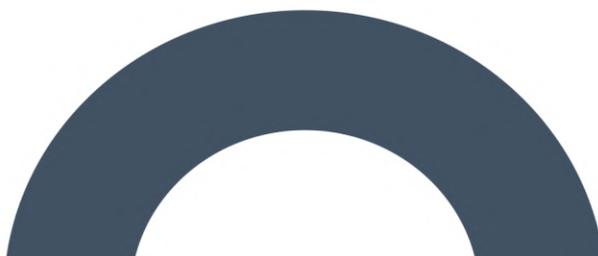


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# **Environmental Impact Assessment Report**

Gannow Renewable Energy  
Development, Co. Galway

Chapter 7 - Birds



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## 7. BIRDS

### 7.1 Introduction

This chapter assesses the likely significant effects of the Proposed Project on avian receptors. For the purposes of this EIAR, the various project components are described and assessed using the following references: ‘Proposed Project’, ‘Proposed Wind Farm’, ‘proposed turbines’, ‘Proposed Grid Connection’, ‘Site’ and ‘Proposed Wind Farm site’. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Chapter 4 of this EIAR.

Particular attention has been paid to bird species with national and international protection under the Irish Wildlife Acts 1976-2022 and the European Union (EU) Birds Directive (2009/147/EC). Where potentially significant effects on avian receptors are identified, mitigation is described, and the residual effects are assessed.

This chapter is supported by Technical Appendices 7-1 to 7-7. Appendices 7-1 to 7-4 contain data from the surveys undertaken including full details of the survey times, weather conditions, and other relevant information together with the bird records themselves. Confidential Appendix 7-5 contains sensitive records of protected species breeding and roosting sites<sup>1</sup>. Appendix 7-6 contains the Collision Risk Assessment (CRA) document, which illustrates how the collision risk modelling was undertaken for the assessment of the Proposed Wind Farm. Appendix 7-7 contains the bird monitoring plan for the construction and operational phases of the Proposed Wind Farm. The Site and study areas are provided in Figures 7-1 to 7-7 below.

The chapter is structured as follows:

- The Introduction provides a description of the Proposed Project and the relevant legislation, guidance and policy context.
- The Assessment Approach and Methodology section is a comprehensive description of the ornithological surveys and impact assessment methodology used to inform a robust assessment of potential impacts of the Proposed Project on birds.
- The Baseline Ornithological Conditions section describes the existing bird population at the Site.
- The Receptor Evaluation section identifies key ornithological receptors and determines their sensitivity.
- The Potential Impacts section details the impact assessment (including direct habitat loss, disturbance/displacement and collision risk). Impacts are described with regard to each phase of the Proposed Project: construction, operation and decommissioning.
- The Mitigation and Best Practice Measures section describes proposed mitigation and best practice measures to ameliorate the identified impacts.
- The Monitoring section outlines a schedule for monitoring birds during each phase of the Proposed Project if planning permission is granted: commencement and construction, operation and decommissioning.
- The Residual Effects section considers the implications of the proposed mitigation and best practice.
- Finally, the Cumulative Effects section fully assesses potential cumulative effects of the Proposed Project in combination with other projects.
- The Conclusion provides a summary statement on the overall significance of predicted effects on birds.

<sup>1</sup> This appendix is classified as confidential as (in theory) the sensitive information it contains could inform the persecution of protected species. It is recommended that this information not be widely circulated and be made available only on request.

The following other definitions are used in this chapter:

- The “study area” will differ based on the survey type and species, these are described in detail in Section 7.2.4. These study areas are based on NatureScot (SNH, 2017) guidance.
- “Key Ornithological Receptor” (KOR) is defined as a species occurring within the study area of the Proposed Project upon which potential impacts are anticipated and assessed.

### 7.1.1

## Description of the Proposed Project

A full description of the Proposed Project is provided in Chapter 4 of this EIAR. In brief, Gannow Ltd. (the Applicant) is seeking a 35-year planning permission for a renewable energy development consisting of 8 no. turbines and the associated works. The proposed turbines will have a hub height of between 101m and 104m, with a blade rotor diameter of between 149m and 163m, giving an overall ground to blade tip height of between 178m and 185m and a lower blade swept height of between 22m and 29m. The Proposed Wind Farm will have an operational life of 35 years from the date of commissioning.

### 7.1.2

## Legislation, Guidance and Policy Context

This EIAR is prepared in accordance with the requirements of the EU Environmental Impact Assessment Directive 2014/52/EU. The following key legislative provisions are applicable to habitats and fauna in Ireland:

- The Wildlife Act 1976. This Act was revised in October 2022 to present amendments since enactment.
- The Birds Directive (EU Directive 2009/147/EC on the conservation of wild birds)
- The European Communities (Birds and Natural Habitats) Regulations 2011, as amended (S.I. no. 477 of 2011). These regulations transpose the EU Birds Directive into Irish law. The regulations were amended in 2013 (290/2013 and 499/2013), 2015 (355/2015) as well as Chapter 4 of the Planning, Heritage and Broadcasting (Amendment) Act 2021 (11/2021) and in 2021 (293/2021).
- The International Convention on Wetlands of International Importance (the Ramsar Convention), 1971. This convention protects 45 wetland sites of significant value for nature in Ireland.

In the absence of specific national ornithological survey guidance for Ireland, the following guidance documents published by NatureScot (formerly Scottish Natural Heritage [SNH]) have been followed to inform this assessment:

- SNH (2000). Wind farms and birds: calculating a theoretical collision risk assuming no avoidance action. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Windfarms%20and%20birds%20-%20Calculating%20a%20theoretical%20collision%20risk%20assuming%20no%20avoiding%20action.pdf>
- SNH (2009). Monitoring the impact of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Monitoring%20the%20impact%20of%20onshore%20windfarms%20on%20birds.pdf>
- SNH (2016). Assessing connectivity with Special Protection Areas (SPAs). Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf>
- SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-06/Guidance%20Note%20-%20>

- [%20Recommended%20bird%20survey%20methods%20to%20inform%20impact%20assessment%20of%20onshore%20windfarms.pdf](#)
- SNH (2018a) Avoidance rates for the onshore SNH wind farm collision risk model. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-09/Wind%20farm%20impacts%20on%20birds%20-%20Use%20of%20Avoidance%20Rates%20in%20the%20SNH%20Wind%20Farm%20Collision%20Risk%20Model.pdf>
  - SNH (2018b). Assessing the cumulative impacts of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-08/Guidance%20-%20Assessing%20the%20cumulative%20impacts%20of%20onshore%20wind%20farms%20on%20birds.pdf>
  - SNH (2018c). Assessing significance of impacts from onshore wind farms outwith designated areas. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected>
  - NatureScot (2024). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. NatureScot, Inverness, Scotland. Available at: <https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms>

The following Irish guidance documents were also consulted:

- Percival, S.M. (2003). Birds and wind farms in Ireland: A review of potential issues and impact assessment. Ecology Consulting, Durham, UK. Available at: [https://tethys.pnnl.gov/sites/default/files/publications/Percival\\_2003.pdf](https://tethys.pnnl.gov/sites/default/files/publications/Percival_2003.pdf)
- McGuinness, D., Muldoon, C., Tierney, N., Cummins, S., Murray, A., Egan, S. and Crowe, O. (2015). Bird Sensitivity Mapping for Wind Energy Developments and Associated Infrastructure in the Republic of Ireland. Birdwatch Ireland, Wicklow, Ireland. Available at: [https://birdwatchireland.ie/app/uploads/2019/09/BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance\\_document.pdf](https://birdwatchireland.ie/app/uploads/2019/09/BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance_document.pdf)
- Gilbert, G., Stanbury, A. and Lewis, A. (2021). Birds of Conservation Concern in Ireland 4: 2020-2026. Irish Birds, 43:1-22. Available at: <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Furthermore, this assessment has been prepared with respect to the various planning policies and strategy guidance documents listed below:

- European Commission (2002). Assessment of plans and projects significantly affecting Natura 2000 sites. Publications Office of the European Union, Luxembourg.
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation. Publications Office of the European Union, Luxembourg.
- Planning and Development Acts 2000 (as amended).
- NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. National Roads Authority, Ireland.
- EPA (2022). Guidelines on the information to be contained in Environmental Impact Statement reports. Environmental Protection Agency, Johnstown Castle Estate, Wexford.
- DoHPLG (2018). Guidelines for planning authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Department of Housing, Planning and Local Government, Government of Ireland, Dublin.
- Galway County Development Plan 2022-2028

### 7.1.3 Statement of Authority

This ornithology chapter has been prepared by Patrick Manley (B.Sc.), Senior Ornithologist of MKO and reviewed by Pádraig Cregg (M.Sc.), Principal Ornithologist.

Patrick holds a BSc in Geology. He has over eight years' experience in designing, executing and project management of ornithological assessment in the renewables sector. Pádraig is a Principal Ornithologist with MKO and has over eleven years of experience working in environmental consultancies. The natural world has been a lifelong passion for Pádraig. He has pursued this passion from boyhood through his academic study and career with MKO. In his role, he acts as technical advisor for the ornithology team, helping to take projects through their entire lifecycle, from site selection through survey design, constraints studies, impact assessment and lodgement of the planning application. He is responsible for training the ornithology team and keeping his colleagues updated on all emerging guidance, legislation, policies, initiatives, industry best practices, emerging trends, and market opportunities. Both are suitably qualified ornithologists with experience in completing avifaunal assessments and competent experts for the purposes of the preparation of this EIAR.

The scope of works and survey methodology was devised by Patrick Manley and is fully compliant with recent NatureScot (formerly Scottish Natural Heritage) guidance (SNH, 2017). Field surveys were undertaken by Bridin Foster, Cian Cahalin, Conor Geoghegan, Franck Le Moënner, Fionn O'Donoghue, Katie Grice, Ludivine Baldacchino, Louis de Vries, Luke Lambert, Nessa Lee, Peter Capsey, Patrick Manley, Scott Bastow, Tom Rea, Zuzana Erosova and Zak O'Connor. Surveyors are competent experts in ornithological surveying.

## 7.2 Methodology

### 7.2.1 Desk Study

A comprehensive desk study was undertaken to search for any relevant information on species of conservation concern that may use the Proposed Wind Farm site. The assessment included a thorough review of the available ornithological data including:

- > Designated sites.
- > Bird atlases.
- > Bird sensitivity mapping tool.
- > Online web-mappers from the National Biodiversity Data Centre.
- > Irish Wetland Bird Survey data.
- > Birds of Conservation Concern (BoCCI) (Gilbert *et al.*, 2021)
- > Review of specially requested records from the National Parks and Wildlife Service Rare and Protected Species Database.

### 7.2.2 Consultation

Consultation was undertaken with the relevant statutory and non-statutory organisations as part of the EIAR scoping to inform the current assessment. Full details can be found in Section 2.7 of Chapter 2: Background of the Proposed Project of this EIAR. Table 7-1 Consultation responses Table 7-1 below provides a list of the organisations consulted with regard to ornithology during the scoping process and notes where scoping responses were received.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter; Chapter 2 describes where the comments raised in the scoping responses received have been addressed.

*Table 7-1 Consultation responses*

Consultee	Response	Issues Raised
An Taisce	No response received	-
BirdWatch Ireland	No response received	-
Department of Agriculture, Food and the Marine	No response received	-
Department of the Environment, Climate and Communications	No response received	-
Development Applications Unit (NPWS/NMS)	Response received on 21/11/2024	No issues raised in relation to birds
	Meeting held 06/05/2025	No issues raised in relation to birds
Irish Red Grouse Association	No response received	-
Irish Peatland Conservation Council	No response received	-
Irish Raptor Study Group	No response received	-
Irish Wildlife Trust	Response received on 15/10/2024	No issues raised in relation to birds

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### 7.2.3 Identification of Target Species and Key Ornithological Receptors

Following a comprehensive desk study, initial site visits and consultation, a list of “target species” likely to occur in the study area of the Proposed Wind Farm was compiled. Bird surveys conducted at the Proposed Wind Farm site were then specifically designed to survey for these target species, in accordance with SNH (2017). Additionally, the Proposed Grid Connection was surveyed as part of a multidisciplinary, ecological walkover (see Section 7.2.4.1.8) and has informed this assessment. The target species list was drawn from:

- Species listed on Annex I of the EU Birds Directive.
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects.
- Red listed Birds of Conservation Concern in Ireland (BoCCI).
- Species that are particularly sensitive to wind farm developments, e.g. raptors.

Following analysis of field survey data (described below), a precautionary screening approach was followed to identify KORs: the list of target species observed during surveys (see Appendix 7-1) was refined to KORs, excluding those for which pathways for a significant effect could not be identified.

### 7.2.4 Field Surveys

Field surveys were undertaken during the survey period from September 2021 to March 2025, consisting of three breeding seasons (April – September) and four winter seasons (October – March). Based on the results of the desk study, consultation and reconnaissance site visits described in the previous sections (Section 7.2.1 to 7.2.3), the assemblage of bird species within the Proposed Wind Farm site and the likely importance of the Proposed Wind Farm site for these species was ascertained. Then, adopting a precautionary approach, a site-specific scope for ornithological surveys was devised. The data provided in the field surveys is robust and allows clear, precise and definitive conclusions to be made on the avian receptors identified within the Proposed Wind Farm site.

The survey work that was undertaken between September 2021 and March 2025 forms the core dataset for the assessment of impacts on ornithology. In the absence of specific national bird survey guidelines, the ornithological surveys were designed and undertaken in full accordance with the guidance document ‘Recommended bird survey methods to inform impact assessment of onshore wind farms’

(SNH, 2017). The various ornithological surveys undertaken at the Proposed Wind Farm site and hinterland are described in detail below.

#### 7.2.4.1.1 Vantage Point Surveys

Vantage point (VP) surveys were undertaken in accordance with NatureScot guidance (SNH, 2017) to monitor flight activity at the Proposed Wind Farm site and within a 500m radius of the proposed turbines. Surveys were conducted from two fixed point VPs with comprehensive coverage of the proposed turbines (see Figure 7-1 below). The VP locations were selected by undertaking a viewshed analysis (described below) and confirmed by a reconnaissance visit and initial field surveys to ensure that the proposed turbines were entirely covered.

Viewsheds were calculated using the Visibility Analysis plugin (Version 1.8) over a raster digital elevation model (DEM) in QGIS (Version 3.28) using a notional layer suspended at 25m (as the minimum swept area was not known when surveys commenced). The lowest swept height of 25m was used for the analysis initially, with the understanding that the actual lowest swept of the candidate turbine would likely be similar to this. Once the proposed turbine specifications were confirmed, the viewshed analysis was recalculated based on the (actual) minimum swept height of the turbines, 22m. The viewshed analysis results at 22m were not significantly different from the original viewsheds calculated at the initiation of the surveys. There are no significant differences between the 25m and the 22m viewsheds. Note, that while the relevance of being able to view as much of the Proposed Wind Farm site to ground level is acknowledged, the NatureScot guidance emphasises the importance of visibility of the ‘collision risk volume’ when the data is to be used to estimate the risk of collision with turbines by birds. Therefore, the viewshed analysis aims to identify the most suitable locations to site VPs such that the airspace of the turbine rotor swept area is in view using the fewest possible number of VPs. The VP locations were tested for visibility coverage by creating a point 1.75m in height (to represent the height of the surveyor) on a map using 10m contours terrain data. The relative height of any surrounding landscape features (e.g. trees) and their effects on visibility was also accounted for in the analysis. The software produced a 360° viewshed 22m from ground level up to a 2km radius around the vantage point. This viewshed was then cropped to a 180° arc representing the area visible to the surveyor. Viewsheds at 22m are provided in Figure 7-1 below.

Survey methodology followed SNH (2017). The surveyors collected data on bird observations and flight activity from the scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3-hour watches separated by a minimum 30-minute break (i.e., 6 hours total) per month. Surveys were conducted from September 2021 to March 2025 inclusive, and were scheduled to provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity (Table 7-2).

Table 7-2 Vantage point survey watch duration

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Winter Season 2021/2022 (2 VPs)	36 hours per VP
Breeding Season 2022 (2 VPs)	36 hours per VP
Winter Season 2022/2023 (2 VPs)	36 hours per VP
Breeding Season 2023 (2 VPs)	36 hours per VP
Winter Season 2023/2024 (2 VPs)	36 hours per VP
Breeding Season 2024 (2 VPs)	36 hours per VP
Winter Season 2024/2025 (2 VPs)	36 hours per VP

Flight activity of target species was mapped and recorded as per defined flight bands which were chosen in relation to the dimensions of potential turbine models for the site. Bands were split into 0-15m, 15-25m, 25-200m and >200m. Following a highly precautionary approach, all flight activity within height bands 15-25m and 25-200m is considered to be within the Potential Collision Height (PCH) with regard to the proposed turbine swept area. The actual proposed turbine dimension scenarios (22-185m,

23-185m, 22-180m and 29-178m) fall within these height bands (15-25m and 25-200m). Please see further details in Appendix 7-5. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat. The survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions.

#### 7.2.4.1.2 Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity within the Site and within a 500m radius of proposed infrastructure. The methodology follows NatureScot (SNH, 2017) guidance, which recommends methods was based on adapted O'Brien and Smith (1992) and Gilbert *et al.* (1998), combined with a reduced visit Common Bird Census method (British Trust for Ornithology, 2021) for dense habitats. Transect routes were walked across different habitat complexes within the survey area where access was allowed. Using binoculars, the surveyor regularly scanned the surroundings of each transect for target species. All target species were mapped, and breeding status was assigned following British Trust for Ornithology (BTO) breeding status codes<sup>2</sup>. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat. The survey area for these surveys was the Proposed Wind Farm site and a 500m survey radius of the Proposed Wind Farm site.

Transect routes were devised to ensure the required coverage of different habitats was achieved within the survey area. Transects were selected to ensure all areas of suitable breeding/ foraging habitat were approached to within 100m, where access was allowed. Target species included waders, raptors, waterbirds, gulls and other birds of conservation concern. Along with target species, all additional non-target species observed were recorded to inform the evaluation of supporting habitat.

Breeding walkover surveys were carried out over four visits during the core breeding season months April to July (2022, 2023 & 2024), with the Proposed Wind Farm site being visited two days per month on each occasion. Surveys commenced at dawn and continued for approximately six hours on each survey day. Following all survey visits, the field maps were analysed to determine the number and location of breeding territories. All non-breeding individuals and species encountered were also recorded.

The survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions for each survey. Figure 7-2 shows the survey transects.

#### 7.2.4.1.3 Breeding Raptor Surveys

Breeding raptor surveys were undertaken within the Proposed Wind Farm site and within 2km of the Proposed Wind Farm infrastructure to identify occupied territories and monitor their breeding success near or within the Proposed Wind Farm site. Raptors include all harrier, falcon, buzzard, eagle, hawk, owl, kite and osprey species. The survey methodology followed Hardey *et al.* (2013). Raptor surveys were undertaken in the form of short vantage point watches. All raptor species observed were recorded and mapped and breeding status was assigned following BTO breeding status codes. Surveyors did not approach nest sites to avoid disturbance.

Each breeding raptor location was surveyed once per month during the core breeding season between April and July (2022, 2023 & 2024). Each round of surveys was undertaken over two days, this allowed sufficient time to survey the key areas of suitable habitat within the survey area.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-3 shows the breeding raptor locations.

<sup>2</sup> <https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>

#### 7.2.4.1.4 Breeding Woodcock Surveys

Breeding woodcock surveys were undertaken in accordance with Gilbert *et al.* (1998). Surveys were undertaken at the Proposed Wind Farm site in May and June (2022, 2023 & 2024). The survey area extended 500m beyond the Proposed Wind Farm infrastructure and was focused on areas of suitable habitat. Surveys commenced one hour before sunset and continued for one hour after sunset or until it was too dark to see, as per Gilbert *et al.* (1998). Transects were slowly walked through areas of suitable woodland habitat onsite and to a 500m radius of the Proposed Wind Farm site. All observations of woodcock (as well as the areas covered) were mapped. The survey aimed to record the presence of roding (displaying) male woodcock and thereby establish the distribution and abundance of the species in the surveyed area. This survey method also allowed the observer to survey for owls, i.e. barn owls and long-eared owls.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-4 shows the transect routes.

#### 7.2.4.1.5 Winter Walkover Surveys

Winter walkover surveys were undertaken to record the presence of bird species within the Proposed Wind Farm site and within a 500m radius of Proposed Wind Farm infrastructure, including areas away from vantage point locations. The methodology follows described in Bibby *et al.* (2000) and Gilbert *et al.* (1998), combined with Common Bird Census methods (British Trust for Ornithology, 2021). Transect routes were walked across different habitat complexes within the survey area where access was allowed. All target species were recorded and mapped. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat. Figure 7-5 shows the survey transects.

Winter walkover surveys were conducted in daylight hours over four visits between October and March (i.e. four visits in each winter, 2021/2022, 2022/2023, 2023/2024 & 2024/2025). Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions for each survey.

#### 7.2.4.1.6 Hen Harrier Roost Surveys

Hen harrier roost surveys were undertaken within the Proposed Wind Farm site and within 2km of the Proposed Wind Farm infrastructure. These surveys aimed to identify active winter hen harrier roosts near or within the Proposed Wind Farm site. Survey methodology followed Gilbert *et al.* (1998) and O'Donoghue (2019). Roost watches of 2-3 hours were conducted at up to six hen harrier vantage point locations from dusk until it was too dark to see. During these surveys all hen harrier observations were recorded and mapped.

Each hen harrier vantage point was surveyed once per month during the winter season between October and March inclusive (in winter 2021/2022, 2022/2023, 2023/2024 & 2024/2025). Survey locations HHVP1, HHVP2, HHVP3 and HHVP4 were surveyed for the entirety of the survey period. HHVP5 was added in January 2023 to survey an additional area of bog where hen harrier were observed commuting towards during other survey types in previous months. This area was surveyed until November 2023. HHVP6 was added in November 2023 and was surveyed for the remainder of the survey period. HHVP7 was added in December 2023 and was surveyed for the remainder of the survey period. Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-6 shows the hen harrier vantage point locations.

#### 7.2.4.1.7 Waterbird Distribution and Abundance Surveys

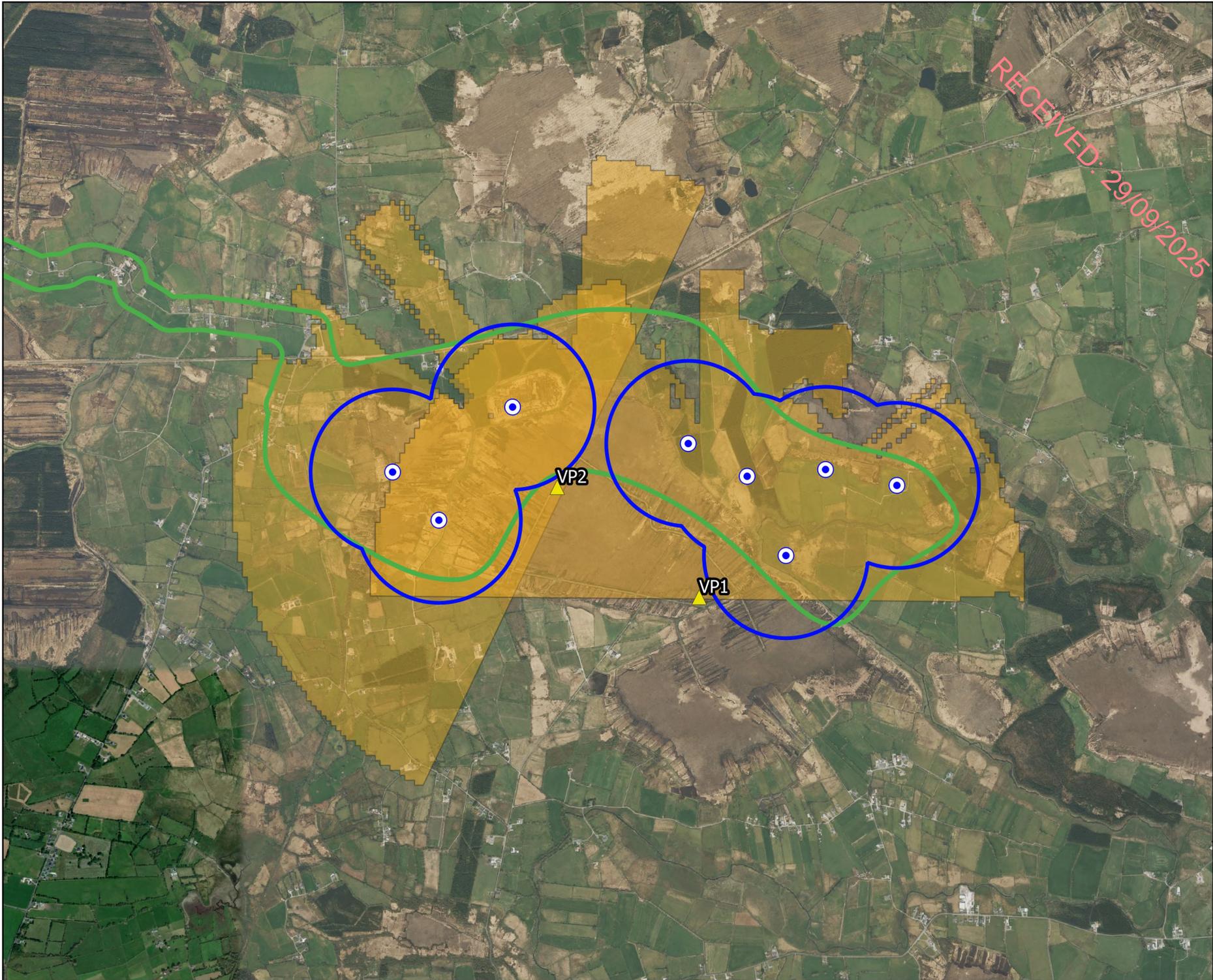
Waterbirds include: swans, geese and ducks; cormorant, shag, divers and grebes; auks and seabirds; gulls, terns and skuas; herons, egrets and crane; rails and crakes; waders; and kingfisher. Significant wetlands and waterbodies within a minimum of 5km of the Proposed Wind Farm site were surveyed for

Wind Farm site. The area surveyed exceeds the 500m from a proposed development for foraging waterbirds and 1km for roosting waterbirds requirements of NatureScot (SNH, 2017).

Survey methodology follows Gilbert *et al.* (1998) and the Irish Wetland Bird Survey (BirdWatch Ireland, 2021). Surveys were undertaken during daylight hours from suitable vantage points at wetlands and waterbodies. All target waterbird species were recorded and mapped. Survey effort, including details of survey duration and weather conditions, is presented in Appendix 7-2. Figure 7-7 shows the surveyed area.

#### 7.2.4.1.8 **Multidisciplinary Walkover Survey**

The Proposed Grid Connection underground cabling route and Proposed Wind Farm site were surveyed, as set out in Section 6.2.3.1 of Chapter 6: Biodiversity of this EIAR, through a multidisciplinary, ecological walkover survey. The route was systematically walked, while the surveyor recorded a range of protected species, including birds. Further details on this survey are available in Chapter 6 of this EIAR.



- Map Legend**
-  EIAR Site Boundary
  -  Proposed Turbine Layout
  -  500m Buffer of Proposed Turbine Layout
  -  Vantage Point locations
  -  Viewshed

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Drawing Title	
Vantage point locations	
Project Title	
Gannow Renewable Energy Development	
Drawn By	Checked By
CC	PM
Project No.	Drawing No.
240323	Fig 7-1
Scale	Date
1:30,000	11.07.2025

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Map Legend

-  EIA Site Boundary
-  Survey Area
-  Proposed Turbine Layout
-  Transect

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Drawing Title  
Breeding Walkover Survey Area

Project Title  
Gannow Renewable Energy Development

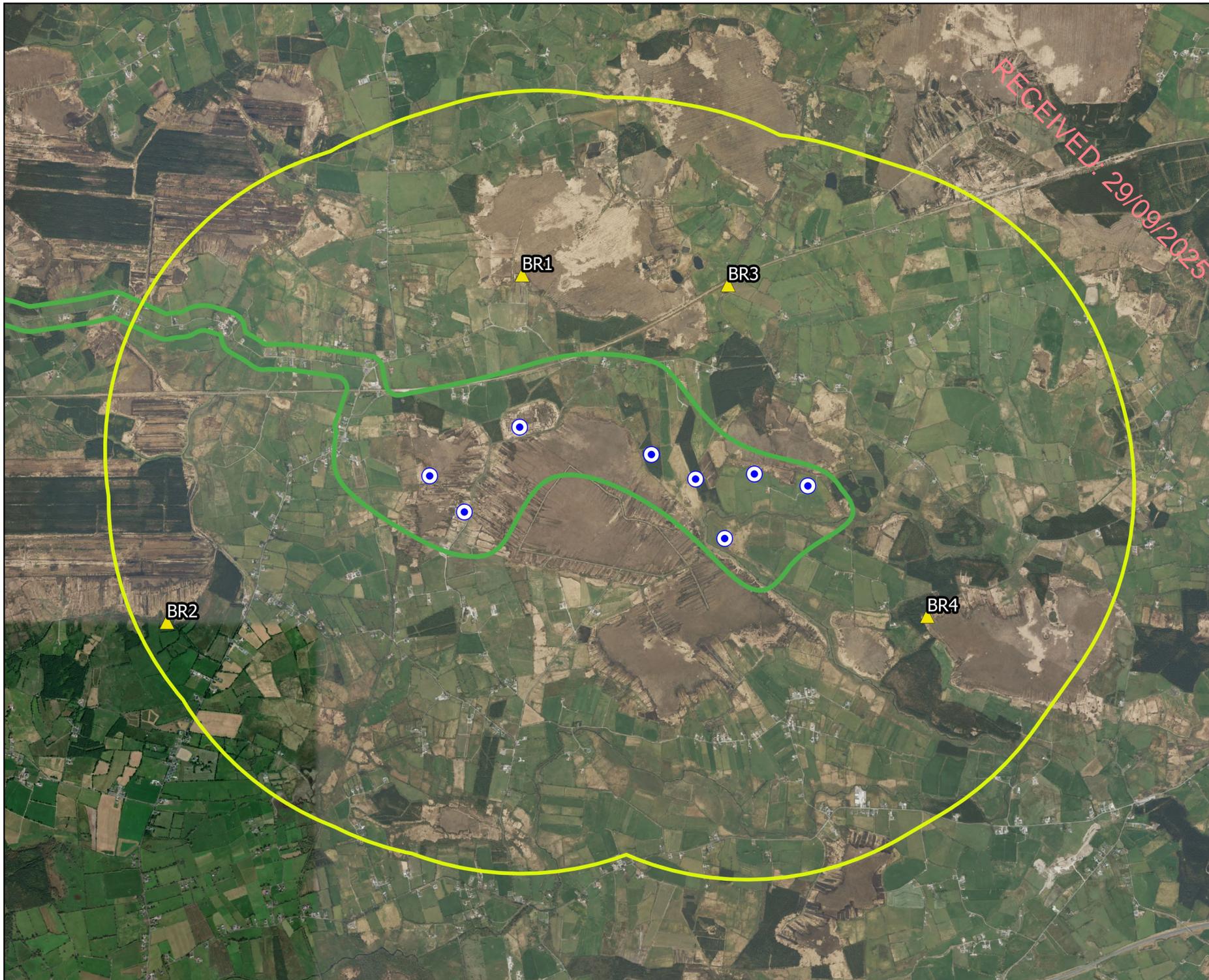
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Project No. 240323	Drawing No. Fig 7-2
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Scale 1:30,000	Date 11.07.2025
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Map Legend

- EIAR Site Boundary
- Survey Area
- Proposed Turbine Layout
- Survey Location

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Drawing Title  
Breeding Raptor Survey Locations

Project Title  
Gannow Renewable Energy Development

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Project No. 240323	Drawing No. Fig 7-3
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Scale 1:40,000	Date 11.07.2025
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- Map Legend**
- EIAR Site Boundary
  - Proposed Turbine Layout
  - Transect



Drawing Title  
Breeding Woodcock Survey Area

Project Title  
Gannow Renewable Energy Development

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Project No. 240323	Drawing No. Fig 7-4
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Scale 1:30,000	Date 11.07.2025
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- EIAR Site Boundary
  - Survey Area
  - Proposed Turbine Layout
  - Transect

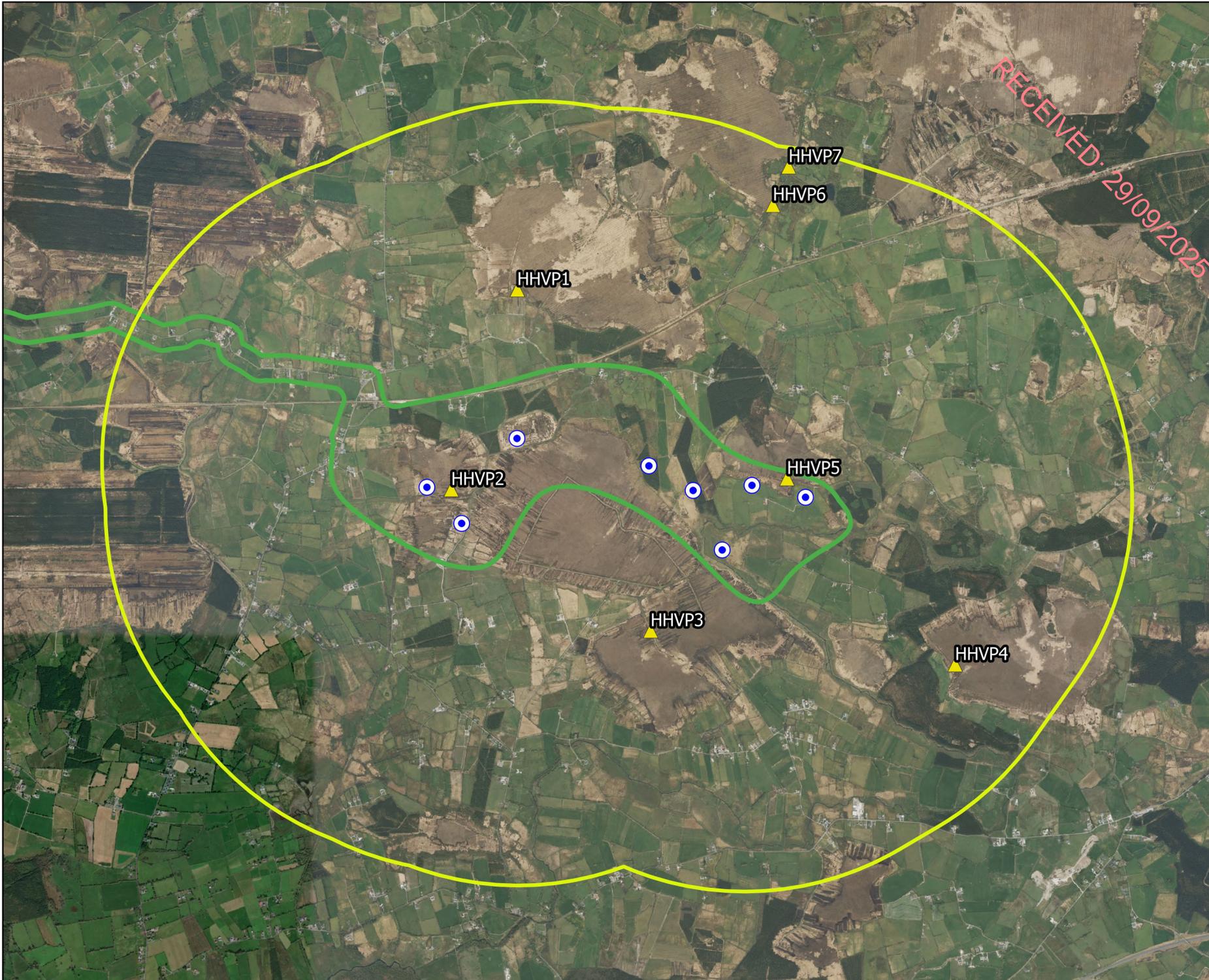
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Drawing Title	
Winter Walkover Survey Area	
Project Title	
Gannow Renewable Energy Development	
Drawn By	Checked By
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Project No.	Drawing No.
240323	Fig 7-5
Scale	Date
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Map Legend

-  EIAR Site Boundary
-  Survey Area
-  Proposed Turbine Layout
-  Hen Harrier VP



Drawing Title

Hen Harrier Survey Area

Project Title

Gannow Renewable Energy Development

Drawn By

CC

Checked By

PM

Project No.

240323

Drawing No.

Fig 7-6

Scale

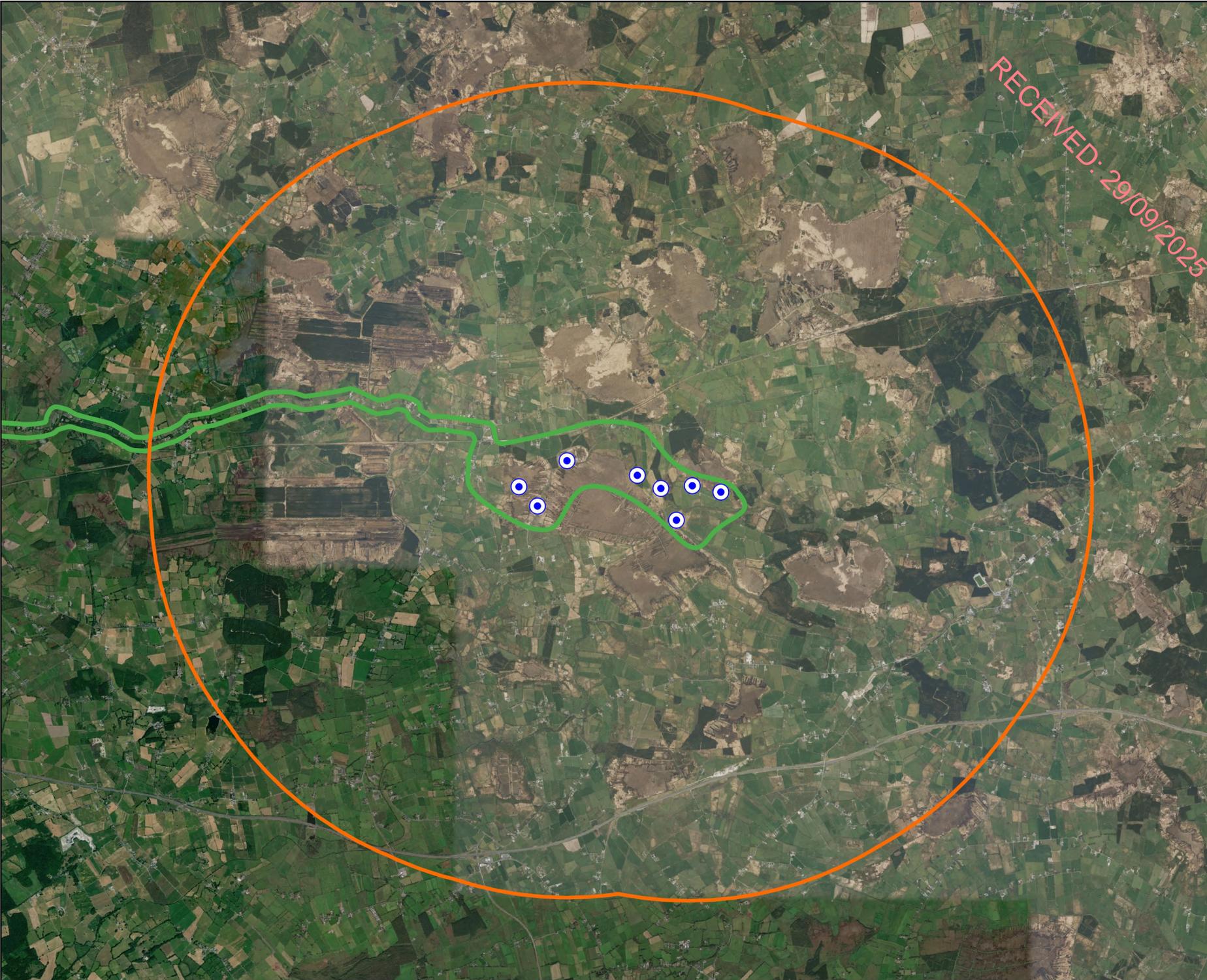
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Date

11.07.2025



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Map Legend

-  EIAR Site Boundary
-  Survey Area
-  Proposed Turbine Layout

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Drawing Title Waterbird Distribution and Abundance Survey Area	
Project Title Gannow Renewable Energy Development	
Drawn By CC	Checked By PM
Project No. 240323	Drawing No. Fig 7-7
Scale 1:75,000	Date 11.07.2025

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## 7.2.5 Receptor Evaluation and Impact Assessment

### 7.2.5.1 Potential Impacts Associated with the Proposed Project

Wind farms and associated infrastructure present three potential risks to birds (Drewitt and Langston 2006, 2008; *Band et al.*, 2007):

- **Direct habitat loss** due to wind farm infrastructure.
- **Disturbance/displacement** (sometimes called indirect habitat loss) if birds avoid the wind farm and its surrounding area due to construction works or turbine operation. Displacement may also include barrier effects in which birds are deterred from using normal routes to feeding or roosting grounds.
- Death through **collision** or interaction with turbine blades and other infrastructure.

For each of these three risks, the detailed knowledge of bird distribution and flight activity within and surrounding the Proposed Wind Farm site has been used to predict potential impacts of the Proposed Wind Farm on birds. Impacts associated with the Proposed Grid Connection are also assessed, including habitat loss and disturbance related to construction works. These impacts are also assessed cumulatively with other projects. The geographical framework and description of impacts are described below.

### 7.2.5.2 Geographical Framework

Guidance on Ecological Impact Assessment (CIEEM, 2019) recommends categories of ornithological value that relate to a geographical framework (e.g. international through to local). This ELAR utilises the geographical framework described in ‘Guidelines for Assessment of Ecological Impact of National Road Schemes’ (NRA, 2009). The following geographic frame of reference should be used when determining the value of a bird population:

- International Importance
- National Importance
- County Importance
- Local Importance (Higher Value)
- Local Importance (Lower Value)

Locally Important (Lower Value) receptors are habitats and species that are widespread and of low ecological significance and important only in the local area. In contrast, Internationally Important sites are designated for conservation as part of the Natura 2000 Network (Special Area of Conservation or Special Protection Area) or provide the best examples of habitats or internationally important populations of protected flora and fauna.

### 7.2.5.3 Description of Impacts

The sensitivity, magnitude and significance of impacts on bird populations resulting from the Proposed Wind Farm were quantified according to two assessment criteria: Percival (2003) and EPA, 2022. The two assessment criteria have been used to independently characterise impacts to inform a robust assessment of potential impacts. EPA, 2022 impact assessment criteria has been used for consistency between the Biodiversity and Ornithology chapters of this ELAR, while Percival (2003) has also been followed, given its specific focus on birds.

### Percival's (2003) criteria

The Percival (2003) methodology quantifies the sensitivity of a given species to the development type, the magnitude of the effect and the significance of the potential impact.

Table 7-3, Table 7-4 and Table 7-5 outline the assessment criteria for each stage.

Table 7-3 Evaluation of sensitivity for birds (from Percival, 2003)

Sensitivity	Determining Factor
Very High	Species that form the cited interest of SPAs and other statutorily protected nature conservation areas. Cited means mentioned in the citation text for the site as a species for which the site is designated.
High	Species that contribute to the integrity of a SPA but which are not cited as a species for which the site is designated.  Ecologically sensitive species including the following: divers, common scoter, hen harrier, golden eagle, red necked phalarope, roseate tern and cough.  Species present in nationally important numbers (>1% of the Irish population)
Medium	Species listed on Annex 1 of the EU Birds Directive.  Species present in regionally important numbers (>1% county population).  Other species on BirdWatch Ireland's Red List of Birds of Conservation Concern
Low	Any other species of conservation interest, including species on BirdWatch Ireland's Amber List of Birds of Conservation Concern, not covered above.

Table 7-4 Determination of magnitude of effects (from Percival, 2003)

Magnitude	Description
Very High	Total loss or very major alteration to key elements/ features of the baseline conditions, such that the post development character/composition/attributes will be fundamentally changed and may be lost from the site altogether.  Guide: < 20% of population / habitat remains
High	Major loss or major alteration to key elements/features of the baseline (pre-development) conditions such that post development character/composition/attributes will be fundamentally changed.  Guide: 20-80% of population/ habitat lost
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of baseline will be partially changed.  Guide: 5-20% of population/ habitat lost
Low	Minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible but underlying character/composition/attributes of baseline condition will be similar to pre-development circumstances/patterns.  Guide: 1-5% of population/ habitat lost
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the "no change" situation.  Guide: < 1% population/ habitat lost

Table 7-5 Significance matrix combining magnitude and sensitivity to assess significance (from Percival, 2003)

Significance		Sensitivity			
		Very High	High	Medium	Low
Magnitude	Very High	Very High	Very High	High	Medium
	High	Very High	Very High	Medium	Low
	Medium	Very High	High	Low	Very Low
	Low	Medium	Low	Low	Very Low
	Negligible	Low	Very Low	Very Low	Very Low

### EPA, 2022 Criteria

EPA, 2022 uses the following terms to describe the quality of the effect:

- **Positive** - a change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
- **Neutral** - no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
- **Negative** - a change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

The significance of the effect is quantified as:

- **Imperceptible** - an effect capable of measurement but without significant consequences.
- **Not Significant** – an effect which causes noticeable changes in the character of the environment but without significant consequences.
- **Slight** - an effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- **Moderate** - an effect that alters the character of the environment that is consistent with existing and emerging baseline trends.
- **Significant** - an effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.
- **Very Significant**– an effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
- **Profound** - an effect which obliterates sensitive characteristics.

The duration of effects can be:

- **Momentary** – effects lasting from seconds to minutes.
- **Brief** – effects lasting less than a day.
- **Temporary** – effects lasting less than a year.
- **Short-term** – effects lasting 1 to 7 years.
- **Medium term** – effects lasting 7 to 15 years.
- **Long term** – effects lasting 15 to 60 years.
- **Permanent** – effects lasting over 60 years.
- **Reversible** – effects that can be undone (e.g. through remediation or restoration).

The frequency of effects (i.e. how often the effect will occur) can be:

- **Once, rarely, occasionally, frequently or constantly**
- **Hourly, daily, weekly, monthly or annually**

The probability of the effect may be:

- **Likely** – the effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
- **Unlikely** – the effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

The effects may also be described in relation to their extent and context. Extent describes the population affected by an effect, while context relates the effect to the established baseline conditions. Further details regarding EPA, 2022 are available in Chapter 1: Introduction, Section 1.7.2 of this EIAR.

#### 7.2.5.4 Collision Risk Assessment

Collision risk is calculated using a mathematical model to predict the number of individual birds of a particular species that may be killed by collision with moving wind turbine rotor blades. The modelling method used in this collision risk calculation follows the Band Model (Band *et al.*, 2007), as recommended by NatureScot guidance. The Band Model first determines the number of birds transits through the air space swept by the rotor blades of the proposed turbines. Then it calculates the collision risk for the birds. The product of the transits multiplied by the collision risk provides a collision rate. An avoidance factor is applied to this to account for birds actively avoiding turbines, providing a final “real world” annual collision rate for each species. See Appendix 7-6 for full details on the collision risk modelling method.

#### 7.2.6 Assessment Justification

##### 7.2.6.1 Survey Data

A comprehensive suite of bird surveys was undertaken at the Site between September 2021 and March 2025. Results derived from a continuous 3.5 years of surveying at the Proposed Wind Farm site and hinterland, undertaken in line with NatureScot guidance, are analysed to inform this assessment. As such, the surveys undertaken provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of the Proposed Project on avian receptors.

##### 7.2.6.2 Mitigation

The Proposed Project has been designed to specifically avoid, reduce and minimise impacts on all avian receptors. Where potential impacts on KORs are predicted, mitigation has been prescribed to avoid, reduce and remove such impacts. Proposed best practice design and mitigation measures are specifically set out and are realistic in terms of cost and practicality. They have been subject to detailed design and will effectively address the effects on the identified KORs. As such, the potential impacts of the Proposed Project have been considered and assessed to ensure that all impacts on KORs are adequately addressed and no significant residual effects are likely to remain following the implementation of mitigation measures and best practices (refer to Section 7.6 for further details).

##### 7.2.6.3 Limitations

The information provided in this EIAR chapter accurately and comprehensively describes the baseline environment and provides an informed prediction of the likely impacts of the Proposed Project. It also prescribes mitigation as necessary and describes the predicted residual effects. Furthermore, the desk study, surveys, analysis and reporting have been undertaken in accordance with the appropriate guidelines. Therefore, no significant limitations in the scope, scale or context of the assessment have been identified.

## 7.3 Baseline Ornithological Conditions

### 7.3.1 Designated Sites

A screening assessment and Natura Impact Statement (NIS) were prepared to provide the competent authority with the information necessary to complete an Appropriate Assessment for the Proposed Project in compliance with Article 6(3) of the EU Habitats Directive (92/43/EEC). According to EPA (2022) “A biodiversity section of an EIAR ... should not repeat the detailed assessment of potential effects on European sites contained in documentation prepared as part of the Appropriate Assessment process, but it should refer to the findings of that separate assessment”. Therefore, this section provides a summary of the key findings regarding SPAs and nationally designated sites. For a detailed assessment of any potential impacts on SPAs, refer to the Appropriate Assessment and NIS associated with Chapter 6 of this EIAR.

Sites designated for nature conservation within the potential Zone of Influence (as defined in the NIS) of the Proposed Project were identified using GIS software. Sites within the Zone of Influence of the proposed works are identified and assessed for pathways for impacts. In this case, the potential for indirect impacts for species listed as SCIs of SPAs within the Zone of Influence of the Proposed Project were identified for the Rahasane Turlough SPA and the Inner Galway Bay SPA. However, it was concluded that there were no potential for adverse effects on these species. Apart than sites which are encompassed by these SPAs, no other nationally designated sites of ornithological significance occur within the potential Zone of Influence

### 7.3.2 Breeding and Wintering Bird Atlas Records

“Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland’ (Balmer *et al.*, 2013) is the most recent comprehensive work on wintering and breeding birds in Ireland. Previous bird atlases have been the primary source of information on the distribution and abundance of British and Irish birds prior to Bird Atlas 2007–11. The three previously published atlases were:

- The atlas of breeding birds in Britain and Ireland (Sharrock, 1976)
- The atlas of wintering birds in Britain and Ireland (Lack, 1986)
- The new atlas of breeding birds in Britain and Ireland: 1988-1991. (Gibbons *et al.*, 1993)

The Proposed Wind Farm site lies at the intersecting point of four hectads<sup>3</sup> (M52, M53, M62 & M63), while the Proposed Grid Connection extends into hectad M42 & M43. Table 7-6 and Table 7-7 present a list of species of conservation interest recorded from the relevant hectads, with regard to breeding and wintering respectively.

Table 7-6 Breeding Bird Atlas data. The following applies to conservation status: Annex I of the Birds Directive, Red List species on the BoCCI

Species Name	Breeding Atlas 1968-1972				Breeding Atlas 1988-1991				Breeding Atlas 2007-2011			
	M52	M53	M62	M63	M52	M53	M62	M63	M52	M53	M62	M63
Barn owl	poss	poss	-	-	-	-	-	-	poss	-	-	conf
Corncrake	prob	prob	conf	conf	-	-	-	-	-	-	-	-
Curlew	prob	conf	conf	conf	seen	seen	bred	seen	-	-	-	poss
Grey Partridge	conf	poss	-	conf	-	-	-	-	-	-	-	-
Grey wagtail	conf	conf	conf	conf	-	seen	bred	bred	conf	-	poss	-

<sup>3</sup> A hectad is a 10km x 10km grid square

Species Name	Breeding Atlas 1968-1972				Breeding Atlas 1988-1991				Breeding Atlas 2007-2011			
	M52	M53	M62	M63	M52	M53	M62	M63	M52	M53	M62	M63
Kestrel	prob	conf	conf	conf	bred	bred	bred	bred	conf	-	poss	poss
Kingfisher	prob	poss	-	poss	-	seen	-	-	poss	conf	-	-
Lapwing	prob	poss	conf	conf	bred	seen	bred	seen				
Long-eared owl	-	-	prob	poss	-	-	-	-	-	-	-	conf
Meadow pipit	conf	conf	conf	conf	bred	bred	bred	bred	conf	conf	prob	conf
Merlin	-	poss	-	conf	-	-	-	-	-	-	-	-
Red grouse	-	conf	prob	prob	-	-	-	-	-	-	-	-
Redshank	-	-	-	-	-	seen	-	seen	-	poss	-	-
Snipe	conf	prob	conf	conf	-	bred	-	bred	-	poss	-	prob
Sparrowhawk	prob	prob	conf	conf	bred	seen	-	seen	poss	-	poss	poss
Stock dove	poss	conf	-	-	-	-	-	seen	-	-	-	-
Swift	conf	-	poss	conf	-	seen	bred	seen	-	-	prob	-
Whinchat	-	-	-	-	-	-	-	bred	-	-	-	-
Woodcock	conf	-	-	prob								
Yellowham mer	conf	conf	prob	conf	-	seen	-	seen	-	-	-	-

Conf = confirmed breeding; prob = probable breeding; poss = possible breeding; bred = breeding; seen = bird observed but no breeding activity.

Table 7-7 Wintering Bird Atlas data. The following applies to conservation status: Annex I of the Birds Directive, Red List species on the BoCCI.

Species Name	Wintering Atlas 1981-1984				Wintering Atlas 2007-2011			
	M52	M53	M62	M63	M52	M53	M62	M63
Buzzard					✓			
Curlew	✓	✓	✓	✓	✓	✓	✓	
Golden plover			✓	✓				✓
Grey wagtail	✓	✓	✓		✓			✓
Hen harrier					✓			✓
Kestrel	✓	✓		✓	✓	✓	✓	✓
Lapwing	✓	✓	✓	✓	✓	✓	✓	✓
Little Egret					✓		✓	
Long-eared Owl						✓		✓
Meadow pipit	✓	✓	✓	✓	✓	✓	✓	✓
Merlin					✓			
Red grouse			✓	✓				
Redwing	✓	✓	✓	✓	✓	✓	✓	✓
Snipe	✓	✓	✓	✓	✓		✓	✓
Sparrowhawk	✓			✓		✓	✓	✓
Stock dove								✓
Whooper swan			✓		✓			✓
Woodcock			✓	✓		✓		
Yellowhammer	✓							

### 7.3.3 Bird Sensitivity Mapping Tool

A Bird Sensitivity Mapping Tool for wind energy development was developed by BirdWatch Ireland to provide a measured spatial indication of where protected birds are likely to be sensitive to wind energy developments. The tool can be accessed via the National Biodiversity Data Centre Website ([www.biodiversityireland.ie](http://www.biodiversityireland.ie)) and is accompanied by a guidance document (McGuinness *et al.*, 2013). The criteria for estimating a zone of sensitivity (i.e. 'low', 'medium', 'high' and 'highest') is based on a review of the behavioural, ecological and distributional data available for each species.

The Site is located within an area with no data and therefore no sensitivity is provided. The Site is approximately 13km from the nearest area of high sensitivity, i.e., from the Proposed Grid Connection.

### 7.3.4 Irish Wetland Bird Survey Records

The Irish Wetland Bird Survey (I-WeBS), coordinated by BirdWatch Ireland, monitors wintering waterbird populations at their wetland sites across Ireland. I-WeBS site locations are available at <https://birdwatchireland.ie/our-work/>. I-WeBS sites within County Galway were reviewed. Datasets for the following sites were sourced from [www.birdwatchireland.ie](http://www.birdwatchireland.ie):

- > Ballindeereen Turlough
- > Ballinduff Turlough & Grassland
- > Ballyboy
- > Ballyconneely Bay
- > Caherglassaun Lough
- > Cahermore Turlough
- > Caranavoodaun Turlough
- > Coole Lough - Newtown Turlough
- > Doolough Headford (Turloughcor)
- > Glenamaddy Turlough
- > Inishbofin
- > Inishmore, Aran Islands
- > Inner Galway Bay
- > Inner Streamstown Bay
- > Kiltieman Turlough
- > Kiltullagh Lough
- > L. Coy - Blackrock - Bullaunagh - Ballylee
- > Lough Adrehid
- > Lough Aughawoolia
- > Lough Corrib
- > Lough Cutra - Ballynakill L.
- > Lough Rea
- > Lydacan Castle Turlough
- > Mannin Bay
- > North Central Galway Lakes
- > North East Galway Lakes
- > Omey Strand
- > Polleagh Turlough
- > Pollnagarragh Marshes
- > Rahasane Turlough
- > Rossadillisk
- > Termon Turloughs
- > Tullaghnafrankagh Lough

### 7.3.5 Rare and Protected Species Dataset

An information request was sent to NPWS requesting records from the Rare and Protected Species Database. The following records were obtained from the NPWS on the 25<sup>th</sup> of April 2025:

#### Barn Owl

There was one record of a barn owl in hectad M63 in 2009.

#### Curlew

There was one record of a nest location within Hectad M53 in 2016. Additionally, there were two observations in both hectad M43 and M53 during the 2010 Kingfisher Assessment.

#### Golden Plover

There were two observations within Hectad M43 during the 2010 Kingfisher Assessment.

#### Greenland White-fronted Goose

There was one observation of a flock of 65 birds within M63, adjacent to the Proposed Wind Farm site in 2010. There was one observation of a flock of 12 birds within M52, approximately 9km from the Proposed Wind Farm site. There was one observation of birds within M62, approximately 8km from the Proposed Wind Farm site.

#### Grey Wagtail

There were two observations within Hectad M43 and one within Hectad M53 during the 2010 Kingfisher Assessment.

#### Kestrel

There was one observation within Hectad M53 during the 2010 Kingfisher Assessment.

#### Kingfisher

There were five observations within Hectad M43 and three in M53 during the 2010 Kingfisher Assessment.

#### Lapwing

There was one observation within Hectad M53 during the 2010 Kingfisher Assessment.

#### Meadow Pipit

There was one observation within Hectad M53 during the 2010 Kingfisher Assessment.

#### Peregrine

The following breeding records were provided from the 2017 National Peregrine Survey:

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- > Hectad M53: One occupied nest
- > Hectad M42: Two occupied nests
- > Hectad M52: One occupied nest

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### Snipe

There were two observations within Hectad M43 and three in M53 during the 2010 Kingfisher Assessment.

### Yellowhammer

There were one observation within Hectad M43 during the 2010 Kingfisher Assessment.

## 7.3.6

### Field Survey Results

The target species recorded during field surveys carried out from September 2021 to March 2025 are listed in Table 7-8, along with a summary of breeding and roosting status. The following sections describe the records of each target species under the individual survey headings. Target species recorded greater than 500m from the Proposed Wind Farm site are summarised in Table 7-9, these species were not recorded at or near the Proposed Wind Farm site and therefore significant effects are not anticipated and they will not be discussed further within this chapter.

Table 7-8 Target species recorded during surveys at the Proposed Wind Farm site

Species	Overall breeding status	Overall wintering status
Golden Plover	<b>Non-breeding.</b> Observations during this period were of migrating birds during the passage period.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Hen Harrier	<b>Non-breeding.</b> Observations during this period were of seasonal movement during the passage period.	There were <b>two regularly used roost sites</b> identified 800m (2022 & 2023) and 2.5km (2023 & 2024) from the nearest proposed turbine (T08 and T04 respectively). Additionally, there were two observations of individuals roosting outside of the regular roost sites, on and adjacent to the Proposed Wind Farm site.
Little Egret	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Merlin	<b>No breeding sites identified.</b> There was no evidence of breeding observed during surveys.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Peregrine	<b>No breeding sites identified.</b> There was no evidence of breeding observed during surveys.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.

Species	Overall breeding status	Overall wintering status
White-tailed Eagle	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Whooper Swan	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Curlew	<b>Non-breeding birds present</b> at the site in June and July 2022. There was no evidence of breeding observed during surveys.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Grey Wagtail	<b>No breeding sites identified.</b> There was no evidence of breeding observed during surveys.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Kestrel	<b>Confirmed breeding</b> in the wider area in 2022 and 2023; however, no nest locations were identified. <b>Probable breeding</b> within the Proposed Wind Farm site during the 2025 breeding season. There was no breeding evidence observed during the 2024 breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Lapwing	<b>No breeding sites identified.</b> Observations during the breeding season were of post-breeding flocks on passage.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Meadow Pipit	<b>Probable breeding</b> throughout suitable habitat within and adjacent to the Proposed Wind Farm site.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Redwing	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Snipe	<b>Probable breeding</b> throughout suitable habitat within and adjacent to the Proposed Wind Farm site (up to 8 territories).	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Swift	<b>No breeding sites identified.</b> There was no evidence of breeding observed during surveys.	There were no observations during the winter season.

Species	Overall breeding status	Overall wintering status
Woodcock	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Buzzard	<b>Confirmed breeding</b> 1km from the nearest proposed turbine in 2023. Probable breeding within and adjacent to the Proposed Wind Farm site in 2022 (2 territories), within the Proposed Wind Farm site and 3.1km from the nearest proposed turbine in 2023 (2 territories) and within the Proposed Wind Farm site in 2025 (1 territory). There was no breeding evidence observed during the 2024 breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Hobby	<b>No breeding sites identified.</b> There was no evidence of breeding observed during surveys.	There were no observations during the winter season.
Long-eared Owl	There were no observations during the breeding season.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.
Sparrowhawk	<b>Confirmed breeding.</b> There were up to two confirmed and two probable breeding territories identified.	<b>No regularly used roosts identified.</b> There was no evidence of roosting observed at the Proposed Wind Farm site during surveys.

Table 7-9 Target species recorded greater than 500m from the Proposed Wind Farm site

Species	Observations
Greenland white-fronted goose	There was one observation of this species, 2.2km from the nearest proposed turbine (T04). This observation was of a flock of 12 birds commuting during a hen harrier roost survey in November 2024.
Kingfisher	There were nine observations of kingfisher between 2.2km and 5.8km from the proposed turbines. These observations were of between one and two birds commuting, perched or hunting. There were observations during all winters surveyed during waterbird distribution and abundance surveys.
Barn owl	There was one observation of this species, 1.4km from the nearest proposed turbine (T07). This observation was of a bird commuting during a hen harrier roost survey in November 2023.
Black-tailed godwit	There was one observation of 11 birds commuting at Clogharevaun Bridge during a waterbird distribution and abundance survey in October 2023. This observation was 5.5km from the nearest proposed turbine (T02).
Pochard	There was one observation of an individual on water at Dminick's Hill Quarry during a waterbird distribution and abundance survey in January

Species	Observations
	2021. This observation was 5.9km from the nearest proposed turbine (T02).
Shoveler	There were two observations of this species at Gortakeeran Turlough, between 2.2km and 2.7km from the proposed turbines. Both observations were of two birds foraging in November and December 2023.

A list of all bird species recorded during surveys is provided in Appendix 7-1. Appendix 7-3 presents results summary tables including:

- Summary of vantage point survey records
- Summary of breeding walkover survey records
- Summary of breeding raptor survey records
- Summary of winter walkover survey records
- Summary of hen harrier roost survey records
- Summary of waterbird distribution and abundance survey records
- Summary of non-target species recorded

Breeding territory polygons shown in respective maps in Confidential Appendix 7-7 are the estimated areas in which a suspected nest/roost site is located, e.g. a confirmed territory where a bird was seen visiting a nest site will have a small, targeted polygon whereas a probable territory where birds were seen displaying over suitable habitat will have a larger polygon for the estimated nest site location. Distances from the Proposed Wind Farm site and proposed turbines given in sections below are taken from the outer edge of these polygons and therefore represent minimum distances.

### 7.3.6.1 Golden Plover

Golden Plover were observed in the winter season and passage period. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

Golden plover were observed on 87 occasions during the vantage point surveys, or on average once every six hours of vantage point surveys (see Appendix 7-4, Figure 7-4-1). Observations ranged from 1 to 300 birds, with the majority of observations being of bird circling or commuting. There were 8 observations of birds landing on bog habitats, 4 of which were within the Proposed Wind Farm site. The majority of observations were during the winter season and migration periods from August to April. There was one observation in July of an individual commuting. There were 60 observations within 500m of the proposed turbine locations and were observed on 53 occasions at the PCH.

#### Breeding Walkover Surveys

Golden plover were observed on only one occasion during the breeding walkover surveys (see Appendix 7-4, Figure 7-4-2). This observation was of a flock of 30 birds commuting, approximately 400m from the Proposed Wind Farm site. This observation was in April and was likely of a migrating flock as it was during the spring passage period.

#### Winter Walkover Surveys

Golden plover were observed on ten occasions during winter walkover surveys (see Appendix 7-4, Figure 7-4-3). Birds were observed on 7 of 16 survey dates, with between 1 and 3 observations per survey. There were observations during all four winter seasons surveyed. Observations ranged from 1

to 56 birds commuting or calling. There was 1 observation of birds landing on the bog adjacent to the Proposed Wind Farm site. There were 5 observations within, or partially within, the Proposed Wind Farm site.

### Waterbird Distribution and Abundance Surveys

Golden plover were observed on eight occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-4). Birds were observed on 7 of 62 survey dates. There were 5 observations on the peatland habitat within, or adjacent to, the Proposed Wind Farm site. These observations ranged from 3 to 94 birds commuting or calling. The remaining observations were between 3.3km and 5.3km from the Proposed Wind Farm site and were of between 2 and 40 birds commuting along the Clougheravaun River and its floodplain.

### Incidental Observations

There were 18 incidental observations of golden plover during the survey period (see Appendix 7-4, Figure 7-4-5). Ten of which were at, or adjacent to, the Proposed Wind Farm site. These observations were of between 1 and 350 birds commuting or calling. The remaining observations were of between 5 and 40 birds commuting or calling between 1.4 and 3.5km from the nearest proposed turbine.

## 7.3.6.2 Hen Harrier

Hen harrier were observed in the winter season and passage period. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to roosts are provided in Confidential Appendix 7-5.

### Vantage Point Surveys

Hen harrier were observed on 21 occasions during the vantage point surveys, or on average once every 18 hours of vantage point surveys<sup>4</sup> (see Appendix 7-4, Figure 7-4-6). Observations were of individuals hunting or commuting. All observations were during the winter or passage seasons, between August and March. There were 20 observations within, or partially within, 500m from the proposed turbines. There were six observations within the PCH.

### Breeding Walkover Surveys

Hen harrier were observed on only one occasion during the breeding walkover surveys (see Appendix 7-4, Figure 7-4-7). This observation was of an individual commuting, approximately 400m from the Proposed Wind Farm site. This observation was in April and was likely of a bird on passage and associated with the wintering population of hen harrier in the area.

### Winter Walkover Surveys

Hen harrier were observed on three occasions during winter walkover surveys (see Appendix 7-4, Figure 7-4-8). Birds were observed on 3 of 16 survey dates. All observations were of individuals commuting. There were 2 observations within the Proposed Wind Farm site.

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<sup>4</sup> For months when this species was present (i.e. August to March).

### Hen Harrier Roost Surveys

In summary, there were two regularly used roost sites identified (800m and 2.5km from the proposed turbines, in 2022/2023 and 2023/2024 respectively) which were utilised by hen harrier during one or two winter seasons. See Confidential Appendix 7-5, Figure 7-5-2 for the locations of these roost sites. Additionally, there were two observations of hen harrier roosting outside the regularly used roost sites in 2021 and 2022 (see Appendix 7-4, Figure 7-4-9, observations HH005 and HH002 respectively). These observations were in separate locations in the bog habitat within, and adjacent to, the Proposed Wind Farm site and there were no subsequent observations of roosting in these areas during any of the surveys undertaken.

Hen harrier were observed on 38 occasions during the hen harrier roost surveys (see Appendix 7-4, Figure 7-4-9). The majority of observations were of individuals hunting or commuting. There were 11 observations of hen harrier going to roost, 9 of which were at regularly used roost sites (see Confidential Appendix 7-5, Figure 7-5-1). There was a roost site located approximately 800m from the nearest proposed turbine (T08) that was utilised on three occasions during the 2022/23 and 2023/24 winter seasons. On all three occasions individuals were observed entering or leaving the roost site. In winter 2023/24, there was a roost site identified approximately 2.5km from the nearest proposed turbine (T04). This roost was utilised by up to 4 birds and was observed being utilised on three occasions over the winter period. In winter 2021/22, an individual was observed going to roost adjacent to the Proposed Wind Farm site. This area was not observed being utilised on subsequent visits or in any other winter season. In winter 2022/23, an individual was observed leaving a probable roost within the Proposed Wind Farm site. On a precautionary basis, it is assumed the bird was roosting at this location. This area was not observed being utilised on subsequent visits or in any other winter season. There were no observations of hen harrier going to roost at any of the surveyed areas during the 2024/25 winter season.

### Incidental Observations

There were seven incidental observations of hen harrier during the survey period (see Appendix 7-4, Figure 7-4-10). All observations were of individuals commuting during the winter and passage period (September to March). There were 3 observations within, or partially within, the Proposed Wind Farm site. The remaining observations were between 2.5km and 6.2km from the proposed turbines.

#### 7.3.6.3 Little Egret

Little Egret were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Little egret were observed on 3 occasions during the vantage point surveys, or on average once every 172 hours of vantage point surveys (see Appendix 7-4, Figure 7-4-11). All observations were of individuals commuting during the winter season. All observations were within the Proposed Wind Farm site, 2 of which were along the Raford River.

### Waterbird Distribution and Abundance Surveys

Little egret were observed on 9 occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-12). Birds were observed on 8 of 62 survey dates. Observations were of between 1 and 3 birds commuting or foraging. There were 2 observations at, or adjacent to, the Proposed Wind Farm site, along the Killimor River. The remaining observations were between 2.3km and 5.3km from the Proposed Wind Farm site.

### Incidental Observations

There were two incidental observations of little egret during the survey period (see Appendix 7-4, Figure 7-4-13). Both observations were of individuals commuting in December 2024, 1.5 to 1.6km from the proposed turbines.

#### 7.3.6.4 Merlin

Merlin were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Merlin were observed on only one occasion during the vantage point surveys (see Appendix 7-4, Figure 7-4-14). This observation was of an individual commuting low across the bog, partially within the Proposed Wind Farm site.

### Breeding Raptor Surveys

Merlin were observed on only two occasions during the breeding raptor surveys (see Appendix 7-4, Figure 7-4-15). Both observations were in the same bog in 2024 and were of individuals commuting approximately 1.2km and 1.7km from the Proposed Wind Farm site. Observations were in April and May 2024.

### Incidental Observations

There were 6 incidental observations of merlin during the survey period (see Appendix 7-4, Figure 7-4-16). Observations were of individuals commuting, hunting or perched. There were three observations early in the morning, where birds were possibly coming from roosting in the bog, but no roost locations were confirmed. Two of these observations were in Lenamore Bog to the south of the Proposed Wind Farm site and the remaining observation was approximately 1.7km north of the Proposed Wind Farm site. There were 4 observations on, or within 500m of, the Proposed Wind Farm site. The remaining observations were 600m and 1.7km from the Proposed Wind Farm site. All observations were during the winter and passage period (September to March).

#### 7.3.6.5 Peregrine

Peregrine were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Peregrine were observed on 18 occasions during the vantage point surveys, or on average once every 29 hours of vantage point surveys (see Appendix 7-4, Figure 7-4-17). Most observations were of individuals commuting, hunting or perched. There were 2 observations of peregrine mobbing other birds of prey in May 2023 and August 2024, however as there are no suitable nest sites in the vicinity of these observations, it is unlikely to be related to breeding behaviour. All observations were on, or within 500m of, the Proposed Wind Farm site and there were 9 observations within the PCH.

### Breeding Walkover Surveys

Peregrine were observed on only 1 occasion during the breeding walkover surveys (see Appendix 7-4, Figure 7-4-18). This observation was of an individual carrying prey through the Proposed Wind Farm

site. However, as there are no suitable nest sites in the vicinity, it is likely that this bird was commuting to a plucking post or travelling further afield to a nest site outside of the survey area.

### Breeding Raptor Surveys

Peregrine were observed on 3 occasions during the breeding raptor surveys (see Appendix 7-4, Figure 7-4-19). There were observations at two of the four survey locations and on average, on 12% of survey visits at each of these locations. All observations were of individuals commuting between 800m and 2.2km from the Proposed Wind Farm site.

### Winter Walkover Surveys

Peregrine were observed on only 2 occasions during the winter walkover surveys (see Appendix 7-4, Figure 7-4-20). Both observations were of individuals commuting or perched partially within the Proposed Wind Farm site.

### Incidental Observations

There were 13 incidental observations of peregrine during the survey period (see Appendix 7-4, Figure 7-4-21). All observations were of individuals commuting, hunting or perched. There were two observations of birds carrying prey, outside of the breeding season, these birds were likely commuting to a plucking post to feed. There were 3 observations at or adjacent to the Proposed Wind Farm site, with the remaining observations being between 630m and 1.3km from the proposed turbines.

#### 7.3.6.6 White-tailed Eagle

White-tailed eagle were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

There was one observation of a white-tailed eagle commuting over the Proposed Wind Farm site within the PCH in March 2022 (see Appendix 7-4, Figure 7-4-22).

There were no further observations of this species during any of the other comprehensive surveys.

#### 7.3.6.7 Whooper Swan

Whooper swan were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Whooper swan were observed on 10 occasions during the vantage point surveys, or on average once every 30 hours of vantage point surveys<sup>5</sup> (see Appendix 7-4, Figure 7-4-23). Observations were of between 2 and 11 birds commuting or landing along the Raford River. The majority of observations were along or close to the Raford River, with the remaining 2 observations being close to the Killimor River. All observations were within, or partially within, the Proposed Wind Farm site. There were 6 observations at the potential collision height.

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<sup>5</sup> For months when this species was present (i.e. October to March).

### Winter Walkover Surveys

Whooper swan were recorded on only 1 occasion during the winter walkover surveys (see Appendix 7-4, Figure 7-4-24). This observation was of 2 birds commuting along the Raford River, partially within the Proposed Wind Farm site.

### Waterbird Distribution and Abundance Surveys

Whooper swan were observed on 42 occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-25). Birds were observed on 25 of 62 survey dates. There were no observations at, or adjacent to, the Proposed Wind Farm site. Observations were between 1.7km and 6.2km from the Proposed Wind Farm site and were of between 1 and 104 birds. The majority of observations were at Kiltullagh and were of birds foraging in agricultural grassland.

### Incidental Observations

There were 15 incidental observations of whooper swan during the survey period (see Appendix 7-4, Figure 7-4-26). There were 2 observations within the Proposed Wind Farm site, consisting of flocks of 7 and 10 birds commuting. The remaining observations were of between 6 and 87 birds, with the majority of observations being of flocks foraging or roosting at Kiltullagh, approximately 5.5km from the Proposed Wind Farm site.

#### 7.3.6.8 Curlew

Curlew were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Curlew were observed on 7 occasions during the vantage point surveys, or on average once every 74 hours of vantage point surveys (see Appendix 7-4, Figure 7-4-27). All observations were in June and July 2022 and were of 1 or 2 birds and were on the western side of the Proposed Wind Farm site close to the Killimor River. There was no evidence of breeding observed, and it is likely (given the late in the season timing of the observation) that this was a pair that was passing through the area. There were 2 observations within the PCH.

### Breeding Walkover Surveys

Curlew were observed on 2 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-28). There were observations on 2 of 24 survey dates. Both observations were of individuals calling and commuting in June and July 2022. This bird is likely to be one of the birds that were observed during vantage point surveys and discussed previously.

### Waterbird Distribution and Abundance Surveys

Curlew were observed on nine occasions of wintering birds during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-29). Birds were observed on 8 of 62 survey dates. There were no observations at, or adjacent to, the Proposed Wind Farm site. Observations were between 1.9km and 5.5km from the Proposed Wind Farm site and were of between 1 and 12 birds. The majority of observations were at, or adjacent to, Dominick's Hill Quarry and were of birds calling, commuting or flushed by the observer.

## Incidental Observations

There were 5 incidental observations of curlew during the survey period (see Appendix 7-4, Figure 7-4-30). There were 2 observations within the Proposed Wind Farm site, one of which was of an individual singing in June 2022. This is likely one of the birds discussed previously. It is unlikely that this pair attempted to breed within the Proposed Wind Farm site given the time of year and that no other evidence of breeding was observed. The remaining observations were of up to 10 birds commuting or calling up to 1.6km from the Proposed Wind Farm site.

## Summary of Observations

There were 2 birds present within the Proposed Wind Farm site for approximately 6 weeks in June and July 2022. There was no evidence to suggest these birds attempted to breed in the area. Despite the considerable survey effort undertaken at the Proposed Wind Farm site, there were no observations of this species during the beginning of the breeding season (April to mid-June) and no observations in any of the other breeding seasons surveyed. These 2 birds were likely to be passing through the area as post-breeding birds or non-breeders. There was one record of a curlew nest within Hectad M53 in 2016 that was included in the NPWS rare and protected species database, however, while the Proposed Wind Farm site is located partially within Hectad M53, there is no suitable breeding habitat for curlew within or adjacent to this section of the Proposed Wind Farm site. Furthermore, the above observations were not within Hectad M53.

### 7.3.6.9 Grey wagtail

Grey wagtail were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

Grey wagtail were observed on only 1 occasion during the vantage point surveys (see Appendix 7-4, Figure 7-4-31). This observation was of an individual commuting within the Proposed Wind Farm site.

#### Breeding Walkover Surveys

Grey wagtail were observed on 4 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-32). There were observations on 4 of 24 survey dates. All observations were of 1 or 2 birds commuting or flitting within 500m of the Proposed Wind Farm site.

#### Winter Walkover Surveys

Grey wagtail were observed on only one occasion during the winter walkover surveys (see Appendix 7-4, Figure 7-4-33). This observation was of an individual flushed by the observer approximately 370m from the Proposed Wind Farm site.

#### Waterbird Distribution and Abundance Surveys

Grey wagtail were observed on 19 occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-34). Birds were observed on 14 of 62 survey dates. There were 2 observations at, or adjacent to, the Proposed Wind Farm site. These observations were of 1 or 2 birds travelling and foraging along the Killimor River. The remaining observations were between 2.8km and 5.2km from the Proposed Wind Farm site and were of 1 or 2 birds. These observations were along the Clogheravaun River or at Dominick's Hill Quarry.

## Incidental Observations

There were 2 incidental observations of grey wagtail during the survey period (see Appendix 7-4, Figure 7-4-35). These observations were of individuals commuting or foraging within the Proposed Wind Farm site and 580m from the Proposed Wind Farm site.

### 7.3.6.10 Kestrel

Kestrel were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding activity are provided in Confidential Appendix 7-5.

## Vantage Point Surveys

Kestrel were observed on 185 occasions during the vantage point surveys, or on average once every 2.8 hours of vantage point survey (see Appendix 7-4, Figure 7-4-36). Observations were of between 1 and 4 birds, with the majority of observations of birds commuting, hunting or perched. There were 149 observations within 500m of the proposed turbines and 146 observations within the PCH.

There was no evidence of breeding during these surveys, however there were observations of juvenile/family groups between July and September in 2022 and 2023. These observations were of juveniles chasing each other, hunting and of a kestrel mobbing a buzzard in July. The evidence from surveys is that kestrel did not nest within or adjacent to the Proposed Wind Farm site, however there was successful breeding within the wider area in 2022 and 2023.

## Breeding Walkover Surveys

Kestrel were observed on 13 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-37). There were observations on 8 of 24 survey dates. All observations were of individuals hunting or commuting. There were 7 observations within, or partially within, the Proposed Wind Farm site.

## Breeding Raptor Surveys

Kestrel were observed on 44 occasions during the breeding raptor surveys (see Appendix 7-4, Figure 7-4-38). There were observations at all four survey locations. The highest frequency of observations was on average 1 bird every visit (BR4) and lowest frequency was on average 1 bird every third visit (BR2). There were no observations within the Proposed Wind Farm site. All observations were of individuals travelling, hunting or perched. There was 1 observation of a kestrel flying into a tree that was speculated to be a possible nest site by the surveyor due to the kestrel landing deep within the tree. However, there were no further observations of kestrel or breeding activity at this location, and it is therefore concluded that there was no nest at this location.

## Winter Walkover Surveys

There were 15 observations of kestrel during the winter walkover surveys (see Appendix 7-4, Figure 7-4-39). There were observations on 8 of the 16 survey dates. All observations were of one or two birds hunting or travelling. There were 9 observations within, or partially within, the Proposed Wind Farm site.

## Incidental Observations

There were 77 incidental observations of kestrel during the survey period (see Appendix 7-4, Figure 7-4-40). The majority of observations were of 1 or 2 birds travelling, hunting or perched. There were 2 observations of kestrel mobbing other birds; however, these observations were in the winter and

therefore not relating to breeding behaviour. In February 2025, there was an observation of a pair displaying, indicating probable breeding in this location, within the Proposed Wind Farm site (see Confidential Appendix 7-5, Figure 7-5-3). The probable breeding territory is provided in Confidential Appendix 7-5, Figure 7-5-4.

### 7.3.6.11 Lapwing

Lapwing were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

Lapwing were observed on 18 occasions during the vantage point surveys, or on average once every 21 hours of vantage point survey<sup>6</sup> (see Appendix 7-4, Figure 7-4-41). Observations were of between 1 and 100 birds travelling or calling. There were 9 observations within 500m of the proposed turbines. There were 16 observations within the PCH. There were observations during all four winter seasons surveyed and during the passage period (August).

#### Winter Walkover Surveys

Lapwing were observed on only 1 occasion during the winter walkover surveys (see Appendix 7-4, Figure 7-4-42). This observation was of an individual calling adjacent to the Proposed Wind Farm site in October 2022.

#### Waterbird Distribution and Abundance Surveys

Lapwing were observed on 15 occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-43). Birds were observed on 9 of 62 survey dates. There were no observations at, or adjacent to, the Proposed Wind Farm site. Observations were between 1.5km and 5.6km from the Proposed Wind Farm site and were of between 1 and 160 birds. The majority of observations were at, or adjacent to, Dominick's Hill Quarry, Gortakeeran Turlough and along the Clogheravaun River and were of birds travelling or foraging.

#### Incidental Observations

There was one incidental observation of lapwing during the survey period (see Appendix 7-4, Figure 7-4-44). This observation was of a post-breeding flock of 27 birds travelling in June 2023, 1.2km from the proposed turbines.

### 7.3.6.12 Meadow Pipit

Meadow pipit were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

Meadow pipit were observed on 92 occasions during the vantage point surveys, or on average once every 5.6 hours of vantage point survey (see Appendix 7-4, Figure 7-4-45). Observations were of between 1 and 44 birds. The majority of observations were of birds travelling, flitting or foraging. There were 16 observations within 500m of the proposed turbines. There were 12 observations of up to 13

<sup>6</sup> For months when this species was present (i.e. August to March).

birds displaying or mobbing, indicating probable breeding within the bog habitats on, and adjacent to, the Proposed Wind Farm site during the 2022, 2023, 2024 and 2025 breeding seasons.

### Breeding Walkover Surveys

Meadow pipit were observed on 69 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-46). There were observations on all 24 survey dates. Observations were of between 1 and 31 birds. There were 19 observations within the Proposed Wind Farm site. The majority of observations were of birds travelling or flitting. There were 13 observations relating to probable breeding activity (displaying and mobbing other birds). These observations ranged from 1 to 8 birds and were during all three breeding seasons surveyed within the bog habitats on and adjacent to the Proposed Wind Farm site.

### Winter Walkover Surveys

There were 45 observations of meadow pipit during the winter walkover surveys (see Appendix 7-4, Figure 7-4-47). There were observations on all 16 survey dates. Observations ranged from 1 to 29 birds travelling, flitting or flushed by the surveyor. There were 3 observations of birds displaying in March 2022 and 2025, indicating probable breeding. There were 17 observations within the Proposed Wind Farm site.

### Incidental Observations

There were 51 incidental observations of meadow pipit during surveys (see Appendix 7-4, Figure 7-4-48). Observations ranged from 1 to 102 birds travelling, flitting, displaying or being flushed by the observer. Seventeen of these observations were within the Proposed Wind Farm site. The remaining observations were up to 5.2km from the Proposed Wind Farm site.

### Breeding Summary

Meadow pipit are resident at the Proposed Wind Farm site and are breeding throughout the suitable habitat within the site. The majority of breeding territories are within the bog habitats in the centre of the Proposed Wind Farm site and adjacent to the Proposed Wind Farm site to the south. It is difficult to estimate the number of breeding pairs in each breeding season given the nature of the species; however, it is likely that the number of breeding pairs in this bog habitat is greater than 10 in each breeding season.

#### 7.3.6.13 Redwing

Redwing were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

### Vantage Point Surveys

Redwing were observed on 18 occasions during the vantage point surveys, or on average once every 29 hours of vantage point survey (see Appendix 7-4, Figure 7-4-49). Observations were of between 1 and 150 birds travelling, calling or roosting. There were 9 observations within 500m of the proposed turbines.

### Winter Walkover Surveys

There were 14 observations of redwing during the winter walkover surveys (see Appendix 7-4, Figure 7-4-50). There were observations on 12 of 16 survey dates. Observations were of 1 to 150 birds travelling or foraging. There were only 2 observations within the Proposed Wind Farm site.

### Incidental Observations

There were 12 incidental observations of redwing during the survey period (see Appendix 7-4, Figure 7-4-51). Observations of between 1 and 80 birds travelling, calling or foraging. There were 6 observations within the Proposed Wind Farm site, with the remaining observations being between 600m and 5.2km from the Proposed Wind Farm site.

## 7.3.6.14 Snipe

Snipe were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding territories are provided in Confidential Appendix 7-5.

### Vantage Point Surveys

Snipe were observed on 129 occasions during the vantage point surveys, or on average once every 4 hours of vantage point survey (see Appendix 7-4, Figure 7-4-52). Observations were of between 1 and 23 birds and were throughout the breeding and winter seasons surveyed. The majority of observations were of birds travelling, calling or flushed. There were 21 observations of breeding behaviour, which included drumming, singing and displaying, indicating probable breeding in these locations. Observations of breeding behaviour are provided in Confidential Appendix 7-5, Figure 7-5-5. These observations were spread across all three breeding seasons surveyed and were within the bog habitat within the centre of and adjacent to the Proposed Wind Farm site to the south.

### Breeding Walkover Surveys

Snipe were observed on 18 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-53). There were observations on 10 of the 24 survey dates. Observations were of between 1 and 6 birds, with the majority of observations being of birds travelling, calling or flushed by the observer. There were 9 observations within the Proposed Wind Farm site. There were 3 observations of drumming (displaying) snipe during the 2023 breeding season, indicating probable breeding behaviour in the bog habitats to the south of the Proposed Wind Farm site (see Confidential Appendix 7-5, Figure 7-5-6).

### Winter Walkover Surveys

There were 25 observations of snipe during the winter walkover surveys (see Appendix 7-4, Figure 7-4-54). There were observations on 12 of the 16 survey dates. Observations were of 1 to 4 birds travelling or flushed by the observer. There were 9 observations within the Proposed Wind Farm site.

### Waterbird Distribution and Abundance Surveys

Snipe were observed on 30 occasions during the waterbird distribution and abundance surveys (see Appendix 7-4, Figure 7-4-55). Birds were observed on 22 of 62 survey dates. There were 8 observations at the Proposed Wind Farm site. These observations were of between 1 and 3 birds travelling, calling or flushed by the observer. The remaining observations were between 900m and 5.3km from the Proposed Wind Farm site and were of between 1 and 71 birds. The majority of observations were at Dominick's Hill Quarry, Kiltullagh and Killimor Bog. Observations were of birds travelling, calling or flushed by the observer.

### Incidental Observations

There were 78 incidental observations of snipe during the survey period (see Appendix 7-4, Figure 7-4-56). Observations were of between 1 and 28 birds. There were 24 observations within the Proposed Wind Farm site, the remaining observations were between 500m and 2.4km from the Proposed Wind Farm site. The majority of observations were of birds travelling, calling or flushed by the observer, there were 9 observations relating to breeding behaviour during the 2022, 2023, 2024 and 2025 breeding seasons (see Appendix 7-4, Figure 7-5-7). Four of these observations were in the bog habitats within the Proposed Wind Farm site.

### Breeding Summary

Snipe are resident at the Proposed Wind Farm site and are breeding throughout the suitable habitat within, and adjacent to, the Proposed Wind Farm site, within intact bog primarily in the central area of the Proposed Wind Farm site. The highest density of breeding territories are within the bog habitats adjacent to the Proposed Wind Farm site to the south. There were up to eight breeding territories identified within and adjacent to the Proposed Wind Farm site during surveys, with the majority of these being outside the Proposed Wind Farm site. However, the total number of breeding territories is likely higher given the cryptic nature of the species.

#### 7.3.6.15 **Swift**

Swift were observed in the breeding season. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

There were 2 observations of a swift during the vantage point surveys (see Appendix 7-4, Figure 7-4-57). Both observations were of individuals travelling in July (2022 and 2023).

There were no further observations of this species during any of the other comprehensive surveys.

#### 7.3.6.16 **Woodcock**

Woodcock were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

There was 1 observation of a woodcock during vantage point surveys (see Appendix 7-4, Figure 7-4-58). This observation was of an individual travelling in January 2024 over 500m from the nearest proposed turbine.

### Incidental Observations

There were 9 incidental observations of woodcock during the survey period (see Appendix 7-4, Figure 7-4-59). Observations were of one or two birds travelling or flushed by the observer and were during the winter season. There was only 1 observation within the Proposed Wind Farm site.

There were no further observations of this species during any of the other comprehensive surveys.

### 7.3.6.17 Buzzard

Buzzard were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding territories are provided in Confidential Appendix 7-5.

#### Vantage Point Surveys

Buzzard were observed on 129 occasions during the vantage point surveys, or on average once every 4 hours of vantage point survey (see Appendix 7-4, Figure 7-4-60). Observations were of between 1 and 5 birds, with the majority of observations of birds commuting, hunting, soaring or perched. There were 100 observations within 500m of the proposed turbines and 107 observations within the PCH.

There were 5 observations relating to breeding behaviour (see Confidential Appendix 7-5, Figure 7-5-8). In 2022, there were 2 observations of birds displaying and 1 observation of a buzzard chasing a pair of buzzard (i.e. showing agitated behaviour). These observations relate to two probable breeding territories, both of which were within or adjacent to the Proposed Wind Farm site (BZ-a and BZ-b). In 2025, there were 2 observations of a pair displaying within the Proposed Wind Farm site, indicating probable breeding (BZ-c).

#### Breeding Walkover Surveys

Buzzard were observed on 21 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-61). There were observations on 12 of 24 survey dates. All observations were of 1 or 2 birds hunting, commuting, soaring or perched. There were 7 observations within, or partially within, the Proposed Wind Farm site. There was 1 observation of a pair displaying within the Proposed Wind Farm site in 2023, indicating probable breeding at this location (BZ-d) (see Confidential Appendix 7-5, Figure 7-5-9).

#### Breeding Raptor Surveys

Buzzard were observed on 64 occasions during the breeding raptor surveys (see Appendix 7-4, Figure 7-4-62). There were observations at all four survey locations. The highest frequency of observations was on average three bird per visit (BR4) and lowest frequency was on average less than one bird per visit (BR1&3). There were no observations within the Proposed Wind Farm site. The majority of observations were of between 1 and 6 birds travelling, hunting, soaring or perched. There were 3 observations relating to breeding behaviour (see Confidential Appendix 7-5, Figure 7-5-10). In 2023, there were 2 observations of a pair displaying on the same date, indicating probable breeding at this location, 3.1km from the nearest proposed turbine (T01) (BZ-d). In 2023, there was an observation of a bird carrying prey into a nest with at least one chick calling, approximately 1km from the nearest proposed turbine (T03) (BZ-e).

#### Winter Walkover Surveys

There were 15 observations of buzzard during the winter walkover surveys (see Appendix 7-4, Figure 7-4-63). There were observations on 10 of the 16 survey dates. Observations were of 1 or 2 birds travelling, perched or flushed. There were 6 observations within the Proposed Wind Farm site.

#### Incidental Observations

There were 65 incidental observations of buzzard during the survey period (see Appendix 7-4, Figure 7-4-64). Observations were of between 1 and 4 birds travelling, hunting, soaring or perched. There were 21 observations within the Proposed Wind Farm site.

## Breeding Summary

There was one confirmed and five probable territories identified during the survey period. These territories are outlined in Confidential Appendix 7-5, Figure 7-5-11 and summarised below:

- 2022
  - BZ-a – Probable breeding territory within the Proposed Wind Farm site
  - BZ-b – Probable breeding territory adjacent to the Proposed Wind Farm site
- 2023
  - BZ-d – Probable breeding territory 3.1km from the nearest proposed turbine (T01)
  - BZ-e – Confirmed breeding territory 1km from the nearest proposed turbine (T03)
  - BZ-f – Probable breeding territory within the Proposed Wind Farm site.
- 2024
  - No breeding territories identified
- 2025
  - BZ-c – Probable breeding territory within the Proposed Wind Farm site.

### 7.3.6.18 Hobby

Hobby were observed in the breeding season. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

There was one observation of a hobby travelling and hunting over the Proposed Wind Farm site in August 2022 (see Appendix 7-4, Figure 7-4-65).

There were no further observations of this species during any of the other comprehensive surveys.

### 7.3.6.19 Long-eared Owl

Long-eared owl were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

#### Vantage Point Surveys

There was one observation of a long-eared owl travelling in bog habitat adjacent to the Proposed Wind Farm site in December 2022 (see Appendix 7-4, Figure 7-4-66).

#### Incidental Observations

There were 4 incidental observations of long-eared owl during the survey period (see Appendix 7-4, Figure 7-4-67). All observations were of individuals travelling. Observations were between 1.2km and 1.8km from the proposed turbines.

There were no further observations of this species during any of the other comprehensive surveys

### 7.3.6.20 Sparrowhawk

Sparrowhawk were observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding territories are provided in Confidential Appendix 7-5.

## Vantage Point Surveys

Sparrowhawk were observed on 39 occasions during the vantage point surveys, or on average once every 13 hours of vantage point survey (see Appendix 7-4, Figure 7-4-68). Observations were of 1 or 2 birds, with the majority of observations of birds travelling or hunting. There were 34 observations within 500m of the proposed turbines and 25 observations within the PCH.

There were 4 observations relating to breeding behaviour (see Confidential Appendix 7-5, Figure 7-5-12). In 2023, there was an observation of a sparrowhawk mobbing a kestrel, indicating probable breeding at this location within the Proposed Wind Farm site. At the same location in 2024, there were 2 observations of breeding activity (displaying and mobbing), indicating probable breeding again at this location (SH-a). Additionally, in 2024, there was an observation of a bird displaying adjacent to the Proposed Wind Farm site, indicating probable breeding at this location (SH-b).

## Breeding Walkover Surveys

Sparrowhawk were observed on 8 occasions during breeding walkover surveys (see Appendix 7-4, Figure 7-4-69). There were observations on 7 of 24 survey dates. All observations were of individuals hunting or travelling. There were 3 observations within, or partially within, the Proposed Wind Farm site.

## Breeding Raptor Surveys

Sparrowhawk were observed on 9 occasions during the breeding raptor surveys (see Appendix 7-4, Figure 7-4-70). There were observations at three of the four survey locations. The majority of observations were at one survey location (BR2), with only 1 observation at each of the other locations (BR1 and BR4). There were no observations within the Proposed Wind Farm site. The majority of observations were of 1 or 2 birds travelling or hunting. There were 3 observations relating to breeding behaviour (see Confidential Appendix 7-5, Figure 7-5-13). In 2022, there was an observation of a bird displaying, indicating probable breeding at this location approximately 1.8km from the nearest proposed turbine (T01) (SH-c). In 2024, there were 2 observations of sparrowhawk provisioning nests, confirming breeding approximately 2.3km and 2.6km from the nearest proposed turbine (T01 and T03 respectively) (SH-d and SH-e).

## Winter Walkover Surveys

There were 3 observations of sparrowhawk during the winter walkover surveys (see Appendix 7-4, Figure 7-4-71). There were observations on 3 of the 16 survey dates. All observations were of individuals travelling or hunting, 2 of which were within the Proposed Wind Farm site.

## Incidental Observations

There were 27 incidental observations of sparrowhawk during the survey period (see Appendix 7-4, Figure 7-5-72). The majority of observations were of individuals travelling, soaring or hunting. There was one observation of a bird displaying in February 2022, indicating probable breeding at this location, approximately 1.1km from the nearest proposed turbine (T07) (SH-f) (see Confidential Appendix 7-5, Figure 7-5-14).

## Breeding Summary

There was two confirmed and five probable territories identified during the survey period. These territories are outlined in Confidential Appendix 7-5, Figure 7-5-15 and summarised below:

➤ 2022

- SH-c – Probable breeding territory 1.8km from the nearest proposed turbine (T01)
- SH-f – Probable breeding territory 1.1km from the nearest proposed turbine (T07)
- > 2023
  - SH-a – Probable breeding territory within the Proposed Wind Farm site
- > 2024
  - SH-a – Probable breeding territory within the Proposed Wind Farm site
  - SH-b – Probable breeding territory within the Proposed Wind Farm site
  - SH-d – Confirmed breeding territory 2.6km from the nearest proposed turbine (T01)
  - SH-e – Confirmed breeding territory 2.3km from the nearest proposed turbine (T03)

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## 7.4 Receptor Evaluation

### 7.4.1 Determination of Population Importance

A determination of population importance for birds within the study area is provided below, following the criteria described in Section 7.2.5. Estimates of national population sizes were obtained from the most recent species-specific national survey, or national surveys by Burke *et al.* (2018) or Ireland’s Article 12 Reporting 2013-2018 (EU, 2022), depending on what literature was available. Estimates for mean county population sizes were obtained from species-specific surveys, a review of I-WeBS sites within County Galway<sup>7</sup>, or derived from national estimates, according to what literature was available.

Following NRA (2009), a population of National Importance is a regularly occurring population that exceeds 1% of the national population. Similarly, a population of County Importance is a regularly occurring population that exceeds 1% of the county population. Locally Important (Higher Value) populations are resident or regularly occurring species of conservation concern of importance at the local level, while Locally Important (Lower Value) populations are resident or regularly occurring species of some local importance.

#### 7.4.1.1 Golden plover

The estimated national wintering population of Golden Plover is 80,707 for the Republic of Ireland (ROI) (Burke *et al.* 2018). 1% of the ROI National wintering population of Golden Plover is 807 birds. As per NRA 2009, a regularly occurring population of 807 Golden Plover is required for classification as Nationally Important. There were no observations of national importance at the Proposed Wind Farm site.

To estimate the county population, a review of all County Galway I-WeBS sites was conducted. It should be noted that the population estimate based on I-WeBS figures alone is likely to be an underestimate of the county population<sup>8</sup>. This is due to the foraging ecology of wintering golden plover that will utilise agricultural grasslands and other terrestrial habitats not typically surveyed during I-WeBS counts, as this is a survey of wetland habitats. An estimate of the number of birds utilising terrestrial habitats and wetlands/loughs where no data was available from I-WeBS was used to better estimate the county population.

<sup>7</sup> Please note that these figures are estimates based on the best available information but should be interpreted with a degree of caution.

<sup>8</sup> As per Burke *et al.* (2018) in relation to the golden plover count, “these estimates must be treated as conservative on the basis that they are widely disturbed in a variety of wetland and non-wetland habitats that are under-sampled during I-WeBS.”

To account (partly) for the birds that occur in other wetland sites and terrestrial habitats that would not have been counted by I-WeBS surveyors, the golden plover that occurred at the Proposed Wind Farm site and other regularly occupied non-I-WeBS sites were included in the county population estimate. The mean of the peak counts from the four winters surveyed were used to estimate the number of birds using each site.

### I-WeBS Sites

The following mean count values have been recorded for I-WeBS sites over the most recent 5-season period, i.e., for the period 2016/17 – 2020/21 (note that sites with a mean of zero birds were excluded from this list):

- > Ballindeereen Turlough (44)
- > Ballyconneely Bay (13)
- > Caravoodaun Turlough (124)
- > Doolough Headford (Turloughcor) (140)
- > Inner Galway Bay (1,628)
- > Kiltiernan Turlough (41)
- > Lough Corrib (240)
- > Mannin Bay (97)
- > North Central Galway Lakes (200)
- > North East Galway Lakes (57)
- > Omev Strand (78)
- > Polleagh Turlough (47)
- > Pollnagarragh Marshes (93)
- > Rahasane Turlough (1,420)
- > Termon Turloughs (44)

### Surveyed Sites

- > Killimor (47)
- > Proposed Wind Farm site (133)

Based on the above, the mean wintering population<sup>9</sup> from Galway wetland sites is 4,446. Therefore, taking a precautionary approach, a regularly occurring population of 44 birds (1% of Galway County population) is considered of County Importance in the context of the Proposed Wind Farm site. This species is wide ranging in the winter months that utilise habitats, such as those present on site (agricultural grassland and peatland), that are common throughout the county. The birds recorded at the Proposed Wind Farm site are judged to be associated with the larger county population, given this is a widespread species (as per Bird Atlas distribution maps) that utilises an abundant and widespread habitat at the county level (i.e. agricultural grassland).

Flocks of 44 birds or more (County Importance) were recorded flying over the Proposed Wind Farm site on 20 occasions during the extensive suite of surveys undertaken. The population recorded at the Proposed Wind Farm site was therefore assigned **County Importance** on the basis of a resident/regularly occurring wintering population assessed to be important to the county level.

### Breeding

This species was not observed at the Proposed Wind Farm site during the core breeding season. The Proposed Wind Farm site is of **No Ecological Importance** to breeding golden plover.

<sup>9</sup> Please note that these figures are estimates based on the best available information but should be interpreted with a degree of caution.

#### 7.4.1.2 Hen Harrier

##### Wintering

As per NPWS Article 12 Reporting (2013-2018), the estimated national wintering population of hen harrier in Ireland is 311-435 therefore 1% of the ROI National wintering population is 3-4 birds. As per NRA 2009, a regularly occurring wintering population of 3-4 hen harrier is required for classification as Nationally/Internationally Importance.

Hen harrier were observed frequently during the winter season and passage period. The majority of these observations were during vantage point and hen harrier roost surveys and were of birds hunting and commuting. There were two regularly used roost sites identified (800m and 2.5km from the nearest proposed turbine (T08 and T04 respectively)) which were utilised by hen harrier during one or two winter seasons. Additionally, there were two observations of individuals roosting outside the regularly used roost sites, within and adjacent to the Proposed Wind Farm site that were utilised on one occasion each.

Taking a precautionary approach, it is assumed that the individuals recorded during the winter season are associated with a **Nationally/Internationally important** wintering population.

##### Breeding

This species was not observed at the Proposed Wind Farm site during the core breeding season. The Proposed Wind Farm site is of **No Ecological Importance** to breeding hen harrier.

#### 7.4.1.3 Little Egret

Little egret were recorded within the Proposed Wind Farm site on only four occasions over 3.5 years of surveying. The Proposed Wind Farm site is of **No Ecological Importance** to this species given how infrequently the Proposed Wind Farm site is utilised by this species.

#### 7.4.1.4 Merlin

Merlin were recorded within the Proposed Wind Farm site on only two occasions over 3.5 years of surveying. The Proposed Wind Farm site is of **No Ecological Importance** to this species given how infrequently the Proposed Wind Farm site is utilised by this species.

#### 7.4.1.5 Peregrine

As per NPWS Article 12 Reporting (2013-2018), the estimated population of peregrine is 425 pairs. Therefore, as per NRA (2009) criteria, a regularly occurring population of four pairs of peregrine is required for classification as Nationally Important.

The Proposed Wind Farm site is in County Galway and there are no published figures for the county population of peregrine. Using the distribution of peregrine across Ireland from the breeding bird atlas<sup>10</sup> (2007-2011) the Galway population of peregrine is estimated to be 32 pairs. Therefore, a resident population of one bird is required to qualify as being of county importance. Peregrine were observed regularly during surveys.

<sup>10</sup> Bird Atlas data from the National Biodiversity Data Centre was used to estimate the county population. Presence/absence hectad data was used to estimate the proportion of the national population that occurs in the county. The national population was then multiplied by this percentage to give a county population estimate.

Taking a precautionary approach, the peregrine observed at the Proposed Wind Farm site are likely associated with a population which is of **County Importance**.

#### 7.4.1.6 White-tailed Eagle

White-tailed eagle were recorded on only one occasion within the Proposed Wind Farm site. There was no evidence to suggest white-tailed eagle utilised the habitats at, or adjacent to, the Proposed Wind Farm site with any regularity and no regular commuting corridors over the Proposed Wind Farm site were identified. The Proposed Wind Farm site is of **No Ecological Importance** to this species given how infrequently the Proposed Wind Farm site is visited by this species.

#### 7.4.1.7 Whooper Swan

##### Wintering

As per the latest national wintering estimates provided in Burke *et al.* (2021), the national wintering population of Whooper Swan in the Republic of Ireland is 14,467. Using the International Swan Census 2021, 1% of the National population of Whooper Swans is 144. Therefore, as per NRA 2009, a regularly occurring population of 144 Whooper Swans is required for classification as Nationally Important.

The Swan Census 2021 (Burke *et al.*, 2021) was consulted regarding the population data for Whooper Swans in County Galway. In January 2020, the County Galway population was 1,485 individuals. Based on the above, a population of 14 Whooper Swans is required for County Importance classification in the Galway area.

Whooper swan flocks of national importance were not observed during surveys. Flocks of county importance were not observed within the Proposed Wind Farm site. However, there were flocks of county importance observed at Kiltullagh Turlough, Gortakeeran Turlough and Curragh Bog.

The population recorded regularly within 5km of the Proposed Wind Farm site was assigned County Importance. This species was assigned **County Importance** on a precautionary basis given the flocks observed at the Proposed Wind Farm site are likely associated with the flocks of county importance discussed above. This species was not recorded to occur regularly or in high numbers at the Proposed Wind Farm site.

##### Breeding

This species does not ordinarily breed in Ireland; therefore, the Proposed Wind Farm site is of **No Ecological Importance** for breeding to this species.

#### 7.4.1.8 Curlew

##### Wintering

Curlew were not recorded within the Proposed Wind Farm site during the four winter seasons surveyed. Therefore, the Proposed Wind Farm site is of **No Ecological Importance** to this species during the winter months.

##### Breeding

As per Colhoun *et al.* (2022), the estimated national breeding population of curlew in Ireland is 105-119 pairs, therefore 1% of the national wintering population only 1 pair. As per NRA 2009, a regularly

occurring breeding population of 1 pair is required for classification as Nationally/Internationally Importance.

There was a pair of post-breeding/non-breeding curlew present at the Proposed Wind Farm site during June and July 2022. Based on the evidence of a comprehensive suite of surveys, these birds did not breed at the Proposed Wind Farm site and were only present for a short period of time (approximately 6 weeks). There were no further observations of curlew during the subsequent breeding seasons (2023 and 2024). Taking a precautionary approach, given the conservation status of curlew, these birds are likely to be associated with a **Nationally/Internationally important** breeding population.

#### 7.4.1.9 Kestrel

As reported (2013-2018) under Article 12 of the Birds Directive (Directive 2009/147/EC), the national breeding population estimate of kestrel in the Republic of Ireland is 13,500 birds. Using these latest figures, 1% of the National population of kestrel is 135 birds. Therefore, as per NRA 2009, a regularly occurring population of 135 birds is required for classification as Nationally Important.

The Proposed Wind Farm site is located in County Galway and there are no published figures for the county population of kestrel. Using the distribution of kestrel across Ireland from the breeding bird atlas<sup>11</sup> (2007-2011) the Galway population of kestrel is estimated to be 1,202 birds. Therefore, a regularly occurring population of 12 birds is required for classification of County Importance.

There is a resident population of kestrel at the Proposed Wind Farm site, however in most breeding seasons there were no territories identified. The population recorded across the seasons was assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

#### 7.4.1.10 Lapwing

##### Wintering

The estimated national wintering population of lapwing in Ireland is 69,823 for the Republic of Ireland (ROI) (Burke *et al.* 2018). 1% of the ROI National wintering population of lapwing is 698 birds. As per NRA 2009, a regularly occurring population of 698 lapwing is required for classification as Nationally Important. The maximum number of birds recorded from the winter season was 100 birds. This maximum number does not correspond with the classification criteria for National or International Importance.

To estimate the county population, a review of all County Galway I-WeBS sites was conducted. It should be noted that the population estimate based on I-WeBS figures alone is likely to be an underestimate of the county population. This is due to the foraging ecology of wintering lapwing that will utilise agricultural grasslands and other terrestrial habitats not typically surveyed during I-WeBS counts, as this is a survey of wetland habitats. An estimate of the number of birds utilising terrestrial habitats and wetlands/loughs where no data was available from I-WeBS was used to better estimate the county population.

To account (partly) for the birds that occur in other wetland sites and terrestrial habitats that would not have been counted by I-WeBS surveyors, the lapwing that occurred at the Proposed Wind Farm site and other regularly occupied non-I-WeBS sites were included in the county population estimate. The mean of the peak counts from the four winters surveyed were used to estimate the number of birds using each site.

<sup>11</sup> Bird Atlas data from the National Biodiversity Data Centre was used to estimate the county population. Presence/absence hectad data was used to estimate the proportion of the national population that occurs in the county. The national population was then multiplied by this percentage to give a county population estimate.

## I-WeBS Sites

The following mean count values have been recorded for I-WeBS sites over the most recent 5-season period, i.e., for the period 2016/17 – 2020/21 (note that sites with a mean of zero birds were excluded from this list):

- > Ballindeereen Turlough (69)
- > Ballinduff Turlough & Grassland (34)
- > Ballyboy (49)
- > Ballyconneely Bay (17)
- > Caherglassaun Lough (74)
- > Cahermore Turlough (132)
- > Caranavoodaun Turlough (247)
- > Coole Lough - Newtown Turlough (30)
- > Doolough Headford (Turloughcor) (20)
- > Glenamaddy Turlough (64)
- > Inishmore, Aran Islands (87)
- > Inner Galway Bay (1,599)
- > Kiltiernan Turlough (113)
- > L. Coy - Blackrock - Bullaunagh – Ballylee (204)
- > Lough Corrib (113)
- > Lough Rea (200)
- > Lydacan Castle Turlough (106)
- > North Central Galway Lakes (300)
- > North East Galway Lakes (223)
- > Polleagh Turlough (69)
- > Pollnagarragh Marshes (12)
- > Rahasane Turlough (472)
- > Termon Turloughs (106)
- > Tullaghnafrankagh Lough (90)

## Surveyed Sites

- > Dominick's Hill Quarry (32)
- > Gortakeeran Turlough (40)
- > Proposed Wind Farm site (62)
- > Raford River (28)

Based on the above, the mean wintering population<sup>12</sup> from Galway wetland sites is 4,592. Therefore, taking a precautionary approach, a regularly occurring population of 46 birds (1% of Galway County population) is considered of County Importance in the context of the Proposed Wind Farm site. The birds recorded at the Proposed Wind Farm site are judged to be associated with the larger county population, given this is a widespread species (as per Bird Atlas distribution maps) that utilises an abundant and widespread habitat at the county level (i.e. cutover bog and agricultural grassland).

Flocks of County Importance were recorded flying over the Proposed Wind Farm site on four occasions during the extensive suite of surveys undertaken. Furthermore, flocks of County Importance were observed on four occasions at the Raford River, Dominick's Hill Quarry and Gortakeeran Turlough.

<sup>12</sup> Please note that these figures are estimates based on the best available information and should be interpreted with a degree of caution.

Therefore, taking a precautionary approach, the population recorded at the Proposed Wind Farm site was assigned **County Importance** on the basis of a regularly occurring wintering population assessed to be important to the county level.

### Breeding

During the breeding seasons, lapwing was only observed on one occasion, in August. This observation is presumed to be early migrants and not associated with a breeding population at the Proposed Wind Farm site or in the wider area. The Proposed Wind Farm site is of **No Ecological Importance** to breeding lapwing.

#### 7.4.1.11 Snipe

As reported (2013-2018) under Article 12 of the Birds Directive (Directive 2009/147/EC), the national breeding population estimate of snipe in the Republic of Ireland is 4,275 breeding pairs. Using these latest figures, 1% of the National population of snipe is 43 pairs. Therefore, as per NRA 2009, a regularly occurring population of 43 pairs is required for classification as Nationally Important.

The Proposed Wind Farm site is in County Galway and there are no published figures for the county population of snipe. Using the distribution of snipe across Ireland from the breeding bird atlas<sup>13</sup> (2007-2011) the Galway population of snipe is estimated to be 402 pairs. Therefore, a regularly occurring population of 4 pairs is required for classification of County Importance.

There were up to eight breeding territories of snipe identified during the breeding seasons surveyed at the Proposed Wind Farm site. Therefore, the population at the Proposed Wind Farm site have been assigned **County Importance** on the basis of a regularly occurring resident population assessed to be important to the county level.

#### 7.4.1.12 Woodcock

Woodcock is a BoCCI Red Listed species for the breeding season only in Ireland. Woodcock were not observed during the breeding season, and no evidence of breeding was observed despite undertaking breeding woodcock surveys during the 2022, 2023 and 2024 breeding seasons. All observations were during the winter season, when the Irish population is bolstered by migrants from Eastern Europe and Russia. The Proposed Wind Farm site is considered to be of **No Ecological Importance** to the resident Irish population of woodcock.

#### 7.4.1.13 Buzzard

Buzzard is not listed on Annex I of the Birds Directive. The species is Green listed in Ireland (BoCCI). The population recorded across the seasons was assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

#### 7.4.1.14 Hobby

Hobby were recorded on only one occasion within the Proposed Wind Farm site. There was no evidence to suggest hobby utilised the habitats at, or adjacent to, the Proposed Wind Farm site with any regularity and no regular commuting corridors over the site were identified. The Proposed Wind Farm site is of **No Ecological Importance** to this species given how infrequently the Proposed Wind Farm site is visited by this species.

<sup>13</sup> Bird Atlas data from the National Biodiversity Data Centre was used to estimate the county population. Presence/absence hectad data was used to estimate the proportion of the national population that occurs in the county. The national population was then multiplied by this percentage to give a county population estimate.

#### 7.4.1.15 Long-eared Owl

Long-eared owl were only observed on five occasions during surveys. However, given the cryptic nature of this species, it is assumed that there is a resident population in the vicinity of the Proposed Wind Farm site. The population was assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

#### 7.4.1.16 Sparrowhawk

Sparrowhawk is not listed on Annex I of the Birds Directive. The species is Green listed in Ireland (BoCCI). The population recorded across the seasons was assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

#### 7.4.1.17 Passerines (Red Listed)

Grey wagtail, meadow pipit, redwing and swift are BoCCI Red Listed species in Ireland. Populations recorded at the Proposed Wind Farm site were deemed to be of no greater than **Local Importance (Lower Value)**.

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## 7.4.2 Identification of Key Ornithological Receptors

Table 7-10 outlines the rationale for including or excluding each target species recorded during field surveys as a KOR. The conservation status, population importance evaluation following NRA (2009) and a detailed explanation for inclusion/exclusion as a KOR is provided. The sensitivity of species included as KORs are then evaluated in the following section.

Table 7-10 Receptor evaluation and selection criteria rationale

Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Golden Plover	Annex I, EU Birds Directive; BoCCI Red List & Irish Wildlife Act.	<b>Wintering</b> County Importance	This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during winter months. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b>  Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b>  This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b>  As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for golden plover (see Section 7.5.2.1).	Yes
		<b>Breeding</b> No population of ecological significance recorded	This species was not observed within the Proposed Wind Farm site during the core breeding season. There was no evidence of breeding recorded within Proposed Wind Farm site, or within 500m of same. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.1 for further detailed discussion. <b>No pathways for significant effects were identified.</b>	No
Hen Harrier	Annex I, EU Birds Directive; BoCCI Amber List & Irish Wildlife Act.	<b>Wintering</b> National Importance	This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during winter months. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b>  Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b>	Yes

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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
			<p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for hen harrier (see Section 7.5.2.2).</p>	
		<b>Breeding</b> No population of ecological significance recorded	<p>This species was not observed within the Proposed Wind Farm site during the core breeding season. There was no evidence of breeding recorded within Proposed Wind Farm site, or within 500m of same. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.2 for further detailed discussion. <b>No pathways for significant effects were identified.</b></p>	No
Little Egret	Annex I, EU Birds Directive; BoCCI Green List & Irish Wildlife Act	No population of ecological significance recorded	<p>This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.3 for further detailed discussion. <b>No pathways for significant effects were identified.</b></p>	No
Merlin	Annex I, EU Birds Directive; BoCCI Amber List & Irish Wildlife Act	No population of ecological significance recorded	<p>This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.4 for further detailed discussion. <b>No pathways for significant effects were identified.</b></p>	No
Peregrine	Annex I, EU Birds Directive; BoCCI Green List & Irish Wildlife Act.	County Importance	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for peregrine (see Section 7.5.2.3).</p>	Yes

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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
White-tailed Eagle		No population of ecological significance recorded	This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.6 for further detailed discussion. <b>No pathways for significant effects were identified.</b>	No
Whooper Swan	Annex I, EU Birds Directive; BoCCI Amber List & Irish Wildlife Act.	<b>Wintering</b> County Importance	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during winter months. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for whooper swan (see Section 7.5.2.4).</p>	Yes
		<b>Breeding</b> No population of ecological significance recorded	<p>This species was not observed within the Proposed Wind Farm site during the core breeding season. There was no evidence of breeding recorded within Proposed Wind Farm site, or within 500m of same. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.7 for further detailed discussion. <b>No pathways for significant effects were identified.</b></p>	No
Curlew	BoCCI Red Listed & Irish Wildlife Act.	<b>Wintering</b> No population of ecological significance recorded	<p>This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species in winter. Please refer to Section 7.4.1.8 for further detailed discussion. <b>No pathways for significant effects were identified.</b></p>	No
		<b>Breeding</b> National Importance	<p>This species was recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p>	Yes

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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
			<p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for curlew (see Section 7.5.2.5).</p>	
Kestrel	BoCCI Red Listed & Irish Wildlife Act.	Local Importance (Higher Value)	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for kestrel (see Section 7.5.2.6).</p>	Yes
Lapwing	BoCCI Red Listed & Irish Wildlife Act.	<b>Wintering</b> County Importance	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during winter months. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for lapwing (see Section 7.5.2.7).</p>	Yes
		<b>Breeding</b>	<p>This species was not observed within the Proposed Wind Farm site during the core breeding season. There was no evidence of breeding recorded within Proposed Wind</p>	No

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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
		No population of ecological significance recorded	Farm site, or within 500m of same. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.10 for further detailed discussion. <b>No pathways for significant effects were identified.</b>	
Snipe	BoCCI Red List & Irish Wildlife Act.	County Importance	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for snipe (see Section 7.5.2.8).</p>	Yes
Woodcock	BoCCI Red Listed (Breeding Populations)	No population of ecological significance recorded	This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.12 for further detailed discussion. <b>No pathways for significant effects were identified.</b>	No
Buzzard	BoCCI Green List & Irish Wildlife Act.	Local Importance (Higher Value)	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for buzzard (see Section 7.5.2.9).</p>	Yes

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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Hobby	BoCCI Green List & Irish Wildlife Act.	No population of ecological significance recorded	This species was rarely observed within the Proposed Wind Farm site during the survey period. There is no evidence to suggest that the Proposed Wind Farm site is of significance to this species. Please refer to Section 7.4.1.14 for further detailed discussion. <b>No pathways for significant effects were identified.</b>	No
Long-eared Owl	BoCCI Green List & Irish Wildlife Act.	Local Importance (Higher Value)	<p>This species was recorded within the hinterland of the Proposed Wind Farm site during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded during surveys at the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was not recorded flying over the Proposed Wind Farm site within the potential collision risk zone. A collision risk assessment is not required.</p> <p>As such, an assessment of direct habitat loss and disturbance/displacement has been completed for long-eared owl (see Section 7.5.2.10).</p>	Yes
Sparrowhawk	BoCCI Amber List & Irish Wildlife Act.	Local Importance (Higher Value)	<p>This species was regularly recorded within the Proposed Wind Farm site and within 500m of same during the survey period. The potential for habitat loss cannot be excluded. <b>An assessment of direct habitat loss is required.</b></p> <p>Birds were recorded within the Proposed Wind Farm site. Taking a precautionary approach, <b>the potential for displacement exists.</b></p> <p>This species was recorded flying over the Proposed Wind Farm site within the potential collision risk zone. <b>A collision risk assessment is required.</b></p> <p>As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed for sparrowhawk (see Section 7.5.2.11).</p>	Yes
Passerines (Red Listed)	BoCCI Red List & Irish Wildlife Act	Local Importance (Lower Value)	Grey wagtail, meadow pipit, redwing and swift were recorded during surveys at the Proposed Wind Farm site and its hinterland. However, as per NatureScot guidance (SNH, 2017), it is generally considered that passerine bird species are not significantly	No



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Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
			impacted by wind farms due to their ecology and large populations. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Wind Farm will have a significant effect on these species. <b>No pathways for significant effects were identified.</b>	

### 7.4.3 Sensitivity Determination

Criteria developed by Percival (2003) for assessing bird sensitivity within the Proposed Wind Farm site is presented in Table 7-3 (Section 7.2.5). The sensitivity of the KORs, as per Percival (2003), are listed below, including the rationale (conservation status and/or susceptibility to impacts from this type of development) for their respective sensitivity classification.

**High Sensitivity** KORs are:

- > Hen Harrier (Ecologically sensitive species)
- > Curlew (Nationally/internationally important population)

**Medium Sensitivity** KORs are:

- > Golden Plover (Annex I; EU Birds Directive)
- > Peregrine (Annex I; EU Birds Directive)
- > Whooper Swan (Annex I; EU Birds Directive)
- > Kestrel (BoCCI Red Listed)
- > Lapwing (BoCCI Red Listed)
- > Snipe (BoCCI Red Listed)

**Low Sensitivity** KORs are:

- > Buzzard
- > Long-eared Owl
- > Sparrowhawk

## 7.5 Impact Assessment

All elements of the Proposed Project have been considered in assessing impacts on KORs. This section is structured as follows:

- > Assessment of 'Do Nothing' effect
- > Assessment of impacts in relation to KORs during construction and operation
- > Assessment of impacts in relation to KORs during decommissioning
- > Assessment of impacts associated with the Proposed Grid Connection and the turbine delivery route
- > Assessment of impacts on designated areas

### 7.5.1 Do-Nothing Effect

If the Proposed Project were not to proceed, the existing use of small-scale agriculture and commercial forestry, as well as turbarry activity, would continue. The other habitats identified within the Proposed Wind Farm site including hedgerows, watercourses and associated habitats, would likely remain in a similar condition. The general bird assemblage within the Proposed Wind Farm site, as described in this chapter, would likely remain similar to its current state as activity levels and land use would not change significantly.

The opportunity to harness the wind energy resource of County Galway would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment would also be lost.



Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the site for biodiversity, at a local scale, would also be lost.

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## 7.5.2 Likely Effects during Construction and Operation

The following sections describe potential effects on KORs that may occur during the construction and operation of the wind farm. The magnitude and significance of these effects are then defined according to Percival (2003) and EPA (2022) criteria.

### 7.5.2.1 Golden Plover (winter)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>Flocks deemed to be of County Importance were recorded flying over, or within 500m of, the Proposed Wind Farm site on 21 occasions. These observations occurred throughout the winter seasons and passage periods surveyed. The majority of observations were of golden plover commuting or circling over the Proposed Wind Farm site. There were only four observations of golden plover utilising habitats within the Proposed Wind Farm site.</p> <p>The land lost to the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha). This species was not dependent on the Proposed Wind Farm site for foraging or roosting during the wintering period, given how infrequently the site was utilized by birds. Golden plover were primarily utilising the bog habitats within the Proposed Wind Farm site, which is a habitat type that is widespread in the wider area surrounding the Proposed Wind Farm site. Extensive areas of suitable foraging and roosting habitat will remain post construction, and no significant impacts are predicted.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>Research indicates that this species is susceptible to disturbance impacts during construction works (Pearce-Higgins <i>et al.</i>, 2012). Additionally, Goodship and Furness (2022) reported mean disturbance distances of 143m for golden plover during the winter season. This species was not regularly recorded utilising habitats within the Proposed Wind Farm site for roosting or foraging. During</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i></p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>the four winter seasons surveyed, there were only four observations of birds landing within the Proposed Wind Farm site. Significant areas of roosting and foraging habitat for the species occur in the wider landscape and will be retained, e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore.</p> <p>In the event of disturbance, there are extensive areas of suitable habitat in the wider area including Lenamore bog to the south and Clooncah bog to the north as well as other large bogs and abundant improved agricultural grassland suitable for this species. Significant displacement effects are not anticipated.</p>	<p>impact corresponds to a <b>Low</b> effect significance</p>	
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>A review of 29 other studies suggests golden plover will approach wind turbines to an average distance of 175 m in non-breeding season (Hötker <i>et al.</i>, 2006). Only 19 of the 108 observations of golden plover during the on-site surveys were within 175m of the proposed turbines during surveys.</p> <p>In the event of displacement, there are extensive areas of suitable habitat in the wider area. This would likely render such an effect inconsequential. Furthermore, there is no evidence to suggest that the Proposed Wind Farm site lies on a migratory/ regular commuting route for the species, therefore barrier effect is not anticipated.</p> <p>Significant displacement effects are not anticipated at any geographical scale.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Collision Risk</b>	<p>The species was recorded flying within the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6. The collision risk assessment has utilised flight observations recorded across the winter season</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>and the autumn migration period in September, when this species was present onsite. Therefore, the assessment provided below is highly conservative. To account for the crepuscular flight activity of golden plover, the collision risk analysis for this species has assumed nocturnal flight activity occurred for 25% of the night. Please see Appendix 7-6 for further discussion.</p> <p>A key factor in calculating the predicted rate of collisions for a given species is the application of an avoidance rate. A review of golden plover collision avoidance from four UK wind farms has been undertaken and is outlined in Appendix 7-6. The output of this new research was a golden plover avoidance rate of between 99.6% and 99.8%. The lower avoidance rate of 99.6% was used in the collision risk analysis.</p> <p>The collision risk has been calculated at a rate of 29.9 collisions per year. Annual mortality of adult golden plover has been calculated at 27% per annum (Sandercock, 2003). If 29.9 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the county population<sup>14</sup> (i.e., 4,446 birds (please see Section 7.4.1.1 for further details)) by 2.5%. The predicted collision risk is therefore low in the context of the county population.</p>	<p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	

<sup>14</sup> The county population was considered a suitable reference population for assessment, based on the following rationale. This is a mobile and widespread species (as per the Bird Atlas 2009-11) that utilises a widespread habitat type (agricultural grassland), it is, therefore, unlikely to be a distinct local population and reasonable to conclude that there is some exchange of individuals in suitable habitat within the county.

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### 7.5.2.2 Hen Harrier (winter)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>Of the roost sites identified, there were no regularly used roosting sites within the Proposed Wind Farm site. In total, there was one observation of a bird roosting within the Proposed Wind Farm site, however, there were no subsequent observations of birds roosting at this location despite surveying at this location for four winter seasons. Therefore, given that hen harrier were only recorded roosting in this area on one occasion, they are not dependent on this area for roosting.</p> <p>Hen harrier were observed hunting within the Proposed Wind Farm site, however, the land lost to the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha).</p> <p>Hen harrier were primarily utilising the bog habitats within the Proposed Wind Farm site, which is a habitat type that is widespread in the wider area surrounding the Proposed Wind Farm site. Suitable similar habitat is abundant in the wider surroundings of the Proposed Wind Farm site, e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore. Significant effects are not anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>As previously discussed, there was one observation of a bird roosting within the Proposed Wind Farm site. Additionally, there was one observation of a bird roosting 600m from the nearest proposed infrastructure. These areas were only observed being utilised on one occasion each, therefore hen harrier are not dependant on these areas and therefore the potential for disturbance is limited. Furthermore, the majority of construction activity is likely to be during daylight hours when hen harrier are not roosting.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>There were also regularly used roost sites located 800m and 2km from the nearest Proposed Wind Farm infrastructure. The literature identifies the potential for disturbance impacts (associated with construction works) to occur between 500m and 1000m (Ruddock and Whitfield (2007), Fernández-Bellon <i>et al.</i> (2017) and Wilson <i>et al.</i> (2016)). Such disturbance is dependent on factors including topography and lines of sight. Given the separation distance of the frequently used roosts to the construction activity, the potential for disturbance is limited.</p> <p>Foraging or commuting hen harrier were infrequently recorded within, and adjacent to, the Proposed Wind Farm site.</p> <p>Hen harrier are not reliant on the Proposed Wind Farm site or habitats within the disturbance distances from the Proposed Wind Farm site for roosting or foraging. Furthermore, these habitat types (bog habitats) are abundant in the wider area. In the event of displacement, there are extensive areas of suitable habitat in the wider area including Lenamore bog to the south and Clooncah bog to the north as well as other large bogs in the wider area. Significant displacement effects are not anticipated.</p>		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	As previously mentioned, there were two regularly used winter roost sites (800m and 2.5km from the nearest proposed turbine) and two one off observations of birds roosting outside of these roost sites (on, and adjacent to, the Proposed Wind Farm site) during wintering bird surveys. As hen harrier were only recorded at these sites on one occasion each, they are not dependant on these areas and therefore the potential for displacement is limited. Hen harrier have been recorded to be subject to displacement impacts	The magnitude of the effect is assessed as <b>Low</b> .  The cross tabulation of <i>High</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance	Likely long-term slight negative effect, which is <b>Not Significant</b>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>of up to 750m from resting locations (Ruddock and Whitfield, 2007). Given the separation distance of the frequently used roosts to the proposed turbines, the potential for displacement is limited.</p> <p>Hen harrier have been recorded to be subject to displacement impacts within a 500m radius of turbines (Pearce-Higgins <i>et al.</i>, 2009) for foraging birds. However, foraging and commuting hen harrier were infrequently recorded within the Proposed Wind Farm site and were only recorded within 500m of the proposed turbines on 27 occasions over the four winter seasons surveyed at the Proposed Wind Farm site (i.e., approximately one observation per month). Furthermore, the habitats onsite are not unique to the Proposed Wind Farm site and are abundant in the wider surroundings.</p> <p>Significant effects are not predicted given the low numbers recorded, the infrequency of these observations within the Proposed Wind Farm site and the separation distance between the regularly used winter roost sites and the proposed turbines.</p>		
<b>Collision Risk</b>	<p>The species was recorded flying with the potential collision risk zone during vantage point surveys. The collision risk assessment utilises flight observations recorded across the winter season and the autumn passage period in August and September as birds were observed within the potential collision height during this period. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6.</p> <p>The collision risk has been calculated at a rate of 0.008 collisions per year, or one bird every 133 years. The predicted collision risk is insignificant over the 35-year lifetime of the Proposed Wind Farm.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Unlikely long-term imperceptible negative effect, which is <b>Not Significant</b></p>

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7.5.2.3 **Peregrine (all seasons)**

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>Peregrine were infrequently recorded commuting or hunting over the Proposed Wind Farm site during the survey period. Additionally, no evidence of breeding or roosting was recorded. Significant effects are not anticipated particularly given the low levels of activity recorded. Extensive areas of suitable foraging habitat will remain post construction and there is an abundance of suitable habitat in the surrounding area. Furthermore, this species is unlikely to be dependent on the onsite habitats, given the wide-ranging nature of the species and the availability of similar suitable habitats in the surroundings (e.g., agricultural grassland, bog and commercial forestry).</p> <p>Significant effects are not predicted.</p>	<p>The magnitude of the effect is assessed as <b>Negligible</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>The majority of observations were of birds commuting over the Proposed Wind Farm site, there were also occasional observations of birds foraging. There was no evidence of breeding activity recorded and there was no suitable breeding habitat (quarries or large ruins) identified within the vicinity of the Proposed Wind Farm site.</p> <p>Disturbance during construction is unlikely to discourage flight activity or foraging in the vicinity of the Proposed Wind Farm site particularly given the low levels of activity recorded and given that peregrine has been documented to become accustomed to various sources of human disturbance (Ruddock <i>et al.</i>, 2007).</p> <p>Significant disturbance effects are not anticipated</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>
<b>Operational Phase</b>			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<p><b>Displacement and Barrier Effect</b></p>	<p>There was no evidence of breeding recorded. In total, this species was recorded on 20 occasions within 500m of the proposed turbines during the survey period. The onsite habitats (agricultural grassland, bog and commercial forestry) are not unique to the Proposed Wind Farm site and are abundant in the wider landscape. The availability of alternative suitable habitat in the surroundings, limits the potential for significant displacement effects.</p> <p>Furthermore, peregrine has been documented to become accustomed to various sources of human disturbance (Ruddock <i>et al.</i>, 2007). It is therefore reasonable to conclude that following a period of habituation, the population will become accustomed to the wind farm in the landscape.</p> <p>Significant displacement effects are not predicted.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<p><b>Collision Risk</b></p>	<p>The species was recorded flying with the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6.</p> <p>The collision risk has been calculated at a rate of 0.085 collisions per year, or one bird every c. 12 years. Annual mortality of adult peregrine has been calculated at 19% per annum (Craig <i>et al.</i>, 2004). If 0.085 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the county population<sup>15</sup> (i.e., 64 birds (please see Section 7.4.1.5 for further details)) by 0.7%. The predicted collision risk is therefore negligible in the context of the county, national or international populations.</p>	<p>The magnitude of the effect is assessed as <b>Negligible</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>

<sup>15</sup> The county population was considered a suitable reference population for assessment, based on the following rationale. This is a mobile and widespread species (as per the Bird Atlas 2009-11) that utilises a widespread habitat type (agricultural grassland and peatland), it is, therefore, unlikely to be a distinct local population and reasonable to conclude that there is some exchange of individuals in suitable habitat within the county.

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### 7.5.2.4 Whooper Swan (winter)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
<b>Direct Habitat Loss</b>	<p>The majority of observations of this species were along the Raford River, with birds observed commuting along the river or landing on, or adjacent to the river. The only infrastructure proposed along the river is a clear span watercourse crossing for access to T8. The remaining observations of whooper swan were of birds commuting over the Proposed Wind Farm site.</p> <p>The construction of the Proposed Project will not result in the loss of a significant amount of foraging habitat given the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha). Direct (physical) loss of suitable habitat for this species will be minimal, particularly given the limited infrastructure proposed along the Raford River where this species was observed.</p> <p>Significant effects are not anticipated at any geographical scale</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>As per McGuinness <i>et al.</i> (2015), the zone of sensitivity for the species is 600m. This species was recorded in flight within 600m of the proposed turbine layout on 12 occasions, three of which were of whooper swan landing along the Raford River, within the Proposed Wind Farm site.</p> <p>A study undertaken by Rees (2005) in relation to whooper swan behavioural responses to human activity suggests that swans become less sensitive to disturbance if the frequency of daily disturbance is high. Rees <i>et al.</i> (2006) conducted a study at Black Cart Special SPA near Glasgow in relation to whooper swan behavioural and disturbance responses to different types of human activity. The study found that activities relating to cars, tractors, bicycles, farm workers on foot and cattle (livestock) exhibited the least disturbance to whooper swan flocks (within 100m disturbance distance bands).</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>The construction will require works similar to those described in the Rees assessment. Significant disturbance to whooper swan is therefore not anticipated as the populations are expected to become habituated to the levels of disturbance.</p> <p>This species was recorded on only 12 occasions within 600m of the Proposed Wind Farm site during 24 months of winter surveys. While some disturbance may occur for birds along the Roford River during construction, significant displacement effects are not anticipated at any geographical scale given the infrequency of observations and that disturbance would only be along a small stretch of the river. Furthermore, there is an abundance of suitable habitat for this species (e.g. wet grassland and rivers). Significant disturbance effects are not anticipated on these birds.</p> <p>No significant effects are predicted.</p>		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>As per McGuinness <i>et al.</i> (2015), the zone of sensitivity for the species is 600m. This species was recorded in flight within 600m of the proposed turbine layout on 12 occasions.</p> <p>Observations of whooper swan non-breeding activity from eight European studies have given a mean minimum avoidance distance of 150m from the base of wind turbines (Hötter <i>et al.</i>, 2006). Only seven of the observed flights of whooper swan were recorded within 150m of the proposed turbine layout. This few transits across the site limits the potential for significant impact to result. Furthermore, there is no evidence to suggest that the Proposed Wind Farm site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated. Any minor alterations to the flight</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	Likely long-term slight negative effect, which is <b>Not Significant</b>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>paths of local commuting birds due to the presence of turbines is not likely to result in significant effects.</p> <p>Significant displacement effects are not anticipated at any geographical scale.</p>		
<b>Collision Risk</b>	<p>The species was recorded flying within the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6. To account for the crepuscular flight activity of whooper swan, the collision risk analysis for this species has assumed nocturnal flight activity occurred for 25% of the night. Please see Appendix 7-6 for further discussion.</p> <p>The collision risk has been calculated at a rate of 0.24 collisions per year or one bird every 8.5 years. Annual mortality of adult whooper swan has been calculated at 20% per annum (Brazil, 2003). If 0.24 collisions were to occur per year, it would mean that the losses at the proposed wind farm would increase the annual mortality of the county population<sup>16</sup> (i.e., 1,485 birds (please see Section 7.4.1.7 for further details)) by 0.08%. The predicted collision risk is therefore negligible in the context of the county, national or international populations.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>

<sup>16</sup> The county population was considered a suitable reference population for assessment, based on the following rationale. This is a mobile and widespread species (as per the Bird Atlas 2009-11) that utilises a widespread habitat type (agricultural grassland and peatland), it is, therefore, unlikely to be a distinct local population and reasonable to conclude that there is some exchange of individuals in suitable habitat within the county.

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### 7.5.2.5 Curlew (breeding)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>There were no breeding sites recorded within, or adjacent to, the Proposed Wind Farm site during the breeding seasons surveyed. As previously discussed, there were two curlew present on the site for approximately 6 weeks in June/July 2022. These birds are assumed to be a post-breeding/non-breeding pair passing through the area. There were no observations of curlew during the other breeding seasons surveyed (2023 and 2024).</p> <p>Furthermore, the land lost to the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha). Direct (physical) loss of habitat will be minimal. Furthermore, the suitable foraging habitats for curlew on-site (bogland and agricultural grassland) are not unique to the Proposed Wind Farm site and similar habitat is not rare locally.</p> <p>Substantial areas of undisturbed suitable habitat will remain post construction. Significant effects are not anticipated.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>As previously discussed, there were no breeding sites identified during surveys. Furthermore, there is no evidence to suggest that the Proposed Wind Farm site or wider surroundings is utilised for foraging with any regularity.</p> <p>The Proposed Wind Farm site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for curlew.</p> <p>Significant effects are not anticipated, given that extensive areas of suitable foraging habitat exist and will remain in the wider area. Onsite habitats are not considered unique to the Proposed Wind Farm site.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely short-term imperceptible negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	No significant effects of disturbance are anticipated at the county, national or international level.		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>Disturbance displacement associated with operational turbines could result in the loss of some foraging habitat for curlew onsite/around the margins of the Proposed Wind Farm. However, there are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer. These areas include Lenamore bog to the south and Clooncah bog to the north. It is reasonable to assume that such nearby habitats could absorb any potentially displaced individuals.</p> <p>The habitats within and adjacent to the Proposed Wind Farm site are abundant in the wider area and are not unique to the Proposed Wind Farm site. Therefore, were displacement to occur it would not result in the loss of a scarce resource for curlew.</p> <p>There is no evidence to suggest that the Proposed Wind Farm site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated.</p> <p>Significant displacement effects are not predicted at the county, national or international scale.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>High</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>
<b>Collision Risk</b>	The species was recorded flying within PCH during vantage point surveys. A “Random” collision risk analysis has been undertaken (full details provided in Appendix 7-6).	The magnitude of the effect is assessed as <b><i>Negligible</i></b> .	Likely long-term imperceptible negative effect, which is <b>Not Significant</b>



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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	The collision risk has been calculated at a rate of 0.01 collisions per year, or one bird every 101 years. The predicted collision risk is insignificant over the 35-year lifetime of the Proposed Wind Farm.	The cross tabulation of <i>High</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance	

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### 7.5.2.6 Kestrel (all seasons)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>This species was frequently recorded within the Proposed Wind Farm site during the breeding and winter seasons surveyed. There was a probable breeding territory within the Proposed Wind Farm site identified at the start of the 2025 breeding season (March). However, there were no breeding territories identified during the three breeding seasons surveyed (2022, 2023 or 2024).</p> <p>Kestrel were regularly observed hunting within the Proposed Wind Farm site, however, the land lost to the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha). Direct (physical) loss of foraging habitat will be minimal. Furthermore, the suitable foraging habitats on-site (bogland and agricultural grassland) are not unique to the Proposed Wind Farm site and similar habitat is not rare locally.</p> <p>Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction. Significant effects are not anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>The construction of the Proposed Project has the potential to give rise to disturbance impacts; however, significant impacts are not predicted based on the following rationale. While this species was frequently recorded within the Proposed Wind Farm site during the breeding and winter seasons, the Proposed Wind Farm site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local kestrel population.</p> <p>Significant effects are not anticipated, given that extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area. Onsite habitats are not considered unique to the Proposed Wind Farm site.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	No significant effects of disturbance are anticipated at the county, national or international level.		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>Raptor studies have generally found only low levels of turbine avoidance (Hötter <i>et al.</i>, 2006; Madders and Whitfield, 2006), with some species, such as kestrels, known to continue foraging activity close to turbines (Pearce-Higgins <i>et al.</i>, 2009). Moreover, significant effects are not anticipated, given that extensive areas of similar suitable foraging habitat exist and will remain in the wider area (e.g., bog and grassland habitats). Onsite habitats are not considered unique to the Proposed Wind Farm site.</p> <p>Significant displacement effects are not predicted.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Collision Risk</b>	<p>The species was recorded flying within PCH during vantage point surveys. A “Random” collision risk analysis has been undertaken (full details provided in Appendix 7-6).</p> <p>The collision risk has been calculated at a rate of 5 collisions per year. Annual mortality of adult Kestrel has been calculated at 35% per annum (Orta <i>et al.</i>, 2020). If 5 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm site would increase the annual mortality of the county population (c. 1,431) by 1%. The predicted collision risk is low. No significant effects are anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

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### 7.5.2.7 Lapwing (winter)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>Lapwing were observed on 19 occasions during the non-breeding season months (August – March), 17 of which were within 500m of the Proposed Wind Farm site. All of the flight activity within 500m of the Proposed Wind Farm site were of flocks commuting or circling over the Proposed Wind Farm site, or the adjacent farmland and bog habitats.</p> <p>The species was not recorded utilising habitats within the Proposed Wind Farm site for foraging or roosting during the wintering period. There are some areas within the Proposed Wind Farm site that are potentially suitable for foraging and roosting lapwing. However, the land lost to the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area of the Site (884ha). Direct (physical) loss of suitable habitat for this species will be minimal. Furthermore, on-site habitats are not considered unique to the Proposed Wind Farm site and are widespread in the wider area surrounding the Proposed Wind Farm site. Extensive areas of suitable foraging and roosting habitat will remain post construction, and no significant impacts are predicted.</p> <p>Significant displacement effects are not anticipated at any geographical scale.</p>	<p>The magnitude of the effect is assessed as <b>Negligible</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>Wintering lapwing favour agricultural grassland for foraging during the winter months. The dominant habitats onsite are bog and commercial forestry, these habitats are considered to provide sub-optimal foraging habitat for lapwing. Only 3 of the 8 proposed turbines are located within agricultural farmland, which is the preferred habitat of foraging lapwing. This species was not observed to utilise any areas of the Proposed Wind Farm site during winter months but were primarily recorded commuting over the Proposed Wind Farm site. The abundant surrounding agricultural land is considered to provided more favourable winter foraging habitat than the habitats within the</p>	<p>The magnitude of the effect is assessed as <b>Negligible</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely short-term imperceptible negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>Proposed Wind Farm site. Furthermore, this species was infrequently recorded commuting over the Proposed Wind Farm site (on 19 occasions over four winter seasons).</p> <p>In the event of disturbance, there are extensive areas of suitable habitat in the wider area. Significant displacement effects on are not anticipated.</p>		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>Hotker <i>et al.</i> (2006) undertook a meta-analysis of existing literature on disturbance distances. This review reported from the 32 studies examined the mean disturbance distance for wintering lapwing was 260m.</p> <p>This species was not observed to utilise any areas of the Proposed Wind Farm site during winter months but was recorded commuting over the Proposed Wind Farm site. This species was recorded in flight within 260m of the proposed turbines on only four occasions, during winter months. Given the level of activity onsite and that the habitats within the Proposed Wind Farm site are not unique or rare locally, no significant effects are anticipated. Furthermore, the abundant surrounding agricultural land is considered to provide more favourable winter foraging habitat than the habitats within the Proposed Wind Farm site.</p> <p>There is no evidence to suggest that the Proposed Wind Farm site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated. Any minor alterations to the flight paths of local commuting birds due to the presence of turbines is not likely to result in significant effects.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely long-term imperceptible negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>There are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer (260m), should any potential displacement effect occur.</p> <p>No significant displacement (or barrier) effects on foraging or roosting lapwing are anticipated.</p>		
<b>Collision Risk</b>	<p>The species was recorded flying within the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6. The collision risk assessment has included flight observations recorded across the winter season and the autumn migration period in September, when this species was present onsite. To account for the crepuscular flight activity of lapwing, the collision risk analysis for this species has assumed that nocturnal flight activity occurred for 25% of the night. Please see Appendix 7-6 for further discussion.</p> <p>The collision risk has been calculated at a rate of 8.1 collisions per year. Annual mortality of adult lapwing has been calculated at 29.5% per annum (Peach <i>et al.</i>, 1994). If 8.1 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the county population<sup>17</sup> (i.e., 4, 592 birds (please see Section 7.4.1.10 for further details)) by 0.6%. The predicted collision risk is therefore negligible in the context of the county population.</p>	<p>The magnitude of the effect is assessed as <b><i>Negligible</i></b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b><i>Very Low</i></b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

<sup>17</sup> The county population was considered a suitable reference population for assessment, based on the following rationale. This is a mobile and widespread species (as per the Bird Atlas 2009-11) that utilises widespread habitat types (agricultural grassland, peatland), it is, therefore, unlikely to be a distinct local population and reasonable to conclude that there is some exchange of individuals in suitable habitat within the county.

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7.5.2.8 Snipe (all seasons)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>Snipe were regularly recorded during surveys, with breeding territories throughout the suitable bog habitat within and adjacent to the Proposed Wind Farm site.</p> <p>The (physical) loss of breeding habitat will be minimal as the infrastructure is confined to a narrow corridor within the Proposed Wind Farm site. Significant areas of suitable nesting and foraging habitat will continue to remain post construction (as there is limited infrastructure located within bog habitats onsite) and there is an abundance of suitable habitat in the surrounding area, including Lenamore bog to the south and Clooncah bog to the north. Significant habitat loss effects are not predicted.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>Pearce-Higgins <i>et al.</i> (2009) found that breeding snipe showed significant avoidance of turbines extending to a distance of 400m, and there is also evidence of avoidance of access tracks. It is assumed that snipe will show similar avoidance of construction activity. Snipe were recorded within 400m of the proposed turbines on 107 occasions. Notwithstanding this, the majority of the optimal habitat for snipe in the local area is located greater than 400m from the proposed turbines and to the south of the Proposed Wind Farm site.</p> <p>Disturbance associated with construction works will result in a measurable reduction in the breeding density of snipe onsite/around the margins of the Proposed Wind Farm site. However, given the extent of suitable habitat in the wider area; significant displacement during the construction phase is not predicted at the county, national or international scale.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>
<b>Operational Phase</b>			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<p><b>Displacement and Barrier Effect</b></p>	<p>As previously discussed, Snipe breeding density can be reduced by 50% within 400m of turbines (Pearce-Higgins <i>et al.</i>, 2009). Disturbance displacement associated with operational turbines will result in a measurable reduction in the breeding density of snipe onsite/around the margins of the Proposed Wind Farm. However, there are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer. These areas include Lenamore bog to the south and Clooncah bog to the north. It is reasonable to assume that such nearby habitats could absorb any potentially displaced individuals.</p> <p>The habitats within and adjacent to the Proposed Wind Farm site are abundant in the wider area and are not unique to the Proposed Wind Farm site. Therefore, were displacement to occur it would not result in the loss of a scarce resource for the local snipe population.</p> <p>There is no evidence to suggest that the Proposed Wind Farm site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated.</p> <p>Significant displacement effects are not predicted at the county, national or international scale.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>
<p><b>Collision Risk</b></p>	<p>The species was recorded flying within the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6. It is acknowledged that the predicted number of transits and hence predicted rate of collision for snipe may be underestimated, as flight activity for this species is predominantly crepuscular in nature while the vantage point surveys are largely diurnal (Table 1.4, SNH [2017]). To account for this, the collision risk analysis for this species has assumed nocturnal flight activity occurred for 25% of the night. Please see Appendix 7-6 for further discussion.</p>	<p>The magnitude of the effect is assessed as <b>Negligible</b>.</p> <p>The cross tabulation of <i>Medium</i> sensitivity species and <i>Negligible</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>The collision risk has been calculated at a rate of 1.4 collisions per year. Annual mortality of snipe has been calculated at 37.5% per annum (Spence, 1988). If 1.4 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the county population<sup>18</sup> (i.e. c.804 birds (please see Section 7.4.1.11 for further details)) by 0.46%. The predicted collision risk is therefore negligible in the context of the county population.</p>		

<sup>18</sup> The county population was considered a suitable reference population for assessment, based on the following rationale. This is a mobile and widespread species (as per the Bird Atlas 2009-11) that utilises widespread habitat types (agricultural grassland, peatland), it is, therefore, unlikely to be a distinct local population and reasonable to conclude that there is some exchange of individuals in suitable habitat within the county

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7.5.2.9 **Buzzard (all seasons)**

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>This species was regularly recorded within the Proposed Wind Farm site during the breeding and winter seasons. The construction of the Proposed Project will not result in the (physical) loss of a significant amount of suitable habitat given the permanent footprint is small (i.e. 7.6ha/0.9%) relative to the total area within the Site (884ha).</p> <p>Breeding territories were identified within the Proposed Wind Farm site in 2022, 2023 and 2025. Buzzard were also observed foraging within the Proposed Wind Farm site. However, the habitat types found within the Proposed Wind Farm site are not unique to the Proposed Wind Farm site and are not a rare resource in the wider area. Significant loss of potential breeding and foraging habitat is not anticipated. Direct loss of potential foraging habitat to the footprint of the Proposed Wind Farm will be minimal.</p> <p>No significant effects of direct habitat loss are anticipated at the county, national or international level.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>The construction of the Proposed Project has the potential to give rise to disturbance impacts; however, significant impacts are not predicted based on the following rationale. While this species was regularly recorded within the Proposed Wind Farm site during the breeding and winter seasons, the Proposed Wind Farm site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local buzzard population. Furthermore, there were similar levels of activity for this species in the wider area surrounding the Proposed Wind Farm site during surveys, indicating that this species is not reliant on habitats within the Proposed Wind Farm site.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>Significant effects are not anticipated, given that extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area. Onsite habitats are not considered unique to the Proposed Wind Farm site.</p> <p>No significant effects of disturbance are anticipated at the county, national or international level.</p>		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>This species was regularly recorded within the Proposed Wind Farm site during the breeding and winter seasons. As previously discussed, buzzard are resident in the area with breeding territories identified within the Proposed Wind Farm site.</p> <p>Pearce-Higgins <i>et al.</i> (2009) describes that buzzard show significant turbine avoidance extending to at least 500m. There were breeding territories identified within 500m of the proposed turbines in 2022, 2023 and 2025. However, extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area (i.e., outside 500m from the proposed turbines).</p> <p>Furthermore, onsite habitats are not considered unique to the Proposed Wind Farm site. In the event of displacement, there is an abundance of suitable habitat for this species greater than 500m from the proposed turbines within the Proposed Wind Farm site and its surroundings.</p> <p>No significant effects of displacement or barrier effect are anticipated at the county, national or international level.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Collision Risk</b>	<p>The species was recorded flying within PCH during vantage point surveys. A “Random” collision risk analysis has been undertaken (full details provided in Appendix 7-6).</p> <p>The collision risk has been calculated at a rate of 1.9 collisions per year. The favourable conservation status of this species (BoCCI Green-listed) limits the potential for ecologically significant effects to result. The loss of 1.9 birds per year over the lifetime of the Proposed Wind Farm from the local population of a green-listed species is considered not to be significant. No significant effects are anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

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7.5.2.10 Long-eared Owl (all seasons)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>This species was recorded infrequently during surveys at the Proposed Wind Farm site. However, given that this species is nocturnal and tends to only emerge in full dark, being cryptic during daylight hours when most surveys occur, it is considered to be resident in the area based on these observations.</p> <p>The land lost to the permanent footprint is small (i.e. 7.6ha/0.9%) relative to the total area of the Site (884ha). This limits the potential for significant habitat loss effects. Furthermore, the Proposed Wind Farm site does not contain habitats that are unique to the area. There is an abundance of suitable habitat (scrub and woodland) in the wider surroundings of the Proposed Wind Farm site. Significant effects on long-eared owl are not predicted.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>As previously discussed, it is considered that long-eared owl are resident at the Proposed Wind Farm site. As per Ruddock &amp; Whitfield (2007), long-eared owl have a limit of disturbance at 50-100m during incubation and 150-300m during chick rearing. However, there were no nest sites identified during the survey period at, or adjacent to, the Proposed Wind Farm site.</p> <p>While this species is resident at the Proposed Wind Farm site, the Proposed Wind Farm site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local long-eared owl population.</p> <p>Significant effects are not anticipated, given that extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area. Furthermore, significant disturbance is not anticipated given that construction activity will generally be during daylight hours, and this is a nocturnal species.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely short-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	<p>This limits the potential for significant disturbance to foraging or commuting birds.</p> <p>No significant effects of disturbance are anticipated at the county, national or international level.</p>		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>As previously discussed, Long-eared owl are resident in the area surrounding the Proposed Wind Farm site. Extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area (i.e., outside 500m from the proposed turbines). Furthermore, onsite habitats are not considered unique to the Proposed Wind Farm site. In the event of displacement, there is an abundance of suitable habitat for this species greater than 500m from the proposed turbines within the Proposed Wind Farm site and its surroundings.</p> <p>No significant effects of displacement or barrier effect are anticipated at the county, national or international level.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	Likely long-term slight negative effect, which is <b>Not Significant</b>
<b>Collision Risk</b>	This species was not recorded flying at potential collision height during the extensive vantage point survey work undertaken at the Proposed Wind Farm site. Collision related mortality is not likely to significantly impact this species.	<b>No Effect</b>	<b>No Effect</b>

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### 7.5.2.11 Sparrowhawk (all seasons)

Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Construction Phase</b>			
<b>Direct Habitat Loss</b>	<p>There were sparrowhawk territories located within the Proposed Wind Farm site in 2023 and 2024. In addition, there was additional probable and confirmed territories identified in 2022 and 2024 between 1.1km and 2.6km from the nearest proposed turbines.</p> <p>The construction of the Proposed Wind Farm site will not result in the loss of a significant amount of nesting or foraging habitat given the permanent footprint is small (i.e., 7.6ha/0.9%) relative to the total area within the Site (884ha).</p> <p>Significant areas of suitable nesting and foraging habitat will continue to remain post construction and there is an abundance of suitable habitat in the surrounding area. Significant displacement effects are not anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>
<b>Disturbance</b>	<p>As discussed previously, sparrowhawk are resident at the Proposed Wind Farm site and held territories within the Proposed Wind Farm site during the 2023 and 2024 breeding seasons.</p> <p>Construction adjacent to these nests could potentially cause displacement of breeding and foraging sparrowhawk. However, significant impacts are not predicted based on the following rationale. While this species was regularly recorded within the Proposed Wind Farm site during the breeding and winter seasons, the Proposed Wind Farm site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local sparrowhawk population. Furthermore, there were similar levels of activity for this species in the wider area surrounding the Proposed Wind Farm site during surveys, indicating that this species is not reliant on habitats within the Proposed Wind Farm site.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Very Low</b> effect significance</p>	<p>Likely long-term slight negative effect, which is <b>Not Significant</b></p>

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Potential effects during the construction and operational phases of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
	Significant displacement effects are not anticipated.		
Operational Phase			
<b>Direct Habitat Loss</b>	Direct habitat loss effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Displacement and Barrier Effect</b>	<p>As previously discussed, the Proposed Wind Farm site hosts breeding and foraging sparrowhawk. Displacement from turbines is not reported for sparrowhawk, however, it is assumed for the purposes of the assessment that sparrowhawk show avoidance to a distance of 500m from turbines as with other raptors (Pearce-Higgins <i>et al.</i>, 2009).</p> <p>This species was regularly recorded within the Proposed Wind Farm site and there were breeding territories within the Proposed Wind Farm site, in both 2023 and 2024. However, none of the habitats found onsite are considered to be a scarce resource locally. Therefore, displacement effects are likely to be inconsequential.</p> <p>Significant effects are not predicted particularly given that habitats within the Proposed Wind Farm site are not unique to the area. Extensive areas of suitable foraging and breeding habitat will remain post construction. Significant displacement effects are not anticipated.</p>	<p>The magnitude of the effect is assessed as <b>Medium</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Medium</i> impact corresponds to a <b>Very Low</b> effect significance</p>	Likely long-term slight negative effect, which is <b>Not Significant</b>
<b>Collision Risk</b>	<p>The species was recorded flying with the potential collision risk zone during vantage point surveys. A “Random” collision risk analysis has been undertaken, and full details are provided in Appendix 7-6.</p> <p>The collision risk has been calculated at a rate of 0.1 collisions per year, or one collision every 3.6 years. The loss of one bird every 3.6 years from the local population of a green-listed (BoCCI) species is considered insignificant.</p>	<p>The magnitude of the effect is assessed as <b>Low</b>.</p> <p>The cross tabulation of <i>Low</i> sensitivity species and <i>Low</i> impact corresponds to a <b>Very Low</b> effect significance</p>	Likely long-term slight negative effect, which is <b>Not Significant</b>

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### 7.5.3 Likely Effects during Decommissioning

Potential effects on KORs that may occur during the decommissioning of the Proposed Wind Farm are described below. The magnitude and significance of these effects are then defined according to Percival (2003) and EPA (2022).

Potential impacts during the decommissioning phase of the Proposed Project		Significance (Percival, 2003)	Significance (EPA, 2022)
<b>Direct Habitat Loss</b>	Direct or indirect effects are not anticipated.	<b>No Effect</b>	<b>No Effect</b>
<b>Disturbance</b>	As above for the construction phase for each species in Section 7.5.2.	As above for the construction phase for each species in Section 7.5.2.	As above for the construction phase for each species in Section 7.5.2.

7.5.4

## Likely Effect Associated with the Proposed Grid Connection and Turbine Delivery Route

The Proposed Grid Connection will originate from the proposed onsite 38kV substation and will run along the public road corridor, with two subsections located in private lands/tracks to the existing 220kV Cashla substation. The required works are minor and with the majority of works located within the existing road corridor (full details in Chapter 4 of this EIAR). The proposed turbine delivery route will begin at the Port of Galway and no significant turbine delivery route accommodation works are required along the route (full details in Chapter 4 of this EIAR).

For both the Proposed Grid Connection and turbine delivery route, the existing habitats (i.e. existing roads) do not have the potential to support other species of conservation interest in the area. On a precautionary basis, it is assumed that some temporary disturbance may occur during works. However, given the extent of suitable habitat in the wider area, significant disturbance effects are not predicted. The effect significance for all KORs is classed as no greater than *Low* (Percival, 2003) or a short-term slight negative effect (EPA, 2022) and is **Not Significant**.

7.5.5

## Likely Effects on Designated Sites

The Proposed Project is not located within the boundaries of any European Sites (see Section 7.3.1). An Appropriate Assessment screening was prepared to provide the information necessary to complete an Appropriate Assessment for the Proposed Project. The screening identified and assessed a potential pathway for indirect effects on the Rahasane Turlough SPA and the Inner Galway Bay SPA.

Following the screening, a Natura Impact Statement was prepared which concluded that:

*“Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction, operation and decommissioning of the Proposed Project will not adversely affect the integrity of European sites. Therefore, it can be objectively concluded that the Proposed Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.”*

As such, it can be concluded that the Proposed Project will not have an adverse impact on any European Sites designated for birds, either alone or in combination with other plans or projects.

No proposed National Heritage Area or National Heritage Area within the Zone of Influence were considered as ornithological ecological receptors in their own right due to the separation distance from the Proposed Project and the absence of connectivity.

7.6

## Mitigation and Best Practice Measures

This section describes the best practice measures that are in place to mitigate potential negative effects associated with the Proposed Project on avian receptors. Effects on avian receptors have been addressed in two ways:

- Design of the Proposed Project.
- Management of the development phases.

## 7.6.1 Design of the Proposed Project

The project design has followed the basic principles outlined below to avoid the potential for significant effects on avian receptors:

- The Proposed Project avoids wildlife refuge sites (e.g., waterbodies)
- Hard standing areas have been designed to the minimum size necessary to accommodate the proposed turbines, however it should be noted that the assessment of the hardstand footprint, within this EIAR, is based on the maximum potential footprint for a Proposed Wind Farm infrastructure (including the proposed turbines hardstands) under a precautionary scenario as outlined in Section 4.3.1.1.5 of Chapter 4.
- The turbine delivery route has been selected to utilise built infrastructure i.e., public roads.
- The Proposed Grid Connection has been selected to utilise built infrastructure for the majority of its length (i.e. cables to be laid within public roads and existing private roads/tracks). Cabling will be laid underground as a result and will avoid effects on roadside hedgerows and disturbance to nesting birds.

## 7.6.2 Management of the Proposed Project Phases

The following section describes the mitigation and best practice measures to be implemented during each phase of the Proposed Project.

### 7.6.2.1 Construction Phase

A Construction and Environmental Management Plan (CEMP) has been prepared and will be in place prior to the start of the construction phase. The CEMP is included as Appendix 4-5 if this EIAR and details pertinent to birds are summarised below. Note that these measures are proposed as industry best practice rather than to mitigate any identified significant effect and will be updated as required to address any conditions of a grant of permission or findings of any pre-construction survey results.

- Works will commence outside the bird nesting season (1st of March to 31st of August inclusive) where possible. Any requirement for construction works to run into the subsequent breeding season following commencement will be informed by pre-construction bird surveys.
- Where sections of woody vegetation are removed for the purposes of the junction and road upgrades, all work will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2022 and areas will be replaced with suitable hedge/tree species which are common in the local context.
- A Biodiversity Management and Enhancement Plan (BMEP) has been prepared for the Proposed Project and is Appendix 6-4 to this EIAR.
- During the construction phase, noise limits, noise control measures, hours of operation (i.e. dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. All plant and equipment for use will comply with the European Communities (Noise Emission By Equipment For Use Outdoors) Regulations, 2001, as amended (SI 632/2001). Plant machinery will also be turned off when not in use. Please see Chapter 12: Noise and Vibration for more detail associated with noise during the construction phase.
- Water protection measures will be implemented around existing watercourses as outlined in Chapter 9: Water of this EIAR, to protect the use of watercourses by birds.
- If winter roosting or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g.

Goodship and Furness, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.

- An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include:
  - Organise the undertaking of pre-construction and construction phase walkover bird surveys to ensure that significant effects on birds will be avoided.
  - Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Proposed Wind Farm site.
  - Oversee management of ornithological issues during the construction period and advise on ornithological issues as they arise.
  - Provide guidance to contractors to ensure legal compliance with respect to protected species onsite.
  - Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress as necessary.

### 7.6.2.2 Operational Phase

No significant operational phase impacts requiring mitigation were identified.

### 7.6.2.3 Decommissioning Phase

During the decommissioning phase, disturbance limitation measures will be as per the construction phase described in Section 7.6.2.1.

## 7.7 Sharing Ecological Data

As a measure to support conservation research and policy, it is proposed to submit the pre-planning survey data and information to the National Biodiversity Data Centre (NBDC) and to BirdWatch Ireland to contribute to the upcoming bird atlas (2027) on relevant ecological records, for example, information on the location of breeding territories and nest sites of bird species of conservation concern. The submission of the data will follow relevant standards and will be provided in the preferred NBDC excel template. This measure will be fulfilled within the first year of the construction phase in the event of a successful application. This commitment ensures the Proposed Project is contributing to the aims of Objective Four, Outcome 4B of Ireland's 4th National Biodiversity Action Plan: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.

## 7.8 Monitoring

The following monitoring measures are proposed as industry best practice rather than in response to any identified impacts associated with the Proposed Project.

### 7.8.1 Pre-Construction and Construction Surveys

It is proposed that construction works will commence outside the bird breeding season (1st of March to 31st of August inclusive) where possible to avoid the most sensitive time of the year for most bird species with the potential to use the Proposed Wind Farm site and its environs. Pre-commencement confirmatory surveys will be undertaken within one month prior to the initiation of works at the Proposed Wind Farm site to identify any sensitive sites (e.g. nests or roosts). Any requirement for construction works to run into the subsequent breeding and winter seasons following commencement will be subject to a repeat of the pre-commencement bird surveys to confirm the absence of breeding birds of conservation concern once per month during the breeding season (April to July) and once

during the winter season (October). The survey will aim to identify sensitive sites e.g., nests or roosts, depending on the season in question.

The survey will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the development footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during works, works will cease within a species-specific buffer of its location in line with best practice guidance (e.g. Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the ‘no-work zone’ will be made available to all construction staff. The restricted area will also be marked to alert all personnel onsite to the suspension of works within that area.

## 7.8.2 Operational Phase

In line with best practice measures, a detailed operational phase Bird Monitoring Programme has been prepared for the Proposed Project, please refer to Appendix 7-7 for further details. The programme of works will monitor parameters associated with collision, displacement/barrier effects and habituation during the lifetime of the project. Surveys will be scheduled to coincide with years 1, 2, 3, 5, 10 & 15 of the lifetime of the wind farm. Monitoring measures are broadly based on guidelines issued by the NatureScot (SNH, 2009 and SNH, 2017). The following individual components are proposed:

- Monthly flight activity surveys: vantage point surveys.
- Targeted bird collision surveys (corpse searches) will be undertaken with trained dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.

The proposed Bird Monitoring Programme was not proposed in response to any identified significant effect but rather as a best practice measure (as per guidance outlined in NatureScot, 2009). The monitoring is comprehensive and considered entirely adequate in this regard. The results of this monitoring will be reported to the Planning Authority following each monitoring year and will include recommendations that may inform additional mitigation or adaptation if required.

## 7.8.3 Decommissioning

The same monitoring measures will be followed for decommissioning as outlined for the construction phase in Section 7.8.1.

## 7.9 Residual Effects

The following species were identified as KORs and were subject to detailed impact assessment:

- Golden Plover (winter)
- Hen Harrier (winter)
- Peregrine (all seasons)
- Whooper Swan (winter)
- Curlew (breeding)
- Kestrel (all seasons)
- Lapwing (winter)
- Snipe (all seasons)

- > Buzzard (all seasons)
- > Long-eared Owl (all seasons)
- > Sparrowhawk (all seasons)

Taking into consideration the effect significance levels identified and the proposed best practice and mitigation, significant residual effects on the KORs with regard to direct habitat loss, disturbance/displacement or collision mortality are not anticipated. No effect significance greater than **Low**, as per Percival criteria or **Slight**, as per EPA, 2022 criteria, was identified for any KOR.

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## 7.10 Cumulative Effects

As per NatureScot guidance “Assessing the Cumulative Impacts of onshore Wind Energy Developments” (SNH, 2012), cumulative effects arising from two or more developments may be:

- > **Additive** (a multiple independent additive model)
- > **Antagonistic** (the sum of impacts is less than in a multiple independent additive model)
- > **Synergistic** (the cumulative impact is greater than the sum of the multiple individual effects)

This section first identifies other plans and projects in the vicinity of the Site and then assesses the potential for additive, antagonistic or synergistic impacts to occur.

### 7.10.1 Other Plans and Projects

Assessment material was compiled for relevant developments within the vicinity of the Site. The material was gathered through a search of relevant online Planning Registers, reviews of relevant EIS/EIAR documents, planning application details and planning drawings. It served to identify past and future plans and projects, their activities and their environmental impacts. These are then considered for in-combination or cumulative effects with the Proposed Project. All plans and projects reviewed are outlined below.

#### 7.10.1.1 Plans Considered in the Cumulative Impact Assessment

The following plans were considered in the cumulative impact assessment:

- > Galway County Development Plan 2022-2028
- > National Biodiversity Action Plan 2023-2030

#### 7.10.1.2 Projects Considered in the Cumulative Impact Assessment

NatureScot guidance (SNH, 2012; 2018) was consulted while undertaking the cumulative assessment. SNH (2012; 2018) emphasises that its priority is to ‘maintain the conservation status of the species population at the national level.’ However, it is acknowledged that consideration should also be allowed for impacts at the regional level ‘where regional impacts have national implications (for example where a specific region holds the majority of the national population)’. Following the guidance of SNH (2012), the cumulative impact assessment has been carried out at the scale of the importance rating of the receptor. Please note that a 25km radius of the Proposed Wind Farm site was considered a reasonable approximation of the size of a county and a 5km radius of the Proposed Wind Farm site was considered a reasonable approximation for the local level.

To conduct the cumulative impact assessment, Local Authority and An Coimisiún Pleanála online planning registers, relevant EIAR (or EIS) documents, planning application details and planning drawings within 25km of the Proposed Wind Farm site were reviewed to identify past and future

projects, their activities and their environmental impacts. The findings of this review are outlined in the following sections.

### 7.10.1.2.1 **Developments and Land Uses**

The review of the County Council planning register identified relevant general development planning applications within 25km of the Proposed Wind Farm site. Most of these relate to the provision and/or alteration of one-off rural housing and agriculture-related structures, as described in Chapter 2 of this EIAR. Owing to the scale and nature of these developments, significant cumulative impacts are not anticipated.

#### Forestry and Agricultural Practices

The wider surroundings of the Site primarily consist of land managed for agriculture in the form of livestock grazing and commercial conifer plantations, both of low ecological value. The forestry works (felling/planting) associated with the forestry in the wider surroundings of the Proposed Wind Farm will be subject to relevant licencing and guidance from the Forestry Service.

These land-uses have been taken into account in this cumulative assessment.

### 7.10.1.2.2 **Other Wind Turbine Developments**

Wind turbine projects within 25km of the proposed turbines are provided in Table 7-11, including details of their planning status. The environmental impacts of each existing, permitted or proposed wind farm are outlined in detail in this section. It is noted that there are single turbines within 25km of the proposed turbines; note that none are within 10km of the proposed turbines. Due to the distance of these single turbines and their scale (i.e. less than 50m tip height), no significant cumulative effects are anticipated and therefore these turbines are not considered further.

Table 7-11 Wind energy applications within 25km of the proposed turbines

Wind Farm	Planning Status	Number of Turbines	Separation Distance (turbine to turbine)
Killure More Wind Farm	Proposed	14	15.2km
Cooloo Wind Farm	Proposed	9	18.4km
Derryfadda Wind Farm	Proposed	Unknown	20km
Sonnagh Old Wind Farm	Existing	9	20.2km
Cloonlusk Wind Farm	Existing	2	20.8km
Derrybrien Wind Farm	Not Operational	70	23.5km
Cloonascragh Turbine	Permitted	1	23.9km

#### Killure More Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the proposed Killure More Wind Farm was considered. The proposed Killure More Wind Farm is at the preplanning stage and therefore no planning application has been lodged, and no impact assessment has been completed. The proposed Killure More Wind Farm is located within farmland and bog habitats. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the proposed Killure More Wind Farm.

### Cooloo Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the proposed Cooloo Wind Farm was considered. The proposed Cooloo Wind Farm is at the preplanning stage and therefore no planning application has been lodged, and no impact assessment has been completed. The proposed Cooloo Wind Farm is located within farmland and bog habitats. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the proposed Cooloo Wind Farm.

### Derryfadda Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the proposed Derryfadda Wind Farm was considered. The proposed Derryfadda Wind Farm is at the preplanning stage and therefore no planning application has been lodged, and no impact assessment has been completed. The proposed Derryfadda Wind Farm is located within farmland and bog habitats. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the proposed Derryfadda Wind Farm.

### Sonnagh Old Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the existing Sonnagh Old Wind Farm was considered. The planning file<sup>19</sup> was consulted on the Galway County Council Planning Register and the EIS was reviewed. The EIS assessed the potential impacts of disturbance and collision during the operational phase of the development for the local bird assemblage, particularly hen harrier. It was concluded that “*the possibility of impact by disturbance on migrating birds can be disregarded*”. It was also concluded that there may be a possibility of impacts on hen harrier if a pair was to recolonise in this area of the Slieve Aughty Mountains SPA.

### Cloonlusk Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the existing Cloonlusk Wind Farm was considered. The planning file<sup>20</sup> was reviewed on the Galway County Council Planning Register and a response to further information on flora and fauna was reviewed. The target species discussed in this document were meadow pipit, snipe (probable), buzzard, peregrine falcon, kestrel, sparrowhawk and red grouse (probable). The existing Cloonlusk Wind Farm was ruled out as suitable foraging grounds for lapwing, golden plover, curlew, swans, geese or ducks. There were no known migration routes for whooper swan over the area. No known records of roosting hen harrier were recorded for this site. The predicted effects of the existing Cloonlusk Wind Farm on avifauna was predicted to be minimal. It was concluded that peregrine falcon, long-eared owl, hen harrier, merlin, kestrel or sparrowhawk would not be expected to come into contact with the rotor blades.

The EIS assessed collision risk and displacement for the operational phase of the existing Cloonlusk Wind Farm. The collision risk was assessed to be of low significance for peregrine falcon, lapwing and kestrel, and negligible/not significant for hen harrier, lapwing, snipe, merlin, sparrowhawk and buzzard. Disturbance/displacement and barrier effect were assessed to be of low significance for golden plover, snipe, peregrine, buzzard, sparrowhawk, hen harrier, kestrel, merlin, lapwing and whooper swan and not significant/negligible for curlew, meadow pipit or grouse.

<sup>19</sup> <https://www.eplanning.ie/GalwayCC/AppFileRefDetails/003234/0>

<sup>20</sup> <https://www.eplanning.ie/GalwayCC/AppFileRefDetails/082407/0>

## Derrybrien Wind Farm

The potential for the Proposed Wind Farm to result in significant cumulative or in-combination effects when assessed alongside the existing Derrybrien Wind Farm was considered. The planning file<sup>21</sup> along with the rEIAR was reviewed on the An Coimisiún Pleanála website. The effects of disturbance and collision risk for hen harrier were assessed. It was noted that there were no documented collisions at the operational wind farm during the survey period. The collision risk for hen harrier was assessed to be of “*low risk of collisions with wind turbines.*” It was also concluded that “*displacement of hen harriers from the areas near turbines at Derrybrien has not been a significant impact.*”

A cumulative impact assessment was conducted for hen harrier within the Slieve Aughty Mountains SPA. It was concluded that “*there is no evidence to suggest that there is a cumulative impact on birds, and hen harrier in particular, by the operation of the two wind farms in the area.*”

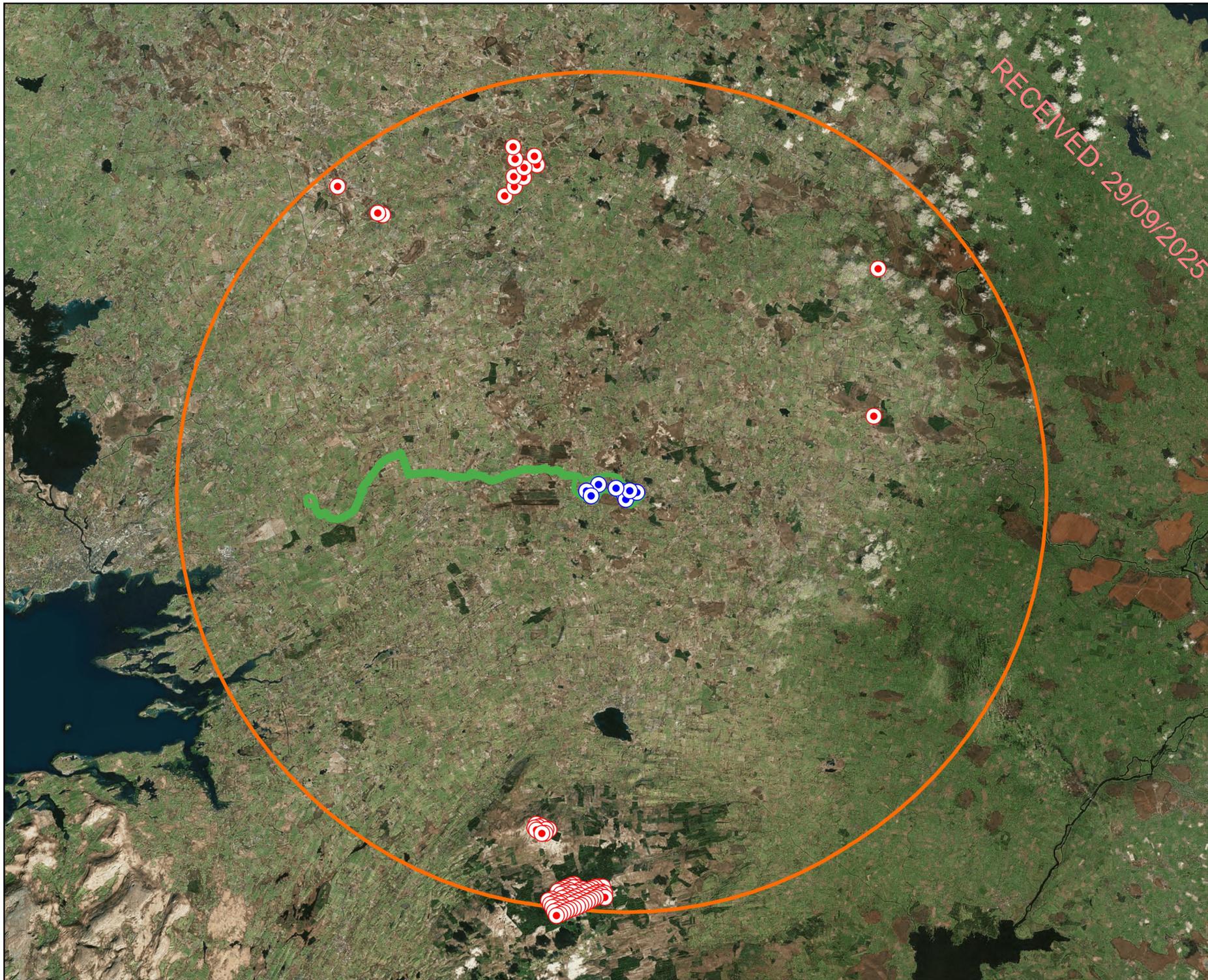
The existing Derrybrien Wind Farm is not operational and is currently scheduled for decommissioning. The existing Derrybrien Wind Farm will not be operational when the Proposed Wind Farm is commissioned and therefore there would be no cumulative impacts between the two wind farms. Derrybrien Wind Farm is not discussed further within the cumulative impact assessment below.

## Cloonascragh Turbine

The potential for the Proposed Wind Farm to result in significant cumulative or in combination effects when assessed alongside the permitted Cloonascragh Turbine, which is c.12.2km from the nearest proposed turbine (T01) was considered. The Environmental Report and Ecological Impact Assessment (EIA) document were reviewed on the Galway County Council website<sup>22</sup>. The EIA document concluded that, with the implication of the outlined mitigation measures that “*the proposed development will not have the potential to result in significant negative residual impacts to habitats or fauna.*” The document outlined the species observed at the wind farm site. The following species were assessed: lapwing, sand martin and skylark. Furthermore, the nature of the habitat on site, i.e., cutover bog, were widespread and abundant within the surrounding areas resulting in a predicted low, or very low, effect significance for both displacement and collision risk for species within the development site and no effect for habitat loss.

<sup>21</sup> <https://www.pleanala.ie/en-ie/case/308019>

<sup>22</sup> <https://www.eplanning.ie/GalwayCC/AppFileRefDetails/221175/0>



Map Legend

-  EIA Site Boundary
-  Proposed Turbine Layout
-  25km Radius of Proposed Turbines
-  Other Turbines

RECEIVED: 29/09/2025



Drawing Title  
Turbines within 25km of the  
Proposed Turbine Layout

Project Title  
Gannow Renewable Energy  
Development

Drawn By CC	Checked By PM
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Project No. 240323	Drawing No. Fig 7-7
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Scale 1:300,000	Date 11.07.2025
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## 7.10.2 Assessment of Cumulative Effects

There were eleven KORs identified at the Proposed Wind Farm site: golden plover, hen harrier, peregrine, whooper swan, curlew, kestrel, lapwing, snipe, buzzard, long-eared owl and sparrowhawk. A key consideration in the assessment of the potential for cumulative impacts to result in significant effects on KORs is proximity and whether the existing, permitted or proposed projects under consideration all contain suitable habitats for the species in question. For the purposes of this cumulative assessment, the local scale is considered to be a 5km radius of the proposed turbines. There are no turbines within 5km of the proposed turbines. There is only one turbine within 5-15km of the proposed turbines, while the remaining wind farms and single turbines are between 15-25km of the proposed turbines.

Following SNH (2012) guidance, the cumulative impact assessment has been carried out at the scale of the importance rating of the receptor: National Importance (hen harrier, curlew); County Importance (golden plover, peregrine, whooper swan, lapwing and snipe); and Local Importance (kestrel, buzzard, long-eared owl and sparrowhawk). The assessment of cumulative effects on KORs is provided in the sections below. In particular, cumulative habitat loss and displacement associated with operational turbines is assessed. Short-term impacts (e.g. construction disturbance) are highly unlikely to give rise to significant cumulative impacts. No significant cumulative effects are predicted, and it is not considered further. Similarly, the impacts associated with the Proposed Grid Connection are short-term and are highly unlikely to give rise to significant cumulative impacts. No significant cumulative effects are predicted, and it is not considered further.

For most KOR species collision risk no greater than Very Low (as per Percival 2003 criteria) or Long-term Imperceptible (as per EPA, 2022) were predicted. Cumulative collision risk is therefore not considered further given these predicted impacts are effectively zero. The collision risk for golden plover and kestrel was also predicted to be a very rare event (i.e. Low (as per Percival 2003 criteria) and Long-term Slight (as per EPA, 2022), however as these two species had the higher risk of collisions, cumulative impacts for collision risk are addressed below in sections 7.10.2.1 and 7.10.2.5.

### 7.10.2.1 Golden Plover (County Importance)

The potential for developments at a county scale (25km) to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The Proposed Wind Farm site contains agricultural grassland and bog habitats which are suitable for foraging and roosting golden plover. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm and existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm and permitted Cloonascragh Turbine are located within, or partially within and bog habitats. However, these habitats are not considered to be a scarce resource in the area and in particular agricultural grassland (which is favoured by foraging golden plover) is abundant locally and is one of the most abundant habitat types within the country. As provided in Figure 7-8, there is a low density of turbines within 25km of the proposed turbines, additionally there is only one existing turbine within 20km for the proposed turbines, such that extensive areas of suitable foraging habitat will remain post construction, and there will be a continuing abundance of suitable habitat in the surrounding area.

No significant cumulative impacts are anticipated with regard to collision risk given the low density of turbines in the surrounding area (i.e. only one existing turbine within 20km of the proposed turbines). Notwithstanding this, the result of operational phase bird monitoring will be reported to the Planning Authority following each monitoring year and will include recommendations that may inform additional mitigation or adaptation if required.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area.

Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

### 7.10.2.2 Hen Harrier (National Importance)

Article 12 reporting includes a description of threats and pressures acting on hen harrier at a national level. The impacts associated with wind farms (renewable abiotic energy use) are classified as of medium importance. However, in this part of the country this is not considered a key issue for the species. As provided in Figure 7-8 there is a low density of turbines within 25km of the proposed turbines, this limits the potential for a contribution to a significant cumulative impact at a national level. The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The Proposed Wind Farm site contains bog habitats which are suitable for foraging and roosting hen harrier. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm, and the existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. This habitat is of limited value to foraging and roosting hen harrier and one of the most abundant habitat types within the country, therefore significant cumulative impacts with these developments is not anticipated. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm and permitted Cloonascragh Turbine are located within, or partially within bog habitats. This habitat is suitable for foraging and roosting hen harrier. However, bog habitats are not considered to be a scarce resource in the area. As provided in Figure 7-8 there is a low density of turbines within 25km of the proposed turbines, additionally there is only one existing turbine within 20km for the proposed turbines, such that extensive areas of suitable foraging and roosting habitat will remain post construction, and there will be a continuing abundance of suitable habitat in the surrounding area.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

### 7.10.2.3 Whooper Swan (County Importance)

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The potential for developments at a county scale (within 25km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Project were considered. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm, and the existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm and permitted Cloonascragh Turbine are located within, or partially within bog habitats. Both of these habitat types are suitable for foraging and roosting whooper swan, particularly where winter flooding occurs. However, these habitats are not considered to

be a scarce resource in the area. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Extensive areas of suitable foraging habitat will remain post construction (e.g. the abundant local grassland), and there is an abundance of suitable roosting habitat in the surrounding area (e.g. the many local bogs which have the potential to flood).

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

#### 7.10.2.4 Curlew (National Importance)

Article 12 reporting does not list threats and pressures associated with breeding curlew, however, it does include a description of threats and pressures acting on wintering curlew at a national level. The threats and pressures are likely to be similar during the breeding season and impacts associated with wind farms (renewable abiotic energy use) are classified as of medium importance. However, in this part of the country this is not considered a key issue for the species. As provided in Figure 7-8 there is a low density of turbines within 25km of the proposed turbines, this limits the potential for a contribution to a significant cumulative impact at a national level. The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The Proposed Wind Farm site contains agricultural grassland and bog habitats which are suitable for foraging curlew. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm and existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. The proposed Killure More Wind Farm, the proposed Cooloo Wind Farm and permitted Cloonascragh Turbine are located within, or partially within bog habitats. However, these habitats are not considered to be a scarce resource in the area and in particular agricultural grassland (which is favoured by foraging curlew) is abundant locally and is one of the most abundant habitat types within the country. As provided in Figure 7-8, there is a low density of turbines within 25km of the proposed turbines, additionally there is only one existing turbine within 20km for the proposed turbines, such that extensive areas of suitable foraging habitat will remain post construction, and there will be a continuing abundance of suitable habitat in the surrounding area.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

### 7.10.2.5 Kestrel (Local Importance)

The potential for local developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

There are no wind farms within 5km of the proposed turbines. Furthermore, the Proposed Wind Farm site is predominantly in a cutover bog with a mixture of agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Therefore, significant cumulative impacts are not predicted.

No significant cumulative impacts are anticipated with regard to collision risk given the low density of turbines in the surrounding area, with the closest existing turbine being a single domestic turbine located over 10km west of the proposed turbines. Notwithstanding this, the result of operational phase bird monitoring will be reported to the Planning Authority following each monitoring year and will include recommendations that may inform additional mitigation or adaptation if required.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Project no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

### 7.10.2.6 Lapwing (County Importance)

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The potential for developments at a county scale (within 25km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm were considered. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm, and the existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm, and permitted Cloonascragh Turbine are located within, or partially within bog habitats. Both of these habitat types are suitable for foraging and roosting lapwing, particularly where winter flooding occurs. However, these habitats are not considered to be a scarce resource in the area. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Extensive areas of suitable foraging habitat will remain post construction (e.g. the abundant local grassland), and there is an abundance of suitable roosting habitat in the surrounding area (e.g. the many local bogs which have the potential to flood).

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Project, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

#### 7.10.2.7 Snipe (County Importance)

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

The potential for developments at a county scale (within 25km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm were considered. The Proposed Wind Farm site contains agricultural grassland and bog habitats which are suitable for foraging and breeding snipe. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm, and the existing Cloonlusk Wind Farm are all located within, or partially within agricultural grassland habitats. The proposed Killure More Wind Farm, proposed Cooloo Wind Farm, and permitted Cloonascragh Turbine are located within, or partially within bog habitats. Both of these habitat types are suitable for foraging snipe. However, these habitats are not considered to be a scarce resource in the area. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Extensive areas of suitable foraging habitat will remain post construction, and there is an abundance of suitable habitat in the surrounding area.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

#### 7.10.2.8 Buzzard (Local Importance)

The potential for local developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

There are no wind farms within 5km of the proposed turbines. Furthermore, the Proposed Wind Farm site is predominantly in a cutover bog with a mixture of agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Therefore, significant cumulative impacts are not predicted.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

#### 7.10.2.9 Long-eared Owl (Local Importance)

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

There are no wind farms within 5km of the proposed turbines. Furthermore, the Proposed Wind Farm site is predominantly in a cutover bog with a mixture of agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Therefore, significant cumulative impacts are not predicted.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

#### 7.10.2.10 Sparrowhawk (Local Importance)

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Wind Farm was considered.

There are no wind farms within 5km of the proposed turbines. Furthermore, the Proposed Wind Farm site is predominantly in a cutover bog with a mixture of agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Proposed Wind Farm site (e.g. bogland at Lenamore, Clooncah, Crossmacrin and Cloonkeenmore bogs). Therefore, significant cumulative impacts are not predicted.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

**Significant cumulative impacts are not predicted.**

7.11

## Conclusion

Following consideration of the residual effects (post-mitigation), it is concluded that the Proposed Project will not result in any significant effects on any of the identified KOR. No significant effects on receptors of International, National or County Importance were identified. Provided that the Proposed Project is constructed, operated and decommissioned in accordance with the design and best practice mitigation that are described within this application, significant individual or cumulative effects on the identified KOR are not anticipated.

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