permission is granted. The effect is assessed a neutral, not significant and long-term. Minimum Sector Altitudes (MSA): There is over 1000ft from the maximum height of the proposed development to the MSA and therefore there will be no impact on the published MSA altitudes for Shannon Airport. This is assessed as neutral, imperceptible and long-term. Instrument Flight Procedures (IFPs): Of nine IFPs for flights to/from Shannon Airport with procedures specifying a flight route over the proposed development and T1, 2 and 3 located in the Secondary Approach Area of flights arriving into RWY24. In addition, ATC-SMAC (used by Air Traffic Controllers to Vector flights for landing at Shannon) is penetrated by two of the proposed turbines. These effects are assessed as adverse, significant and long-term. Communications and Navigation System: Impacts are unlikely as the proposed development is 15km from the communications and radio
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	navigational aids. The effect is assessed as neutral, imperceptible and long-term. Radar Surveillance Sensors: At a distance of 17km from the radar station at Shannon the proposed development is in Assessment Zone 4 of Eurocontrol Guidelines. A detailed impact assessment will not be required. The effect is assessed as neutral, imperceptible and long-term. However, the turbines are within 10km of the radar station at Woodcock Hill and potential impacts are assessed as adverse, significant and long-term. Flight Inspection and Calibration: Analysis demonstrated no impact. The effect is assessed as neutral, imperceptible and long-term. Aeronautical Obstacle Warning Light Scheme: Aviation lighting will be provided as the proposed development will be an en-route obstacle. This is assessed as neutral, not significant and long-term. Irish Air Corps/Department of Defence (DoD) Safeguarding: The proposed development is 7.9km from the nearest Irish Air Corps (IAC) restricted zone, it is not in a restricted area and will have no impacts on IAC activities. This is assessed as neutral, imperceptible and long-term. Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS): Impacts are unlikely as a result of terrain. This is assessed as neutral, imperceptible and long-term.
Operational Phase	<i>Waste</i> At operational phase the potential effect is assessed as neutral, imperceptible and long-term. <i>Utilities</i> No significant effects predicted. <i>Telecommunications</i> A detailed assessment carried out by Ai Bridges demonstrated that no impacts are predicted to occur and hence no effect will occur to telecommunication with the exception of the Enet PTP link Kilselly to ESB Kilonan which will be impacted by T8 and T11. The effect on this telecommunications link is assessed as long-term, significant and adverse. The effect on other telecommunications links is assessed as long-term, imperceptible and neutral. <i>Aviation</i> Similar effects to construction stage are predicted. Instrument Flight Procedures (IFPs): Of nine IFPs for flights to/from Shannon Airport with procedures specifying a flight route over the proposed development and T1, 2 and 3 located in the Secondary Approach Area of flights arriving into RWY24. In addition, ATC-SMAC (used by Air Traffic Controllers to Vector flights for landing at Shannon) is penetrated by two of the proposed turbines. These effects are assessed as adverse, significant and long-term. Radar Surveillance Sensors: At a distance of 17km from the radar station at Shannon the proposed development is in Assessment Zone 4 of Eurocontrol Guidelines. A detailed impact assessment will not be required. The effect is assessed as neutral, imperceptible

	and long-term. However, the turbines are within 10km of the radar station at Woodcock Hill and potential impacts are assessed as adverse, significant and long-term. All other potential impacts on Aviation have been assessed as neutral, imperceptible and long-term.
Decommissioning Phase	<i>Waste</i> Similar to construction phase. All infrastructure will be separated and removed off-site for re-use and recycling where practicable or disposed of in accordance with waste legislation. Effects are assessed as negative, short-term and imperceptible. <i>Utilities</i> No significant effects predicted. <i>Telecommunications</i> Similar to construction stage. <i>Aviation</i> Similar to construction stage.
Cumulative	<i>Construction Phase</i> <i>Telecommunications</i> – short-term and not significant. <i>Aviation</i> Ballycar, Lackareagh, Carrownagowan and Fahybeg windfarms are sufficiently removed from the site such that there are no cumulative impacts which require consideration at construction stage. Potential impacts with Knockshavna would require implementation of agreed mitigation measures that there are no potential cumulative impacts are predicted. <i>Operational Phase</i> <i>Telecommunications</i> No significant cumulative impacts are predicted. <i>Aviation</i> The five consented and proposed windfarms considered for cumulative impacts are listed in Table 6.1 of the FICAR. For Carrownagowan, Fahybeg and Lackareagh it is stated that there is no potential for impacts on IFPs or radar surveillance and therefore no potential for cumulative effects. For Ballycar and Knockshavna it is stated that with mitigation there is no potential for cumulative or additive effects. <i>Decommissioning Phase</i> Telecommunications and Aviation – short-term and not significant.

23.5 Mitigation

Waste

23.5.1 A Waste Management Plan (WMP) has been prepared and is included at Appendix to the CEMP. This will be implemented by the Contractor and will cover all aspects of waste management. The WMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material.

Utilities

23.5.2 The works contractor will be obliged to put best practice mitigation measures in place to ensure there are no interruptions to these utilities in accordance with the codes of practice listed in Section 11.6.2. Coordination and consultation will be had between the project team, ESB, Uisce Éireann and other relevant service providers as the design of the project progresses.

Telecommunications

23.5.3 A mitigation measure of re-routing the service into ESB Kilonan from an alternative Feeder Site has been identified and agreed in principle with Enet. The developer will cover the costs of the upgrade.

Aviation

23.5.4 This has already been addressed in Section 9.5 of my report. As the position in relation to mitigation evolved in response to the submissions by ANI, SAA and IAA and in the further information responses of the applicant, from that originally set out in the EIAR, it is not repeated here in the interests of brevity, and consistency.

23.6 Residual Effects

With the implementation of mitigation measures the applicant assesses that the residual effects on material assets will be neutral, imperceptible and short-term.

23.7 Analysis, Evaluation and Assessment: Direct and Indirect Effects

23.7.1 I have examined, analysed and evaluated Chapter 11 of the EIAR, all of the associated documentation and appendices including Memorandum

No.7 and Appendix 1 (June 2024), the applicants further information response of May and November 2025 and the submissions on file in respect of telecommunications, aviation and other material assets. 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 telecommunications, aviation and other material assets have been identified.

23.7.2 Concerns were raised in relation to the volume, extent and nature of the waste which would be generated by the proposed development and the capacity of licensed waste facilities to manage such wastes. I am satisfied however that waste(s) arising can be effectively managed by the WMP and CEMP and that there are more than sufficient licensed waste managed facilities within the region. I am satisfied that significant effects will not arise. I am also satisfied that significant effects on telecommunications, utilities and other assets can be addressed by the mitigation measures proposed and there will be no significant residual effects.

23.7.3 The primary concerns which arose in the submissions received and in the assessment of the application relate to impacts on aviation, particularly the IFP's and NAVAIDs serving Shannon Airport and the secondary surveillance radar (MSSR) at Woodcock Hill. I have comprehensively assessed these matters in section of my report, including the mitigation options proposed by the applicant and the reports received from the aviation authorities ANI, SAA and IAA. For the detailed reasons set out there in I have concluded that the proposed development will lead to 'unmitigable radar deflection impacts', shadowing effects and degradation of Woodcock Hill MSSR as advised by ANI which are significant, adverse and long-term, that mitigation is not possible and there is no legal basis for the imposition of a condition attached to a grant of permission dealing with such matters. I have recommended that planning permission be refused on this basis. I have also concluded that remaining matters of significant, adverse and long-term effects in relation to IFPs and NAVAIDs are also unresolved and recommended that

these matters should also be taken into consideration in any decision to refuse permission.

23.7.4 In relation to the potential for cumulative effects, I note the applicant's position that each proposed development will be required to agree mitigation measures if permission is to be granted, and therefore there is no potential for significant cumulative effects. This position is somewhat undermined by the ANI position that adverse impacts on surveillance radar are 'unmitigable'. I accept that the Lackareagh, Fahybeg and Carrownagowan Wind Farm are sufficiently removed from the proposed development site, Shannon airport and surveillance radar such that there is no potential for cumulative effects. Whilst I accept that potential adverse effects on IFPs, NAVAIDS and surveillance radar have been identified in respect of the Ballycar⁸⁹ and Knockshavno Wind Farms, my reading of the relevant aviation submissions is that these impacts are site/location specific and there is nothing in the environmental information available, or the submissions received, to suggest that these impacts are additive or cumulative. For this reason, I am satisfied that the substantive refusal reason which is recommended on technical aviation grounds is sufficient, and it is not necessary to take cumulative effects into consideration.

23.8 Conclusion: Direct and Indirect Effects (Material Assets, Telecommunications and Aviation)

Having regard to the aforesaid and to my assessment of the available environmental information in relation to material assets and aviation in particular, it is considered that the main significant direct and indirect effect is:

A **significant, adverse and long-term** construction and operational stage effect on Aviation Safety as a result of performance and degradation impacts on the Monopulse Secondary Surveillance Radar (MSSR) at Woodcock Hill and impacts on Instrument Flight Procedures (IFPs) and (NAVAIDs). In the absence of in-service evidence that wind turbines erected within comparable

⁸⁹ Notwithstanding that planning permission was subsequently refused for this application.

ranges of enroute radar system do not generate deflections ANI contend that the proposed development will have adverse impacts on existing radar surveillance systems, which cannot be mitigated. ANI also contend that the shadowing effect of turbines will introduce coverage gaps in controlled airspace resulting in changes to the surveillance functional systems and degradation of the probability of detection. ANI change management systems approved by the IAA do not allow for functional systems changes that are less safe than the original system. Based on the information on file it is not considered possible to mitigate against the potential for significant aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date. Other unresolved concerns in relation to IFPs and NAVAIDS are highlighted.

24. Major Accidents and Disasters

Issues Raised

Issues raised by third parties to the application included the risk of fires, particularly wildfires and risk to recreational walkers and hikers particularly as a result of the proximity of T1 to a 'purple route hiking trail'.

24.1 Examination of the EIAR

Context

24.1.1 Chapter 16 of the EIAR deals with Major Accidents and Disasters. It considers any potential major accidents and/or natural disasters that the proposed development could be vulnerable to, or cause, including risks associated with extreme/natural events, major accidents and offsite disasters. The aim is to determine appropriate measures required to reduce risk by reducing the probability of an event occurring or reducing the effect of the consequence. The methodology is described in Section 19.3 and includes risk assessment methodology, identification, classification and evaluation. A Statement of Authority is included.

24.2 Baseline

24.2.1 The location of the proposed development in an upland setting dominated by commercial coniferous forestry is described, together with agricultural use, hydrological connectivity and the settlement pattern characterised by rural dwellings and farm buildings, together with the environment of the GCR and TDR. In terms of natural disasters, the applicant notes that Ireland lies adjacent to the continental shelf and is characterised by very low levels of seismic activity with the Irish National Seismic Network (INSN) recording no earthquakes or other seismic events in County Clare. The applicant acknowledges that the Atlantic storm track has a significant influence on the Irish Climate and that in recent years, more frequent and intense storms have hit Ireland with storms being the main cause of structural failures in turbines which together with lightning, ice and snow can have negative consequences on turbines. The applicant refers to the FRA submitted in EIAR Chapter 9 which confirms that the site is not located within a probable flood zone and has not experienced historical flooding. In terms of ground stability the applicant notes that there are no recorded landslide events in close proximity to the site and refers to the PSRA (EIAR Chapter 10, Appendix 10.1) which found that the risk of peat or landslide was between very low and low. In terms of wildfires the applicant acknowledges that the risk is highest in March and April, that 2022 was a record year where over 3,400ha of land was damaged by a total of 69 no. large wildfires and that the proposed development site and surrounding environments includes vegetation and habitat types that could support and spread wildfires.

24.2.2 Potential sources of major accidents and offsite hazards to cause risks to human health, cultural heritage or the environment is considered at Section.16.9 in accordance with Annex IV(5) of the EU EIA Directive 2011/92/EU. The wind farm is not located close to a Major Accidents Hazard (COMAH) site as designated under the Seveso-III-Directive (2012/18/EU). Upper Tier and Lower Tier sites listed by the HSA under the Seveso Directive within 20km of the proposed development site include:

- Along Devices International located approx. 14.3km south of the site

- Avara Shannon Pharmaceutical Services located approx. 14km west of the site
- Enva Ireland Ltd (hazardous waste facility) located approx. 12.3km west of the site
- Grassland Agro located approx. 11.3km south of the site
- Roche Ireland located approx. 17.5km west of the site, and
- Shannon Airport located approx. 16.1km west of the site.

24.2.3 Other sites permitted through Industrial Emissions Licences or Integrated Pollution Control Licensing are also located within 15km with the closest being ENVA Longpavement landfill site located 8.1km south of the site.

24.3 Potential Effects (*Risk Assessment*)

24.3.1 A range of scenarios were identified which the potential to lead to disaster or emergencies as presented in Table 19.4 and a risk assessment was carried out to establish the consequence and likelihood of each disaster/emergency in the absence of mitigation. This is summarised in Table MA-D1 below:

Table MA-D1: Risk Assessment Rating (*Major Accidents and Disasters*)

Event	Disaster/Worst-case Scenario	Embedded Mitigation Measure	Env. Cons.	Likelihood	Risk Level
Seismic	Damage to foundations or ancillary facilities. Structural integrity comprised, turbine collapse.	Design according to geology.	Catastrophic	Extremely unlikely	Low
Extreme Weather (<i>high winds, storms, lightning, ice and snow</i>)	Turbines overloaded and damaged. Storms can cause structural damage; Lightning can damage blades or cause a fire. Ice throw at high speeds presents a safety hazard. Ice can also reduce	Pitch control feathering, lightning rods and surge protectors, coating blades with water repellent and impact resistant materials. Ice detection systems, de-icing systems. Remote monitoring and	Moderate	Occasional	Moderate

	efficiency and cause rotor imbalance. Snow can obstruct maintenance, interfere with sensors and instrumentation and alter wind profile and turbulence on the ground.	control systems to manage rotational speed. Turbine shut down. Set back distances.			
Flooding	Damage to turbine towers, foundations, substation and other ancillary facilities. Blocking of maintenance access.	Water ingress seals on turbine towers and foundations. Design and construction of foundations. Waterproof materials.	Moderate	Unlikely.	Low
Peat/land slide/mass movement event.	Landslide during excavation works. Damage to turbines, substations, loop in towers and/or toppling.	Siting to avoid peat and areas with steep to severe slopes	Major	Unlikely	Moderate
Wildfire	Fire damage to turbines or ancillary facilities.	Set back of turbines, met mast and substation from flammable vegetation to maintain fire break.	Major	Unlikely	Moderate
Incident at Seveso Site	Explosion/fire occurring at facility containing flammable or hazardous substances.	N/A	Insignificant	Extremely unlikely	Low
Pollution accident	Fuel/oil spillage or leakage conveyed to water bodies. Large amounts of excavated & stockpiled material in surface water run-off.	Minimal volumes stored on site in secure, banded areas. Exposed soils covered, no direct flow paths permitted. Collector drains and soil berms directing run-off to treatment trains. Silt fences along perimeter of source areas , in natural drains and degraded peat areas.	Minor	Unlikely	Low
Structural & Technical Failures	Collapse of turbine, rotational failure and fire. Severance of blades. Generator, substation transformer and	Site specific design inc. peat stability tests. Set back distances. Remote monitoring and control systems.	Major	Unlikely	Moderate

	loop-in tower failure can result in fire.	Turbine shut down. Emergency Power supplies. Fire suppression systems and maintenance.			
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24.3.2 The findings of the risk assessment, as summarised in Table MA-D1 above, identify events which were considered to have a low risk level and which do not require further mitigation. Events with a resultant risk level of moderate or greater required further mitigation and they were carried forward for further risk assessment. This includes the following events: Extreme Weather, Ground Stability, Wildfire and Structural and/or technical faults.

24.4 Mitigation and Residual Risks

24.4.1 Table 19.5 of EIAR Chapter 19 sets out a detailed Further Risk Assessment with additional mitigation measures. This represents the residual risk post mitigation measures. This is summarised in Table MA-D2 below:

Table MA-D2: Further Risk Assessment with Additional Mitigation Measures
(Major Accidents and Disasters)

Event	Disaster/Worst-case Scenario	Mitigation Measures	Env. Cons.	Likelihood	Risk Level
Extreme weather (<i>high winds, storms, lightning, ice and snow</i>)	As above for Table MA-D1	Risk Assessments. Hazard and Operability Study (HAZOP). CEMP & ERP. Protocol for snow event. Emergency Response Protocol training.	Minor	Occasionally	Low
Peat/land slide/mass movement event	As above for Table MA-D1	Emergency Response System. 24-hr advance Met Éireann forecasting linked to a rainfall trigger response system. Response includes cessation of works & re-commencement inspection measures.	Moderate	Unlikely	Low

Wildfire	As above for Table MA-D1	Risk Assessments. HAZOP Study. ERP Protocol with hierarchy, assessment and procedures. ERP Protocol training.	Moderate	Unlikely	Low
Structural & technical failures	As above for Table MA-D1	Risk Assessments. HAZOP Study. ERP protocol & training.	Moderate	Unlikely	Low

24.4.2 It is considered that when mitigation is implemented all resultant risks are reduced to low and there will be no significant residual effects in respect of major accidents or natural disasters.

24.5. Analysis, Evaluation and Assessment: Direct and Indirect Effects.

24.5.1 I have examined, analysed and evaluated Chapter 19 of the EIAR and the associated chapters and appendices of the EIAR. I am satisfied that the subject development does not give rise to the risk of significant environmental effects because of its vulnerability to major accidents or natural disasters. The development site is stable with little potential for landslide or flood risk (see hydrology, hydrogeology and land, soils and geology section of this report). The risk of lightning is low (see population and human health) and turbines are removed from nearest residential receptors. Risk of fire and electrical faults are considered to be low and managed by on site arrangements to comply with health & safety through the CEMP and specifically risk assessments, HAZOP study and Emergency Response Protocols.

24.5.2 In relation to the safety concerns raised by third party submissions and recreational walkers and hikers in proximity to the proposed turbines, I note the position of WEDG 2006 that wind turbines do not pose a public safety risk. In addition the design information and mitigation measures give satisfactory reassurance that the modern turbines proposed include sophisticated remote monitoring and control systems, including the management of rotational speed, shut down measures, emergency back-up power supply, fire

suppression systems, ice detection and de-icing systems and a maintenance schedule mitigating the risks of 'ice throw', 'wild fires' and 'structural or technical failure'. Together with the CEMP, ERP, risk assessments, HAZOP study and ERP protocols I am satisfied that the proposed development will not pose a risk of a significant environmental effect in respect of major accidents and /or natural disasters.

24.5.3 I retain some concerns however in relation to the aviation concerns which have arisen in the course of this application and the implications or consequences for major accidents. As detailed above, and in section 9.5 of my report, I have concluded that the proposed development will result in a significant, adverse and long-term effect on aviation safety at both construction stage and operational stage as a result of performance and degradation impacts on the Monopulse Secondary Surveillance Radar (MSSR) at Woodcock Hill and impacts on Instrument Flight Procedures (IFPs) and NAVAIDs. The applicant has not described or assessed the potential major accident effects on the environment arising from these impacts, with or without mitigation. This is perhaps explained by the fact that the applicant is of the view that mitigation is available and concludes in the EIAR that residual effects on material assets will be neutral, imperceptible and short-term. However, it is clear that mitigation has not been agreed in the course of the application and that without mitigation the proposed development will result in a significant, adverse and long-term effect on aviation safety. On this basis, I am of the view that the potential major accident consequences of the significant, adverse and long-term effects on aviation safety are unknown and it is not possible to say with certainty that the proposed development would not lead to a significant risk of major accident(s).

24.6 Conclusion: Direct and Indirect Effects (*Major Accidents and Natural Disaster*)

Having regard to the aforesaid, and to my assessment of the available environmental information in relation to major accidents and natural disasters, it is considered that the main significant direct and indirect effect is:

A significant risk of major accident arising from potential degradation of existing surveillance radar and other aviation related operational impacts associated with significant, adverse and long-term effects on Aviation Safety. Based on the information on file, it is not considered possible to mitigate against the potential for significant aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date.

25. Environmental Topic: Interaction of Effects

Issues Raised

No issues were raised in respect of interaction of effects.

25.1 Examination of the EIAR

Context

Chapters 6 to 19 of the EIAR identify the potential significant environmental effects that may occur in relation to the respective environmental topics. Chapter 20 considers the impact interactions and residual cumulative effects. A statement of authority is included. Methodology is described in Section 20.3.

A summary of interactive effects is provided in Table 201.

25.2 Potential Effects

Interactions between Traffic & Transport and other aspects such as Population & Human Health and Biodiversity are expected to be greatest during the construction stage. Interactions between Land, Soils & Geology, Hydrology and Hydrogeology and Traffic & Transport will also arise at construction stage. The mitigation measures included in EIAR Chapter 5, 9, 10 and 16 together with the CEMP will ensure that effects are not significant.

At operational stage interactions between Population & Human Health mainly arise in relation to sensitive receptors, with combined effects of noise (Noise & Vibration), shadow flicker, change to land use practices (Land, Soils &

Geology) and visual amenity (Landscape & Visual) with potential to adversely affect population. With mitigation in place residual effects range from imperceptible to substantial moderate and not significant.

No other potential significant effects are identified as a result of interactions between effects, over and above those already identified in the individual chapters of the EIAR, and no additional mitigation measures are proposed.

25.3 Residual Effects

No residual effects are identified as a consequence of interaction of environmental factors.

25.4 Analysis, Evaluation and Assessment: Direct and Indirect Effects

I have examined, analysed and evaluated Chapter 20 of the EIAR and the associated chapters and appendices. Notwithstanding, the aviation safety concerns which have arisen, I am satisfied that the main interactions have been identified and assessed and that there is no potential for any significant direct, indirect or cumulative effects arising from the interaction of impacts, effects or environmental factors as a result of the proposed development and which have not already been addressed within the EIAR.

25.6 Conclusion: Direct and Indirect Effects (*Interaction of Effects*)

Having regard to the foregoing, I am satisfied that no significant adverse direct, indirect or cumulative environmental effects will arise from the interaction of impacts, that have not already been addressed in the EIAR.

26. Reasoned Conclusions

Having regard to the examination of environmental information provided in respect of the proposed development, and in particular to the EIAR and supplementary information provided by the applicant, including in response to submissions and as further information, the submissions from the Planning Authority, prescribed bodies and observers in the course of the application, it is considered that the main significant direct and indirect effects of the

proposed development on the environment, with the implementation of proposed mitigation measures are:

Population & Human Health and Noise:

- A **major significant effect** outside of standard daytime working hours as a result of Horizontal Directional Drilling (HDD) works associated with the Independent Power Producers (IPP) cable and Grid Connection Route (GCR) at H49 and other nearby residential noise sensitive receptors. This effect can be mitigated and reduced to a minor (not significant) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays only if permission is granted.

Population & Human Health and Landscape & Visual:

- It is considered that the proposed development will give rise to **significant landscape and visual effects** for a small number of local residential receptors in the immediate area to the south of the site, as represented by VP17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc. however **significant residual effects** will remain.

Population & Human Health and Public Safety

- It is considered that the proposed development will give rise to a **significant risk** to population & human health associated with a risk of major accident(s) as a result of **significant, adverse and long-term effects** on Aviation Safety.

Material Assets (Aviation):

- A **significant, adverse and long-term** construction and operational stage effect on Aviation Safety as a result of performance and degradation impacts on the Monopulse Secondary Surveillance Radar (MSSR) at Woodcock Hill and impacts on Instrument Flight Procedures (IFPs) and (NAVAIDs). In the absence of in-service evidence that wind turbines

erected within comparable ranges of enroute radar system do not generate deflections ANI contend that the proposed development will have adverse impacts on existing radar surveillance systems, which cannot be mitigated. ANI also contend that the shadowing effect of turbines will introduce coverage gaps in controlled airspace resulting in changes to the surveillance functional systems and degradation of the probability of detection. ANI change management systems approved by the IAA do not allow for functional systems changes that are less safe than the original system. Based on the information on file it is not considered possible to mitigate against the potential for **significant** aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date. Other unresolved concerns in relation to IFPs and NAVAIDS are highlighted.

Major Accident(s) and Natural Disaster(s)

- A **significant risk of major accident** arising from potential degradation of existing surveillance radar and other aviation related operational impacts associated with **significant, adverse and long-term effects** on Aviation Safety. Based on the information on file, it is not considered possible to mitigate against the potential for **significant** aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date.

Climate:

- Having regard to my examination of the environmental information in respect of air quality and climate it is considered that subject to implementation of the full suite of mitigation measures, **no significant adverse effects** will arise. The development will have a **significant positive effect** on climate with the net reduction in greenhouse gas emissions over the operational lifetime of the project.

27. Appropriate Assessment

27.1 Screening Determination

Finding of Likely Significant Effects

27.2 In accordance with Section 177U of the Planning and Development Act 2000 (as amended) and on the basis of the information provided by the applicant, I conclude that the proposed development could result in significant effects on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) in view of the sites conservation objectives and a number of qualifying interests of those sites. It is therefore determined that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act, 2000 (as amended)] of the proposed development is required.

27.3 Appropriate Assessment Conclusion: Integrity Test

27.4 In screening the need for Appropriate Assessment, it was determined that the proposed development could result in significant effects on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) in view of the conservation objectives of those sites and that Appropriate Assessment under the provisions of S177U was required.

27.5 Following an examination, analysis and evaluation of the NIS, all associated material submitted, and taking into account observations on nature conservation, I consider that adverse effects on site integrity of the Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) 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.

27.6 My conclusion is based on the following:

- Detailed assessment of construction, operational and decommissioning impacts.
- The respective site-specific conservation objectives, targets, attributes, QI's and SCI's of the respective European Sites as detailed and assessed in my Stage 2 AA as appended to this report (Appendix 2).
- The proposed development will not affect the attainment of conservation objectives for the Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) or prevent or delay the restoration of favourable conservation condition for Atlantic Salmon, Otter or Alluvial Forests with *Alnus Glutinosa* and *Fraxinus excelsior* (Lower River Shannon SAC), Lesser Horseshoe Bat (River Shannon SAC), (Ratty River Cave SAC) or (Kilkishen House SAC), Cormorant or Common Tern (Lough Derg (Shannon) SPA), or Hen Harrier (Slievefelim to Silvermines Mountains SPA)
- Effectiveness of embedded project design mitigation measures proposed in relation to habitat alteration, removal and disturbance, the generation of noise, dust, light spill and vibration, and the pollution of waterbodies which are primarily captured within the CEMP which will govern the construction of the project under the supervision of an appropriately qualified Ecological Clerk of Works with supporting hydrological engineer.

28 Recommendation

I recommend that permission for the development be refused based on the reasons and considerations hereunder.

Reasons and Considerations

The Commission reached its decision in accordance with its duties under Section 15(1) of the Climate Action and Low Carbon Development Act 2015, as amended, and the requirement to, in so far as practicable, perform its functions in a manner consistent with inter alia the Climate Action Plan 2025 and the furtherance of the national climate objective.

And in coming to its decision, the Commission had regard to the following:

- European legislation, including of particular relevance:
 - Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directive) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.
 - EU Renewable Energy Directive 2009/28/EC which aims to promote the use of renewable energy and amending Directive EU/2023/2413 which aims to speed up the EU's clean energy transition as implemented by European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025)
 - Directive 2011/92/EU (The EIA Directive) as amended by Directive 2014/52/EU as implemented by Article 94 and Schedule 6 (paragraphs 1 and 2) of the Planning Regulations as amended.
 - Directive 2000/60/EC, the Water Framework Directive and the requirement to exercise its functions in a manner which is consistent with the provisions of the Directive and which achieves or promotes compliance with the requirements of the Directive.
- National and regional planning and related policy, including:
 - National policy with regard to the development of alternative and indigenous energy sources and minimisation of emissions from

greenhouse gases, particularly the NPF First Revision 2025 and National Policy Objective 70.

- Wind Energy Guidelines: Guidelines for Planning Authorities 2006 and the draft guidelines published in 2019.
 - The objectives and targets of the National Biodiversity Action Plan 2023-2030.
-
- Regional and local planning policy, including:
 - Regional Spatial Economic Strategy for the Southern Region 202-2032;
 - Clare County Development Plan 2023-2029.
 - Other relevant national policy and guidance documents.
 - The nature, scale and design of the proposed development as set out in the planning application and the pattern of development in the vicinity.
 - The likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the proposed development and the likely significant effects of the proposed development on European sites.
 - The submissions and observations made in connection with the planning application.
 - The further information provided by the applicant to the Commission received on 23rd May 2025 and 20th November 2025 and submissions received in response to same.
 - The report and the recommendation of the Inspector, including the examination, analysis and evaluation undertaken in relation to appropriate assessment and environmental impact assessment.

Appropriate Assessment - Stage 1

The Commission considered the Screening Report for Appropriate Assessment, the Natura Impact Statement and all the other relevant

submissions and carried out both an appropriate assessment screening exercise and an appropriate assessment in relation to the potential effects of the proposed development on designated European Sites. The Commission agreed with and adopted the screening assessment and conclusion carried out in the Inspector's report that the following European sites in respect of which the proposed development has the potential to have a significant effect are Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) in view of those sites conservation objectives.

Appropriate Assessment – Stage 2

The Commission considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the submissions and observations on file, and the Inspector's assessment. The Commission completed an appropriate assessment of the implications of the proposed development for the European site for which potential to have a significant effect had been identified, in view of the site's conservation objectives. The Commission considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Commission considered, in particular, the following:

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

In completing the Appropriate Assessment, the Commission accepted and adopted the Appropriate Assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European Sites, having regard to the site's Conservation Objectives. In overall conclusion, the Commission was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' Conservation Objectives.

Environmental Impact Assessment

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

- The nature, scale and extent of the proposed development,
- The environmental impact assessment report and associated documentation submitted in support of the application,
- The submissions from the Planning Authorities, prescribed bodies and observers, and
- The Inspector's report.

The Commission considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, adequately considers alternatives to the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment.

The Commission agreed with the examination, set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application.

The Commission considered, and agreed with the Inspectors reasoned conclusions, that the main significant direct and indirect effects of the proposed development on the environment are as follows:

Population & Human Health and Noise:

- A **major significant effect** outside of standard daytime working hours as a result of Horizontal Directional Drilling (HDD) works associated with the Independent Power Producers (IPP) cable and Grid Connection Route (GCR) at H49 and other nearby residential noise sensitive receptors. This effect can be mitigated and reduced to a minor (**not significant**) effect by a condition restricting HDD works to the hours of 07:00 to 19:00hrs Monday to Friday and 07:00 to 13:00hrs on Saturdays only, if permission is granted.

Population & Human Health and Landscape & Visual:

- It is considered that the proposed development will give rise to **significant landscape and visual effects** for a small number of local residential receptors in the immediate area to the south of the site, as represented by VP17 (R471 at Cloughoolia). These effects will be somewhat mitigated by a combination of topography, screening, set back distances, orientation and design etc. however **significant residual effects** will remain.

Population & Human Health and Public Safety

- It is considered that the proposed development will give rise to a **significant risk** to population & human health associated with a risk of major accident(s) as a result of **significant, adverse and long-term effects** on Aviation Safety.

Material Assets (Aviation):

- A **significant, adverse and long-term** construction and operational stage effect on Aviation Safety as a result of performance and degradation impacts on the Monopulse Secondary Surveillance Radar (MSSR) at Woodcock Hill and impacts on Instrument Flight Procedures (IFPs) and (NAVAIDs). In the absence of in-service evidence that wind turbines erected within comparable ranges of enroute radar system do not generate deflections ANI contend that the proposed development will have

adverse impacts on existing radar surveillance systems, which cannot be mitigated. ANI also contend that the shadowing effect of turbines will introduce coverage gaps in controlled airspace resulting in changes to the surveillance functional systems and degradation of the probability of detection. ANI change management systems approved by the IAA do not allow for functional systems changes that are less safe than the original system. Based on the information on file it is not considered possible to mitigate against the potential for significant aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date. Other unresolved concerns in relation to IFPs and NAVAIDS are highlighted.

Major Accident(s) and Natural Disaster(s)

- A **significant risk of major accident** arising from potential degradation of existing surveillance radar and other aviation related operational impacts associated with **significant, adverse and long-term effects** on Aviation Safety. Based on the information on file, it is not considered possible to mitigate against the potential for **significant** aviation related impacts, including through the imposition of a planning condition for such matters to be agreed at a later date.

Climate:

- It is considered that subject to implementation of the full suite of mitigation measures, **no significant adverse effects** on Climate will arise. The development will have a **significant positive effect** on climate with the net reduction in greenhouse gas emissions over the operational lifetime of the project.

The Commission completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed, as set out in the Environmental Impact Assessment Report and, subject to compliance with the conditions set out herein, the effects on the environment of the proposed

development by itself and cumulatively with other development in the vicinity would be acceptable. In doing so the Commission adopted the report and conclusions of the reporting Inspector.

Conclusions on Proper Planning and Sustainable Development and Recommended Reason for Refusal of Planning Permission:

1. The Commission is not satisfied, on the basis of the information lodged with the application, at further information stage, in response to the submissions and observations received, that measurable, evidence based, demonstratable and credible mitigation measures have been submitted by the applicant, that can remove all level of aviation related risk, likely to arise as a result of the proposed development or that such measures can then be agreed and implemented to the satisfaction of AirNav Ireland, the Shannon Airport Group and the Irish Aviation Authority. Furthermore, as aviation related mitigation measures are required, the Commission is not satisfied, that the applicant has sufficient legal interest, or can acquire such interest to implement such mitigation measures on lands that have not been identified within the application site boundary, the applicant's landholding or within the applicant's control i.e. through a letter of consent from the appropriate landowner where necessary mitigation measures are required.

The Commission has performed its functions in relation to the making of its decision, in a manner consistent with Section 15(1) of the Climate Action and Low Carbon Development 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).

A refusal of planning permission for this proposed development falls squarely within the spectrum of outcomes available to the Commission and in accordance with the above statutory and policy framework in particular as they relate to climate goals. In this context, it is not practicable, for the Commission to approve the development in a manner consistent with the Climate Act by imposing a condition requiring such matters to be agreed between parties where the necessary consents have not been demonstrated as achievable or the necessary mitigation measures required as credible and implementable.

Accordingly, the Commission is not satisfied that the proposed development would not endanger or would not interfere with the safety of aircraft or the safe and efficient navigation thereof. 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.

Paul Kelly
Senior Planning Inspector

15th July 2026

Appendix 1: AA Screening Determination

Test for likely significant effects (ABP 318782-24)

Screening for Appropriate Assessment Test for likely significant effects	
Step 1: Description of the project and local site characteristics	
Case File: ABP 318782-24	
Brief description of project	Windfarm Infrastructure Development – Application for approval permission under Section 37E of the PDA, 2000 (as amended). A 10-year permission and a 35-year operational period is sought for the construction of 11no. 3 blade turbines with an overall ground to blade tip height range of 176.5m to 180m, a rotor diameter range of 133m to 150m and a hub height range of 105m to 110m, onsite 110kv substation, all works associated with the connection of the wind farm to the national electricity grid, meteorological mast, temporary construction facilities and all associated site works. Two options are proposed for the connection of the wind farm to the national grid via double circuit underground grid connection cables to the existing 110kV OHL at Ballycar North, Co. Clare. Option 1 proposes a loop-in connection to the existing Ardnacrusha-Ennis 110kV OHL with a c.3.83km cable length, and Option 2 proposes a loop-in connection to the existing Ardnacrusha-Drumline 110kV OHL with a c.4.16km cable length. Both options are at Ballycar North. See section 3.0 of Inspectors Report.
Brief description of development site characteristics and potential impact mechanisms	The proposed wind farm development is located on land that is currently primarily conifer plantation, transitional woodland scrub, mixed forest, pasture, agricultural grassland and peatlands. A more detailed description is provided in Section 2.0 of the inspector's report and detailed specifications of the proposal are provided in the AA screening report, NIS, EIAR Chapter 5 and other planning documents provided by the applicant. In summary the wind farm development site has a total area of 292 ha and includes the Western Development Area (WDA) with an area of 153 ha and the Eastern Development Area (EDA) with an area of 139 ha. 7 no. turbines are proposed in the WDA and 4 no. in the EDA. The nearest Natura 2000 site is Danes Hole, Poulnalecka SAC (00030) which is 1.3km from the proposed development site and 2.1km from the nearest turbine. The TDR spans the Lower River Shannon SAC (002165) via the Killaloe Bypass and is located approx. 380m from the River Shannon and River Fergus Estuaries SPA (004168) at this closest point.
Screening report	Yes. Prepared by RSK Biocensus and Inis Environmental Consultants Ltd.

Natura Impact Statement	Yes. Prepared by RSK Biocensus and Inis Environmental Consultants Ltd.
Relevant submissions	Third Party Observations to the appeal raised a range of issues in relation to biodiversity which are mostly addressed in the Inspectors EIA as they are not connected with Natura 2000 sites. Issues raised in relation to AA related matters concern the assessment of bats and the view that an appropriate source-pathway-receptor model had not been applied and that the TDR had not been assessed. The DHLGH raised concerns in relation to Lesser Horseshoe Bats (LHB) and Danes Hole, Poulnalecka SAC in the context of the loss of foraging habitat and linear features which could impact commuting, and connectivity. Concerns were also raised in relation to Hen Harrier and that the proposed Species Habitat Management Plan (SHMP) had not been subject to Screening for AA. The local authority did not raise AA related concerns.
Additional Information: The applicant's response to the submission of the DHLGH in June 2024 included a Stage 1 AA Screening in respect of the proposed Species and Habitat Management Plan (SHMP), which was not considered in the applicants original Stage 1 AA Screening (S1SAA). Appendix 1 of Memorandum No.4 (June, 2024) refers. I have considered this additional screening document in my assessment which follows. I note that an updated SHMP was submitted as Appendix 1 to Biodiversity Memorandum No.4 (June 2024). In case any question arises as to whether it was the original or updated SHMP which was considered by the applicant in their AA Screening Report, I wish to confirm that the nature of the updates to the SHMP concerned confirmation of land registry details, which is addressed in the EIA section of my report, and which is of no material consequence to biodiversity, ornithology or AA considerations.	
Step 2. Identification of relevant European sites using the Source-pathway-receptor model The applicants Stage 1 Screening for AA (S1SAA) identified a Zone of Influence (ZOI) for the proposed development based on a source-pathway-receptor (SPR) model. The methodology followed EC (2002), DoEHLG (2010), NRA (2009) and OPR (2021) guidance. A preliminary ZOI of 15km was adopted, following a precautionary approach. Sites that were further away (than 15km), particularly those with potential hydrological linkage, were also considered and no SPR chain for significant effect(s) was identified. The ZOI for mobile and static QI/SCI species was considered differently having regard to the varied range of mobile species outside of their designated sites. The ecological baseline was informed by a desk study which considered the resources listed in Section 1.4.3.1 and the field surveys (habitats, avifauna, otter, bats and aquatics) listed in Section 1.4.3. of the S1SAA. This process resulted in the identification of 23 no. European Sites. These are described in the S1SAA as '<i>relevant European sites</i>' and include the 19 no. Special Areas of Conservation (SAC) and 4 no. Special Protection Areas (SPA) listed in Table 1.1 of the S1SAA. These sites were all carried forward for initial screening assessment in the context of the ecological baseline and their conservation objectives. Potential loss, fragmentation, degradation, reduction, mortality, disturbance or displacement effects were identified. These effects were categorized as potential SAC effect A-E, and potential SPA effect A-E, in Section 1.7.1 and 1.7.2 of the S1SAA respectively. Each relevant European Site was then initially screened against the identified potential effects as set out in Table 1.6 and 1.7 of the S1SAA.	

As a result of this initial screening process the following 16 no. SAC's were screened out: Glenomra Wood SAC [001013], Slieve Bernagh Bog SAC [002312], Kilkishen House SAC [002319], Clare Glen SAC [000930], Silvermines Mountain West SAC [002258], Glenstal Wood SAC [001432], Keeper Hill SAC [001197], Tory Hill SAC [000439], Poulmagordon Cave (Quin) SAC [000064], Askeaton Fen Complex SAC [002279], Lough Gash Turlough SAC [000051], Silvermine Mountains SAC [000939], Newgrove House SAC [002157], Curraghchase Woods SAC [000174], Bolingbrook Hill SAC [002124] and Old Domestic Building (Keelvagh) SAC [002010]. These sites were screened out as it was considered there was no potential for effects due to distance, lack of hydrological connectivity and lack of works within or in close proximity to the sites having regard to the habitat/plant species and QI features of these sites. The following 3 no. SACs were screened in for further consideration:

- **Lower River Shannon SAC [002165]** on the basis of potential loss, fragmentation, degradation, reduction, mortality, disturbance or displacement effects due to proximity of works, in/near water works, water crossings (cabling routes) and transport routes within or near the SAC.
- **Danes Hole, Poulmalecka SAC [000030]** on the basis of potential loss, fragmentation, degradation, reduction, mortality, disturbance or displacement effects as a result of the location of the site within the potential commuting/foraging range of the QI species Lesser Horseshoe Bat (LHB).
- **Ratty River Cave SAC [002316]** on the basis of potential loss, fragmentation, degradation, reduction, mortality, disturbance or displacement effects as a result of the location of the site within the potential commuting/foraging range of the QI species Lesser Horseshoe Bat (LHB).

As a result of this initial screening process the following SPA was screened out: Slieve Aughty Mountains SPA [004168] as it was considered there was no potential for effects due to distance (*outside the foraging range for Hen Harrier*), lack of hydrological connectivity and lack of works within or in close proximity to the sites. The following 3 no. SPA's were screened in for further consideration:

- **River Shannon and River Fergus Estuaries SPA [004077]** on the basis of disturbance, displacement, mortality and/or ex-situ habitat (loss, degradation, fragmentation or reduction) effects as a result of proximity, hydrological connectivity and location within typical foraging/migration range of SCI species.
- **Lough Derg (Shannon) SPA [004058]** on the basis of disturbance, displacement, mortality and/or ex-situ habitat (loss, degradation, fragmentation or reduction) effects as a result of the location within known typical foraging/migration range of qualifying species.
- **Slievefelim to Silvermines Mountains SPA [004165] as above.**⁹⁰

With the exception of Kilkishen House SAC (002319), I am satisfied that the sites excluded from further consideration in the AA Screening process by the applicants S1SAA is reasonable on the basis that there is no ecological justification for their further consideration. In relation to excluded SAC sites in closest proximity to the proposed development I agree with the applicant that Glenomra Wood SAC (001013) and Slieve Bernagh Bog SAC (002312) (at a separation distance of 4.5km & 4.1km respectively) can be excluded as there is no connectivity and no development works proposed within, adjacent or near these sites and therefore no pathways for effects on the habitats of these sites. In relation to excluded SPA sites I agree with the applicant that the Slieve Aughty Mountains SPA (004077) can be excluded as the separation distance of 12km places the proposed development outside of the core foraging range and maximum foraging range for the single SCI species Hen Harrier⁹¹ and there is otherwise no connectivity. All other European sites are at a distance of 12km or more and I am satisfied that they can be excluded given the separation distances involved (which far exceeds relevant foraging ranges), location in separate hydrological sub-catchments and no pathways for effects.

In relation to Kilkishen House SAC (002319) I do not agree with the applicants S1SAA that this site can be excluded from further consideration in the AA Screening process. This SAC is approx. 5km from the proposed development (*Turbine No. 1 in the WDA*) and the LHB [1303] is a QI/SCI species of this site. I note that 78 LHB were counted (hibernating) at this SAC in Nov. 2001 making it a site of international importance, with a lesser number (19) emerging from a summer roost in June 1999. I also note that exact foraging areas used by LHB

⁹⁰ I note that the S1SAA incorrectly interchanges the Site Codes between SPAs 004058 and 004165, however I am satisfied that this is a typographical error only of no material importance.

⁹¹ 2km and 10km (SNH, 2016)

have yet to be established. According to best practice guidance provided in the LHB species Action Plan 2022-2026 (MPWS & VWT, 2022) the presence of suitable commuting and foraging habitat within a radius of at least 2.5km from a roost is important to the integrity of the roost and linear landscape features should preferably be retained within a radius of 5km of roosts with 20 or more LHB. On this basis the applicants S1SAA states that developments with the potential to affect LHB commuting habitat within 5km of a known important roost should be subject to detailed consideration of potential effects. On this basis Danes Hole, Poulnalecka SAC (000030) and Ratty River Cave SAC (002316) (at 2.1km and 4.4km) were brought forward for further screening consideration. Whilst the applicant finds that Kilkishen House SAC (002319) is 5.1km from the proposed development, I do not consider that this is a basis to exclude this SAC from further consideration. Having regard to the distance between the SAC and the proposed development, to the best practice guidance, and to the rationale for bringing Danes Hole, Poulnalecka SAC (000030) and Ratty River Cave SAC (002316) forward, I am of the opinion that Kilkishen House SAC (002319) should also be brought forward for further consideration of potential effects on Q/SCI species LHB.

I am satisfied that there are no other sites with any possible ecological connection or pathway, to the proposed development site.

European Site (code)	Qualifying interests ¹ Link to conservation objectives (NPWS, date)	Distance from proposed development (km)	Ecological connections ²	Consider further in screening ³ Y/N
Lower River Shannon SAC (002165)	▪ Freshwater Pearl Mussel [1029], ▪ Sea Lamprey [1095], ▪ Brook Lamprey [1096], ▪ River Lamprey [1099], ▪ Atlantic Salmon (only in fresh water) [1106], ▪ Sandbanks which are slightly covered by sea water all the time [1110], ▪ Estuaries [1130], ▪ Mudflats and sandflats not covered by seawater at low tide [1140], ▪ *Coastal lagoons [1150], ▪ Large shallow inlets and bays [1160], ▪ Reefs [1170], ▪ Perennial vegetation of stony banks [1220], ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], ▪ Salicornia and other annuals colonizing mud and sand [1310], ▪ Atlantic salt meadows [1330], ▪ Bottlenose Dolphin [1349], ▪ Otter [1355], ▪ Mediterranean salt meadows [1410],	0m from TDR, 3.5km from GCR (<i>OHL connection</i>) and 7.2km from closest turbine (<i>No.4 in WDA</i>) or 110kV Electrical Substation. This SAC is located to the south of the proposed development site.	Yes. Direct connectivity with TDR. Indirect hydrological connectivity with proposed development site via drain locations and watercourse crossings along cabling routes.	Yes.

	- Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation [3260], - Molinia meadows on calcareous, peaty or clayey-silt-laden soils [6410], *Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> [91E0]. * indicates a priority habitat under the Habitats Directive. https://www.npws.ie/protected-sites/sac/002165 NPWS August 2012			
Danes Hole, Poulnalecka SAC (000030)	- Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] - Caves not open to the public [8310] - Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] https://www.npws.ie/protected-sites/sac/000030 NPWS July 2018	2km from closest turbine (No.1 in WDA) This SAC is located to the north of the proposed development site.	Yes. The proposed development site is within the commuting/foraging range for QI species LHB.	Yes.
Ratty River Cave SAC (002316)	- Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] - Caves not open to the public [8310] https://www.npws.ie/protected-sites/sac/002316 NPWS July 2018	4.3km from closest turbine (No.2 in WDA) This SAC is located to the west of the proposed development site.	Yes. The proposed development site is potentially within the commuting/foraging range for QI species LHB.	Yes.
Kilkishen House SAC (002319)	Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] https://www.npws.ie/protected-sites/sac/002319 NPWS July 2018	5km from closest turbine (No.1 in WDA) This SAC is located to the northwest of the proposed development site.	Yes. The proposed development site is potentially within the commuting/foraging range for QI species LHB.	Yes.
River Shannon and River	Cormorant (breeding + wintering) [A017],	380m from TDR, 7.6km from GCR (OHL	Yes.	Yes.

Fergus Estuaries SPA (004077)	- Whooper Swan (wintering) [A038], - Light-bellied Brent Goose (wintering) [A046], - Shelduck (wintering) [A048], - Wigeon (wintering) [A855], - Teal (wintering) [A052], - Pintail (wintering) [A054], - Shoveler (wintering) [A857], - Scaup (wintering) [A062], - Ringed Plover (wintering) [A137], - Golden Plover (wintering) [A140], - Grey Plover (wintering) [A141], - Lapwing (wintering) [A142], - Knot (wintering) [A143], - Dunlin (wintering) [A149], - Black-tailed Godwit (wintering) [A156], - Bar-tailed Godwit (wintering) [A157], - Curlew (wintering) [A160], - Redshank (wintering) [A162], - Greenshank (wintering) [A164], - Black-headed Gull (wintering) [A179], - Wetlands and Waterbirds [A999]. https://www.npws.ie/protected-sites/spa/004077 NPWS September 2012	connection) and 9.3km from closest turbine (No.4 in WDA) or the 110kV Electrical Substation. This SPA is located to the south and southwest of the proposed development site	Potential hydrological and ornithological connectivity due to proximity and foraging/migrating ranges of SCI bird species. This could result in within and ex-situ disturbance, displacement and mortality effects. Potential loss, degradation, fragmentation or reduction of connectivity of ex-situ suitable habitats or reduction in prey species.	
Lough Derg (Shannon) SPA (004058)	- Cormorant (<i>Phalacrocorax carbo</i>) [A017], - Tufted Duck (<i>Aythya fuligula</i>) [A061], - Goldeneye (<i>Bucephala clangula</i>) [A067], - Common Tern (<i>Sterna hirundo</i>) [A193] , - Wetlands [A999]. https://www.npws.ie/protected-sites/spa/004058 NPWS August 2024	Approx. 2km from TDR at Killaloe and 12.6km from closest turbine (No.9 in EDA) This SPA is located to the east of the proposed development site.	Potential hydrological and ornithological connectivity due to proximity and foraging/migrating ranges of SCI bird species. This could result in ex-situ disturbance, displacement and mortality effects. Potential loss, degradation, fragmentation or reduction of connectivity of ex-situ suitable	Yes.

			habitats or reduction in prey species.	
Slievefelim to Silvermines Mountains SPA (004165)	Hen Harrier (<i>Circus cyaneus</i>) [A082] https://www.npws.ie/protected-sites/spa/004165 NPWS September 2022	Approx. 4km from TDR on M7 (<i>Junction 27</i>), 16.5km from IPP Route and 19km from closest turbine (<i>No.9 in EDA</i>) This SPA is located to the southeast of the proposed development site.	Potential ornithological connectivity due to proximity and foraging/migrating ranges of SCI bird species. This could result in ex-situ disturbance, displacement and mortality effects. Potential loss, degradation, fragmentation or reduction of connectivity of ex-situ suitable habitats or reduction in prey species.	Yes.

Step 3. Describe the likely effects of the project (if any, alone or in combination) on European Sites

The proposed TDR is directly linked (hydrologically) and the proposed windfarm site indirectly linked (hydrologically) to the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA. The wind farm site is also within the foraging range of the SCI LHB Bat Species of the Danes Hole, Poulnalecka SAC, Ratty River Cave SAC and Kilkishen House SAC. The wind farm site is also within/potentially within the foraging range of qualifying bird species for the River Shannon and River Fergus Estuaries SPA, Lough Derg (Shannon) SPA and Slievefelim to Silvermines Mountains SPA. Accordingly, the potential impacts generated by construction and operation of the windfarm include habitat loss, fragmentation, degradation, reduction; species mortality, disturbance or displacement effects.

Sources of impact and likely significant effects are detailed in the Table below.

AA Screening matrix

Site name Qualifying interests	Possibility of significant effects (alone) in view of the conservation objectives of the site*	
	Impacts	Effects
Lower River Shannon SAC (002165) - Freshwater Pearl Mussel [1029], - Sea Lamprey [1095], - Brook Lamprey [1096], - River Lamprey [1099], - Atlantic Salmon (only in fresh water) [1106],	Direct: Whilst the proposed development site and GCR are located outside this site and will not result in direct impacts, the TDR does span the SAC. The TDR involves minor temporary accommodation works and a landtake (at R463/R471). Due to proximity and hydrological connectivity construction related impacts cannot be ruled out.	Potential for within or ex-situ effects on SCI habitats or plant species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity.

▪ Sandbanks which are slightly covered by sea water all the time [1110], ▪ Estuaries [1130], ▪ Mudflats and sandflats not covered by seawater at low tide [1140], ▪ *Coastal lagoons [1150], ▪ Large shallow inlets and bays [1160], ▪ Reefs [1170], ▪ Perennial vegetation of stony banks [1220], ▪ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], ▪ Salicornia and other annuals colonizing mud and sand [1310], ▪ Atlantic salt meadows [1330], ▪ Bottlenose Dolphin [1349], ▪ Otter [1355], ▪ Mediterranean salt meadows [1410], ▪ Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils [6410], ▪ *Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> [91E0]. <i>* indicates a priority habitat under the Habitats Directive.</i>	Indirect: There are multiple hydrological connections between this SAC and the proposed wind farm site, consisting of drain locations and watercourse crossings along cabling routes. There is potential therefore for indirect impacts on the SAC and its SCI habitats and species (aquatic interests) as a result of pollution of watercourses with suspended solids (silt, sediment) and hydrocarbons primarily during construction works and/or spread of invasive species. The terrestrial ranges for Otter can also extend outside of SAC boundaries, so there is potential for indirect effects on this SCI species during construction and increased human activity.	Potential for within or ex-situ effects on suitable habitats for QI species or their prey/host species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity. There is potential for within or ex-situ mortality, disturbance or displacement of QI species or their prey/host species.
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
Danes Hole, Poulnalecka SAC	Direct:	Potential for indirect effects on QI species LHB through loss,

(000030) ▪ Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] ▪ Caves not open to the public [8310] ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	None. Indirect: The proposed development site, including the proposed SHMP, is within the foraging range of LHB and contains habitat which is suitable for foraging and commuting by this species. There is potential for impacts on this QI species through physical removal or damage of ex-situ habitat, mortality, disturbance or displacement effects (collision risk/light pollution).	fragmentation, degradation or reduction of ex-situ habitat and mortality, displacement or disturbance effects.
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
Ratty River Cave SAC (002316) ▪ Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] ▪ Caves not open to the public [8310]	Direct: None. Indirect: Whilst the proposed development (at 4.3km) is outside the core winter foraging habitat for LHB (1.2km), suitable habitat within the development site maybe used in the summer by the maternity roost associated with this SAC. Therefore, there is potential for impacts on this QI species through physical removal or damage of ex-situ habitat.	Potential for indirect effects on QI species LHB through loss, fragmentation, degradation or reduction of ex-situ habitat.
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
Kilkishen House SAC (002319) ▪ Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303]	Direct: None. Indirect: The summer roost associated with this site is 5km from the proposed development site and recorded 19 no. LHB emerging in 1999. This separation distance is at the outer limit, and the roost number is just below, the values where the retention of linear landscape features is recommended by best practice. However, there are unknowns such as the current (summer) roost numbers and the	Potential for indirect effects on QI species LHB through loss, fragmentation, degradation or reduction of ex-situ habitat.

	exact foraging areas used by the QI species associated with this SAC. Therefore, applying a precautionary principle it is considered that there is potential for impacts on this QI species through physical removal or damage of ex-situ habitat.	
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
River Shannon and River Fergus Estuaries SPA (004077) ▪ Cormorant (breeding + wintering) [A017], ▪ Whooper Swan (wintering) [A038], ▪ Light-bellied Brent Goose (wintering) [A046], ▪ Shelduck (wintering) [A048], ▪ Wigeon (wintering) [A855], ▪ Teal (wintering) [A052], ▪ Pintail (wintering) [A054], ▪ Shoveler (wintering) [A857], ▪ Scaup (wintering) [A062], ▪ Ringed Plover (wintering) [A137], ▪ Golden Plover (wintering) [A140], ▪ Grey Plover (wintering) [A141], ▪ Lapwing (wintering) [A142], ▪ Knot (wintering) [A143], ▪ Dunlin (wintering) [A149], ▪ Black-tailed Godwit (wintering) [A156], ▪ Bar-tailed Godwit (wintering) [A157], ▪ Curlew (wintering) [A160],	Direct: There will be no direct impacts or effects as the proposed development is located outside and at a remove from this SPA. The minimal development works associated with the GCR and TDR are considered unlikely to significantly affect wetland birds. Indirect: The proposed development site is within the typical foraging and migrating ranges for many of the SCI bird species of this SPA. There is potential therefore for indirect effects on SCI species from ex-situ habitat loss, disturbance/displacement and mortality as a result of collisions with turbines.	Potential for indirect effects on SCI species via ex-situ habitat loss, degradation, or fragmentation, disturbance, displacement and mortality.

- Redshank (wintering) [A162], - Greenshank (wintering) [A164], - Black-headed Gull (wintering) [A179], - Wetlands and Waterbirds [A999].		
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
Lough Derg (Shannon) SPA (004058) - Cormorant (<i>Phalacrocorax carbo</i>) [A017], - Tufted Duck (<i>Aythya fuligula</i>) [A061], - Goldeneye (<i>Bucephala clangula</i>) [A067], - Common Tern (<i>Sterna hirundo</i>) [A193], - Wetlands [A999].	Direct: None. Indirect: Whilst the proposed development is outside the typical foraging ranges for the SCI bird species of this SPA (at approx.12km) a significant (migration) flight path through the proposed turbines could result in disturbance, displacement or mortality effects. The TDR at 2.1km from the SPA could also result in construction related disturbance or displacement effects or effects on habitats used by SCI bird species of this SPA.	Potential for indirect effects on SCI bird species via disturbance, displacement or ex-situ habitat effects and mortality.
	Likelihood of significant effects from proposed development (alone): Yes.	
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.	
	Impacts	Effects
Slievefelim to Silvermines Mountains SPA (004165) Hen Harrier (<i>Circus cyaneus</i>) [A082]	Direct: None. Indirect: As the proposed development site (at 15km) is safely outside the foraging range of Hen Harrier (10km (SNH,2016)), there is no potential for significant effects from the windfarm or GCR. Although unlikely, the TDR at 3.8km from the SPA, could result in construction related disturbance or displacement effects or effects on habitats used by the SCI bird species of this SPA.	Potential for indirect effects on the SCI bird species via disturbance, displacement or ex-situ habitat effects.

	Likelihood of significant effects from proposed development (alone): Yes.
	If No, is there likelihood of significant effects occurring in combination with other plans or projects? N/A.
Step 4 Conclude if the proposed development could result in likely significant effects on a European site	
Based on the information provided in the screening report, site visit, review of conservation objectives and supporting documents, I consider that in the absence of mitigation measures beyond best practice construction methods, the proposed development has the potential to result in significant effects on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165). In respect of the SHMP I am in agreement with the findings of the applicant that there is no potential for significant effects on any European Sites either from implementation of the plan alone or in combination with other projects. The SHMP is approx. 2.2km from Danes Hole Poulnalecka SAC and with no hydrological connection. It provides for managed and enhanced habitats specifically for the purpose of Hen Harrier (non-SPA population) but of ecological value to a number of QI's and SCI's including LHB. It will not result in habitat loss, fragmentation or degradation, disturbance or mortality effects and I am satisfied that there is no ecological reason to consider it further in relation to this or any other European Site. Accordingly, the decision to carry Danes Hole Poulnalecka SAC forward for Appropriate Assessment is based on other proposed development considerations excluding the SHMP. In addition to Kilkishen House SAC (002319), I concur with the applicants' findings that such impacts could be significant in terms of the stated conservation objectives of the SAC's and SPA's, specifically having regard to the stated attributes and targets, when considered on their own in relation to pollution related pressures; loss, fragmentation, degradation or reduction of ex-situ habitat; and disturbance, displacement or mortality on qualifying habitats and species. An appropriate assessment is required on the basis of the possible effects of the project alone.	
Screening Determination	
Finding of likely significant effects	
In accordance with Section 177U of the Planning and Development Act 2000 (as amended) and on the basis of the information provided by the applicant, I conclude that the proposed development could result in significant effects on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) in view of the sites conservation objectives and a number of qualifying interests of those sites. It is therefore determined that Appropriate Assessment (Stage 2) [under Section 177V of the Planning and Development Act, 2000 (as amended)] of the proposed development is required.	

Paul Kelly

Senior Planning Inspector

15th July 2026

Appendix 2: Appropriate Assessment (ABP-318782-24)

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

Taking account of the preceding screening determination, the following is an appropriate assessment of the implications of the proposed wind farm development in view of the relevant conservation objectives of on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) based on scientific information provided by the applicant.

The information relied upon includes the following:

- Natura Impact Statement (updated 2025 (Appendix 4)) prepared by RSK Biocensus and Inis Environmental Consultants Ltd.
- Appendix 5 of RFI June 2024 – Ecology Figures
- Item No. 3 and No.4 of Response to Further Information November 2025.
- EIAR Prepared by RSK Biocensus

I am satisfied that the information provided is adequate to allow for Appropriate Assessment. I am satisfied that all aspects of the project which could result in significant effects are considered and assessed in the updated NIS and mitigation measures designed to avoid or reduce any adverse effects on site integrity are included and assessed for effectiveness.

Submissions/observations

Third Party Observations to the appeal raised a range of issues in relation to biodiversity which are mostly addressed in the Inspectors EIA as they are not connected with Natura 2000 sites. Issues raised in relation to AA related matters concern the assessment of bats and the view that an appropriate source-pathway-receptor model had not been applied and that the TDR had not been assessed.

The DHLGH raised concerns in relation to Lesser Horseshoe Bats (LHB) and Danes Hole, Poulnalecka SAC in the context of the loss of foraging habitat and linear features which could impact commuting, and connectivity. Concerns were also raised in relation to Hen Harrier, however this concerns a non-designated population and it is therefore dealt with in the EIA section of my report.

Clare County Council

The Chief Executives Report raised a range of issues in relation to biodiversity which are addressed in the Inspectors EIA as they are not connected with Natura 2000 sites. The Local Authority did not specifically raise AA related issues.

Lower River Shannon SAC (002165):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) Potential for within or ex-situ effects on SCI habitats or plant species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity.
- (ii) Potential for within or ex-situ effects on suitable habitats for QI species or their prey/host species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity.
- (iii) There is potential for within or ex-situ mortality, disturbance or displacement of QI species or their prey/host species.

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		Section 1.9.1.3 of the NIS.
Brook Lamprey (<i>Lampetra planer</i>) [1096]	To maintain the favourable conservation condition of Brook Lamprey in the Lower River Shannon SAC Access to all watercourses down to first order streams, at least 3 age/size groups present, mean catchment juvenile density at least 2/m², no decline in extent and distribution of spawning beds, and more than 50% sample sites positive.	Indirect. There are multiple hydrological connections between this SAC and both the proposed wind farm site and GCR. The development could undermine the targets in relation to juvenile population structure and density, the extent and distribution of spawning habitat and the availability of juvenile habitat as a result of deterioration in water quality and habitat degradation through the release of silt, sediment, drilling fluids and hydrocarbons to surface waters primarily during construction works but also operational and decommissioning stages.	Best practice construction measures as detailed in the CEMP. This includes measures to avoid/minimise: - unnecessary habitat removal/alteration and disturbance, - the generation of noise, dust, light spill and vibration, and - pollution of water bodies. Construction Methodologies. Appointment of ECoW with responsibility for pre-construction surveys, advice and guidance, management oversight and authority to suspend works. Buffers of 15m from minor watercourses/land drains, 50m from watercourses.

			Use of environmentally friendly drilling fluids. Hydrocarbon, re-fuelling and concrete location and storage controls. Use of silt fences. Implementation of a SuDS with on-site flow retention, buffer zones and silt removal techniques. Re-use of excavated soil in berms, landscaping and road margins.
River Lamprey (<i>Lampetra fluviatilis</i>) [1099]	To maintain the favourable conservation condition of River Lamprey in the Lower River Shannon SAC Access to all watercourses down to first order streams, at least 3 age/size groups present, mean catchment juvenile density at least 2/m², no decline in extent and distribution of spawning beds, and more than 50% sample sites positive.	Indirect. As above (for Brook Lamprey).	As above.
Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106]	To restore the favourable conservation condition of Salmon in the Lower River Shannon SAC 100% of river channels down to second order accessible from estuary, conservation limit for each system consistently exceeded, maintain or exceed 0+ fry mean catchment-wide abundance threshold value, no significant decline in out migrating smolt abundance, no decline in number and distribution of spawning redds due to anthropogenic causes,	Indirect. There are multiple hydrological connections between this SAC and both the proposed wind farm site/GCR. The development could undermine the targets in relation to fry mean catchment-wide abundance, migrating smolt abundance, spawning redds and water quality as a result of deterioration in water quality and habitat degradation through the release of silt, sediment and hydrocarbons to surface waters primarily during construction works but also operational and	As above.

	and at least Q4 at all sites sampled by EPA.	decommissioning stages. These targets could also be undermined by disturbance and mortality effects as a result of lighting, vibration and noise leading to behavioural changes and increased predation.	
Otter (<i>Lutra lutra</i>) [1355]	To restore the favourable conservation condition of Otter in the Lower River Shannon SAC No significant decline in distribution, terrestrial habitat, marine habitat, freshwater habitat, lake/lagoon habitat, couching sites and holts, fish biomass available and no significant increase in barriers to connectivity.	There are multiple hydrological connections between this SAC and the proposed wind farm site/GCR. No sightings of otter was recorded during surveys, including camera surveys. Evidence of otter activity was found during otter surveys in the form of two mammal crossings one on the banks of the East Cloontra River approx. 124m west of the IPP and the other on the banks of the Blackwater (Clare) River approx. 107m west of the loop-in GCR. Two spraints were also identified, one on the banks of the Oatfield River approx. 55m west of the loop-in GCR and the other along the banks of the Snaty River approx. 208 east of T6. The proposed development could undermine the targets in relation to fish biomass available and habitat distribution as a result of deterioration in water quality and habitat degradation through the release of silt, sediment and hydrocarbons to surface waters primarily during construction works but also operational and decommissioning stages. These targets could also be undermined by	As above. Otter specific: Construction methodologies. Supervision by ECoW. Pre-commencement Otter Survey. Level of authority to suspend works in the event of a risk to a relevant qualifying species (e.g., Otter) Undertake pre-works checks of suitable habitat requiring removal or otherwise potentially affected by works (e.g., for Otter);

		disturbance and mortality effects as a result of lighting leading to behavioural changes and hydrocarbons affecting health and well being if ingested or entering fur and affecting insulation and waterproofing.	
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]	To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation in the Lower River Shannon SAC. Habitat area stable or increasing, no decline in distribution, maintain appropriate hydrological, natural tidal and freshwater seepage regimes, the substratum should be dominated by the particle size ranges appropriate to the habitat sub-type, concentration of nutrients in water column should be sufficiently low to prevent changes in species composition or habitat condition, typical species of the relevant habitat sub-type should be present and in good condition, area of active floodplain at and upstream of habitat should be maintained, and area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained.	There are multiple hydrological connections between this SAC and both the proposed wind farm and GCR site. The proposed development will not result in any effects on the flood plain connectivity or riparian habitat targets for this site. The development could undermine the targets in relation to habitat area and distribution, hydrological regimes, substratum composition, water quality and vegetation composition as a result of deterioration in water quality through the release of silt, sediment and hydrocarbons to surface waters primarily during construction works but also operational and decommissioning stages.	As above.
*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-</i>	To restore the favourable conservation condition of Alluvial	There are multiple hydrological connections between this SAC and	As above.

<i>Padion, Alnion incanae, Salicion albae</i> [91E0]	forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>) in the Lower River Shannon SAC. Habitat area stable or increasing, no decline in distribution, woodland size stable or increasing, woodland structure diverse with closed canopy, sub-canopy with semi-mature trees and shrubs, well-developed herb layer, maintain diversity and extent of community types, seedlings, saplings and pole-age classes adequate to ensure survival, appropriate hydrological regime necessary to maintain alluvial vegetation, at least 30m³/ha of fallen timber greater than 10cm diameter and 30 snags/ha, no decline in veteran trees, local distinctiveness or native tree cover, variety of native species present, inc. alder, willows, oak and ash, and negative indicator species absent or under control.	both the proposed wind farm and GCR site. The proposed development will not result in any effects on the woodland structure (dead wood) targets for this site. The development could undermine the targets in relation to habitat area and distribution, woodland size, structure (other than dead wood), hydrological regime, and vegetation composition as a result of deterioration in water quality through the release of silt, sediment and hydrocarbons to surface waters primarily during construction works but also operational and decommissioning stages.	
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]	To maintain the favourable conservation condition of <i>Molinia</i> meadows on calcareous, peaty or clayey-silt laden soils (<i>Molinion caeruleae</i>) in the Lower River Shannon SAC. Habitat area stable or increasing, no decline in distribution, broadleaf herb component between 40-90%, 30-70% of sward between 10-80cm high, at least 7 positive indicator	There are multiple hydrological connections between this SAC and both the proposed wind farm and GCR site. The development could undermine the targets in relation to habitat area and distribution and vegetation composition, as a result of deterioration in water quality through the release of silt, sediment and hydrocarbons to surface waters primarily during	As above.

	species present, no decline in vegetation composition, negative indicator species not more than 20%, individual species not less than 10%, invasive species absent, bog mosses not more than 10%, hair mosses 25%, woody species and bracken 5% and bare ground not more than 10%.	construction works but also operational and decommissioning stages.	
Other QI's	Not at Risk	Rationale for Exclusion:	
Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1029]	Not at risk: To restore the favourable conservation condition of Freshwater Pearl Mussel in the Lower River Shannon SAC	The SSCO for this species applies to the Cloon River, Co. Clare only (Map. 15 of SSCO document refers). The project has no hydrological connectivity with the Cloon River population and therefore there is no pathway for effects.	
Sea Lamprey (<i>Petromyzon marinus</i>) [1095]	Not at Risk: To restore the favourable conservation condition of Sea Lamprey in the Lower River Shannon SAC	Presence not detected in surveys.	
*Coastal lagoons [1150]	Not at risk: To restore the favourable conservation condition of Coastal lagoons in the Lower River Shannon SAC	According to Map 6 of the SSCO, the nearest habitat occurs approx. 30km downstream of the proposed GCR and 45km downstream of the wind farm site and in any event the QI for this habitat are primarily influenced by marine processes. Accordingly, there is no pathway for effects from the proposed project.	
Perennial vegetation of stony banks [1220]	Not at risk: To maintain the favourable conservation condition of Perennial vegetation of stony banks in the Lower River Shannon SAC.	The proposed development is located entirely outside of the boundary of this SAC and there is no hydrological connectivity with this habitat. Accordingly, there is no pathway for effects.	
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Not at risk: To maintain the favourable conservation condition of Vegetated sea cliffs in the Lower River Shannon SAC	As above (for perennial vegetation of stony banks)	

Salicornia and other annuals colonizing mud and sand [1310]	Not at risk: To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the Lower River Shannon SAC	Not specified.
Sandbanks which are slightly covered by sea water all the time [1110]	Not at Risk: To maintain the favourable conservation condition of Sandbanks which are slightly covered by sea water all the time in the Lower River Shannon SAC	As above (for perennial vegetation of stony banks).
Estuaries [1130]	Not at Risk: To maintain the favourable conservation condition of Estuaries in the Lower River Shannon SAC	Not specified.
Mudflats and sandflats not covered by seawater at low tide [1140]	Not at Risk: To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Lower River Shannon SAC	Not specified.
Large shallow inlets and bays [1160]	Not at Risk: To maintain the favourable conservation condition of Large shallow inlets and bays in the Lower River Shannon SAC	As above (for perennial vegetation of stony banks).
Reefs [1170]	Not at Risk: To maintain the favourable conservation condition of Reefs in the Lower River Shannon SAC	As above (for perennial vegetation of stony banks).

Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	Not at Risk: To restore the favourable conservation condition of Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) in the Lower River Shannon SAC	As above (for perennial vegetation of stony banks).
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Not at Risk: To restore the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritimi</i>) in the Lower River Shannon SAC.	As above (for perennial vegetation of stony banks).
Bottlenose Dolphin (<i>Tursiops truncatus</i>) [1349]	Not at Risk: To maintain the favourable conservation condition of Bottlenose Dolphin in the Lower River Shannon SAC	The proposed development is located entirely outside of the boundary of this SAC and there is no hydrological connectivity with the habitat occupied by this marine mammal. Accordingly, there is no pathway for effects.

No other QIs were excluded in addition to those described as not at risk above.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

- (i) **Potential for within or ex-situ effects on SCI habitats or plant species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity.**

The most common pathway for impacts is via surface water, such as pollutants reaching a river and then carried downstream to the SAC. Other potential pathways are groundwater, air (dust) or land (flow of liquids). Hydrological impacts can potentially occur at a distance of several kilometres through aquatic pathways but are likely to occur at significantly shorter distances over land or by air.

Mitigation Measures and Conditions

The focus of the proposed mitigation measures is to prevent pollutants and silt/sediment, hydrocarbons or HDD fluids entering surface waters and receiving watercourses. This is to be achieved via a detailed and comprehensive suite of integrated mitigation measures which are based on active and passive treatment trains as detailed primarily within the project Construction and Environmental Management Plan (CEMP) and Surface Water Management Plan (SWMP). Measures are comprehensive and are summarised in Section 17 of my EIA in respect of hydrology and hydrogeology and address increased run-off, clear felling, construction water management, release of hydrocarbons, ground stability and compaction, release of HDD drilling fluid, construction and cementitious materials, watercourse crossings, diversion of drainage, groundwater

contamination and water quality monitoring. All mitigation measures are included in the CEMP and SWMP and will be supervised and managed by an Environmental Clerk of Works (ECoW). An Emergency Response Plan (ERP) is also included.

I am satisfied that this SAC was included on a precautionary basis. In my opinion the risk to the SAC as a result of the proposed development is negligible. I am satisfied that both use of the TDR itself and the minor accommodation works, despite proximity to the SAC, have no potential for adverse effects. There will be no direct discharges from the proposed development to surface waters and the nearest mapped river which is hydrologically connected to the site is the Oatfield_25 at c.1km. This leaves sufficient scope within the unmapped watercourses and drainage features leaving the site for effective implementation of the passive and active treatment trains, inclusive of containment, treatment and buffered outfall of waters and pollution control measures. Although the GCR crosses the Blackwater (Clare)_010 River twice, the crossings are short and will be carried out a significant distance from the SAC using HDD works informed by risk assessments and with use of inert drilling fluids. I am satisfied that the preventative measures which are aimed at interrupting the source-pathway-receptor model are targeted at the key threats to SCI habitats and species and that by arresting these pathways or reducing possible effects to a non-significant level, adverse effects can be prevented.

(ii) Potential for within or ex-situ effects on suitable habitats for QI species or their prey/host species via physical landcover change at works locations, a deterioration in water quality and/or the spread of invasive species resulting in habitat loss, fragmentation, degradation or reduction/loss in connectivity.

(iii) There is potential for within or ex-situ mortality, disturbance or displacement of QI species or their prey/host species.

There are 17 records for Otter sightings in the NBDC hectads R56 and R57 within which the proposed development is located, with the last recorded sighting in 13/01/2014 and there are areas of suitable habitat for Otter (watercourses with fisheries value) in the area of the proposed development. Camera trap deployments in the study area did not return sightings of Otter, however secondary evidence was recorded during Otter surveys. One mammal crossing was identified on the banks of the East Cloontra River (EPA Code: 25E28) approx. 124m west of the IPP connection route. A second crossing was identified on the banks of the Blackwater (Clare) River (EPA Code:25B06) approx. 107m west of the Loop-in grid connection.

Salmonid populations are widespread in the vicinity of the proposed development with Atlantic Salmon⁹² recorded at a total of ten sites on the Owenagarney River, River Blackwater and associated tributaries (Sites A4, A7, A11, B6, B7, B15, B16, D6, D20 & E1⁹³). The nearest sites where B6 and B7 located in the Oatfield River (25O07) and West Cloontra River (25W36) and both rivers intersect with the IPP connection route. The highest salmon parr densities and highest quality habitats were present at sites on the Clashduff Stream (A7), Owenagarney River (A11), Gourn River (D6) and the Clovemill Stream (E1) all to the southwest. Lamprey⁹⁴ were recorded at six sites, the nearest sites where B7 and B8 on the West Cloontra Stream and O'Neill's Stream respectively and both sites intersect with the IPP connection route. The remaining sites include Knockshavno Stream (B9), River Blackwater (B16 & B17) and Island River (D16). With the exception of site B17 (on the lower reaches of the Blackwater) densities of ammocoetes were low (<1 per m²) and habitats were sub-optimal for this species.

Artificial light can disrupt the natural behaviour of fish, including Atlantic Salmon and can also attract them making them more susceptible to predation. It can also disrupt Otters' natural nocturnal behaviour leading to changes in foraging and feeding. Vibrations can also induce stress, leading to avoidance behaviour impacting feeding, spawning, migration and overall immune functioning and health. Additional vibration impacts can include the sensory system and buoyancy control. Low frequency noise (5-10Hz) may lead to changes in

⁹² Annex II species under EU Habitats Directive and QI species of this SAC

⁹³ See EIAR Chapter 7, Appendix 7.7 for detailed results

⁹⁴ Annex II species under EU Habitats Directive and QI species of this SAC

behaviour which could impact spawning, foraging and disrupt migration and habitat selections. Increased siltation (clear felling and drilling works) could have detrimental impacts on fish such as increased mortality, reduced suitable spawning areas, lower success rates for eggs/early life stages, gill irritation/trauma, altered blood chemistry, impaired movement/swimming, modified foraging behaviour and diminished territoriality. Salmonoid, Brook and River Lamprey all require well oxygenated environments during embryonic development and excessive sediment can decrease egg survival, with long-term consequences including habitat degradation and reduced genetic diversity. Spilled hydrocarbons can smother critical habitats, harm vital organ, health and survival and reduce successful reproduction rates. For Otters it can enter their fur leading to serious health issues. Ingestion of oil contaminated prey can also result in toxic effects affecting their overall health and wellbeing or lead to insufficient nutrition as a result of disruption to food sources. A deterioration in water quality could result in a reduced prey availability and undermine the distribution and available fish biomass targets for this species.

Mitigation measures and conditions

The focus of mitigation was based on an iterative process of constraints-led design to avoid important ecological features and the project design includes best practice construction measures to minimise potential impacts on relevant habitats and species. These are detailed in the CEMP and include measures to minimise working areas to avoid unnecessary habitat removal/alteration and disturbance, measures to avoid/minimise the generation of additional noise, dust, light spill and vibration and measures to avoid pollution of waterbodies within and adjacent to the proposed development site. All plant and machinery will comply with specific noise legislation (Construction Plan and Equipment Permissible Noise Levels (Amendment) Regulations, 1996) and works will avoid the use of artificial lighting in sensitive habitat. Mitigation measures to avoid effects on watercourses include:

- Appointment of an appropriately qualified and experienced EcOW. Responsibilities will include pre-construction walkover surveys, authority to suspend works (Otter), pre-works checks of suitable habitat requiring removal or potentially affected (Otter), training, management and supervision, provision of contractor guidance and liaison with statutory authorities.
- Buffer of at least 15m from minor watercourses and drains (except where crossed by tracks, HDD is employed or in the case of minor land drains where a lesser buffer is applied or the drain re-directed).
- Use of drilling fluids such as 'Clearbore' an environmentally friendly, high-performance water-based mud suitable for tunnelling and drilling operations or fluids with similar environmental properties.
- Where GCR encounters minor culverts, ducts will be installed above or below the culvert in accordance with CEMP methodologies.
- Machinery re-fuelling at designated locations at least 50m from watercourses using double-skinned fuel bowser, with spill prevention equipment and designated personnel. Limited fuel stored on site in a bunded area at least 100% of the storage capacity of fuels to be stored.
- Use of pre-mixed concrete as the primary choice. Exceptions include the substation and drainage culverts which will use hollow core and pre-cast concrete respectively.
- Spoil arisings will be limited to a maximum height of 2m, located at least 25m from watercourses. Silt fences will be employed between spoil storage and water crossings to prevent silt run-off.
- Excavated soil from access road construction will be re-used on site for berms, landscaping and road margins. Berms will be placed away from interceptor drains to avoid flow obstruction or siltation risk.
- Constructed drainage systems will manage run-off from various areas reducing potential silt run-off and will include implementation of a SuDS with on-site flow retention, buffer zones and silt removal techniques to promote environmentally responsible water management as described in EIAR Chapter 5 and summarised in the Section 17 of my report.

As stated above I am satisfied that this SAC was included on a precautionary basis. In my opinion the risk to the SAC as a result of the proposed development is negligible with no direct discharges from the proposed development to surface waters and the nearest mapped river which is hydrologically connected to the site c.1km away. This leaves sufficient scope within the unmapped watercourses and drainage features leaving the site for effective implementation of the passive and active treatment trains, inclusive of containment, treatment and buffered outfall of waters and pollution control measures. In terms of Otter the locations where

secondary evidence of activity was found during surveys is associated with the IPP and the end Loop-in location of the GCR. These locations are removed from the main areas of construction work associated with the proposed wind farm and involve limited works of short duration either within the existing road network or connecting to existing OHL infrastructure. Having regard to same, and the findings of the baseline survey, it is considered that the proposed project will not result in any reduction in otter habitat, loss of couching or resting sites and direct mortality related impacts are not anticipated. In relation to disturbance, otter are predominantly crepuscular in nature and it is anticipated that the daytime construction activities will minimise potential disturbance related impacts to this species, with any disturbance impacts short term in nature on the local population. In terms of Atlantic Salmon, I note that the nearest locations (B6 & B7) are associated with the IPP along the R471 and that the other sites are at a significant remove from the PDS with no direct hydrological connectivity. In terms of Lamprey (Brook & River) the nearest locations (B7 & B8) are also associated with the IPP along the R471 and other sites, with the exception of B9, are also at a significant remove from the PDS with no direct hydrological connectivity. The construction methodologies for the IPP are detailed in Section 5.2.6.2 of Chapter 5 of the EIAR, with the IPP watercourse crossings identified in Table 5.5 thereof. In this regard I note that all IPP watercourse crossings on the R471 will be by HDD drilling. In my inspection of the subject site I examined, inter alia, the full length of the IPP route and I note that the watercourse crossings on the R471 involve a short distance over relatively minor watercourses (size/width). In this regard I am satisfied that the temporary and short-term nature of the works, together with the best practice and mitigation measures in the CEMP informed by advance risk assessments and with use of (inert) environmentally friendly drilling fluids, will arrest pathways for effects and/or reduce possible effects to a non-significant level and that adverse effects can be prevented.

I am satisfied that the measures proposed are adequate and will be effective in ensuring that the attributes required to restore the favourable condition for Otter and Atlantic Salmon, and maintain the favourable condition for Lamprey (Brook & River), will not be adversely affected and that the proposed development will not prevent or delay the attainment or maintenance of the conservation objectives.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF)

The EIAR Biodiversity Chapter for the KWF together with the KWF NIS were considered. The KWF lies 0.51km from the proposed Oatfield Wind Farm (OAF) at its closest point and the IPP cable route in the EDA partially overlaps with the KWF grid connection. The Lower River Shannon SAC was screened in for further assessment in the KWF NIS with potential effects identified as: deterioration in water quality and supporting habitat via surface and ground pathways during construction and operation and disturbance to Otter. The KWF NIS sets out detailed mitigation which includes lighting controls, monitoring, buffers, embedded mitigation, EcOW supervision, CEMP, pre-commencement surveys etc and concludes that with the mitigation measures described no likely significant effects are anticipated alone, or in-combination with other windfarm projects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Lower River Shannon SAC.

Ballycar Wind Farm (BWF)

The EIAR Biodiversity Chapter for the BWF was considered together with the BWF NIS. The BWF is 4.15km from the proposed OAF at its closest point. The BWF substation loop-in circuits overlaps with the 1st order Kilnacreagh Stream, which is upstream of the grid connection crossing for the OAF IPP cable route. The Lower River Shannon SAC was screened in for further assessment based on potential water quality impacts. Mitigation measures are set out in both the OAF and BWF NIS to avoid any significant effects on water quality and it is concluded that there are no likely significant effects alone, or in-combination with other wind farm projects and no cumulative effects are predicted. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Lower River Shannon SAC.

Carrownagowan Wind Farm (CWF)

The EIAR Biodiversity and Ornithology Chapter of the CWF were considered together with the CWF NIS. There are no common European sites with potential for cumulative effects between CWF and the proposed OAF and therefore no cumulative effects are predicted.

Fahybeg Wind Farm (FWF)

The EIAR Biodiversity Chapter for the FWF was considered together with the FWF NIS. The FWF lies 6.04km from the proposed OAF at its closest point. The FWF GCR crosses the Blackwater (Clare_010) river over 2km downstream of the nearest OAF crossing of the same waterbody. Given the upstream distance and the absence of instream works associated with the OAF watercourse crossing, it is considered that there is no interaction likely to result in significant cumulative effects. It is noted that the construction phases of the FWF and OAF are not predicted to coincide with each other. The Lower River Shannon SAC was screened in for further assessment in the FWF NIS with potential effects identified as: water quality impacts and spread of invasive species. The FWF NIS sets out detailed mitigation which includes buffers, embedded mitigation, SuDS, CEMP, EcOW supervision, ISMP, water management and drainage measures, ERP etc and concludes that with the mitigation measures described significant effects are not anticipated and will be avoided. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Lower River Shannon SAC.

Lackareagh Wind Farm (LWF)

The EIAR Biodiversity Chapter for the LWF was considered together with the LWF NIS. The LWF lies 6.07km from the proposed OAF at its closest point and does not involve any watercourse crossings connected to the OAF. It is noted that the construction phases of the LWF and OAF will not coincide with each other. The Lower River Shannon SAC was screened in for further assessment in the LWF NIS with potential effects identified as: water quality impacts. The LWF NIS sets out detailed mitigation measures and concludes that with the implementation of mitigation measures there is no potential for significant in-combination effects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Lower River Shannon SAC.

Multi-Project Cumulative Effects

This is considered in Section 1.9.7.2 - 1.9.7.6 (inc) of the NIS and includes a list of solar farm, residential, road works and land disturbance projects identified therein. This concludes (variably) that with the adoption of mitigation measures in respective projects, separation distances between the projects, lack of impacts, the absence of direct hydrological connectivity and/or the absence of terrestrial or hydrological connectivity no cumulative impacts are considered likely to occur.

The applicants revised NIS (May 2025) concludes that consideration of wind farm developments within the 20km ZOI for cumulative effects and all proposed mitigation measures weighed to inform the likelihood and magnitude of effects, no wind farm project or projects in concert with the OAF are likely to result in significant cumulative effects on the ecological receptors within the receiving environment. In respect of other projects the applicant concluded that based on the absence of direct overlap of works and the small scale and short-term temporary duration of the closest projects that they were not likely to interact with the proposed OAF individually or cumulatively and significant cumulative effects are not considered likely to occur as a result of in-combination pathways. Having regard to all of the above said I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Lower River Shannon SAC.

Findings and conclusions

The applicant determined that following the implementation of mitigation measures the construction, operation and decommissioning of the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Lower River Shannon SAC. No direct impacts are predicted. Indirect impacts would be temporary in nature and mitigation measures are described to prevent silt runoff, other construction related pollutants (Hydrocarbons, cementitious materials, HDD fluids) and disturbance. Pre-constructions surveys and

supervision measures are proposed. I am satisfied that the mitigation measures proposed to prevent such effects have been assessed as effective and can be implemented and conditioned if permission is granted.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site integrity

The proposed development will not affect the attainment of the Conservation Objectives of the Lower River Shannon SAC. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Danes Hole, Poulnalecka SAC (000030):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) **Loss, fragmentation or degradation, or loss/reduction in connectivity, of QI habitats or plant species within or ex-situ of an SAC due to reductions in water quality or the spread of invasive species**
- (ii) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species**
- (iii) **Mortality, disturbance or displacement of QI species within or ex-situ of an SAC**

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		Section 1.9.1.3 of the NIS
Lesser Horseshoe Bat (Rhinolophus hipposideros) [1303]	To restore the favourable conservation condition of Lesser Horseshoe Bat in Danes Hole, Poulnalecka SAC Minimum number of 100 bats for the summer roost, minimum 128 for winter roost, No decline in winter roosts, summer roosts, auxiliary roosts, No significant decline in extent of potential foraging	Direct: None Indirect: The proposed development site is within the foraging range of LHB and contains habitat which is suitable for foraging and commuting by this species. There is potential for impacts on this QI species through physical removal or damage of ex-	Embedded design and best practice construction measures (CEMP) including measures to prevent light spill onto suitable foraging and commuting habitat, pollution of watercourses and to minimise the loss of suitable foraging and commuting habitat.

	habitat within 2.5km*, linear habitat within 2.5km* and no sign. Increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts. * of qualifying roosts.	situ habitat. This could adversely affect all targets of the SSCO for this species.	
Caves not open to the public [8310]	Caves not open to the public (8310) is integrally linked to lesser horseshoe bat (Rhinolophus hipposideros) (1303) as part of the habitat for the species; therefore, a separate conservation objective has not been set for the habitat in Danes Hole, Poulnalecka SAC.	Direct: None Indirect: Potential Disturbance effects.	As above.
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	To maintain the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Danes Hole, Poulnalecka SAC	None Identified There will be no loss of old sessile oak woods within the SAC or other areas of this habitat outside of the SAC as a result of the Proposed Development. This Conservation Objective will not be negatively affected by the Proposed Development as the area of oak woodland is outside of the project boundary and no habitat loss will result there as part of the Proposed Development.	None

No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests. In particular, I note those relating to Lesser Horseshoe Bat (LHB) and no significant decline in extent of potential foraging habitat or linear habitat within 2.5km of qualifying roosts and no significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

- (i) **Loss, fragmentation or degradation, or loss/reduction in connectivity, of QI habitats or plant species within or ex-situ of an SAC due to reductions in water quality or the spread of invasive species**
- (ii) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species.**

Original ecological information recorded that negligible to low activity of Lesser Horseshoe Bat (LHB), an SCI species of this SAC, was recorded during bat activity surveys (*EIAR Chapter 7 and Appendix C of the NIS include detailed results*) with a total of 11 registrations recorded. No roosts of LHB were recorded within or adjacent to the PDS and no suitable roosting habitat was identified. In its first statutory report (February 2024) the DHLGH was concerned that a minimum survey effort had been carried out given the nature, scale and proximity of the proposed development to this SAC. A winter survey was recommended to determine the use of the proposed area and any potential impact on commuting/foraging bats. The DHLGH also recommended that the SSCO's for this SAC were consulted by the applicant in the context of the potential loss of foraging habitat, potential loss of commuting linear features and potential light pollution in the context of the respective targets. The DHLGH also raised concerns in relation to the lack of a roost assessment associated with the TDR and invasive species. The applicant addressed the first DHLGH submission in its response to submissions in June 2024 in the form of Memorandum No.3 (Biodiversity) and Appendix 2 'Bat Report'. Notwithstanding the applicant's response to submissions the Commission required the applicant in Item No.3 of its further information request of 17/01/2025 to *"review this submission (DHLGH) further and demonstrate that all issues raised by the DHLGH have been addressed sufficiently and directly. Specifically, it is requested to address the absence of a winter survey for bats and an assessment of potential impacts to stated attributes and targets of the conservation objectives..."* The applicant's subsequent further information response of May 2025 included: RFI response Document (Item No.3 refers), Appendix 4 - Updated NIS and Appendix 5 – Bat Ecology Figures.

In relation to the absence of winter surveys the applicant confirmed that this was not scoped in due the proposed development lying outside the core wintering foraging habitat for LHB, which is 1.2km for hibernation roosts, with the nearest point of the redline boundary lying exactly 2km from the SAC. To address this issue the applicant undertook a further desk top review and field assessment. This included LHB activity surveys (*co-ordinated connectivity activity surveys and static detector deployments*) in April 2024 following NatureScot (2021) guidance and which overlaps with the LHB hibernation season (BCT 2010). The applicant submitted that these surveys were considered suitable to assess the use of the area by LHB during the hibernation period. The results were presented in Memorandum No.3 and the associated Bat Report (Appendix 2) in June 2024 and were further addressed in the RFI response document (May 2025). No LHB were recorded at any of the three connectivity (walkover) surveys carried out along potential commuting corridors that connect the known LHB roosts at the SAC with the PDS. Whilst the deployed static detectors recorded LHB at all four locations the within the EDA the applicant submits that the low numbers per night suggest the locations are being used as commuting pathways for small numbers.

In relation to habitat and the potential loss of foraging habitat and/or linear (commuting) features the applicant states that there will be no habitat loss within the 1.2km winter foraging range of LHB with the proposed development site located 2km from the SAC and 1.7km from the ex-situ roost to the SW of the SAC. Most habitat loss within 2.5km will be conifer plantation (cumulative loss of 9.2ha) which is of limited use for commuting and some foraging. Losses of other habitat of more value for LHB is extremely limited: 0.003ha of scrub/mixed broadleaved/conifer woodland, 0.002ha of scrub/immature woodland, 0.028ha recently felled woodland and 170m of WL1 hedgerow⁹⁵. In respect of the area of hedgerow loss, it is noted that surveying was conducted proximal to this hedgerow (3 nights) and there were no records of LHB foraging or commuting.

⁹⁵ See Fig.4 and Fig.5 of RFI Appendix 5.

The applicant concludes that the low quality of habitat losses, the limited area of habitat lost, the low levels of recorded LHB activity and the location of the PDS at the outer edge of the 2.5km buffer from the SAC indicate that there will be no potential for impact on the favourable conservation condition of the LHB at Danes Hole, Poulnalecka SAC as a result of the construction, operation and decommissioning of the proposed development. Otherwise, the applicant confirmed in respect of invasive species that an Invasive Species Management Plan (ISMP) was submitted as Appendix 7.8 to EIAR Chapter 7 and that Japanese Knotweed will be treated and removed prior to commencement of works to prevent the potential spread thereof. In relation to the TDR the applicant confirmed that Potential Roost Assessments (PRA) and emergence surveys were carried out in April 2024 which identified two water crossings with low potential for roosting bats (WC9 and WC14). As a result of emergence surveys WC9 was not identified as a bat roost. WC14 found other bat species but not LHB. In any event the watercourse crossing at WC14 does not require structural works and there is no potential for additional disturbance associated with the TDR (beyond current transport usage).

Mitigation Measures

Mitigation Measures are as set out above for River Shannon SAC for, inter alia, water quality. An ISMP is proposed for the treatment of invasive species and to prevent their spread as recommended by the DHLGH.

The applicant concludes that its additional findings in response to the DHLGH submission confirms the conclusions of the original NIS, that with the mitigation measures outlined above and the distance from qualifying features, adverse effects on the integrity of Danes Hole, Poulnalecka SAC will not occur as a result of the proposed development and that these conclusions apply to all potential turbine options within no identified difference in adverse effects. In its second statutory submission (August, 2025), the DHLGH notes the additional surveys and accepted that LHB were using the site in small numbers. The DHLGH reiterated that the proposed site is 2km from the SAC at its nearest point and will result in the loss of 901m of hedgerows (170m within the 2.5km buffer of the SAC), 300m of treelines and 21.29m of hedgerow/treelines. The DHLGH notes proposed areas for habitat management as part of a Species Habitat Management Plan (SHMP) and recommends that the existing network of commuting habitat for LHB is enhanced in the northern parcel and that gaps in hedgerow should be planted with suitable native hedging where appropriate. In its second further information request of the 23/10/2025 the Commission invited the applicant to respond to the DHLGH submission in respect of the SHMP (Item No.3 refers). The applicant responded on 23rd November 2025 and addressed this issue in Section No.2.4.5 of the RFI Response Document and set out the habitat management prescriptions for scrub and hedgerow in the SHMP and which includes, inter alia, retention of existing scrub and hedgerows, reinstatement (where there is evidence of recent removal), create new areas of scrub and hedgerow where the habitat is limited, avoid burning or herbicide use, maintain hedgerows to prevent 'escaping', plant gaps of 5m or less with native species. The applicant states that the SHMP will enhance the landscape for both foraging LHB and Hen Harrier.

In my opinion I find the collective evidence and argument presented by the applicant to be persuasive. The proposed development site is used by low or negligible numbers of LHB, and this is not disputed by the DHLGH. I find the applicants survey effort to be adequate, sufficient and proportionate given the pertinent environmental information (low numbers and distance) and note that with the additional April, 2024 survey data the DHLGH does not continue to question the survey effort. In my view the key consideration in terms of habitat loss is relation to the targets identified in the SSCO for LHB which states '*no significant decline in potential hectares of foraging habitat within 2.5km of qualifying roosts*' and '*no significant loss of linear features (kilometres) within 2.5km of qualifying roosts*'. In this regard the proposed development will result in very minimal habitat loss within the 2.5km buffer which amounts to a total of 0.033ha of value habitat. I note that the 'measurement' or 'metric' for this target is 'hectares'. In my opinion this loss is not significant either in terms of area, or in terms of the numbers of LHB using the site and which will be potentially impacted by it. I am otherwise in agreement with the applicant that the loss of conifer plantation is not of significance to this species. In this regard I note

that the most recent submission from the DHLGH did not reference habitat loss. In terms of the loss of linear (commuting) features I note that within the 2.5km buffer this amounts to a total of 170m of hedgerows. I note that the 'measurement' or 'metric' for this target is 'kilometres'. Again, in my opinion this loss is not significant in terms of linear distance, and I note that the (walkover) survey data did not record LHB proximal to this hedgerow in any event. Accordingly, I am satisfied that the minor loss of foraging habitat and linear (commuting) features within the PDS is not significant and will not adversely affect attainment of the respective SSCO or targets for same in respect of LHB. I am satisfied that this conclusion is not dependent on the SHMP and does not require or rely on mitigation. Notwithstanding I note that the SHMP will provide enhancement of linear (commuting) features which will benefit LHB.

I am satisfied that the ISMP is sufficient to address the potential spread of invasive species, and for the reasons set out in respect of the Lower Shannon River SAC I am satisfied that mitigation measures are sufficient to prevent significant effects on QI habitats or plant species within or ex-situ of this SAC as a result of potential water quality impacts. Otherwise, I accept the position of the applicant that the proposed development has no potential for effects on Old Sessile Oak Woods with Ilex and Blechnum in the British Isles given its location outside of the project boundary and that there will be no loss of this habitat within or ex-situ the SAC.

Having regard to all of the above I am satisfied that the proposed development will not result in significant habitat loss, fragmentation or degradation or loss/reduction in connectivity of QI habitats or plant species, or of suitable habitats for QI species, within or ex-situ of the SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species.

(iii) Mortality, disturbance or displacement of QI species within or ex-situ of an SAC

Given the distance between the proposed development site and the SAC, the low numbers of LHB activity recorded during surveys and that LHB is deemed to be a species of low collision risk (NatureScot, 2021), no significant effects are identified through turbine fatalities. I note that Bat Conservation Ireland supports this position in relation to collision risk, stating that "*direct rotor collision risk with wind turbines is relatively low because this species flies exceptionally close to the ground, navigating along dense linear features*" and that therefore the "*major threat is less about direct strikes and more about the destruction of functionally linked habitat, artificial lighting or fragmentation*"⁹⁶ I have already established above that the proposed development will not result in significant effects on LHB as a result of habitat loss or fragmentation and I am also satisfied for the aforesaid reasons that it will not result in a significant mortality risk. In respect of light pollution, I am satisfied that the risks of disturbance or displacement associated with same are very low. Given the separation distance between the PDS and the QI habitat 'Caves not open to the Public' within the SAC, I am satisfied that there is no potential for significant effects associated with light pollution. In addition, given the limited extent of the PDS within the 2.5km buffers for LHB, the limited works which will occur in this area, and the limited use of the PDS by LHB I am satisfied that there is very little risk for significant effects associated with light pollution.

Mitigation Measures

Mitigation measures in respect of light pollution consist of embedded design and best practice measures to minimise/avoid additional noise or light spill included in the CEMP.

Having regard to all of the above I am satisfied that the proposed development will not result in significant mortality, disturbance or displacement of QI species within or ex-situ of an SAC.

⁹⁶ Bat Conservation Ireland (BCI) 'Bat Survey, Assessment & Mitigation Guidelines for Onshore Wind Turbines in Ireland (2026).

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF)

The EIAR Biodiversity Chapter for the KWF together with the KWF NIS were considered. The KWF lies 0.51km from the proposed Oatfield Wind Farm (OAF) at its closest point and the IPP cable route in the EDA partially overlaps with the KWF grid connection. The Danes Hole, Poulnalecka SAC was screened in for further assessment in the KWF NIS with potential effects identified as: direct effects to LHB, collision risk to LHB, loss of foraging habitat, displacement of LHB via lighting.

The KWF NIS sets out detailed mitigation which includes lighting controls, monitoring, buffers, blade feathering and curtailment, embedded mitigation, EcOW supervision, CEMP, pre-commencement surveys etc and concludes that with the mitigation measures described no likely significant effects are anticipated alone, or in-combination with other windfarm projects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Danes Hole, Poulnalecka SAC.

Ballycar Wind Farm (BWF)

Danes Hole, Poulnalecka SAC was not screened in for further consideration in respect of the BWF. Accordingly, there is no potential for significant cumulative effects.

Carrownagowan Wind Farm (CWF)

The EIAR Biodiversity and Ornithology Chapter of the CWF were considered together with the CWF NIS. There are no common European sites with potential for cumulative effects between CWF and the proposed OAF and therefore no cumulative effects are predicted.

Fahybeg Wind Farm (FWF)

The EIAR Biodiversity Chapter for the FWF was considered together with the FWF NIS. The FWF lies 6.04km from the proposed OAF at its closest point. It is noted that the construction phases of the FWF and OAF are not predicted to coincide with each other. The Danes Hole Poulnalecka SAC was screened in for further assessment in the FWF NIS with potential effects identified as: barotrauma and collision risk and light pollution. The FWF NIS sets out detailed mitigation which includes buffers, embedded mitigation, SuDS, CEMP, EcOW supervision, ISMP, etc and concludes that with the mitigation measures described significant effects are not anticipated and will be avoided. Specifically, the FWF NIS concluded that there was no potential for significant effects on the QI LHB due to a lack of pathways for effect with the closest turbine outside of the core foraging range and with no operational lighting used within the core foraging range. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Danes Hole, Poulnalecka SAC.

Lackareagh Wind Farm (LWF)

The EIAR Biodiversity Chapter for the LWF was considered together with the LWF NIS. The LWF lies 6.07km from the proposed OAF. It is noted that the construction phases of the LWF and OAF will not coincide with each other. The Danes Hole, Poulnalecka SAC was not screened in for further assessment in the LWF NIS as there was no pathway for effects or ecological justification for further consideration. The LWF NIS sets out detailed mitigation measures and concludes that with the implementation of mitigation measures there is no potential for significant in-combination effects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Danes Hole, Poulnalecka SAC.

Multi-Project Cumulative Effects

As above for Lower River Shannon SAC. Having regard to same and all of the above, I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Danes Hole, Poulnalecka SAC

Findings and conclusions

The applicant determined that the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Danes Hole, Poulnalecka SAC. No direct impacts are predicted. Indirect impacts would be limited to potential disturbance effects as a result of light pollution. I am satisfied that the mitigation measures proposed to prevent such effects have been assessed as effective and can be implemented and conditioned if permission is granted.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site integrity

The proposed development will not affect the attainment of the Conservation Objectives of the Danes Hole, Poulnalecka SAC. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Ratty River Cave SAC (002316):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species**

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		Section 1.9.1.3 of the NIS.
Lesser Horseshoe Bat (Rhinolophus hipposideros) [1303]	To restore the favourable conservation condition of Lesser Horseshoe Bat in Ratty River Cave SAC Minimum number of 165 bats for the winter roost, minimum 100 for summer roost, No decline in winter roosts, summer roosts, auxiliary roosts, No	Direct: None Indirect: The proposed development site is outside the core foraging range (2.5km) but within the 'ideal' commuting range (5km) of LHB and contains habitat which is suitable for foraging and commuting by this	Embedded design and best practice construction measures (CEMP) including measures to prevent light spill onto suitable foraging and commuting habitat, pollution of watercourses and to minimise the loss of suitable foraging and commuting habitat.

	significant decline in extent of potential foraging habitat within 2.5km*, linear habitat within 2.5km* and no sign. Increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts. * of qualifying roosts.	species. There is potential for impacts on this QI species through physical removal or damage of ex-situ habitat. This could adversely affect all targets of the SSCO for this species.	
Caves not open to the public [8310]	Caves not open to the public (8310) is integrally linked to lesser horseshoe bat (Rhinolophus hipposideros) (1303) as part of the habitat for the species; therefore, a separate conservation objective has not been set for the habitat in Ratty River Cave SAC.	Direct: None Indirect: Potential Disturbance effects.	As above.

No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests. In particular, I note those relating to Lesser Horseshoe Bat (LHB) and no significant decline in extent of potential foraging habitat or linear habitat within 2.5km of qualifying roosts and no significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

- (ii) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species**

Ratty River Cave SAC qualifies on account of its populations of LHB with a hibernation roost recorded in the associated caves and a maternity roost located nearby. Regarding the hibernation roost the applicant states that the core foraging range of LHB in winter is considered to be approx. 1.2km from the core hibernation roost. As the proposed development is significantly outside the core winter foraging range for this species (4.3km), it is considered that habitat loss, degradation or fragmentation within the PDS will not affect the foraging habitat used by hibernating LHB. In relation to the maternity roost the target of the SSCO for LHB is to preserve suitable commuting and foraging habitat within 2.5km of the maternity roost and to an ideal range of 5km for commuting habitat. As the PDS is within 5km and contains suitable habitat, the applicant found that potential effects on the maternity roost needed to be considered. In this regard the applicant referred to the survey effort for LHB as detailed above for Danes Hole, Poulnalecka SAC and found that negligible to low activity of LHB was recorded within and adjacent to the proposed development and given the distance of the PDS from the SAC outside the core foraging range (2.5km) and at the outer range (4.3km) for preservation of commuting habitat

for a maternity roost (5km), the applicant did not anticipate significant effects on foraging or commuting LHB associated with this SAC.

I note that Ratty River Cave SAC was not a concern for the DHLGH in its statutory reports. Having regard to the findings above in respect of Danes Hole, Poulnalecka SAC which is more proximate to the PDS, to the applicants conclusions in the revised NIS, and to the greater remove of Ratty River Cave SAC from the PDS and significantly outside the core foraging ranges for the hibernation and maternity roost, I am satisfied that the loss of foraging or commuting habitat within the PDS and at the outer limit of the 'ideal' range for preservation of commuting habitat is not significant and will not adversely affect attainment of the respective SSCO or targets for same in respect of LHB. In reaching this conclusion I am further persuaded by the fact that LHB were only recorded within the EDA where minimal habitat loss will occur and where no bat activity was recorded proximal to hedgerow (commuting) habitat removal. Furthermore, Ratty River Cave SAC is located to the west of the PDS and is closer to the WDA where no bat activity was recorded. Only T1 and T2 are within 5km of this SAC and the nearest turbine within the EDA is in excess of 8km from this SAC.

In relation to collision risk and disturbance effects I am satisfied that the conclusions in respect of Danes Hole, Poulnalecka SAC (as above) can safely be adopted in respect of Ratty River Cave SAC and the QI Habitat 'Caves not open to the Public', particularly given the greater separation distance(s) involved. I am satisfied that the proposed development will not result in significant mortality, disturbance or displacement of QI species within or ex-situ of the SAC and that these considerations do not arise in respect of Ratty River Cave SAC.

Mitigation Measures

Mitigation Measures are as set out above for River Shannon SAC for, inter alia, water quality. An ISMP is proposed for the treatment of invasive species and to prevent their spread as recommended by the DHLGH. Mitigation measures in respect of light pollution consist of embedded design and best practice measures to minimise/avoid additional noise or light spill included in the CEMP.

Having regard to all of the above I am satisfied that the proposed development will not result in significant habitat loss, fragmentation or degradation or loss/reduction in connectivity of suitable habitats for QI species, within or ex-situ of the SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF)

The EIAR Biodiversity Chapter for the KWF together with the KWF NIS were considered. The KWF lies 0.51km from the proposed Oatfield Wind Farm (OAF) at its closest point and the IPP cable route in the EDA partially overlaps with the KWF grid connection. The Ratty River Cave SAC was screened in for further assessment in the KWF NIS with potential effects identified as: direct effects to LHB, collision risk to LHB, loss of foraging habitat, displacement of LHB via lighting.

The KWF NIS sets out detailed mitigation which includes lighting controls, monitoring, buffers, blade feathering and curtailment, embedded mitigation, EcOW supervision, CEMP, pre-commencement surveys etc and concludes that with the mitigation measures described no likely significant effects are anticipated alone, or in-combination with other windfarm projects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Ratty River Cave SAC.

Carrownagowan Wind Farm (CWF), Ballycar Wind Farm (BWF), Fahybeg Wind Farm (FWF) and Lackareagh Wind Farm (LWF)

The Ratty River Cave SAC was not identified as a common European site with potential for cumulative effects between these wind farms and the proposed OAF and therefore no cumulative effects are predicted.

Multi-Project Cumulative Effects

As above for Lower River Shannon SAC. Having regard to same and all of the above, I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Ratty River Cave SAC.

Findings and conclusions

The applicant determined that the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Ratty River Cave SAC. No direct or indirect impacts 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 of the Conservation Objectives of the Ratty River Cave SAC. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Kilkishen House SAC (002319):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species**

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives Targets and attributes (summary)	Potential adverse effects	Mitigation measures (summary) Section 1.9.1.3 of the NIS.
Lesser Horseshoe Bat (Rhinolophus hipposideros) [1303]	To restore the favourable conservation condition of Lesser Horseshoe Bat in Kilkishen House SAC. Minimum number of 100 bats for the summer roost,	Direct: None Indirect: The proposed development site is outside the core foraging range (2.5km) but within the 'ideal' commuting range (5km) of LHB and	Embedded design and best practice construction measures (CEMP) including measures to prevent light spill onto suitable foraging and commuting habitat, pollution of watercourses and to minimise the loss of

	minimum 441 for winter roost, No decline in winter roosts, summer roosts, auxiliary roosts, No significant decline in extent of potential foraging habitat within 2.5km*, linear habitat within 2.5km* and no sign. Increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts. <i>* of qualifying roosts.</i>	contains habitat which is suitable for foraging and commuting by this species. There is potential for impacts on this QI species through physical removal or damage of ex-situ habitat. This could adversely affect all targets of the SSCO for this species.	suitable foraging and commuting habitat.
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No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests. In particular, I note those relating to Lesser Horseshoe Bat (LHB) and no significant decline in extent of potential foraging habitat or linear habitat within 2.5km of qualifying roosts and no significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

- (i) **Loss, degradation, fragmentation or reduction/loss of connectivity of suitable habitats for QI species, within or ex-situ of an SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species**

This SAC was not 'screened in' by the applicant for further consideration in the NIS. However, I decided to screen this SAC in at Stage 1 Screening Stage as it was located at the outer limit, and the roost numbers just below, the values where retention of linear landscape features is recommended by best practice (5km). Therefore, applying the precautionary principle, I considered that the potential for impacts on this QI species through physical removal, degradation or fragmentation of ex-situ foraging or commuting habitat required further consideration.

This SAC is located approx. 5.2km from the nearest turbine (T1) in the WDA (to the northwest) and is approx. 7.5km from the nearest turbine (T11) in the EDA. Having regard to the absence of recorded LHB activity in the WDA which is at the outer limit of 5km, and the low levels of recorded LHB activity in the EDA which is in excess of the best practice 5km value for retention of linear landscape features I am satisfied that significant loss of foraging or commuting habitat will not occur as a result of the proposed development and the proposed development will not adversely affect attainment of the respective SSCO or targets for same in respect of LHB.

I am satisfied that the conclusions of Ratty River Cave SAC in respect of mortality and disturbance can safely be adopted in respect of Kilkishen House SAC particularly given the greater separation distance(s) involved. I am satisfied that the proposed development will not result in significant mortality, disturbance or displacement of QI species within or ex-situ of the SAC and that these considerations do not arise in respect of Kilkishen House SAC.

Mitigation Measures

Mitigation Measures are as set out above for River Shannon SAC for, inter alia, water quality. An ISMP is proposed for the treatment of invasive species and to prevent their spread as recommended by the DHLGH. Mitigation measures in respect of light pollution consist of embedded design and best practice measures to minimise/avoid additional noise or light spill included in the CEMP.

Having regard to all of the above I am satisfied that the proposed development will not result in significant habitat loss, fragmentation or degradation or loss/reduction in connectivity of suitable habitats for QI species, within or ex-situ of the SAC due to physical landcover change or damage via reductions in water quality or the spread of invasive species.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF), Ballycar Wind Farm (BWF), Carrownagowan Wind Farm (CWF), Fahybeg Wind Farm (FWF) and Lackareagh Wind Farm (LWF)

The Kilkishen House SAC was not identified as a common European site with potential for cumulative effects between these wind farms and the proposed OAF and therefore no cumulative effects are predicted.

Multi-Project Cumulative Effects

As above for Lower River Shannon SAC. Having regard to same and all of the above, I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Kilkishen House SAC.

Findings and conclusions

Based on the information provided and otherwise available, I am satisfied that adverse effects arising from the proposed development can be excluded for the Kilkishen House SAC. No direct or indirect impacts 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 of the Conservation Objectives of the Kilkishen House SAC. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

River Shannon and River Fergus Estuaries SPA (004077):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) Loss, degradation, fragmentation of suitable habitats for SCI species ex-situ of an SPA due to landcover change;
- (ii) Disturbance/displacement or mortality of SCI species ex-situ of an SPA;

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		Section 1.9.1.3 of the NIS

Cormorant (breeding + wintering) (<i>Phalacrocorax carbo</i>) [A017]	To maintain the favourable conservation condition of Cormorant in the River Shannon and River Fergus Estuaries SPA <i>No significant decline in breeding population, productivity, distribution, and prey. No significant increase in barriers to connectivity. No adverse effects from Human activity. Long term population trend stable or increasing. No significant decrease in the range, timing or intensity of use of areas by (non-breeding) cormorant.</i>	The proposed development is within the typical foraging and migrating range for this species. This results in potential for indirect effects from ex-situ habitat loss, disturbance/displacement.	Best practice construction measures as detailed in the CEMP. This includes measures to avoid/minimise: - unnecessary habitat removal/alteration and disturbance, - the generation of noise, dust, light spill and vibration, and - pollution of water bodies. Construction Methodologies. Appointment of ECoW with responsibility for pre-construction surveys, advice and guidance, management oversight and authority to suspend works. Buffers of 15m from minor watercourses/land drains, 50m from watercourses.
Whooper Swan (wintering) (<i>Cygnus cygnus</i>) [A038]	To maintain the favourable conservation condition of Whooper Swan in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or intensity of use of areas by Whooper Swan.</i>	As above for Cormorant.	As above.
Wigeon (wintering) (<i>Anas penelope</i>) [A050]	To maintain the favourable conservation condition of Wigeon in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in</i>	As above for Cormorant.	As above.

	<i>range, timing or intensity of use of areas by Widgeon.</i>		
Golden Plover (wintering) (<i>Pluvialis apricaria</i>) [A140]	To maintain the favourable conservation condition of Golden Plover in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or intensity of use of areas by Golden Plover.</i>	The proposed development is within the typical foraging and migrating range for this species. This results in potential for indirect effects from ex-situ habitat loss, disturbance/displacement and mortality as a result of collisions with turbines.	As above.
Lapwing (wintering) (<i>Vanellus vanellus</i>) [A142]	To maintain the favourable conservation condition of Lapwing in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or intensity of use of areas by Lapwing.</i>	As above for Cormorant.	As above.
Curlew (wintering) (<i>Numenius arquata</i>) [A160]	To maintain the favourable conservation condition of Curlew in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or intensity of use of areas by Curlew.</i>	As above for Cormorant.	As above.
Redshank (wintering) (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition of Redshank in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or</i>	As above for Cormorant.	As above.

	<i>intensity of use of areas by Redshank.</i>		
Black-headed Gull (wintering) (<i>Chroicocephalus ridibundus</i>) [A179]	To maintain the favourable conservation condition of Black-headed Gull in the River Shannon and River Fergus Estuaries SPA. <i>Long term population trend stable or increasing. No significant decrease in range, timing or intensity of use of areas by Black-headed Gull.</i>	As above for Cormorant.	As above.
Other QI's	Not at Risk	Rationale for Exclusion:	
Light-bellied Brent Goose (wintering) (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in the River Shannon and River Fergus Estuaries SPA.	Not recorded in detailed ornithological field surveys undertaken between 2021 and 2023.	
Shelduck (wintering) (<i>Tadorna tadorna</i>) [A048]	To maintain the favourable conservation condition of Shelduck in the River Shannon and River Fergus Estuaries SPA.	As above.	
Teal (wintering) (<i>Anas crecca</i>) [A052]	To maintain the favourable conservation condition of Teal in the River Shannon and River Fergus Estuaries SPA.	As above.	
Pintail (wintering) (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition of Pintail in the River Shannon and River Fergus Estuaries SPA.	As above.	
Shoveler (wintering) (<i>Anas clypeata</i>) [A056]	To maintain the favourable conservation condition of Shoveler in the River Shannon and River Fergus Estuaries SPA.	As above.	
Scaup (wintering) (<i>Aythya marila</i>) [A062]	To maintain the favourable conservation condition of Scaup in the River Shannon and River Fergus Estuaries SPA.	As above.	
Ringed Plover (wintering) (<i>Charadrius hiaticula</i>) [A137]	To maintain the favourable conservation condition of Ringed Plover in the River Shannon and River Fergus Estuaries SPA.	As above.	
Grey Plover (wintering) (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition of Grey Plover in	As above.	

	the River Shannon and River Fergus Estuaries SPA.	
Bar-tailed Godwit (wintering) (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition of Bar-tailed Godwit in the River Shannon and River Fergus Estuaries SPA.	As above.
Greenshank (wintering) (<i>Tringa nebularia</i>) [A164]	To maintain the favourable conservation condition of Greenshank in the River Shannon and River Fergus Estuaries SPA.	As above.
Wetlands and Waterbirds [A999]	To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	As above.

No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

It is noted that the ornithological field surveys undertaken between 2021 and 2023 recorded very low numbers of Cormorant, Whooper Swan, Wigeon, Lapwing, Curlew, Redshank and Black-headed Gull, with records at locations distant from the PDS. In addition, whilst habitats within and adjacent to the PDS are suitable for Lapwing and Curlew, they are relatively limited in extent and quality. Field survey results also indicated that land within and adjacent to the PDS was not used by significant numbers of waterbirds with regard to the designated assemblage of the SPA. Considering the status of these species and embedded project mitigation to minimise/avoid habitat loss, fragmentation or disturbance, the applicant concluded that there was no potential for adverse effects.

I am satisfied that the site is of no ecological importance to these species and consequently that there is no potential for adverse effect via habitat loss, degradation, fragmentation or disturbance, displacement or mortality.

It is considered therefore that the main potential risk of adverse effects pertains to the one remaining SCI species Golden Plover.

Mitigation Measures

The focus of mitigation was based on an iterative process of constraints-led design to avoid important ecological features, and the project design includes best practice construction measures to minimise potential impacts on relevant habitats and species. These are detailed in the CEMP and include measures to minimise working areas to avoid unnecessary habitat removal/alteration and disturbance, measures to avoid/minimise the generation of additional noise, dust, light spill and vibration and measures to avoid pollution of waterbodies within and adjacent to the proposed development site. All plant and machinery will comply with specific noise legislation (Construction Plan and Equipment Permissible Noise Levels (Amendment) Regulations, 1996) and works will avoid the use of artificial lighting in sensitive habitat. An ISMP is proposed for the treatment of invasive species and to prevent their spread as recommended by the DHLGH.

(i) Loss, degradation, fragmentation of suitable habitats for SCI species ex-situ of an SPA due to landcover change;

Golden Plover was recorded within and adjacent to the PDS in high numbers with a peak count of 146 Golden Plovers during a single survey visit only (10th October 2022). During the two years of surveys undertaken the no individuals of this species were recorded within or in close proximity to the PDS. The activity which was recorded was confined to flights over the PDS and adjacent land and with no use of the PDS for roosting or foraging. The numbers recorded equated to 2.58% of the cited SPA population for this species and indicates that the PDS is visited infrequently by this species. The applicant concluded that the TDR, extending to 380m from the SPA, did not involve scope for significant effects. For this reason and based on project mitigation to minimise/avoid habitat loss, fragmentation or disturbance, the applicant concluded that there was no potential for adverse effects on this species.

I agree with the applicant's conclusion in this regard and I am satisfied that the site is not of ecological importance to Golden Plover on the basis of the available ecological information and consequently there is no potential for adverse effects as a result of habitat loss, degradation or fragmentation.

(ii) Disturbance/displacement or mortality of SCI species ex-situ of an SPA;

Collision Risk Modelling (CRM) was undertaken on a precautionary basis for Golden Plover. Modelled collision fatalities for the species are estimated at 0.04 birds per year equating to one Golden Plover collision every 24.46 to 27.63 years. The applicant finds that this figure considered in the context of the cited SPA population (5,664 Golden Plovers) and against background mortality rates for this species (27% annually, BTO2023), this did not constitute sufficient collisions to represent an adverse effect on the SPA population. I note that this presume that all 146 Golden Plovers flying over the PDS were associated with the SPA population and that the conclusions apply to all potential turbine options with no difference in adverse effects between them. The applicant otherwise concludes that species activity during surveys is not such that significant effects through disturbance or displacement are likely and that the TDR, extending to 380m from the SPA, did not involve scope for significant effects. For these reasons and based on project mitigation to minimise/avoid habitat loss, fragmentation or disturbance, the applicant concluded that there was no potential for adverse effects on this species.

I agree with the applicant's conclusion in this regard, and I am satisfied that there is no potential for adverse effects as a result of collision risk, disturbance or displacement.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF)

The EIAR Biodiversity Chapter for the KWF together with the KWF NIS were considered. The KWF lies 0.51km from the proposed Oatfield Wind Farm (OAF) at its closest point and the IPP cable route in the EDA partially overlaps with the KWF grid connection. The River Shannon and River Fergus Estuaries SPA was screened in for further assessment in the KWF NIS with potential effects identified as: deterioration in water quality and supporting habitat via surface and ground pathways. The KWF NIS sets out detailed mitigation which includes

lighting controls, monitoring, buffers, embedded mitigation, EcOW supervision, CEMP, pre-commencement surveys etc and concludes that with the mitigation measures described no likely significant effects are anticipated alone, or in-combination with other windfarm projects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the River Shannon and River Fergus Estuaries SPA.

Ballycar Wind Farm (BWF)

The EIAR Biodiversity Chapter for the BWF was considered together with the BWF NIS. The BWF is 4.15km from the proposed OAF at its closest point. The BWF substation loop-in circuits overlaps with the 1st order Kilnacreagh Stream, which is upstream of the grid connection crossing for the OAF IPP cable route. The River Shannon and River Fergus Estuaries SPA was screened in for further assessment based on potential water quality impacts. Mitigation measures are set out in both the OAF and BWF NIS to avoid any significant effects on water quality and it is concluded that there are no likely significant effects alone, or in-combination with other wind farm projects and no cumulative effects are predicted. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the River Shannon and River Fergus Estuaries SPA.

Carrownagowan Wind Farm (CWF)

The EIAR Biodiversity and Ornithology Chapter of the CWF were considered together with the CWF NIS. There are no common European sites with potential for cumulative effects between CWF and the proposed OAF and therefore no cumulative effects are predicted.

Fahybeg Wind Farm (FWF)

The EIAR Biodiversity Chapter for the FWF was considered together with the FWF NIS. The FWF lies 6.04km from the proposed OAF at its closest point. It is noted that the construction phases of the FWF and OAF are not predicted to coincide with each other. The River Shannon and River Fergus Estuaries SPA was screened in for further assessment in the FWF NIS with potential effects identified as: water quality impacts and spread of invasive species. The FWF NIS sets out detailed mitigation which includes buffers, embedded mitigation, SuDS, CEMP, EcOW supervision, ISMP, water management and drainage measures, ERP etc and concludes that with the mitigation measures described significant effects are not anticipated and will be avoided. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the River Shannon and River Fergus Estuaries SPA.

Lackareagh Wind Farm (LWF)

The EIAR Biodiversity Chapter for the LWF was considered together with the LWF NIS. The LWF lies 6.07km from the proposed OAF at its closest point and does not involve any watercourse crossings connected to the OAF. It is noted that the construction phases of the LWF and OAF will not coincide with each other. The River Shannon and River Fergus Estuaries SPA was screened in for further assessment in the LWF NIS with potential effects identified as: water quality impacts. The LWF NIS sets out detailed mitigation measures and concludes that with the implementation of mitigation measures there is no potential for significant in-combination effects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the River Shannon and River Fergus Estuaries SPA.

Multi-Project Cumulative Effects

This is considered in Section 1.9.7.2 - 1.9.7.6 (inc) of the NIS and includes a list of solar farm, residential, road works and land disturbance projects identified therein. This concludes (variably) that with the adoption of mitigation measures in respective projects, separation distances between the projects, lack of impacts, the absence of direct hydrological connectivity and/or the absence of terrestrial or hydrological connectivity no cumulative impacts are considered likely to occur.

The applicants revised NIS (May 2025) concludes that consideration of wind farm developments within the 20km ZOI for cumulative effects and all proposed mitigation measures weighed to inform the likelihood and

magnitude of effects, no wind farm project or projects in concert with the OAF are likely to result in significant cumulative effects on the ecological receptors within the receiving environment. In respect of other projects the applicant concluded that based on the absence of direct overlap of works and the small scale and short-term temporary duration of the closest projects that they were not likely to interact with the proposed OAF individually or cumulatively and significant cumulative effects are not considered likely to occur as a result of in-combination pathways. Having regard to all of the above said I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the River Shannon and River Fergus Estuaries SPA.

Findings and conclusions

Based on the information provided and otherwise available, I am satisfied that adverse effects arising from the proposed development can be excluded for the River Shannon and River Fergus Estuaries SPA. No direct or indirect impacts 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 of the Conservation Objectives of the River Shannon and River Fergus Estuaries SPA. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Lough Derg (Shannon) SPA (004058):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) Loss, degradation, fragmentation of suitable habitats for SCI species ex-situ of an SPA due to landcover change;
- (ii) Disturbance/displacement or mortality of SCI species ex-situ of an SPA;

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		See Section 1.9.1.3 of the NIS
Cormorant (<i>Phalacrocorax carbo</i>) [A017]	To restore the Favourable conservation condition of Cormorant in Lough Derg (Shannon) SPA. <i>Long term breeding population trend is stable or increasing. (Sufficient nesting sites throughout SPA,</i>	Direct: None Indirect: Whilst the PDS is outside the typical foraging range for the SCI bird species of this SPA (12km) a significant	Best practice construction measures as detailed in the CEMP. This includes measures to avoid/minimise: unnecessary habitat removal/alteration and disturbance,

	<i>sufficient locations, habitat and forage biomass, absence of disturbance and no significant increase in barriers to connectivity with waters ecologically connected to colony).</i>	(migration) flight path through the proposed turbines could result in disturbance, displacement or mortality effects. The TDR at 2.1km from the SPA could also result in disturbance or displacement effects or ex-situ habitat effects.	- the generation of noise, dust, light spill and vibration, and - pollution of water bodies. Construction Methodologies. Appointment of ECoW with responsibility for pre-construction surveys, advice and guidance, management oversight and authority to suspend works. Buffers of 15m from minor watercourses/land drains, 50m from watercourses.
Tufted Duck (<i>Aythya fuligula</i>) [A061]	To maintain the Favourable conservation condition of Tufted Duck at Lough Derg (Shannon) SPA. <i>Long term winter population trend is stable or increasing. (Sufficient habitat, sufficient locations, habitat and forage biomass, absence of disturbance and barriers to connectivity do not impact access to SPA or ecologically important sites).</i>	As above.	As above.
Goldeneye (<i>Bucephala clangula</i>) [A067]	To maintain the Favourable conservation condition of Goldeneye at Lough Derg (Shannon) SPA. <i>Long term winter population trend is stable or increasing. (Sufficient habitat, sufficient locations, habitat and forage biomass, absence of disturbance and barriers to connectivity do not impact access to SPA or ecologically important sites).</i>	As above.	As above.

Common Tern (<i>Sterna Hirundo</i>) [A193]	To restore the Favourable conservation condition of Common Tern in Lough Derg (Shannon) SPA. <i>Long term SPA population trend if stable or increasing. (Sufficient productivity rate, sufficient nesting sites, Sufficient habitat, sufficient locations, habitat and forage biomass, absence of disturbance and no significant increase in barriers to connectivity)</i>	As above.	As above.
Wetlands and Waterbirds [A999]	To maintain the Favourable conservation condition of Wetland habitats in Lough Derg (Shannon) SPA as a resource for the regularly occurring migratory waterbirds that utilise these areas. <i>No significant loss to wetland habitat, and no significant impact on the quality or functioning of the wetland habitat.</i>	As above.	As above.

No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

This SPA was included for further consideration on the basis of the precautionary principle. The ecological information recorded shows that no significant use of the PDS, or flight routes through the PDS, by qualifying SCI species was recorded during detailed field surveys for breeding and wintering birds. Otherwise, the applicant concludes that considering the limited scope for potential effects from the TDR and its distance at 2.1km from the SPA, there is no potential for significant effects. On this basis the applicant concludes that there is not potential for adverse effects on the integrity of the Lough Derg (Shannon) SPA.

This SPA is approx. 12.1km from the PDS. I agree with the applicant's conclusion and I am satisfied that the site is not of ecological importance to SCI bird species of this SPA on the basis of the available ecological information and consequently there is no potential for adverse effects as a result of habitat loss, degradation or fragmentation, collision risk, disturbance or displacement.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Lackareagh Wind Farm (LWF)

The EIAR Biodiversity Chapter for the LWF was considered together with the LWF NIS. The LWF lies 6.07km from the proposed OAF at its closest point. It is noted that the construction phases of the LWF and OAF will not coincide with each other. The Lough Derg (Shannon) SPA was screened in for further assessment in the LWF NIS with potential effects identified as: water quality impacts. The LWF NIS sets out detailed mitigation measures and concludes that with the implementation of mitigation measures there is no potential for significant in-combination effects. Having regard to same, and on the basis that the applicant has demonstrated that no significant residual effects will remain post the application of mitigation measures in respect of the proposed OAF, I am satisfied that there is no potential for in-combination effects on the Lough Derg (Shannon) SPA.

Knockshavno Wind Farm (KWF), Ballycar Wind Farm (BWF), Carrownagowan Wind Farm (CWF) and Fahybeg Wind Farm (FWF)

The Lough Derg (Shannon) SPA was not identified as a common European site with potential for cumulative effects between these wind farms and the proposed OAF and therefore no cumulative effects are predicted.

Multi-Project Cumulative Effects

As above for Lower River Shannon SAC. Having regard to same and all of the above, I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Lough Derg (Shannon) SPA.

Findings and conclusions

The applicant determined that the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Lough Derg (Shannon) SPA. No direct or indirect impacts are predicted. I am satisfied that the wind farm site is not of ecological importance to SCI bird species for this SPA and that there is no pathway for effects on this SPA, its SCI species or their supporting wetland habitats.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site integrity

The proposed development will not affect the attainment of the Conservation Objectives of the Lough Derg (Shannon) SPA. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Slievefelim to Silvermines Mountains SPA (004165):

Summary of Key issues that could give rise to adverse effects (from screening stage):

- (i) Loss, degradation, fragmentation of suitable habitats for SCI species ex-situ of an SPA due to landcover change;
- (ii) Disturbance/displacement of SCI species ex-situ of an SPA;

See Section 1.8 of the NIS

Qualifying Interest features likely to be affected	Conservation Objectives	Potential adverse effects	Mitigation measures (summary)
	Targets and attributes (summary)		See Section 1.9.1.3 of the NIS
Hen Harrier (<i>Circus cyaneus</i>) [A082]	To restore the favourable conservation condition of hen harrier in Slievefelim to Silvermines Mountains SPA Maintain population size at 4-8 confirmed breeding pair, restore productivity rate, maintain spatial utilisation of the SPA, restore the extent and quantity of heath bog and associated habitats, low intensity managed grasslands, maintain the length and quantity of hedgerows, achieve an even and consistent distribution of age structure across the forest estate, disturbance occurs at levels that do not sig. impact breeding Hen Harrier.	Direct: None Indirect: As the PDS (at 15km) is safely outside the typical foraging range for Hen Harrier (10km, SNH, 2016) there is no potential for sig. effects from the wind farm or GCR. Although unlikely, the TDR at 3.8km from the SPA could also result in disturbance or displacement effects or ex-situ habitat effects.	Best practice construction measures as detailed in the CEMP. This includes measures to avoid/minimise: - unnecessary habitat removal/alteration and disturbance, - the generation of noise, dust, light spill and vibration, and - pollution of water bodies. Construction Methodologies. Appointment of ECoW with responsibility for pre-construction surveys, advice and guidance, management oversight and authority to suspend works. Buffers of 15m from minor watercourses/land drains, 50m from watercourses.

No other QIs were excluded.

The above table is based on the documentation and information provided on the file and that available at www.NPWS.ie and I am satisfied that the submitted NIS has identified the relevant attributes and targets of the Qualifying Interests.

Assessment of issues that could give rise to adverse effects in view of conservation objectives:

This SPA was included for further consideration on the basis of the precautionary principle and in relation to potential effects associated with the TDR, particularly in relation to the habitats, hedgerow and disturbance targets of the SSCO. The applicant concludes that considering the limited scope for potential effects from the TDR, embedded mitigation measures and its distance at 3.8km from the SPA, there is no potential for significant effects. On this basis the applicant concludes that there is no potential for adverse effects on the integrity of the Slievefelim to Silvermines Mountains SPA.

This SPA is approx. 15km from the PDS. I agree with the applicant's conclusion and I am satisfied that the site is not of ecological importance to SCI bird species of this SPA on the basis of the available ecological

information and consequently there is no potential for adverse effects as a result of habitat loss, degradation or fragmentation, collision risk, disturbance or displacement be that associated with the TDR or other.

N.B. the Hen Harrier activity which was recorded during the surveys is not associated with the population of the Slievefelim to Silvermines Mountains SPA. This population is assessed separately in the Ornithological section of the EIA of my Inspectors report.

In-combination effects

I am satisfied that in-combination effects have been assessed adequately in the revised NIS (Section 1.9.7.1) (May 2025). The proposed grid connection has been assessed as part of the overall project.

Knockshavno Wind Farm (KWF), Ballycar Wind Farm (BWF), Carrownagowan Wind Farm (CWF), Lackareagh Wind Farm (LWF) and Fahybeg Wind Farm (FWF)

The Slievefelim to Silvermines Mountains SPA was not identified as a common European site with potential for cumulative effects between these wind farms and the proposed OAF and therefore no cumulative effects are predicted.

Multi-Project Cumulative Effects

As above for Lower River Shannon SAC. Having regard to same and all of the above, I am satisfied that the potential in-combination effects have been robustly assessed in the revised NIS (May 2025) and that there is no potential for in-combination effects on the Slievefelim to Silvermines Mountains SPA.

Findings and conclusions

The applicant determined that the proposed development alone, or in combination with other plans and projects, will not adversely affect the integrity of this European site.

Based on the information provided, I am satisfied that adverse effects arising from the proposed development can be excluded for the Slievefelim to Silvermines Mountains SPA. No direct or indirect impacts are predicted. I am satisfied that the wind farm site is not of ecological importance to the SCI bird species for this SPA and that there is no pathway for effects on this SPA, its SCI species or supporting habitats.

Reasonable scientific doubt

I am satisfied that no reasonable scientific doubt remains as to the absence of adverse effects.

Site integrity

The proposed development will not affect the attainment of the Conservation Objectives of the Slievefelim to Silvermines Mountains SPA. Adverse effects on site integrity can be excluded and no reasonable scientific doubt remains as to the absence of such effects.

Appropriate Assessment Conclusion: Integrity Test

In screening the need for Appropriate Assessment, it was determined that the proposed development could result in significant effects on Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) in view of the conservation objectives of those sites and that Appropriate Assessment under the provisions of S177U was required.

Following an examination, analysis and evaluation of the NIS, all associated material submitted, and taking into account observations on nature conservation, I consider that adverse effects on site integrity of the Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) can be excluded in view of the conservation objectives of these sites and that no reasonable scientific doubt remains as to the absence of such effects.

My conclusion is based on the following:

- Detailed assessment of construction, operational and decommissioning impacts.
- The respective site-specific conservation objectives, targets, attributes, QI's and SCI's of the respective European Sites as detailed and assessed in my Stage 2 AA as appended to this report (Appendix 2).
- The proposed development will not affect the attainment of conservation objectives for the Lower River Shannon SAC (002165), Danes Hole, Poulnalecka SAC (000030), Ratty River Cave SAC (002316), Kilkishen House SAC (002319), River Shannon and River Fergus Estuaries SPA (004077), Lough Derg (Shannon) SPA (004058), and Slievefelim to Silvermines Mountains SPA (004165) or prevent or delay the restoration of favourable conservation condition for Atlantic Salmon, Otter or Alluvial Forests with *Alnus Glutinosa* and *Fraxinus excelsior* (Lower River Shannon SAC), Lesser Horseshoe Bat (River Shannon SAC), (Ratty River Cave SAC) or (Kilkishen House SAC), Cormorant or Common Tern (Lough Derg (Shannon) SPA), or Hen Harrier (Slievefelim to Silvermines Mountains SPA)
- Effectiveness of embedded project design mitigation measures proposed in relation to Habitat alteration, removal and disturbance, the generation of noise, dust, light spill and vibration, and the pollution of waterbodies which are primarily captured within the CEMP

which will govern the construction of the project under the supervision of an appropriately qualified Ecological Clerk of Works with supporting hydrological engineer.

Paul Kelly

Senior Planning Inspector

15th July 2026

Appendix A : Third Party Submissions Received in respect of ABP-318782-24

1.	12 O'Clock Hills Recreational & Heritage Project	2.	Adrian Cleary	3.	Aidan O'Brien
4.	Aisling Fitzgerald	5.	Alan & Deirdre O'Neill	6.	Alex O'Connor
7.	Anand & Helen Quinn	8.	Andrew White	9.	Ann Barron
10.	Anne & Anthonillis Manoras	11.	Anne Fitzgerald	12.	Anne-Marie Murphy
13.	Aoife McNamara	14.	Aoife Wogan	15.	Aonghus O'Brien
16.	Baiba Strazdina	17.	Barry Murphy	18.	Batt Skehan
19.	Bernadette Kiely	20.	Bernie Quilligan	21.	Bev & Paul Truss
22.	Brian Kelleher	23.	Brian O'Neill	24.	Bryan Nestor
25.	Caoilfhionn Nic Giolla Cearra	26.	Carmel Peacock	27.	Cathal Crowe TD
28.	Charles & Elaine Ahern	29.	Christopher & Rosemary Dillon	30.	Ciara Byrnes
31.	Collette Ward	32.	Colm Kavanagh	33.	Conor McManus
34.	Darena Wood	35.	Darren & Trish McGregor	36.	David & Karen O'Connor
37.	David & Laura Collins	38.	David & Sharon Fitzgerald	39.	Dawn Cottam
40.	Declan and Sarah Donovan	41.	Deirdre O'Farrell	42.	Denis Mulqueen
43.	Denise Fitzgerald	44.	Denise Mangan-Fahy	45.	Donal O'Donoghue
46.	Donna McGettigan	47.	Dr Dermot Nolan	48.	Dr. Siobhan Johnston
49.	Dr. Susan Crawford	50.	East Clare Environment Protection CLG	51.	Eimear O'Brien
52.	Elaine Dalton on behalf of 12'O Clock Hills Community Conservation Group	53.	Elaine O'Brien	54.	Elaine Phelan
55.	Elizabeth Higgins	56.	Emer O'Cearbhaill	57.	Fergal O'Brien
58.	Fionn Mac Giolla Cerara	59.	Flan Quilligan	60.	Frank O'Grady
61.	Gary Johnston	62.	Ger Cremins	63.	Geraldine Flynn
64.	Geraldine Moroney	65.	Gerard Grace	66.	Gerusha Hickey
67.	Grace Savage	68.	Gregor MacAdam	69.	Heike Griffin
70.	Helen Seago and Gearoid O'Sullivan	71.	Helena O'Neill and Robert Cantillon	72.	Henry Barry
73.	Ian and Thelma Chaplin	74.	Isabel O'Connell	75.	Ivan Hornak
76.	Ivan O'Connell	77.	James Gunning	78.	Jennifer Huang
79.	Jim Fitzgerald	80.	Jim White	81.	Joanna Gammell
82.	Joanna Lee and family	83.	Joe Colville	84.	John and Martina Ryan
85.	John Cassidy	86.	John Lyons	87.	John Neville
88.	John White	89.	Jonathan Cronin	90.	Joseph Ryan
91.	Karen & David Humphreys	92.	Karen Meehan	93.	Karl Skehan
94.	Ken & Linda Lynch	95.	Kieran McCann	96.	Laura MacMahon
97.	Leslie Ryan Hurley and Family	98.	Liam Kilcoyne	99.	Louise Stack O'Connell
100.	Lourda Doyle	101.	Mairead Burke	102.	Margaret Crawford
103.	Margaret Dwane	104.	Margaret Hogan	105.	Maria Lockett
106.	Mark Byrne	107.	Martina Ryan	108.	Mary Fitzgerald
109.	Matt Corron	110.	Maureen Fitzgerald	111.	Maureen Murphy

112.	Maurice & Helen Carroll & Family	113.	Michael and Bernie Johnston	114.	Michael and Lavinia McNamara and family
115.	Michael Broughton	116.	Michael Collins and Katie Hickey	117.	Michael Dwane
118.	Michael Moore	119.	Michael Punch and Carmel Punch	120.	Michelle Clarke
121.	Neil Mac Giolla Cearra	122.	Nick & Helen Billingham	123.	Noel Durack
124.	Noel Fitzgerald	125.	Noreen Crawford	126.	Noreen Skehan
127.	Norma O'Neill	128.	Orlaith Nihill and Others	129.	Padraig Cotter
130.	Padraig Heffernan	131.	Padraig Moroney	132.	Pamela Bartley
133.	Parisch Browne	134.	Pat O'Brien	135.	Patricia Quilligan
136.	Patrick and Deirdre Skeehan	137.	Patrick Hogan	138.	Patrick Joseph Donnellan
139.	Paul and Linda Maher	140.	Paul and Marguerita Heffernan	141.	Paul McNamee
142.	Peter and Sarah O'Brien	143.	Peter Carey	144.	Peter Sweetman (Wild Ireland Defence CLG)
145.	Petrus Peek & Henrica Van Broekhoven	146.	Philip O'Dea	147.	PJ Mason
148.	Ray and Mandy Neilon	149.	Ray Cordon	150.	Rebecca Clery
151.	Ross Whitmarsh	152.	Sarah Ward Murphy	153.	Seamus Gammell
154.	Shane O'Connell	155.	Sinead Cobbe	156.	Sinead White
157.	Sorcha De Eyto and Family	158.	Stefania Russell	159.	Tara O'Brien
160.	The Roche Family	161.	Theresa and Patrick Derek O'Connell	162.	Therese White
163.	Thomas Milane	164.	Tim Foley	165.	Timmy Dooley
166.	Tom and Caroline Murphy	167.	Tony and Michelle Kiely	168.	Trina Cooney
169.	Ultan and Triona Heffernan	170.	Ute & Konrad Rumberger	171.	Vera Vaughan
172.	Veronica & Mark Borri	173.	Veronica Moynihan	174.	Victoria Woodhouse & Shaun Michael Fitzpatrick
175.	Vincent McInerney	176.	Vinny McInerney	177.	Vito Romito
178.	Willie Wixted	179.	Wyn Griffiths	180.	Yvonne Hudson

Appendix B: Third Party (Further Information) Submissions Received in respect of ABP-318782-24

1.	Jim Fitzgerald	2.	Adrian & Rebecca Clery	3.	Aidan O'Brien
4.	Bev Truss	5.	Brian O'Neill	6.	East Clare Environment Protection CLG
7.	Pamela Bartley	8.	Mary Fitzgerald	9.	Nick & Helen Billingham
10.	Norma O'Neill	11.	Patrick Joseph Donnellan	12.	Seamus Gammell and Family
13.	Teresa & Patrick Derek O'Connell.				