

6. BIODIVERSITY

6.1 Introduction

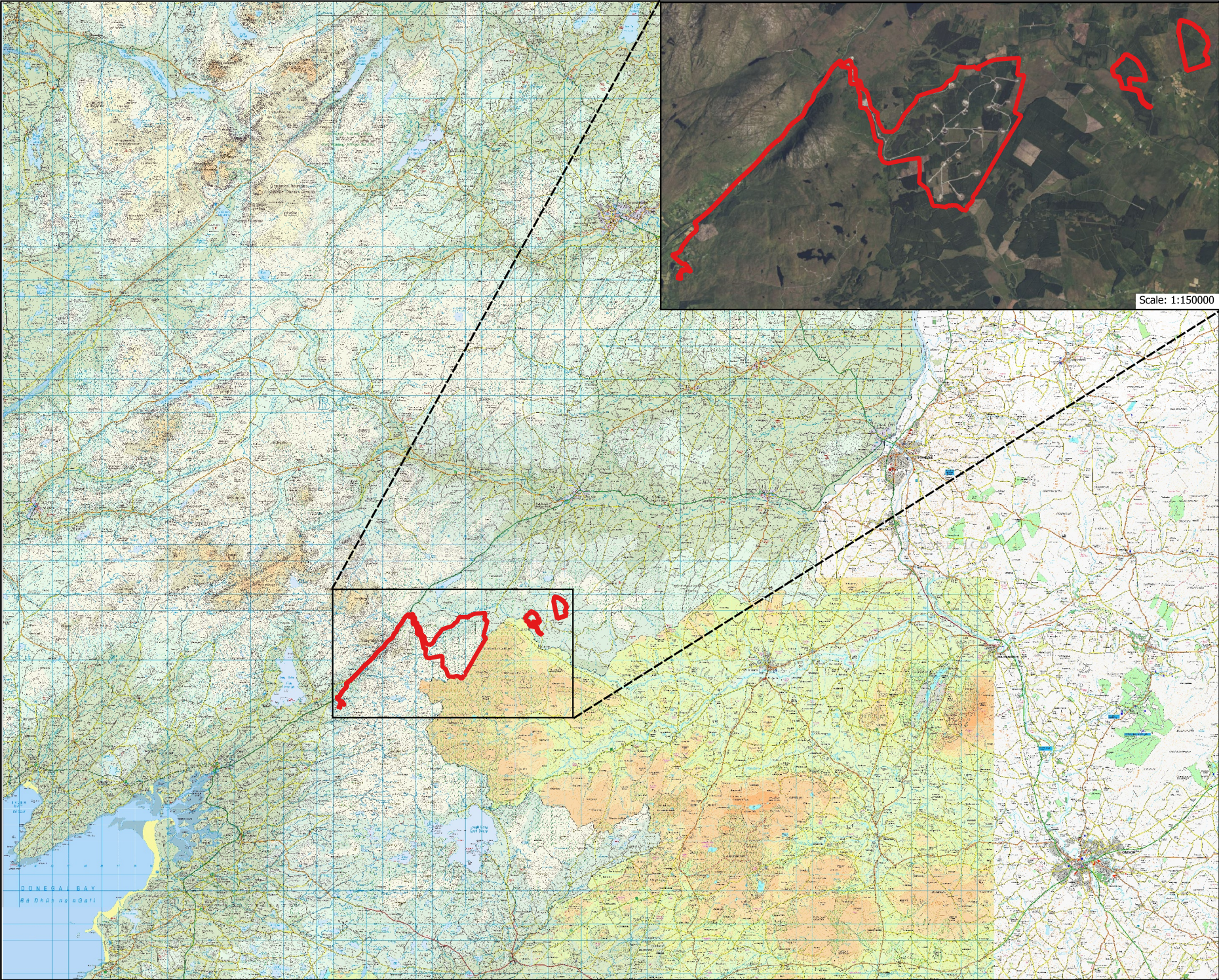
This Biodiversity Chapter assesses the effects on biodiversity of the Prospective Development in the context of Biodiversity, Flora, and Fauna (excluding birds, which are assessed in Chapter 7). Particular attention has been paid to species and habitats of ecological importance. These include species and habitats with national and international protection under the Wildlife Act, 1976 (as amended) and the EU Habitats Directive 92/43/EEC. Impacts on avian receptors are considered in **Chapter 7** of this Environmental Impact Assessment Report (EIAR).

This EIAR Chapter informs the application for substitute consent for the Prospective Development. A separate remedial EIAR has been prepared for the Existing Development as part of the same substitute consent planning application.

The chapter is structured as follows:

- Firstly, a brief description of the Prospective Development is provided.
- This is followed by a comprehensive description of the ecological survey and impact assessment methodologies that were followed to inform the robust assessment of likely significant effects on ecological receptors.
- A description of the baseline and existing ecological conditions is then provided. This includes results of the comprehensive desk and field surveys that were undertaken.
- The Key Ecological Receptors (KERs) are then identified and evaluated.
- Following this a comprehensive assessment of the effects of the Prospective Development on biodiversity is provided. This includes an assessment of the effects, both individually and cumulatively with other projects and assesses the residual effects on biodiversity. Transboundary effects are also considered.
- The conclusion provides a summary statement on the overall significance of the effects on Biodiversity.

As detailed in Section 1.1.1 in Chapter 1 of this EIAR, the various development components are described and assessed using the following references: 'Subject Development', 'Existing Development', 'Prospective Development', 'Permitted Development', 'Site', 'Wind Farm Site', 'Grid Connection Site', 'BMEP Site', 'Grid Connection', 'November 2020 Peat Slide', '2017 EIAR' and 'proposed turbines' or 'proposed turbine locations'.



Map Legend

Site Location



Drawing Title

Site Location

Project Title

Substitute for Consent Application for
Meenbog Wind Farm

Drawn By

MK

Checked By

PR

Project No.

240505-a

Drawing No.

Figure 6.1

Scale

1:300,000

Date

09.06.2026



MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

6.1.1 Relevant Guidance

The assessment methodology is based primarily upon Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine Version 1.2 (CIEEM, 2022) and the Transport Infrastructure Ireland (TII)'s *Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2* (TII, 2009a) (referred to hereafter as the TII Ecological Impact Assessment Guidelines). The survey methodology is based primarily on the TII guidelines on *Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes* (TII, 2009b). Although these survey methodologies relate to road schemes, these standard guidelines are recognised survey methodologies that ensure good practice regardless of the development type.

In addition, the following guidelines were adhered to in the preparation of this document to provide the scope, structure, and content of the assessment:

- Bats and onshore wind turbines: survey, Assessment, and mitigation (NatureScot August 2021)
- NIEA, Natural Environment Division - Guidance on Bat Surveys, Assessment and Mitigation for Onshore Wind Turbine Developments in Northern Ireland (May 2022).
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA), 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. (Department of the Environment, Community and Local Government (DoEHLG), 2013).
- Environmental Impact Assessment of National Road Schemes – A Practical Guide (TII, 2008a).
- Guidance on the preparation of the Environmental Impact Assessment Report (European Commission (EC), 2017)

This assessment has been carried out in accordance with the Environmental Impact Assessment guidance as outlined in Chapter 1 of the EIAR.

This assessment has taken into account the various planning policies and strategy guidance documents listed below:

- Donegal County Development Plan 2024-2030
- Derry & Strabane District Council – Local Development Plan (LDP 2032)
- 4th National Biodiversity Action Plan 2023-2030
- Northern and Western Regional Spatial and Economic Strategy 2020 - 2032

6.1.2 Statement of Authority

This report and associated assessment have been prepared by Pat Roberts (B.Sc. (Env) MCIEEM), and Matthew Kieran (BSc. Env, Eco). Pat is a full member of the Chartered Institute of Ecology and Environmental Management. Pat is a highly experienced in the undertaking of Biodiversity Chapters for Ecological Impact Assessment Reports and has over 20 years' post graduate experience in ecological consultancy. Matthew is a qualified ecologist with 2 years post graduate experience.

The pre-works ecological baseline was first described in the 2017 EIAR and the surveyors are listed therein. Subsequently, ecological surveys were undertaken on numerous occasions by Rachel Minogue (B.Sc., Env.), Matthew Kieran (BSc. Env, Eco), Colin Murphy (B. Sc (Ecology), M.Sc.), Tom Peters (B.Sc., M.Sc.) Kieran Sugrue (B.Sc. Env & Eco), Caiti Farren (B.Sc.), Aran von der Geest Moroney (B.Sc.) and Pat Roberts. All surveyors had the appropriate skills, experience and qualifications to undertake the surveys and assessments that they were undertaking. Dedicated, bat, peatland and aquatic assessments were undertaken by MKO and Triturus Ltd. across multiple dates in 2021, 2022, 2023, 2024 and 2025. Details of the surveyors that undertook these surveys and assessments are provided in the survey reports that are provided in the relevant appendices.

Brief Description of Prospective Development

A full description of the Prospective Development is provided in Chapter 4 of this EIAR. A summary is provided below. The Prospective Development layout is illustrated on Figure 4-1 of this EIAR. This figure shows the location of all elements of the Prospective Development, locations of the proposed wind turbines, meteorological (met) mast, peat cells and landscaping, borrow pits, extension to existing temporary construction compound, internal access roads to be constructed and requiring minor works and upgrades, and hardstand areas requiring upgrade or completion, internal wind farm underground ducting and cabling requiring completion, biodiversity enhancement areas, amenity areas, forestry felling areas, site drainage, and the site entrance.

The Wind Farm Site is located within a rural, agricultural setting in County Donegal approximately 8 km southwest of the twin towns of Ballybofey and Stranorlar and approximately 12 km northeast of Donegal Town at its nearest point. The Grid Connection Site extends southwest from the Wind Farm Site for approximately 6 km along the N15 National Road towards Donegal Town before exiting the N15 to the southeast and following Local Roads, adjacent agricultural land and private access track to the Clogher 110kV substation. The BMEP Site is comprised of two parcels of land consisting of coniferous forestry and associated forestry access tracks. The BMEP Site is located in the townland of Tievecloghoge and comprises two land parcels, referred to as Parcel 1 (to the east) and Parcel 2 (to the west). Parcel 2 is located approximately 2.3km east of the Wind Farm Site, and Parcel 1 is located approximately 4.2km east of the Wind Farm Site.

This application seeks an operating period of 25 years from the date of full commissioning of the wind farm. Current and future wind turbine generator technology will ensure that the wind turbine model, chosen for the Prospective Development, will have an operational lifespan greater than the 25-year operational life that is being sought as part of the planning application.

6.3

Methodology

The following sections describe the methodologies followed to establish the ecological condition of the Site and surrounding areas. Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018). This section also describes the methodology followed to identify and characterise the KERs and to undertake the impact assessment.

6.3.1

Scoping and Consultation

MKO undertook a scoping exercise during preparation of this EIAR, as described in **Chapter 2, Section 2.9** of this EIAR. Copies of all scoping responses are included in **Appendix 2-2** to this EIAR. Details of the recommendations of the consultees are provided in Chapter Two, together with information about where in the EIAR they have been addressed. The feedback from the consultees has informed the EIAR preparation process and the contents of this chapter. **Table 6-1** below provides a list of the organisations consulted with regard to biodiversity during the scoping process, and notes where scoping responses were received. Any scoping responses received on birds are addressed in Chapter 7 Ornithology.

Table 6-1 Organisations consulted with regard to biodiversity

Consultee	Date of Response	Referenced in
An Taisce	No response received	N/A
Bat Conservation Ireland	No response received	N/A
Birdwatch Ireland	No response received	N/A
Department of Agriculture, Food and Marine	Response 29/09/2025 The Department made comments in relation general aspects to be considered in felling or removal of any trees as part of the Subject Development. No further comments in the follow up response.	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting
Department of Housing, Local Government and Heritage (DHLGH)	Meeting held with NPWS on 8th January 2026. The main points as they relate to Biodiversity (Excluding Birds are provided below) Bog Restoration It was noted that the preferred methodology for bog restoration is tree stump removal/flipping in flatter areas of deeper peat, and stump grinding/ pairing preferred on shallow sloped peat (Sourcing the necessary equipment for this may prove challenging). Reprofilling the bog surface in line with NatureScot Guidance can assist in reducing establishment of birch and similar dominant species. Drain blocking alone is unlikely to have the desired effect above a certain gradient. Aquatic Impacts The impact of the November 2020 peat slide on the downstream watercourses was discussed and the nature of the impacts and recovery of the river was explained. The emergency response measures undertaken by the applicant and stream restoration	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting

	undertaken was also discussed. These actions limited impacts on the river and aided the recovery of the Shruhanganve River.. Appropriate Assessment The approach proposed in respect of the Appropriate Assessment reporting (AASR and NIS) was discussed and informed the nature of the assessment of effects on European Sites that is presented in the NIS that accompanies the application.	
Inland Fisheries Ireland	Response 24/10/2025 The Department provided observations on the Grid Connection in relation to water quality, valuable ecological habitats, aquatic environment, watercourses, watercourse crossings, drains, and site transport routes. A full description of comments raised by Inland Fisheries Ireland can be found in Appendix 2-1 Scoping Responses. No further comments in follow up response.	Section 6.4.1
Irish Peatland Conservation Council (IPCC)	Response 17/09/2025 IPCC raised various concerns in relation to Meenbog Wind Farm.	Sections 6.4.1 and 6.6.2
Irish Wildlife Trust	No capacity for consultation	N/A
Department of Agriculture, Environment and Rural Affairs (DAERA) – Regional Office	Response 03/10/2025 Water Management Unit (Provided data sources and guidance documents to be used, recommended that the application provides clear details on effects to waterways and surface water disposal etc., and mitigation measures for the protection of the water environment and surrounding water bodies, recommends that the applications is compliant with the DAERA Standing Advice Pollution Prevention Guidance document). Natural Environment Division (Observations regarding salmon within the development site, and potential risks to surrounding hydrologically connected sites. Recommends various plans for the application (CEMP, Pollution Prevention Plan, Site Drainage Plan etc.). Full descriptions of points raised can be found in Appendix 2-1 Scoping Responses. No further comments in the follow up response.	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting
Loughs Agency	Meeting held on 16th January 2026 The findings of the aquatic surveys undertaken by the applicant were presented and it was noted that the findings aligned well with the findings of the Lough Agency’s surveys and monitoring of the river. It was noted by the Loughs Agency that salmon had been recorded spawning throughout the catchment in good	Section 6.5.2.4

	numbers in the years since the peat slide. It was also noted that salmon had been recorded in the Bunadaowen during electro-fishing surveys It was noted that the Loughs Agency had undertaken gravel cleaning throughout the spawning habitat within the Mourne Beg and had seen the benefit of this with an increase in the distribution of salmonid spawning following these interventions. It was noted that this is standard practice for the Loughs Agency but additional works had been undertaken on the Mourne Beg following the peat slide He noted that distribution had contracted again to some degree and suggested that gravel cleaning may be needed again. The Loughs Agency noted that due to salmon lifecycle, the effects of an impact in 2020 would be seen again four years later when the fish from that time return to spawn. If there was a drop in salmon recruitment in 2020, there would likely be an equivalent drop in spawning fish, four years later. The applicant noted that no drop in salmon numbers had been recorded during the surveys undertaken immediately after the peat slide by Loughs Agency and Triturus and that, there was no drop in numbers during the 2024 or 2025 electro-fishing surveys carried out by Triturus. Loughs Agency concluded that they did not disagree with the information presented to him during the meeting and agreed to further consultation if necessary.	
Environmental Protection Agency	No response received	N/A

6.3.1.1 Establishment of Zones of Influence

Zone of Influence” (ZOI) refers to the zone within which potential effects are anticipated. ZOIs differ depending on the sensitivities of particular habitats and species and were assigned individually for each in accordance with best available guidance and through adoption of a precautionary approach.

In many instances, the scale of the works is such that the ZOI extends no further than the Site. In other cases, such as where there is the potential for disturbance or where there is a watercourse to provide downstream connectivity, the ZOI may extend outside the Site.

6.3.2 Desk Study

The desk study undertaken for this assessment included a thorough review of available ecological data including the following:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), EPA (Envision), Water Framework Directive (WFD), Geological Survey of Ireland (GSI) & Inland Fisheries Ireland (IFI).
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.

- Data on potential occurrence of protected bryophytes – as per NPWS online map viewer; Flora Protection Order Map Viewer – Bryophytes.
- Inland Fisheries Ireland (IFI) Reports.
- Review of specially requested records from the NPWS Rare and Protected Species Database for the hectad H08 in which the Site is located.
- Review of NPWS Article 17 Metadata and GIS Database Files.
- Review of Biotic Index of Water Quality (BIWQ) developed by the (EPA).
- Review of Northern Ireland Environment Agency water quality monitoring data.

All online data sources listed above were most recently accessed on the 1st April 2026.

6.3.3 Ecological Field Surveys

The Site has been subject to extensive ecological field surveys carried out as part of the 2017 EIAR and during the construction of the Permitted Development such as pre-commencement mammal surveys. These surveys informed the pre-development baseline and are provided in the 2017 EIAR and formed part of the construction supervision procedures followed.

Additionally, comprehensive surveys of the biodiversity of the Site were subsequently undertaken and inform this EIAR. The following sections fully describe the surveys that have been undertaken between 2021 and 2025 and provide details of the methodologies and guidance followed. Details are summarised in **Table 6-2** below.

Table 6-2: Ecology Surveys Informing the EIAR

Survey Type	Dates	Appendix
Multi-disciplinary walkover (incl. habitats and species)	➤ 03/06/2021 ➤ 20/01/2022 ➤ 23/08/2023 ➤ 24/08/2023 ➤ 11/09/2023 ➤ 18/12/2023 ➤ 19/12/2023 ➤ 28/08/2024 ➤ 29/08/2024 ➤ 11/09/2025 ➤ 04/03/2026	N/A
Otter Survey	➤ 20/01/2022 ➤ 24/08/2023 ➤ 11/09/2025	N/A
Bat Surveys	Full details of dates of manual activity surveys and emergence surveys, static detector surveys, and daytime bat habitat appraisal surveys, are presented in Appendix 6-1 .	Appendix 6-1
Aquatic surveys (including otter)	Full details of dates of aquatic surveys including Electrofishing, fisheries habitat appraisal, white-clawed crayfish survey, macrophyte and bryophyte sampling, Q-sampling and macroinvertebrate kick and sweep sampling Appendix 6-2. ➤ Redd Count 07/01/2026	Appendix 6-2
Terrestrial Surveys of Grid Connection Site	➤ 03/06/2021 ➤ 11/09/2025	N/A

6.3.3.1 Multi-disciplinary Walkover Surveys (as per NRA Guidelines, 2009)

Multidisciplinary walkover surveys were undertaken within the Site on the dates outlined in **Table 6-2 above**. Surveys were undertaken following guidelines that are set out in the relevant guidance (NRA, 2009) throughout the year including within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011)¹. All habitats recorded within the Site and described in this Biodiversity chapter have been mapped and classified in accordance with Fossitt (2000)². A comprehensive walkover of the entire Site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys. During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011) was conducted.

The walkover surveys were also designed to detect the presence, or likely presence, of a range of protected species. The survey included a search for mammal signs (bats, badger, red squirrel etc.) and areas of suitable habitat to support these species, potential features likely to be of significance to bats and additional habitat features for the full range of other protected species that are likely to occur in the vicinity of the Site (e.g. otter etc.). Bird species observed during the multi-disciplinary surveys were also recorded.

Based on the survey findings, further detailed targeted surveys were carried out for features and locations of ecological significance. Other targeted surveys undertaken within the Site are described in the following subsections.

6.3.3.2 Terrestrial Faunal Surveys

The results of the desk study, scoping replies, previous surveys associated with the Site and incidental records of protected species during ecological survey work were used to inform the scope of the multidisciplinary walkover surveys. Dedicated surveys for bats were undertaken across the Site and are detailed in the Bat Report in **Appendix 6-1**. Dedicated otter surveys were carried out by MKO within the Wind Farm Site and along the Grid Connection Route and are detailed in the Aquatic Reports in **Appendix 6-2**. During the multidisciplinary walkover surveys, where observed incidental records of birds, mammals, reptiles, amphibians, and invertebrates including butterflies, dragonflies, etc. were recorded.

6.3.3.2.1 Badger Surveys

Badger surveys were conducted during the ecological multidisciplinary walkover surveys on the dates set out in **Table 6-2** above in order to determine the presence or absence of badger signs within the Site. This involved a search for all potential badger signs as per NRA (2009³) (latrines, badger paths and setts).

The badger survey was conducted adhering to best practice guidance (NRA, 2009) and followed the ‘Guidelines for the Treatment of Badger Prior to the Construction of National Roads Schemes’ (NRA, 2006a) and CIEEM best practice competencies for species surveys (CIEEM, 2013⁴).

6.3.3.2.2 Otter Survey

The otter surveys were conducted as per NRA (2009³) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all

¹ (Smith *et al* 2011)- Best Practice Guidance for Habitat Survey and Mapping. Available at https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf

² (Fossitt 2000)- A Guide to Habitats in Ireland. Available at <https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf>

³ NRA (2009) Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes. Dublin: National Roads Authority.

⁴ CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/> Accessed: 20.03.2021

⁵ NRA (2009) Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes. Dublin: National Roads Authority.

otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS 2009). The dedicated otter survey also followed the guidance as set out in NRA (2008) *‘Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes’* and following CIEEM best practice competencies for species surveys (CIEEM, 2013⁶).

6.3.3.2.3 Bat Surveys

Detailed description of the survey methodologies undertaken at the Wind Farm Site throughout 2024/2025 in relation to bats is provided in the Bat Report included in **Appendix 6-2** of this EIAR, together with full details of the survey times and the surveyors who carried out the bat survey and assessment work.

Survey design and effort was created in accordance with the best practice guidelines, *‘Bat Surveys: Good Practice Guidelines’ prepared by the Bat Conservation Trust (Collins 2023)⁷* and were undertaken in strict accordance with those prescribed in NatureScot (2021)⁸ *‘Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation’*. This is in line with standard best practice industry guidelines.

In addition, ecological evaluation of bat populations has been undertaken with reference to *Guidelines for the Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority (NRA), 2009), which provides a recognised framework for assigning ecological importance at different geographic scales (e.g. local, county, national and international). Consideration has also been given to species valuation principles outlined in Wray et al. (2010), *Valuing bats in ecological impact assessment*, together with the most recent conservation status assessments presented in *The Status of EU Protected Habitats and Species in Ireland: Article 17 Report* (NPWS, 2025). These sources have informed the evaluation of species importance within an Irish context and have been used to support the interpretation of species-specific sensitivity and risk within the assessment.

6.3.3.3 Aquatic Surveys

The aquatic environment was described and characterised in the 2017 EIAR. The Fisheries Habitat Assessment and Aquatic Macrophyte Sampling Report from the 2017 EIAR are provided in **Appendix 6-2**.

Additional surveys and assessments have been undertaken in the subsequent years for the Existing Development. Details of these surveys and associated reporting are also provided in **Appendix 6-2** and full details of the methodologies followed are included therein. Appendix 6-3 includes the following reports:

- Meenbog Wind Farm – Fisheries Assessment. Paul Johnson Associates (2017)
- Aquatic macroinvertebrate survey. MKO (2017)
- Aquatic and Fisheries Assessment of November 2020 Peat Slide impacts on the Mourne Beg River Catchment draining Meenbog Wind Farm, Co. Donegal. Triturus (2022)
 - Electro-fishing
 - Salmonid Habitat Quality
 - Salmonid fry abundance
 - Riverbed Condition Assessment
 - River Hydromorphology
 - Biological Water quality (Q-Sampling)
- Aquatic baseline report for Meenbog wind farm, Co. Donegal. Triturus (April 2025)

⁶ CIEEM, 2013, *Technical Guidance Series – Competencies for Species Survey*, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/> Accessed: 20.03.2021

⁷ (Collins 2023)- *Bat Surveys for Professional Ecologists- Good Practice Guidelines*. Available at <https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-4th-edition-AMENDED-27.03.24.pdf?v=1711530492>

⁸ (NatureScot, 2021) *Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*. Available at https://www.nature.scot/sites/default/files/2021-08/Bats%20and%20onshore%20wind%20turbines%20-%20survey%20and%20assessment%20and%20mitigation_0.pdf

- Aquatic site surveys
- Fisheries assessment and habitat appraisal
- White clawed crayfish survey
- Biological water quality (Q-Sampling)
- Lacustrine Macro-invertebrate communities
- Macrophytes and aquatic bryophytes
- Otter surveys
- Aquatic baseline report for Meenbog wind farm, Co. Donegal (October 2025)
 - As per previous report – updated.

In addition, a visual survey for salmonid redds was undertaken on the 7th of January 2026. During these surveys, the Mourne Beg River was walked at the locations listed below and any redds observed were counted. The objective of the survey was to confirm spawning at traditional spawning areas – as previously identified by the Loughs Agency and Triturus (See **Appendix 6-2**). Despite a period of dry weather, water levels were still high, and the water was highly coloured, limiting visibility and likely leading to an under recording of redds present. Areas surveyed included:

1. *From Croagh Bridge at Grid Ref H 12543 85759, downstream for approximately 1.3km – traditional salmonid spawning area.*
2. *From bridge at Grid Ref: H 352 85183, downstream for approximately 120m – traditional salmonid spawning area.*
3. *From confluence of Bunadaowen with Mourne Beg at Grid Ref H 08236 87800 for a distance of approximately 500m – recent salmonid spawning area.*

6.3.4 Methodology for Assessment of Impacts and Effects

6.3.4.1 Identification of Target Receptors and Key Ecological Receptors

The methodology for assessment followed a precautionary screening approach with regard to the identification of Key Ecological Receptors (KERs). Following comprehensive desk and field surveys, “Target receptors” likely to occur in the zone of influence of the development were identified. The target receptors included habitats and species that were protected under the following legislation:

- Annexes of the EU Habitats Directive
- Qualifying Interests (QIs) of NHAs and pNHAs within the likely zone of influence
- Species protected under the Wildlife Act
- Species protected under the Flora (Protection) Order 2022 S.I. No. 235

6.3.4.2 Determining Importance of Ecological Receptors

The importance of the ecological features identified within the Site was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the ‘Guidelines for Assessment of Ecological Impacts of National Roads Schemes’ (TII, 2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular receptor is of importance on the following scales:

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

The TII Guidelines clearly set out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significance and of any importance only in the local area. Internationally Important Sites are either designated for conservation as part of the Natura 2000 Network (SACs or SPAs) or provide the

best examples of habitats or internationally important populations of protected flora and fauna. Specific criteria for assigning each of the other levels of importance are set out in the guidelines and have been followed in this assessment. Where appropriate, the geographic frame of reference set out above was adapted to suit local circumstances. In addition, and where appropriate, the conservation status of habitats and species is considered when determining the significance of ecological receptors.

Any ecological receptors that are determined to be of National or International, County or Local importance (Higher Value) following the criteria set out in NRA (2009) are considered to be KERs for the purposes of ecological impact assessment if there is a pathway for effects thereon. Any receptors that are determined to be of Local Importance (Lower Value) are not considered to be KERs.

6.3.4.3 Characterisation of Impacts and Effects

Potential ecological effects of the potential impacts are characterised as per the CIEEM ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ (2018). These guidelines are the industry standard for the completion of Ecological Impact Assessment in the UK and Ireland. This chapter has also been prepared in accordance with the corresponding EPA guidance (EPA 2022). The headings under which the impacts are characterised follow those listed in the guidance document and are applied where relevant. A summary of the impact characteristics considered in the assessment is provided below:

- **Positive or Negative.** Assessment of whether the Prospective Development has resulted in a positive or negative effect on the ecological receptor.
- **Extent.** Description of the spatial area over which the effect has the potential to occur.
- **Magnitude** Refers to size, amount, intensity, and volume. It should be quantified if possible and expressed in absolute or relative terms e.g., the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
- **Duration** is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.
- **Frequency and Timing.** This relates to the number of times that an impact occurs and its frequency. A small-scale impact can have a significant effect if it is repeated on numerous occasions over a long period.
- **Reversibility.** This is a consideration of whether an effect is reversible within a ‘reasonable’ timescale. What is considered to be a reasonable timescale can vary between receptors and is justified where appropriate in the impact assessment section of this report.

6.3.4.4 Determining the Significance of Effects

The ecological significance of the effects of the Prospective Development are determined following the precautionary principle and in accordance with the methodology set out in Section 5 of CIEEM (2018).

For the purpose of Ecological Impact Assessment (EcIA), ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general. Conservation objectives may be specific (e.g., for a Designated Site) or broad (e.g., national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local (CIEEM, 2018).

When determining significance, consideration is given to whether:

- Any processes or key characteristics of KERs will be removed or changed.
- There will be an effect on the nature, extent, structure, and function of important ecological features.
- There is an effect on the average population size and viability of ecologically important species.
- There is an effect on the conservation status of important ecological habitats and species.

As per TII (NRA, 2009) and CIEEM (2018) best practice guidelines, the following key elements should also be examined when determining the significance of effects:

- The likely effects on ‘integrity’ should be used as a measure to determine whether an impact on a site is likely to be significant (NRA, 2009).
- A ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives (CIEEM, 2018).

6.3.4.4.1 Integrity

In the context of EcIA, ‘integrity’ refers to the coherence of the ecological structure and function, across the entirety of a site, that enables it to sustain all of the ecological resources for which it has been valued (NRA, 2009). Impacts resulting in adverse changes to the nature, extent, structure and function of component habitats and effects on the average population size and viability of component species, would affect the integrity of a site, if it changes the condition of the ecosystem to unfavourable.

6.3.4.4.2 Conservation status

An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status. According to CIEEM (2018) guidelines the definition for conservation status in relation to habitats and species are as follows:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure, and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

As defined in the Habitats Directive the conservation of a habitat is favourable when:

- Its natural range, and areas it covers within that range, are stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.
- The conservation status of its typical species is favourable.

The conservation of a species is favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.
- There is and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

According to the NRA (2009) and CIEEM (2018) Guidelines, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international).

6.3.4.5 Limitations

The information provided in this chapter accurately and comprehensively describes the ecological environment following the construction of the Existing Development and no significant limitations were identified. It is based on baseline information that was provided in the 2017 EIAR and additional pre and post construction surveys that were undertaken on numerous dates during all seasons between 2020 and 2026. It provides the baseline upon which to assess the Prospective Development. The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. The habitats and species on the Site were readily identifiable and comprehensive information was gathered during the

field visits. The desk and field surveys provide the necessary information to inform the impact assessment that was undertaken.

6.4 Establishing the Ecological Baseline

6.4.1 Desk Study

The following sections describe the results of a survey of published material that was consulted. It provides baseline information relating to the ecology of environment in which the Prospective Development is situated and informs the nature and scope of the field surveys undertaken and the impact assessment.

6.4.1.1 Designated Sites

6.4.1.1.1 Identification of the Designated Sites within the Likely Zone of Influence of the Prospective Development

European Sites (Special Areas of Conservation and Special Protection Areas)

Special Areas of Conservation (SACs) and Special Protection Areas for Birds (SPAs) are designated under the EU Habitats Directive and EU Birds Directive, respectively and are collectively known as 'European Sites'. The potential for significant effects and/or adverse impacts on the integrity of European Sites (including sites within the UK) is fully assessed in the Remedial Natura Impact Statement that accompanies this application.

As per EPA, 2022, *“a biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European Sites contained in a Natura Impact Statement”* but should *“incorporate their key findings as available and appropriate”*. As such the detailed assessment that is provided in the Natura Impact Statement (NIS) is not repeated here. However, the NIS that accompanies this application identifies the potential for likely significant effects to occur on the following European Sites:

- River Finn SAC [002301]
- River Foyle and Tributaries SAC [UK0030320]
- Lough Eske and Ardnamona Wood SAC [000163]
- Croaghonagh Bog SAC [000129]

Figure 6.2 shows all European Sites surrounding the Site.

Nationally Designated Sites (Natural Heritage Areas and proposed Natural Heritage Areas)

Natural Heritage Areas (NHAs) are designated under Section 18 the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. The potential for effects on these Designated Sites is fully considered in this Biodiversity Chapter.

Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, the potential for effects on these Designated Sites is fully considered in this EIAR.

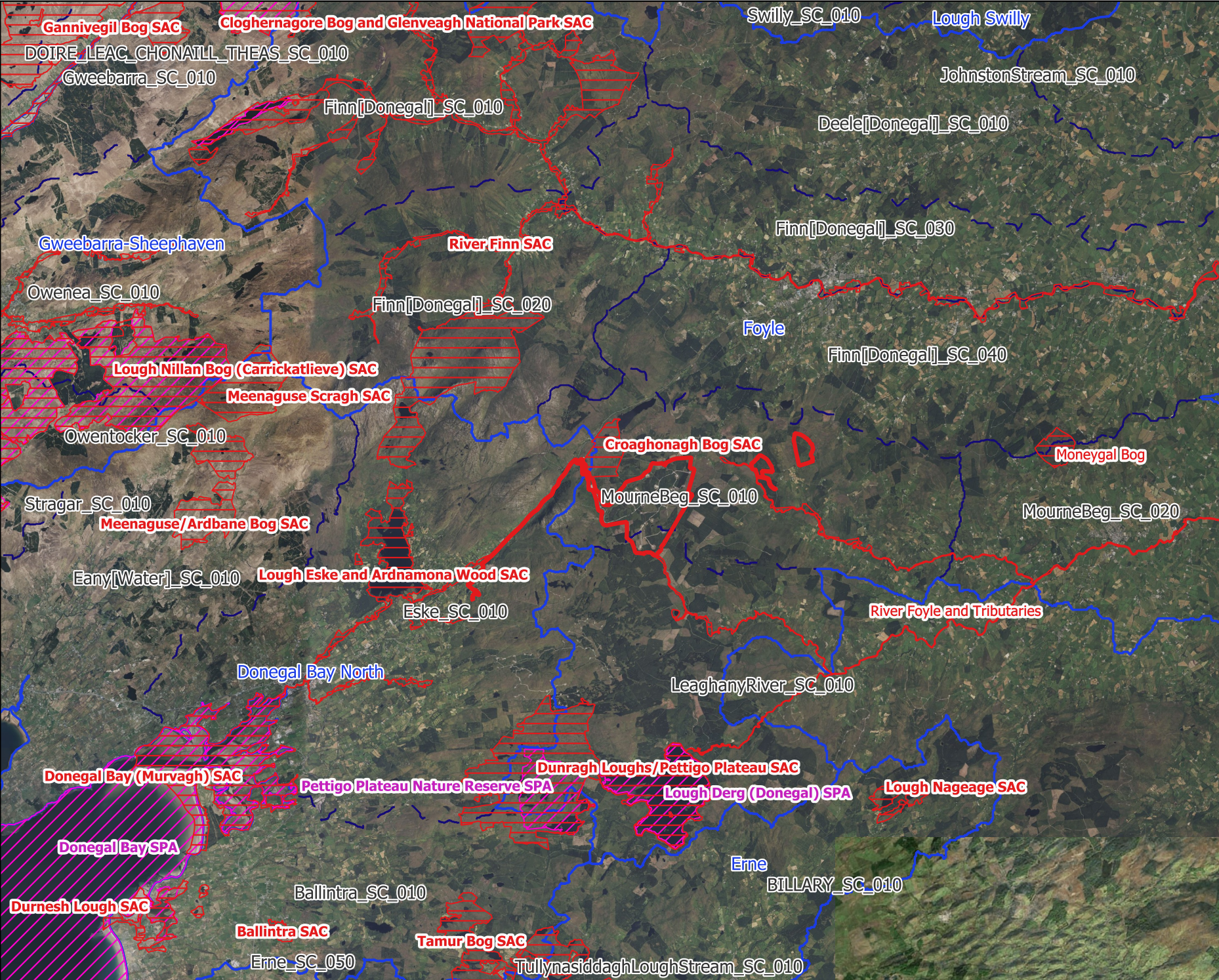
Areas of Special Scientific Interest (ASSIs) in Northern Ireland are Protected Sites recognized for important wildlife (flora, fauna) or geology/landforms, managed by the Northern Ireland Environment Agency, with legal protection under the Environment Order (NI) 2002 to prevent damage and ensure conservation, covering terrestrial, freshwater, and intertidal zones.

The following methodology was used to establish which Designated Sites have the potential to be impacted by the Prospective Development.

- Initially the most up to date GIS spatial datasets for Nationally Designated Sites and water catchments were downloaded.
- All Nationally Designated Sites that could potentially be affected were identified using a source-pathway-receptor model. To provide context for the assessment, Nationally

Designated Sites surrounding the Site are shown on **Figure 6-3**. Information on these sites and an assessment of the potential pathways for effect is provided in **Table 6-3**. Designated Sites that were further away from the Site were also considered and no complete source-pathway-receptor chain for significant effect was identified for any other Nationally Designated Site.

- The EPA catchment mapping was used to establish or discount potential hydrological connectivity between the Site and any Nationally Designated Sites. The hydrological catchments are also shown in **Figure 6-3**. The designation features of these sites (where available), as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for Likely Significant Effects are identified, the Site is included within the Likely ZOI and further assessment is required.



Map Legend

- Site Location
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- NI Special Areas of Conservation (SACs)
- NI Special Protection Areas (SPAs)
- WFD Hydrological Catchments
- WFD Hydrological Subcatchments

Drawing Title
European and Northern Ireland
Designated sites within the likely zone of
Influence

Project Title
Substitute for Consent Application for
Meenbog Wind Farm

Drawn By MK	Checked By PR
Project No. 240505-a	Drawing No. Figure 6.2
Scale 1:200,000	Date 09.06.2026

MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 YW8H
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

Microsoft product screen shots reprinted with permission from Microsoft Corporation



Map Legend

- Site Location
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- Areas of Special Scientific Interest (ASSI)
- WFD Hydrological Catchments
- WFD Hydrological Subcatchments

Drawing Title

Nationally Designated Sites within the likely zone of Influence

Project Title

Substitute for Consent Application for Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.3
Scale	Date
1:200,000	09.06.2026

MKO
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

Table 6-3 Identification of Nationally Designated Sites within the Likely Zone of Influence

Nationally Designated Sites and distance from the Prospective Development	Distance from the Site (km)	Likely Zone of Influence Determination
Natural Heritage Areas (NHA)		
Cashelnavean Bog NHA (000122)	0km from the Wind Farm Site and Grid Connection Site	The Site overlaps with this NHA. The NHA overlaps with the N15 road at the location where the Grid Connection exits the Wind Farm Site and follows the road. The Grid Connection is located within the NHA for a distance of approximately 500m. The Prospective Development will not involve works in the vicinity of the NHA as the grid connection is already constructed; there is no potential for significant direct or indirect effects on the NHA to occur. Therefore, no further assessment is required.
Barnesmore Bog NHA (002375)	15m from the Wind Farm Site 85m from Grid Connection Site	The Site is located entirely outside this NHA and is separated from it by a distance of 15m at its closest location. The actual footprint of the Existing Development is located over 100m from the NHA. There is no potential for the Prospective Development to result in any direct effect on this NHA. The Prospective Development will not involve works in the vicinity of the NHA and there is no potential for significant indirect effects on the NHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Hill Bog NHA (002452)	1.2km from the Wind Farm Site 3.2km from Grid Connection Site	The Site is located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 1.2 km. There is no potential for the Prospective Development to result in any direct effect on this NHA. The Site is separated from the NHA by a distance of over 1 km with no source-pathway receptor chain identified. Given the nature and scale of the works to be undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenagarranroe Bog NHA (002437)	1.1km from the Wind Farm Site	The Site is located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 1.1 km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this NHA. The Site is separated from the NHA by a distance of over 1 km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur.

	4.7km from Grid Connection Site	Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Fad Bog Complex NHA (001159)	11.1 km from the Wind Farm Site 10.9 km from Grid Connection Site	The Site is located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 10.9 km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this NHA. The Site is separated from the NHA by a distance of over 10.9km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Proposed Natural Heritage Areas (pNHA)		
Croaghonagh Bog pNHA (000129)	0.8km from the Wind Farm Site 0.9km from Grid Connection Site	The Site is located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 800m. There is no potential for the Prospective Development to result or have resulted in any direct effect on this pNHA. The Site is separated from the pNHA by a distance of approximately 800m with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Eske and Ardnamona Wood pNHA (000163)	7.8km from the Wind Farm Site 1.7km from Grid Connection Site (2.3km hydrological distance)	This pNHA overlaps with Lough Eske and Ardnamona Wood SAC and is located approximately 1.7km away from the Grid Connection at its closest location. Downstream hydrological connection between the Prospective Development and the pNHA was identified via the Lowerymore River. There is no potential for direct effects to occur on this pNHA. A source-pathway-receptor chain for significant indirect effect was identified in the form of the Lowerymore River, though no evidence of effects having occurred were identified during the surveys undertaken. Due to the presence of a source-pathway- receptor chain in the form of surface water connection, the potential for significant effects on this pNHA as a result of the Prospective Development cannot be excluded and it is assessed further in this EIAR.

Dunragh Loughs/Pettigo Plateau pNHA (001125)	6.2km from the Wind Farm Site 4.8km from the Grid Connection Site	This pNHA overlaps with Lough Dunragh Loughs/Pettigo Plateau SAC and Partially with the SPA of the same name. It is located 4.8km from the Site at its closest location and there is no potential for direct effects on this pNHA to occur as a result of the Prospective Development. The Site is separated from the pNHA by a distance of approximately 4.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Owendoo and Cloghervaddy Bogs pNHA (002046)	4.9km from the Wind Farm Site and Grid Connection Site	The Site is located entirely outside this pNHA and is separated from it by a distance of approximately 4.9km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this pNHA. The Site is separated from the pNHA by a distance of approximately 4.9km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Derg (Donegal) pNHA (001992)	7.7km from the Wind Farm Site 8.5km from Grid Connection Site	The Site is located entirely outside this pNHA and is separated from it by a distance of approximately 7.7km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this Nationally Designated Site. The Site is separated from the pNHA by a distance of approximately 7.7km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Donegal Bay (Murvagh) pNHA (004151)	14.3km from the Wind Farm Site 8.3km from the Grid Connection Site (Over 10km hydrological distance)	This pNHA overlaps with Donegal Bay (Murvagh) SAC and Donegal Bay SPA and is located approximately 8.3km from the Site at its closest location and is connected hydrologically via the Lowerymore and Eske Rivers. There is no potential for direct effects on this pNHA to occur as a result of the Prospective Development. The Site is separated from the pNHA by a distance of approximately 8.3km. Whilst there is downstream hydrological connection between the Prospective Development and the pNHA, the extent of the Prospective Development within the Donegal Bay North catchment are minor. Due to the nature of Qualifying Interests (coastal/marine habitats and species), the small scale nature of the works in the Donegal Bay North catchment, the hydrological distance from the proposed works to Donegal Bay and the dilution factor involved (including buffer of Lough Eske), no complete source-pathway-receptor chain for significant impacts to occur on the pNHA was identified.

		Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenaguse/Ardbane Bog pNHA (000172)	12.9km from the Wind Farm Site 9.8km from the Grid Connection Site	The Site is located entirely outside this pNHA and is separated from it by a distance of approximately 9.8km. There is no potential for the Prospective Development to result in any direct effect on this Nationally Designated Site. The Site is separated from the pNHA by a distance of approximately 9.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenaguse Scragh pNHA (0018800)	11.9km from the Wind Farm Site 10.2km from the Grid Connection Site	The Site is located entirely outside this pNHA and is separated from it by a distance of approximately 10.2km. There is no potential for the Prospective development to result or have resulted in any direct effect on this Nationally Designated Site. The Site is separated from the pNHA by a distance of approximately 10.2km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Tamur Bog pNHA (001992)	15km from the Wind Farm Site 11.8km from the Grid Connection Site	This pNHA overlaps with Tamur Bog SAC and is located approximately 11.8km from the Site at its closest location. There is no potential for direct effects on this pNHA to occur. The Site is separated from the pNHA by a distance of approximately 11.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Nillan Bog (Carrickatlieve) 004110	14.1km from the Wind Farm Site 12.6km from the Grid Connection Site	This pNHA overlaps with Lough Nillan Bog SAC and SPA and is located approximately 12.6 km from the Site at its closest location. There is no potential for direct effects on this pNHA to occur. The Site is separated from the pNHA by a distance of approximately 12.6km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.

Tullytresna Bog pNHA (001870)	13.8km from the Wind Farm Site and Grid Connection Site	The Site is located entirely outside this pNHA and is separated from it by a distance of approximately 13.8km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this Nationally Designated Site. The Site is separated from the pNHA by a distance of approximately 13.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Ballintra pNHA (000115)	20.4km from the Wind Farm Site 14.9km from the Grid Connection Site	The Site is located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 14.9 km. There is no potential for the Prospective Development to result or have resulted in any direct effect on this Nationally Designated Site. The Site is separated from the pNHA by a distance of approximately 14.9 km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Areas of Special Scientific Interest (ASSI's)		
River Foyle and Tributaries (AASI229)	Adjoins southern boundary of the Wind Farm Site 4.8km from the Grid Connection Site	This ASSI overlaps with the River Finn SAC [002301] and River Foyle and Tributaries [UK0030320] and is located adjacent to the southern boundary of the Site at its closest location. Downstream hydrological connection between the Prospective Development and the ASSI was identified via the Glendergan, Bunadaowen, Mournebeg and Shruhangerve Rivers and Mary Breen's Burn. There is no potential for direct effects to occur on this ASSI as a result of the Prospective Development. A complete source-pathway-receptor chain for significant indirect effects was identified in the form of the Bunadaowen, Mournebeg and Shruhangerve Rivers. Due to the presence of a source-pathway- receptor chain in the form of surface water connection, the potential for significant effects on this ASSI as a result of the Prospective Development cannot be excluded and it is assessed further in this EIAR.
Killeter Forest and Bogs and Lakes (AASI357)	0.57km from the Wind Farm Site 2.9km from the Grid Connection Site	The Site is located entirely outside this ASSI and is separated from it by a distance of approximately 0.57km. There is no potential for the Prospective Development to result in any direct effect on this Designated Site. The Site is separated from the ASSI by a distance of over 0.5km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur.

		Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Croagh Bog (ASSI378)	0.64km from the Wind Farm Site	The Site is located entirely outside this ASSI and is separated from it by a distance of approximately 0.64km. There is no potential for the Prospective Development to result in any direct effect on this Designated Site.
	5.4km from the Grid Connection Site	The Site is separated from the ASSI by a distance of over 0.6km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Essay Burn and Mullyfamore (ASSI134)	4.8km from Wind Farm Site	The Site is located entirely outside this ASSI and is separated from it by a distance of approximately 4.8km. There is no potential for the Prospective Development to result in any direct effect on this Designated Site.
	9.9km from the Grid Connection Site	The Site is separated from the ASSI by a distance of 4.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Moneygal Bog (ASSI005)	13.8km from the Wind Farm Site	The Site is located entirely outside this ASSI and is separated from it by a distance of approximately 13.8km. There is no potential for the Prospective Development to result in any direct effect on this Designated Site.
	18.5km from the Grid Connection Site	The Site is separated from the ASSI by a distance of 13.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Moneygal Bog Part II (ASSI209)	14.7km from the Wind Farm Site	The Site is located entirely outside this ASSI and is separated from it by a distance of approximately 14.7km. There is no potential for the Prospective Development to result in any direct effect on this Designated Site.
	19.8km from the Grid Connection Site	The Site is separated from the ASSI by a distance of 14.7km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.

No NHAs have been included within the Likely Zone of Influence

The following pNHA has been included within the Likely Zone of Influence for further assessment.

- Lough Eske and Ardnamona Wood pNHA [000163]. As the pNHA is also designated as an SAC, potential impacts on this European Site are fully considered under the European designation within the NIS. Impacts on the pNHA are also considered in this chapter.

The following ASSI has been included within the Likely Zone of Influence for further assessment.

- River Foyle and Tributaries (AASI229). As the ASSI is also designated as an SAC, potential impacts on this European Site are fully considered under the European designation within the NIS. Impacts on the ASSI are also considered in this chapter.

6.4.1.2 Article 17 Mapping

A review of the Irish Reports for Article 17 of the Habitats Directive (92/42/EEC), including the Heath, Bogs and Mires, Irish Semi-Natural Grassland Survey datasets, National Survey of Native Woodlands and Ancient and Long-Established Woodland datasets were conducted prior to undertaking the multi-disciplinary ecological walkover surveys of the Site. The results of the survey undertaken are provided below.

A search of the NPWS Article 17 datasets⁹, was undertaken on 04/03/2026.

The only areas mapped on the NPWS Article 17 dataset within the Site were for [7130] Active Blanket bog. This habitat is mapped in the western sections of the Wind Farm Site, adjacent to the entrance route, Grid Connection Site and Biodiversity Enhancement Area, and amongst the forestry within the centre of the Wind Farm Site.

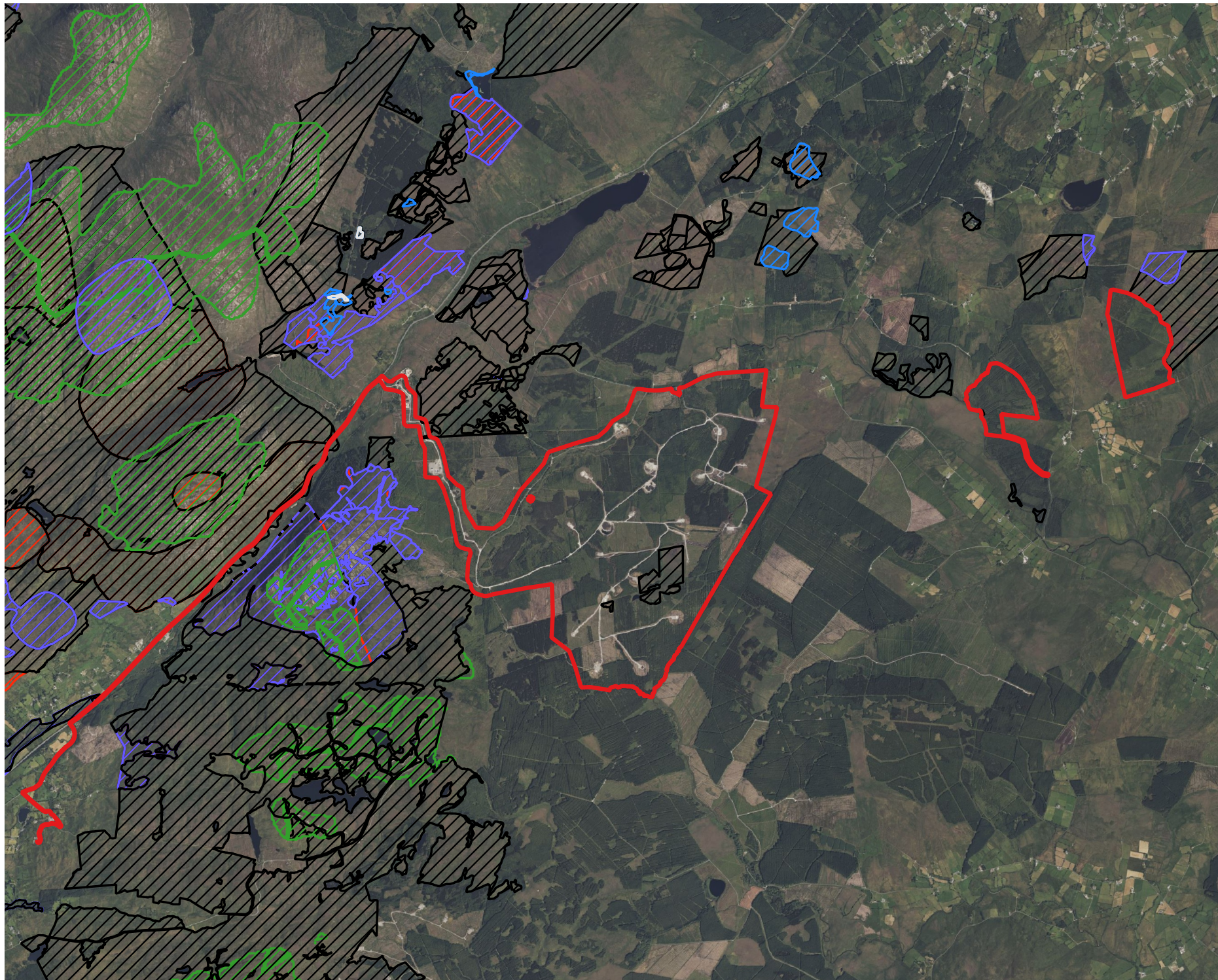
Other habitats are mapped in the wider area. [7130] Active Blanket bog, [7140] Transition Mires and [4041] Wet Heath and [4030] Dry Heath are mapped 1.3km, 1.2km and 1.4km respectively to the northeast, north and northwest of the Site. [7130] Active Blanket bog, [7140] Transition Mires and [4041] Wet Heath [4030] Dry Heath [4060] Alpine and Sub Alpine Heath and [7230] Alkaline Fens have been mapped 1.5km to the west and south of the Site.

Following a review of the Irish Semi-Natural Grassland Survey Database, there were areas of dry-humid acid grassland (GS3) and wet grassland (GS4) were mapped adjacent to the Grid Connection Site along the N15. Areas of annexed grassland habitats including Nardus Rich Upland Grassland located 2.4km southeast of the Site and Molinia meadows [6410] have been previously mapped approximately 6.8km south of the Site.

There are no Native Woodlands and Ancient and Long-Established Woodlands within the Site according to both datasets. The nearest Long-Established Woodlands mapped in these datasets is located approx. 3.4km southwest of the Site and is classified as (WN1) Oak-Birch-Holly woodland.

Distribution of relevant Article 17 habitat records is provided in **Figure 6-4**.

⁹ Including bog 2012 and 2019 datasets, Online, Available at: <https://www.npws.ie/publications/article-17-reports>



Map Legend

- Site Location
- Active Blanket Bog
- Alkaline Fen
- Alpine and Subalpine Heath
- Annual Vegetation of Drift Lines
- Dry Heath
- Nardus Rich Upland Grassland
- Old Oak Woodlands
- Transition Mires
- Wet Heath



Microsoft product screen shots reprinted with permission from Microsoft Corporation

Drawing Title

Distribution of Article 17 Habitats

Project Title

Substitute for Consent Application for Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No. 240505-a	Drawing No. Figure 6.4
Scale 1:60,000	Date 09.06.2026



MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

6.4.1.3 Vascular plants

A search was made in the New Atlas of the British and Irish Flora (Preston *et al*, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive, The Irish Red Data Book, 1, Vascular Plants (Curtis, 1988) or the Flora (Protection) Order (1999, as amended 2015 & 2022) had been recorded in the relevant 10km squares in which the Site is situated (H08). Each hectad contains 100 whole 1km squares containing terrestrial habitats. No species of conservation concern were recorded within this hectad.

6.4.1.4 Bryophytes

A search of the NPWS online database for bryophytes (non-vascular land plants comprising of mosses, hornworts, and liverworts) was also undertaken on the 04/03/2026 with no protected bryophytes recorded within hectad H08, in which the Site is situated, or adjacent to the Site boundary (NPWS, 2020). No protected bryophytes were recorded from within the Site. *Gymnomitrium concinnatum* was recorded just outside the boundary of Meenaguse Scragh SAC Bog SAC [001880] 13km to the west of the Site. *Gymnohis species* was also recorded within Meenaguse Scragh SAC Bog SAC 13km northwest of the Site. *Kiaeria falcata* was recorded outside of the same SAC 12.7km northwest from the Site.

6.4.1.5 NPWS Protected Species Records

National Parks and Wildlife Service (NPWS) online records were searched to see if any rare or protected species of flora or fauna have been recorded from hectad H08 in which the Site is situated in. An information request was also sent to the NPWS requesting records from the Rare and Protected Species Database on 22/07/2025. **Table 6-4** lists rare and protected species records obtained from NPWS, as received on 11/08/2025, as well as those records available through the online NPWS map viewer.

Table 6-4 National Parks and Wildlife Service Records (Data request and Map Viewer)

Common name	Scientific name	Status/ Habitats Directive
Bryophytes		
Big-spored Rock-moss	<i>Andreaea megistopora</i>	FPO
Cladonia cilata	<i>Cladonia cilata</i>	Annex V
Cladonia cilata var. tenuis	<i>Cladonia cilata var. tenuis</i>	Annex V
Cladonia portentosa	<i>Cladonia portentosa</i>	Annex V
Cladonia portentosa f. subimpexa	<i>Cladonia portentosa f. subimpexa</i>	Annex V
Drummonds Pincushion	<i>Ulota drummondii</i>	CE
Fir Clubmoss	<i>Huperzia selago</i>	Annex V
Lustrous Bog-moss	<i>Sphagnum subnitens</i>	Annex V
Papillose Bog-moss	<i>Sphagnum Papillosum</i>	Annex V
Rusty Bog-moss	<i>Sphagnum fuscum</i>	Annex V
Sphagnum imbricatum	<i>Sphagnum imbricatum</i>	

Common name	Scientific name	Status/ Habitats Directive
Reptiles and Amphibians		
Common Frog	<i>Rana temporaria</i>	Annex V, WA 1976 (as amended)
Mammals		
Common name	Scientific name	Status
Irish Hare	<i>Lepus timidus hibernicus</i>	Annex V, WA 1976 (as amended)
Eurasian Badger	<i>Meles meles</i>	WA 1976 (as amended)
Red Deer	<i>Cervus elaphus</i>	WA 1976 (as amended)
West European Hedgehog	<i>Erinaceus europaeus</i>	WA 1976 (as amended)
Invertebrates		
Common name	Scientific name	Status
Marsh Fritillary	<i>Euphydryas aurinia</i>	VU, Annex II
Bird Species		
Common Name	Scientific Name	Designation
Curlew	<i>Numenius arquata</i>	Annex II, WA, BOCCI Red List, NT
Greenland White fronted Goose	<i>Anser albifrons</i>	Annex I, BOCCI Amber List, EN
Hen Harrier	<i>Circus cyaneus</i>	Annex I, WA, BOCCI Amber List
Peregrine falcon	<i>Falco Pergrinus</i>	Annex I
Aquatic Species		
Common name	Scientific name	Status
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	CE, Annex II, IV, WA 1976 (as amended)

6.4.1.5.1 Freshwater Pearl Mussel (*Margaritifera margaritifera*)

A section of the Grid Connection Site and Wind Farm Site near the entrance off the N15 is located within the Eske *Margaritifera* Sensitive Area as shown in Figure 6.5. The Eske is categorized as catchments of SAC populations listed in S.I. 296 of 2009. Only the Grid Connection and a section of the access road to the Wind Farm Site is situated within the Eske catchment with all proposed turbines and infrastructure located within the Foyle catchment. A population of freshwater pearl mussels is known to occur within the River Eske. This is more than five kilometres downstream of Keadew Bridge; the River Eske flows out from Lough Eske to reach the sea at Donegal Town. Thus, Lough Eske lies between the section of proposed cable route at Keadew Bridge and the SAC mussel population. An information request was sent to the NPWS regarding the current distribution of *Margaritifera* Species within this catchment. The information provided by NPWS from the *Margaritifera* records dataset 2014_v11 indicated that the nearest record for pearl mussel is located approximately 4.3km (hydraulic distance) from the Site at its nearest point.

6.4.1.6 National Biodiversity Data Centre (NBDC) Records

A search of the National Biodiversity Data Centre (NBDC) records on 04/03/2026 for the relevant hectad, H08, in which the Site is situated, provided records on a number of fauna species of conservation concern, excluding marine species and bird species. These are provided in **Table 6-5**. The Invasive Species recorded within hectad H08 are provided in **Table 6-6** below.

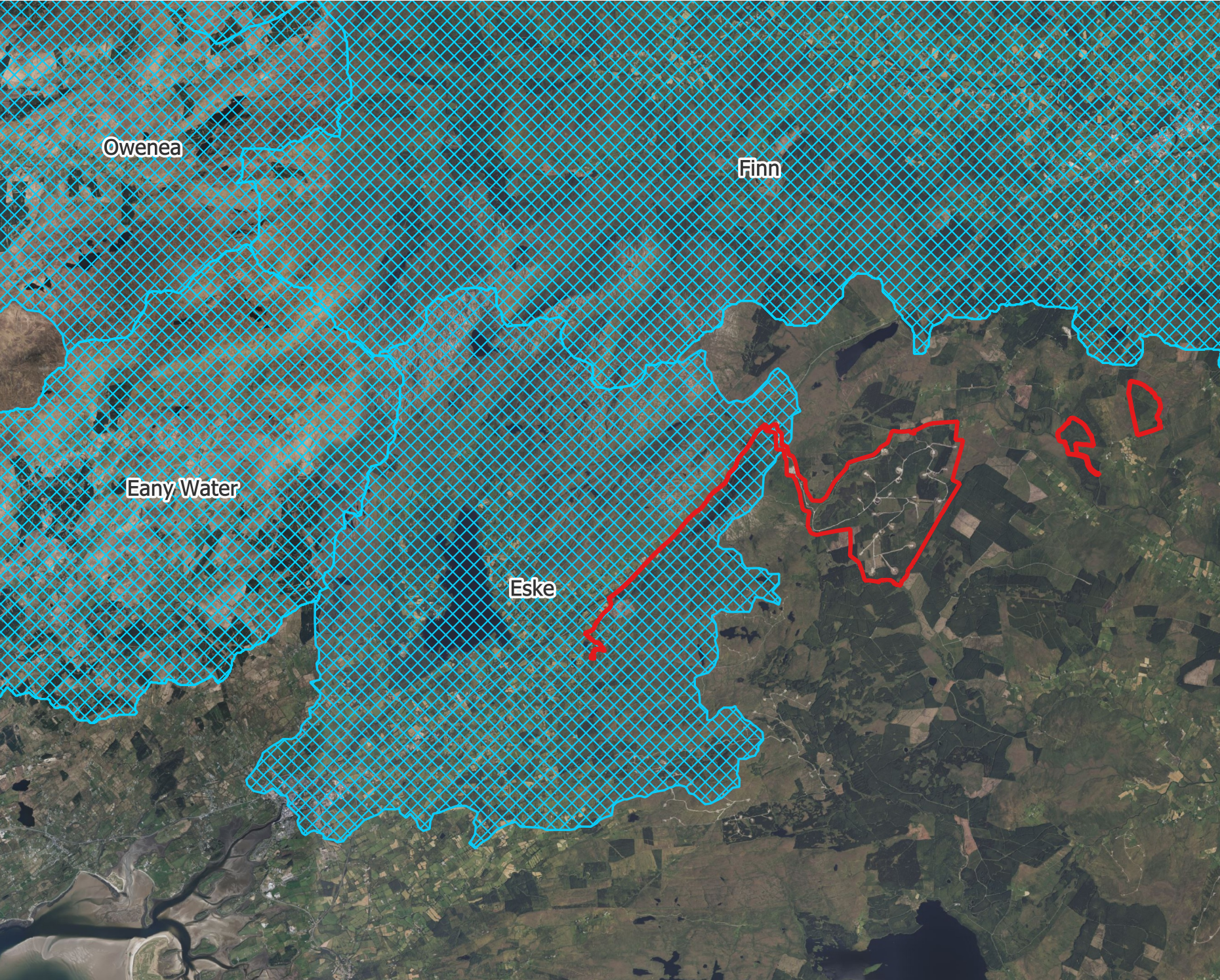
Table 6-5 NBDC Records for Species of Conservation Interest in hectad H08

Species	Scientific Name	Red List Status	Habitats Directive
Common frog	<i>Rana temporaria</i>	LC	Annex V
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>	LC	Annex V, WA
Hedgehog	<i>Erinaceus europaeus</i>	LC	WA
Pine marten	<i>Martes martes</i>	LC	Annex V, WA
Badger	<i>Meles meles</i>	LC	WA
Red Deer	<i>Cervus elaphus</i>	LC	WA
Sika Deer	<i>Cervus nippon</i>	NA	WA
Marsh Fritillary	<i>Euphydrya aurinia</i>	VU	Annex II
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	LC	Annex IV, WA

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA - Wildlife Act), LC - Least concern, NT - Near threatened, VU - Vulnerable.

Table 6-6 NBDC records for Invasive Species in hectad H08.

Common Name	Scientific Name
Japanese Knotweed	<i>Reynoutria japonica</i>
Rhododendron	<i>Rhododendron ponticum</i>
Feral Goat	<i>Capra hircus</i>
Sika Deer	<i>Cervus nippon</i>
Grey Squirrel	<i>Sciurus carolinensis</i>
Sycamore	<i>Acer pseudoplatanus</i>



Map Legend

-  Site Location
-  Freshwater Pearl Mussel Catchment Areas



Drawing Title
Feshwater Pearl Mussel Catchments

Project Title
Substitute for Consent Application for Meenbog Wind Farm

Drawn By MK	Checked By PR
Project No. 240505-a	Drawing No. Figure 6.5
Scale 1:120,000	Date 09.06.2026

 **MKO**
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735511
email: info@mkofireland.ie
Website: www.mkofireland.ie

6.4.1.7 Water Quality

6.4.1.7.1 NBDC Aquatic Data

Three species of bony fish have been recorded in hectad H08 in which the Site is situated, on the NBDC Lake Browser. These included, the European Eel (*Anguilla Anguilla*), a species classified as ‘critically endangered’ in ‘Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish’ (King et al., 2011). These records were obtained in Lough Golagh, approximately 2.1 kilometres west of the Site in the Mourne (Mourne Beg/Derg) catchment. The Foyle River catchment (which includes the River Derg and the River Finn catchments in which the Site is located) is known to contain an internationally important population of spawning Atlantic Salmon (*Salmo salar*), a species classified as ‘vulnerable’ in ‘Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish’ (King et al., 2011) and listed in Annex II of the EU Habitats Directive. Research has indicated that sub-catchments within the River Foyle system can have genetically distinct salmon populations, and it is estimated that the annual number of salmon returning to the river was recently in excess of 40,000, making it one of the most important salmon rivers in the British Isles. The majority of salmon returning are Grilse (single wintering salmon), while a smaller but important number of spring salmon (multi-wintering) also return. In 2011, the River Derg and River Finn were known to have 269 and 107 salmon spawning redds respectively. Angling is permitted in the rivers only on a catch and release basis. The river system (including the River Derg and River Finn) is also known to contain the European Eel, Brook Lamprey (*Lampetra planeri*), and spawning River Lamprey (*Lampetra fluviatilis*), with the latter two being listed in Annex II of the EU Habitats Directive.

6.4.1.7.2 Local Hydrology and Hydrogeology

The majority of the Site is drained by tributaries (Shruhingarve [01S26], Bunadaowen [01B01]) of the Mourne Beg River which flow north-westerly through the Site. The southern portion of the Site is drained by tributaries/ headwaters of Glendergan River (Segment codes: 01_549, 01_599, and 01_GBN10102037) which flow into Northern Ireland. In the western section of the Site, the Barrack Hill stream [37B16] flows culverted under the road (N15) by the entrance to the Site and flows southwards becoming a tributary of the Lowerymore River [37L01]. Two tributaries to the Mourne Beg River (Croaghonagh [01C31] and a tributary of this stream Segment code: 01_1835) flow in a northerly direction through the west of the Site by the access track.

The majority of the Site is located within the Foyle (01) Catchment, except the access route and Grid Connection Site which is within the Donegal Bay North (37) Catchment. Most of the Site is within the MourneBeg_SC_010 sub-catchment draining into the Mourne Beg River system. A small southern section of the Site is within the LeaghanyRiver_SC_010 sub-catchment, draining into Glendergan River system. A small section in the west of the Site is within the Eske_SC_010 sub-catchment which drains into the Lowerymore River system.

As per the latest report on the Foyle Catchment Summary the Castlederg ground waterbody in which the Site lies within is classified to being in “Good” condition.

6.4.1.7.3 EPA Water Quality Data

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The online EPA Envision map viewer provides access to water quality information at individual waterbody status for all the River Basin Districts in Ireland. The EPA Envision map viewer and catchments.ie mapper was consulted, most recently, on the 4th of March 2026 regarding the water quality status of the rivers which run within and directly adjacent to the Site.

The WFD 3rd cycle River Waterbody Status 2016 – 2021 for the watercourses which flow within, adjacent and downstream of the Site have been reviewed and details of their status and risk are provided in **Table 6-7**.

Table 6-7 Watercourses within the Site with relevant water quality statuses

Name	Location	Status	Risk
Bunadaowen _010 system (tributary to the Mourne Beg)	Flows in a northeasterly direction through the western edge of the Site though the centre and out through the north of the Site. Drains into the Mourne Beg flows into the River Finn SAC.	Moderate	At risk
Mourne Beg_010 system	Flows in an easterly direction to the north of the Site. Two stream systems flow through/from within the Site into this watercourse. Two tributaries of the Mourne Beg flow through the western edge of the Site in a north easterly direction and enter the Croaghonagh Bog SAC and then east into the Mourne Beg River.	Poor	At risk
Mourne Beg River (Derrygoonan)	The headwaters are found within the Site in the eastern side of the Site and flows in a northeasterly direction through the Site and becomes a tributary to the Mourne Beg River.	Moderate	At risk
Glendergan River	The headwaters are found within the south of the Site and flows in a southerly direction through the Site and crosses the border into Northern Ireland.	Poor	In review
Lowerymore_020	Flows in a south westerly direction through the Site at the western edge of the Site by the N15. flows into the Lough Eske and Ardnamona Wood SAC.	High	Not at Risk

The Biotic Index of Water Quality (BIWQ) was developed in Ireland by the Environmental Protection Agency (EPA). Biotic indices (Q-Values) reflect water quality at any location. Q-values are assigned using a combination of habitat characteristics and structure of the macro-invertebrate community within the waterbody. Individual macro-invertebrate families are classified according to their sensitivity to organic pollution and the Q-value is assessed based primarily on their relative abundance within a sample.

The EPA operates a number of Q-value monitoring sites in the vicinity of the Site. The sampling stations listed below are downstream of the Site and have the potential to be affected by the Prospective Development. EPA sampling stations are situated downstream of the Site in four out of the five subbasins relevant to the Prospective Development.

The Northern Ireland Environment Agency (NIEA), an agency with the Department of Agriculture Environment and Rural Affairs is responsible for water quality monitoring in Northern Ireland. Part of the Prospective Development is situated in the Glendergan catchment, which drains across the Northern Irish border into the River Derg. The Northern Ireland Water Framework Directive Statistics Report 2021 (“the 2021 Report”) is the latest available water quality report. Water bodies are assessed against a

number of elements as required by the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. For surface waters, ecological status is assessed against five classes: bad; poor; moderate; good; and high. Chemical status surface water bodies are assessed against two classes: good and failing to achieve good. The status of a water body is determined by the lowest test element and follows the one-out, all-out rule. The ecological status of a river waterbody is consequently assigned as a combination of lowest test element from the chemical testing and biological testing.

In the 2021 Report, uPBT substances, so called ‘forever’ chemicals, and Cypermethrin, an insecticide, were included for the first time in the chemical classification. Prior to 2021 these criteria were not included in the assessments. Further information on these significant changes in methodology can be found in the 2021 Report.

Therefore, across Northern Ireland, river waterbody ecological status has declined as ‘forever’ chemicals were recorded in all rivers. The NIEA Catchment Data Viewer allows for comparison of river classification without the inclusion of ‘forever’ chemicals, which allows for comparison of pre- and post-construction water quality in the Glendergan river. The relevant monitoring location in the Glendergan catchment is Glendergan River at Scraghcumber (Site Code F10049).

The location of the EPA and NIEA monitoring sites are shown in **Figure 6-6**. EPA monitoring sites are briefly described below.

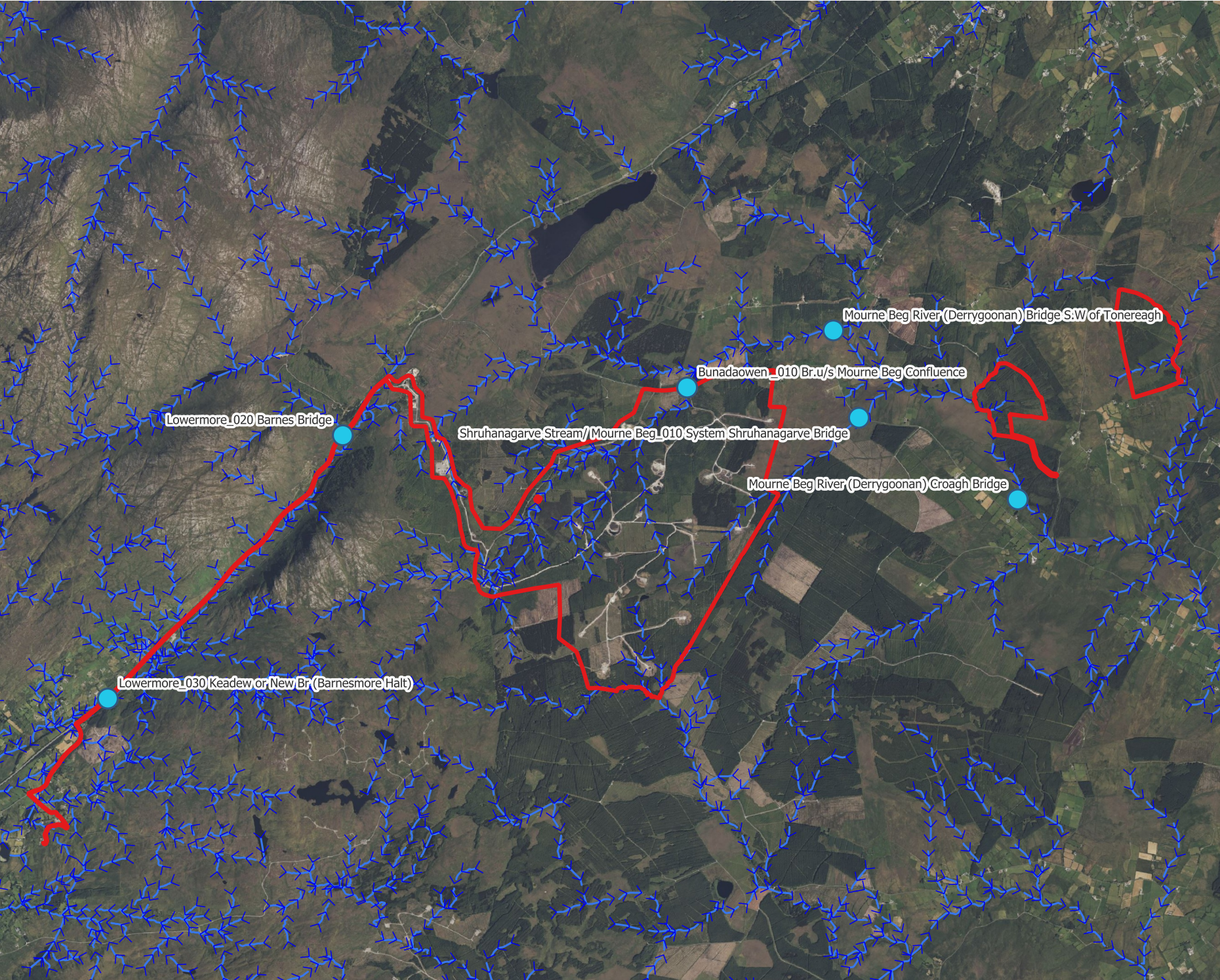
- EPA. Bunadaowen. Br. u/s Mourne Beg Confluence (ITM coordinates 608091E, 887615N), immediately upstream of its confluence with Mourne Beg River. This sampling station is downstream of a large part of the Site but upstream of where the November 2020 Peat Slide entered the Mourne Beg River.
- EPA. Mourne Beg. Bridge SW of Tonreagh (ITM coordinates. 609853E, 888310N), is located downstream of the confluence with the Bunadaowen River and immediately upstream of the River Finn SAC. Data from this sampling station is relevant as it is downstream of the Site and where the November 2020 Peat Slide entered the river.
- EPA Shruhagarve Bridge (ITM coordinates 610179E, 887240N. This is the river that was directly impacted by the November 2020 Peat Slide.
- NIEA Glendergan River at Scraghcumber (Easting: 614538.1, Northing: 879646.3) is located to the southeast of the Wind Farm Site and downstream of a section of the Wind Farm Site.
- EPA. Lowerymore River. Barnes Bridge (ITM coordinates 603930E, 887019N) is located downstream and in close proximity to the entrance to the Wind Farm Site and Grid Connection Site.
- EPA. Lowerymore River. -Keadew or New Br (nr Barnsmore Halt) (ITM coordinates 601082E, 883845N), is located downstream from Sampling station “Barnes Bridge” at the beginning of Lough Eske and Ardnamona SAC on the Lowerymore river. This sampling stations samples for potential impacts of the Existing Development on Lough Eske and Ardnamona SAC.
- EPA. Mourne Beg “~150m u/s Croagh Bridge (u/s Croagh Burn trib Conflu)” (ITM coordinates 612419E, 889317N), is located on the Mourne Beg River further downstream of the Site and November 2020 Peat Slide.

Table 6-8 Watercourses within the vicinity of the Site with relevant Q-Values

Name	Location / Date	Q-Values Status
Bunadaowen _010 system (tributary to the Mourne Beg)	Br. u/s Mourne Beg Confluence- 2022 Station Code: RS01B010100 Easting: 208140.55 Northing: 387608.56	2016- Q2 (Poor Status)
		2017- Q2-3 (Poor status)
		2019- Q3-4 (Moderate Status)
		2020- Q4 (Good Status)
		2022- Q4 (Good status)
Shruhangarve Stream/ Mourne Beg_010 system	Shruhangarve Bridge- 2022 Station Code: RS01S260830 Easting: 210229.29 Northing: 387230.11	2020- Q1 (Poor Status)
		2023- Q3 (Poor Status)
Mourne Beg River (Derrygoonan)	Bridge S.W. of Tonreagh- 2022 Station Code: RS01M010200 Easting: 209903 Northing: 388300	2020- Q3-4 (Moderate Status)
		2022- Q4 (Good Status)
Mourne Beg River (Derrygoonan)	Croagh Bridge Station Code: RS01M010420 Easting: 212470.33 Northing: 385903.4	2020- Q3-4 (Moderate status)
		2022- Q4 (Good status)
Glendergan River*	Glendergan River At Scraghcumber - 2021 Station Code: UKGBNIF10049 Easting: 614538.1, Northing: 879646.3	Poor* (with “forever” chemicals assessment)
		Good* (without “forever” chemicals assessment)
		2013-2018- “Moderate”
		2016-2021- “Poor”
Lowerymore_020	Barnes Bridge - 2021 Station Code: RS37L010100 Easting: 203974.22 Northing: 387034.09	2015- Q3-4 (Moderate Status)
		2018- Q4 (Good Status)

Lowerymore_030	Keadew or New Br (nr Barnsmore Hall) Station Code: RS37L010300 Easting: 201129.83 Northing: 383850.21	2015- Q4-5 (Good Status)
		2018- Q4-5 (Good Status)

* Northern Ireland Environment Agency Monitoring (ecological/chemical) system.



Map Legend

- Site Location
- Water Quality Monitoring Locations
- WFD River Waterbodies

Microsoft product screen shots reprinted with permission from Microsoft Corporation

Drawing Title

EPA/ NIEA Water Quality Monitoring Locations

Project Title

Substitute for Consent Application for Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.6
Scale	Date
1:60,000	09.06.2026

MKO
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VV84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: ww.mkofireland.ie

6.4.1.8 Conclusions of the Desk Study

The desktop study has provided information about the existing environment in hectad H08, within which the Site is located.

The desk study revealed records on several rare and protected species of flora and fauna that occur within hectad H08 and informed the studies and assessments that were undertaken.

An area of the EU Habitats Directive Annex I habitat, [7130] Active Blanket bog that is within the Croaghonagh Bog SAC is included on the NPWS Article 17 inventory. This is located within the Site and adjacent to the development footprint on the entrance road. Another area of Active Blanket Bog is mapped within the southeastern section of the Site. No other Article 17 mapped habitats were located within or adjacent to the Site.

There are potential connections between the Prospective Development and sensitive aquatic receptors via forestry drains, watercourse crossings and overland flow where works occur within or in close proximity to these features. Thus, there are direct and indirect connections to the Shruhangarve and Mourne Beg Rivers. There are also indirect connections to the Bunadaowen, Shruhangarve rivers, which are partially located in the Site, along with the Mourne beg, Lowerymore and Glendergan Rivers, that are located downstream. There is also potential for effects on associated sensitive and protected aquatic fauna including freshwater pearl mussel, salmon, trout and eel that have been recorded in these catchments.

A pathway for significant effects on the following downstream European Designated Sites was identified:

- Croaghonagh Bog SAC [000129]
- River Finn SAC [002301]
- River Foyle and Tributaries SAC [UK0030320]
- Lough Eske and Ardnamona Wood SAC [000163]

The following pNHA downstream of the Site has been included within the Likely Zone of Influence for further assessment.

- Lough Eske and Ardnamona Wood pNHA (000163)

The following ASSI downstream of the Site has been included within the Likely Zone of Influence for further assessment.

- River Foyle and Tributaries ASSI (AASI229)

6.5 Description of the Existing Environment

The results of the field surveys that describe the baseline against which the impacts of Prospective Development are assessed are presented below.

6.5.1 Floral Habitats and Species

A habitat map of the Wind Farm Site is provided in Figure 6-7. The Grid Connection Site is not included in the map as it is primarily located within built habitats within the existing road network or immediately adjacent to it. A short section of the Grid Connection Site is located immediately adjacent to the road and in a field of improved Wet Grassland (GS4) that was reinstated following construction. There was a small section of scrub located in this area. The pre-construction baseline was described in the biodiversity chapter of the 2017 EIAR.

The below paragraphs describe the habitats on the Site as they exist at the current time.

6.5.1.1 Conifer Plantation (WD4)

Conifer plantation (WD4) remains the dominant habitat type recorded on the Site. Conifer plantation was recorded throughout Site and includes a variety of growth stages from recently clear-felled, through young plantation to closed canopy forest. This is typical of a commercially managed upland coniferous forest. In some areas throughout the Site, the original peatland habitat persists amongst the trees where the trees had grown poorly. Species recorded include Sitka spruce (*Picea sitchensis*), lodgepole pine (*Pinus contorta*), Japanese larch (*Larix kaempferi*) and noble fir (*Abies procera*). Typical conifer plantation habitat from within the Site is shown in **Plate 6.1**.

In 2016 conifer woodland accounted for approximately 91% of the study area. In 2025 the habitat accounted for approximately 81% of the study area. This change is largely as a result of the Existing Development having been constructed primarily within this habitat. The forestry has largely been replaced, with coniferous forestry having been felled and replaced with habitats associated with the built infrastructure such as Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3) associated with the footprint of the Existing Development as constructed. In addition, conifer plantation has also been replaced with Wet Grassland (GS4)/Wet Heath (HH3) mosaics surrounding the infrastructure where trees have been felled to buffer the turbines and adjacent to infrastructure.

The November 2020 Peat Slide also resulted in the loss of Conifer Plantation. This has been replaced primarily with Recolonising Bare Ground (ED3) and Wet Grassland (GS4). Areas have also been planted with broadleaved tree species including grey willow (*Salix cinerea*) and alder (*Alnus glutinosa*).

In addition the Biodiversity Management and Enhancement Plan will result in the loss of approximately 108 hectares of this habitat and its replacement with Blanket Bog, Heath and Scrub.



Plate 6-1 Example of Immature Conifer Plantation as found throughout the Site

6.5.1.2 Upland Blanket Bog/Wet Heath (PB2/ HH3)

These peatland habitats on the Site include an intimate mosaic of Upland blanket bog (PB2) and Wet Heath (HH3). The Blanket Bog is present on the flatter sections with heath habitat occurring where the ground is more sloping or where there are rock outcrops. This habitat type is shown in **Plate 6.2**. The northeast corner of the study area forms part of a larger peatland area that stretches further to the north and east. The other section of the study area where this habitat exists is located amongst forestry plantations to the northeast of Carrickaduff Lough.

In this habitat type purple moor-grass (*Molinia caerulea*) and Ling were often either abundant or frequent, while deergrass (*Trichophorum germanicum*) and common cottongrass (*Eriophorum angustifolium*) could be frequent. Other vascular plants that were regularly encountered were harestail cottongrass (*Eriophorum vaginatum*), cross-leaved heath (*Erica tetralix*), bog asphodel (*Narthecium ossifragum*), Round leaved Sundew (*Drosera rotundifolia*), white-beaked sedge (*Rhynchospora alba*) and tormentil (*Potentilla erecta*). The bryophyte flora of these areas included a number of Sphagnum species, with *S. capillifolium* being the commonest, followed by *S. Papillosum*, with *S. magellanicum* and *S. Cuspidatum* also regularly recorded. Other frequently-encountered bryophytes were the moss *Racomitrium Lanuginosum* and the liverwort *Pleurozium purpurea*. The lichens *Cladonia portentosa* and *C. uncialis* were regularly encountered also. On the flatter sections, peat depths tended to exceed 0.5m and these communities correspond best to the National Survey of Upland Habitats (NSUH) type BB4 *Trichophorum germanicum* – *Eriophorum angustifolium* blanket bog.

On steeper sections, the peat depth tended not to exceed 0.5m and were classified as wet heath. The major components of the Wet heath vegetation type were: ling, deergrass and purple moor grass. Other plants present included cross-leaved heath, tormentil, harestail cottongrass, common cottongrass, heath rush (*Juncus squarrosus*), heath bedstraw (*Galium saxatile*), tormentil, heath milkwort (*Polygala serpyllifolia*), green-ribbed sedge (*Carex binervis*) and bilberry (*Vaccinium myrtillus*). Bryophytes present included *Sphagnum capillifolium*, *Racomitrium Lanuginosum* and *Hypnum jutlandicum*. Overall heath cover in these areas exceeded 25% and the depth of peat was less than in the blanket bog areas (often 50 cm or less).

This type of vegetation is best described by the NSUH type WH4b, *Trichophorum germanicum* – *Eriophorum angustifolium* wet heath (with *Calluna vulgaris* frequent). Typical upland blanket bog/ wet heath habitat from within the Site is shown in **Plate 6-2**.



Plate 6-2 Upland Blanket Bog and Wet Heath Habitat as recorded within and surrounding the Site

Two significant changes to the baseline from 2017 were identified and are described below.

November 2020 Peat Slide

An area of upland blanket bog that is located to the northeast of Carrickaduff Lough was the site of the November 2020 Peat Slide. This directly affected an area of approximately 2.2 hectares. With much of the surface and sub surface peat sliding down the hill to the north, through areas of conifer plantation. The affected habitat is still classified as Blanket Bog (PB2) but is highly degraded with large areas of bare peat, shallow pools and islands of vegetation as shown in **Plate 6-3**. The recovery in this area has been monitored since 2021. Survey were undertaken at four locations within the November 2020 Peat Slide area and at four locations adjacent to it. The surveys within the November 2020 Peat Slide area were designed to monitor recovery and recolonisation in the areas that were directly affected. The other surveys were designed to monitor any indirect changes to the habitat that may occur as a result of the peat slide such as drainage and desiccation.

It was noted that in all except one of the survey sites within the peat slide area, slow recolonisation is progressing in the five-year period since the slide occurred. Species such as ling heather, Woolly Fringe moss (*Racomitrium Lanuginosum*), cottongrasses (*Eriophorum spp.*) and purple moor grass are slowly recolonising the bare peat along with some *Sphagnum* species in places, as shown in **Plate 6-4**.



Plate 6-3 Degraded Blanket Bog at the site of the November 2020 Peat Slide



Plate 6-4 Colonisation of bare peat in November 2020 Peat Slide area with sparse vegetation (*Eriophorum* spp.)

It was further noted that there were no significant differences in the condition of the surrounding habitats during the monitoring period, with a similar species composition being recorded throughout. As part of the monitoring, consideration was given to:

- The blocking of drains that are located on the bog outside the November 2020 Peat Slide area but run into it from the south. However, there was no flow observed in these drains during any of the surveys, no deterioration of surrounding bog habitats and no clear benefit to the installation of dams.
- Blocking of flow paths within the November 2020 Peat Slide area itself. However, it was noted that the flow path through the November 2020 Peat Slide area actually created small pools and areas with shallow water that would facilitate natural recolonisation.
- Active re-seeding of bare peat. The area is recolonising with species that are typical colonisers of bare peat and whilst it is a slow process, the re-seeding was not considered necessary. This will continue to be monitored and if necessary, seed will be spread.

Wind Farm Infrastructure

The Existing Development has resulted in the loss of approximately 0.8ha of Blanket Bog to facilitate the construction of two turbine bases (T16 and T19), with an approximate 0.1 ha indirectly affected through disturbance. This impact was identified in the 2017 EIAR. The wind farm infrastructure in this area is shown in **Plate 6-5**.

In addition to the area lost to facilitate the Existing Development, peatland habitats are recorded within the recolonising habitats where forestry has been felled to construct peat management areas. They are highly degraded versions of the habitat and have been mapped primarily as wet grassland given their presence as a mosaic with this habitat. but nonetheless, species such as ling (*Calluna vulgaris*), *Polytrichum* and *Sphagnum* species were starting to recolonise also and are indicators of wet heath. Some of the wetter areas on the peat repository areas are developing with *Sphagnum* pools with species such as bog pondweed (*Potamogeton polygonifolius*) as shown in **Plate 6-6**. Much of the southeastern section of the Site, where heath vegetation was always present beneath the conifers is recolonising with heath and wet grassland where the conifers have been felled as shown in **Plate 6-7**.

It is noted that peatland habitats including uncut Upland Blanket Bog exist outside the Site but alongside the Shruhanganve Stream, which was directly affected by the November 2020 Peat Slide.



Plate 6-5 Representative photo of the wind farm infrastructure at T19, which is similar at T16



Plate 6-6 Colonisation of bare peat in peat repository areas with *Sphagnum* and bog pondweed



Plate 6-7 Heath type vegetation colonising where conifers have been felled alongside infrastructure

6.5.1.3 Cutover blanket bog (PB4)

A small area of cutover blanket bog occurs adjacent to the access road in the northwestern section of the Site. This area has been recently cut-over and peat extraction has continued throughout the survey period between 2016 and 2025. This area was characterised by a high occurrence of bare peat. There was a mosaic of revegetating/revegetated BB4 blanket bog (PB2) and more recently cutover wet areas with a high percentage of bare ground, but also frequent/abundant common cottongrass. The latter community is best described the NSUH type HW2i, *Eriophorum angustifolium* – *Sphagnum fallax* hollows (PB2). There have been no significant changes in this habitat since the surveys for the 2017 EIAR were undertaken.

6.5.1.4 Wet Grassland (GS4)

Wet grassland (GS4) was recorded within the Site adjacent to the access road within the northwest of the Site during the surveys for the 2017 EIAR. This type of grassland also occurs naturally, e.g. along river valleys, but most of the grassland classified as this habitat type in the wider area is the result of the modification of peatlands and is associated with agricultural activities, notably sheep grazing. These grasslands were still present during the subsequent surveys up to 2025 and had not been affected by the Existing Development.

Additional areas of Wet Grassland (GS4) have been created around the infrastructure where coniferous forestry has been felled around turbine bases and access roads. It has also developed on recolonising peat repository areas. This recolonised habitat is often dominated by species such as soft rush (*Juncus effusus*) and bulbous rush (*Juncus bulbosus*). Other species including Yorkshire fog (*Holcus lanatus*), creeping bent grass (*Agrostis stolonifera*) and tormentil (*Potentilla erecta*) are frequent. In places, this habitat includes elements of blanket bog (PB4), heath (HH3) and willow scrub (WS1) communities with *Polytrichum* and *Sphagnum* species along with Ling heather and grey willow in places.

It is noted that in the drier areas, without management, this grassland is likely to succeed to bramble and grey willow scrub, like the existing habitats alongside the forestry infrastructure around the Site. No areas

of Annex I *Molinia* Meadows habitat were recorded on the Site. An example of the Wet Grassland habitat that has developed around the infrastructure is shown in **Plate 6.8**.



Plate 6-8 Wet grassland (GS4) found commonly throughout the Wind Farm Site

6.5.1.5 Scrub (WS1)

A number of small areas of scrub (WS1) were identified within the Site. This was generally associated with young forestry, along tracks, roads and forestry edges. These are small, fragmented and have not been mapped. Types of scrub encountered included areas with tangled Bramble (*Rubus fruticosus* agg.), as well as gorse (*Ulex europaeus*) and grey willow (*Salix cinerea* ssp. *oleifolia*) scrub patches. These areas can be characterised as areas of habitat dominated by (i.e. at least 50% cover) vigorous shrubs like bramble and gorse, or by small sub-mature trees less than 4-5 metres in height (Plate 6.6). Other plants present in some of these areas of scrub included Ivy (*Hedera helix*), honeysuckle (*Lonicera periclymenum*), holly (*Ilex aquifolium*) and hazel (*Corylus avellana*). There had been no significant changes in the scrub habitats on the Site between 2016 and 2025. However, it was noted that many of the areas where conifers had been felled around infrastructure within the Wind Farm Site had recolonised with wet grassland/heath habitats but in the drier sections, grey willow and bramble were starting to encroach and these areas were likely to succeed to scrub.

6.5.1.6 Eroding/upland rivers (FW1)

Three small catchments, consisting of a number of small rivers or streams arise or flow through the Wind Farm Site. They are all classified as Upland Eroding Rivers (FW1) and are typical of steep upland streams in peaty catchments. Each of the streams were extensively surrounded by coniferous forestry prior to the Existing Development.

Watercourses within these catchments were all described in the *Aquatic Baseline Report for Meenbog Wind Farm (2025)* that is provided as **Appendix 6-2**. The fisheries assessment that was provided for the 2017 EIAR is also provided within **Appendix 6-2**.

The largest of these channels is the Bunadaowen River, a tributary of the Mourne Beg River (Derg catchment) (See **Plate 6-10**). This catchment arises in the mountains to the west of the Wind Farm Site

and flows through it in a north easterly direction. There are numerous small tributary streams that flow into it, many of which arise on the Site. There were no works undertaken within this watercourse as part of the Existing Development, but the Wind Farm infrastructure crosses the stream on existing forest roads that have been upgraded. Descriptions of the watercourse are provided in Appendix 6-3. Three aquatic survey locations are located within the Site and one immediately downstream of the confluence of the Bunadaowen and Mourne Beg Rivers. The river has a steep to moderate gradient, with few macrophytes and low cover of bryophytes. The upper reaches of the channel, outside the Site are surrounded by open upland heath habitats. Moving through the Site itself, the surrounding land use is predominantly coniferous forestry. Whilst there is a buffer of wet grassland and bramble/willow scrub between the main stem of the river and the forestry, there is no such buffer surrounding many of the tributaries. There were no significant changes to the watercourses recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.



Plate 6-9 Bunadaowen River

The Glendergan River arises out of a lough that is located to the west of the Site and flows along the southern boundary of the Site for a distance of approximately 900m. A small tributary of this River arises in Carrickaduff Lough within the Site and flows in a southerly direction before exiting the Site in the southeastern corner, where it joins the Glendergan River. Another short tributary arises within the Site and flows south before joining the Glendergan River slightly further west. All waterbodies described above are narrow, peaty streams that are surrounded, and in many places, shaded by coniferous forestry. Other areas are surrounded by clear felled forestry, bog and heath habitats. A sampling point within this catchment is fully described in **Appendix 6-2** and is located the southeastern corner of the Site.

At this point, the stream is approximately 1m wide and is an incised, silty channel with high banks and the upstream tributaries are very small channels within the forestry. The wind farm infrastructure has avoided all instream works in this catchment.

There were no significant changes recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.

The Shruhangarve River arises within forestry and bog in the eastern sections of the Site and flows in a northerly direction before exiting the Site and flowing through peatland habitats until it converges with the Mourne Beg River. This is a steep, high energy channel with a substrate consisting of large boulders, bedrock and large cobble over much of its length. The November 2020 Peat Slide directly affected this river and resulted in the obscuring of approximately 1km of the channel, all of which was within the Site. It also resulted in large volumes of peat being deposited downstream on the Shruhangarve and its banks along with the Mourne Beg River. A dedicated clean up and restoration programme was undertaken under Section 12 of Local Government (Water Pollution) Acts following a notice issued by Donegal County Council. This included the manual removal of peat from the channel and recreation of a flow path, stabilisation of the banks with coir mesh and the planting of native tree species including alder and grey willow along a wide riparian buffer surrounding the stream. In addition, a small pond was created along the river channel. This river restoration has been successful in that in 2025, the Shruhangarve is in very similar condition to that which was recorded the surveys that were undertaken for the 2017 EIAR . In addition, it is surrounded by a wide riparian buffer as opposed to being overshadowed by conifer plantation. **Plates 6-11** and **6-12** show the Shruhangarve within the Site immediately following the November 2020 Peat Slide and in 2025, following restoration. Downstream of the Site, the Shruhangarve, its banks and the Mourne Beg River have likewise returned to pre-November 2020 Peat Slide conditions. Details of the condition of this river in 2025 are provided in Appendix 6-2.



Plate 6-10 Shruhangarve immediately after the November 2020 Peat Slide



Plate 6-11 Shruilangarve at same location in 2025

Mary Breen's Burn (also known as Croaghonagh River) flows close to the entrance road on the Site and discharges to the Mourne Beg catchment. It flows in a north easterly direction from the Site, through the Croaghonagh Bog SAC, which supports Upland Blanket Bog and Wet Heath habitats. It joins the Mourne Beg River approximately 2 km to the northeast of the access road on the Site. It is an upland, peaty channel of up to 2.5m in width. In both the surveys that were carried out for the 2017 EIAR and subsequent surveys up to 2025, the river was in poor condition with high levels of filamentous algae recorded (suggesting nutrient enrichment). There were no significant changes recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.

6.5.1.7 Drainage ditches (FW4)

The Site is bisected with numerous artificial forestry drainage channels. The majority of these support little or no flow and are less than 0.5m in width. They often support dense bryophyte communities with rush dominated banks and iron deposits. This habitat is shown in **Plate 6.13**.



Plate 6-12 Example of Forestry Drains throughout the Site.

6.5.1.8 Dystrophic lake (FL1)

Carrickaduff Lough is classified as a dystrophic lake. It is located within a peatland section of the Site and has steep banks that comprise of peat rather than stone or mineral soil. Yellow water lily (*Nuphar lutea*) and broadleaved pondweed (*Potamogeton natans*) were recorded from the lake and the Wet Heath/Bog habitat continued right up to the water's edge. This habitat has not been impacted by the existing works and there are no significant changes since the surveys for the 2017 EIAR. This habitat is shown in **Plate 6.13**.



Plate 6-13 Carrickaduff Lough – Dystrophic Lake

6.5.1.9 Built and Artificial Habitats

The amount of built and artificial habitats on the Site has increased as a result of the Existing Development. These habitats mainly include Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3) associated with Wind Farm infrastructure such as turbine bases, access roads and associated ground works. The majority of these habitats are located on lands that were previously coniferous forestry. In 2016, the majority of the built and artificial habitats on the Site were associated with forestry roads that were classified as Spoil and Bare Ground (ED2). Shown in **Plate 6.14**.



Plate 6-14 Wind farm infrastructure present throughout the Site

There is a quarry close to the Site entrance. The current habitats at this location include Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3) associated with the ongoing operation of the quarry and the new access road, willow (*Salix cinerea*) and bramble (*Rubus fruticosus*) Scrub (WS1) and Active Quarries and Mines (ED4) in the wider area.

6.5.1.10 Other artificial lakes and ponds (FL8)

Artificial lakes and ponds were recorded throughout the Site during the 2025 surveys. These included ponds that had developed in the borrow pits and open excavations that had been constructed as part of the Existing Development, as shown in **Plate 6-15** below.



Plate 6-15 Artificial Pond within a borrow pit

In addition, there was a settlement pond recorded close to the Site entrance and classified as Artificial Lakes and Ponds (FL8), this was lined with plastic and was of low ecological value (Plate 5-2). This was an existing artificial settlement pond from an adjacent quarry that had been recorded in the surveys for the 2017 EIAR but had been slightly relocated and lined. An overflow system was observed and was in use at the time of the visit (after several days of heavy rain), with the pond discharging to an existing culvert beneath a wind farm access road that forms part of the Prospective Development and an existing and unrelated quarry road and into a drain that forms part of the adjacent quarry drainage network. This pond is shown in **Plate 6.16**.



Plate 6-14 Artificial Pond close to the quarry entrance - lined as part of the Existing Development

In addition to the above, a pond was created on the Shruhangarve River behind a barrage wall that was built under emergency works in the aftermath of the November 2020 Peat Slide to provide habitat diversity in the northern section of the Wind Farm Site as part of the river restoration works. This is shown in **Plate 6-17**.



Plate 6-15 Artificial pond on the Shruhangarve River to increase habitat diversity

6.5.1.11 Grid Connection Site

The Grid Connection Site primarily follows the public road network in a southerly direction and the development footprint is located within the road infrastructure itself. The N15, in which the Grid Connection is located for over 5km, is surrounded by peatland habitats, coniferous forestry and wet grassland habitats. It crosses the Lowerymore River (within the existing bridge infrastructure) and runs adjacent to it over much of the route.

The Grid Connection Site extends from the Wind Farm Site entrance along the N15 National Primary Road to the L-2595 Local Primary Road, then proceeds to the L-1985 Local Primary Road where it travels east along the road and through agricultural lands parallel to the local road before continuing along the L-19852 Local Tertiary Road and finally following a private road to reach the Clogher 110kV substation. The road is surrounded by agricultural fields that are bounded by hedges and drainage ditches in the northern sections and wire fences at it continues south. The southernmost sections, surrounding the Clogher Substation are surrounded by acid grasslands and heath habitats.

A short section of approximately 430m in length is located immediately adjacent to the road, in a field of improved wet grassland habitat. This was bounded by a post and wire fence during the walkover surveys and was similarly bounded by a fence in advance of the construction of the permitted development, with the exception of a short section of approximately 25m in length, which consisted of immature trees and scrub including ash and birch.

6.5.1.12 Biodiversity Enhancement Site

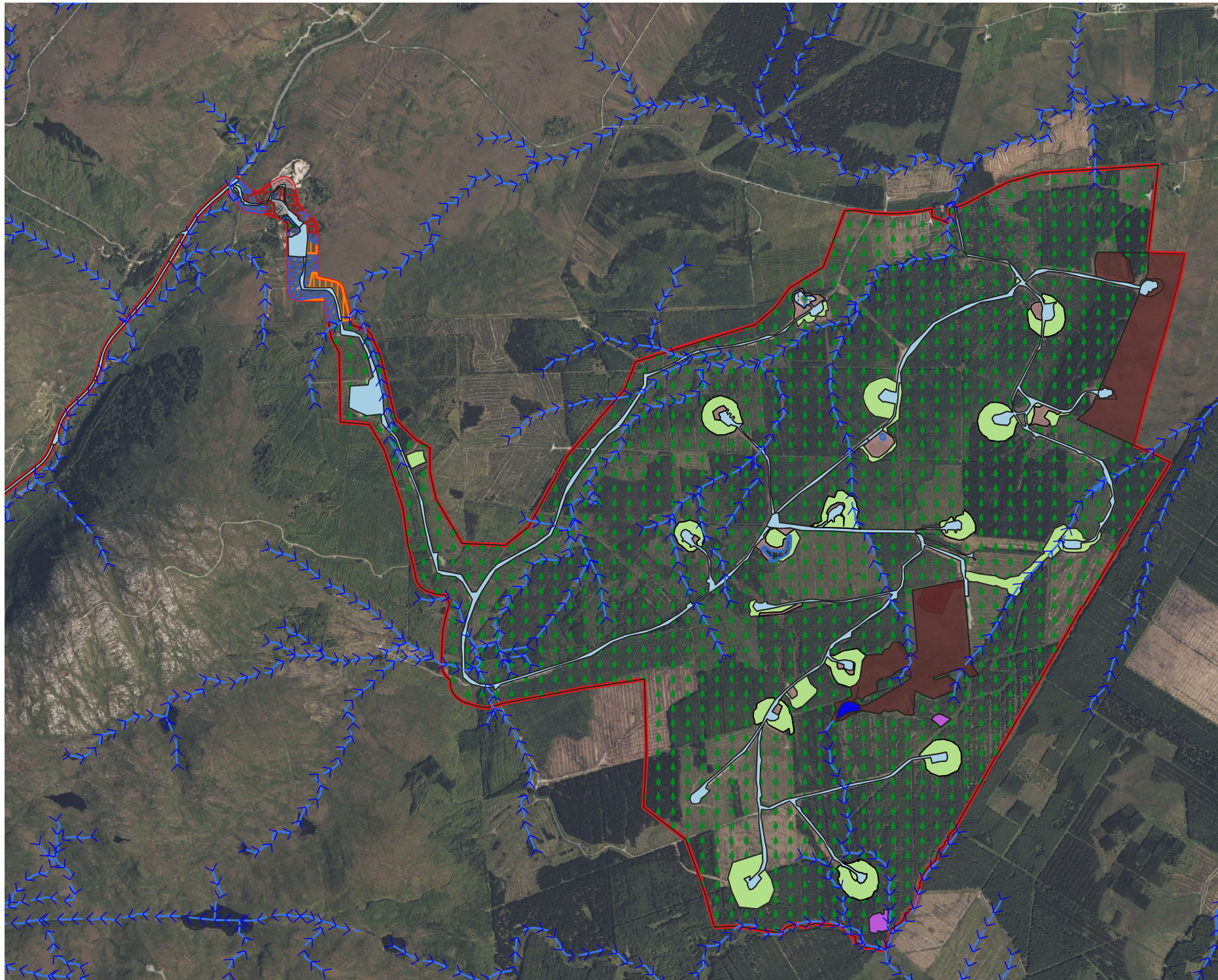
In addition to the lands within the Wind Farm Site and Grid Connection Site, the Prospective Development will also involve the felling of approximately 109 hectares of conifer forestry that is currently growing on peatland habitats, some sections of which are flat, very wet and suitable for bog restoration. Other areas are drier and sloping but still on peaty substrate. The dominant species is Sitka spruce throughout. This habitat is shown in **Plate 6-18**. The Biodiversity Management and Enhancement Plan is provided in **Appendix 6-4**.



Plate 6-16 Typical habitat in enhancement lands

6.5.1.13 Protected Floral Species

No floral species that are listed in Annex II of the EU Habitats Directive or the Flora (Protection) Order (2015) were recorded within the Site and the Prospective Development avoids all suitable habitat for the species Irish lady's tresses (*Spiranthes romanzoffiana*) and globeflower (*Trollius europaeus*), which are known to be present within the wider area but have not been recorded on the Site. These species were also the subject of dedicated surveys to inform the 2017 EIAR and were similarly, not recorded.



Map Legend

- Site Location
- Eroding/ Upland Rivers (FW1)
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Dystrophic lakes (FL1)
- Other artificial lakes and ponds (FL8)
- Wet grassland/ Wet heath (GS4/HH3)
- Wet heath (HH3)
- Cutover bog (PB4)
- Conifer plantation and Associated habitats (WD4)
- Scrub (WS1)
- Upland blanket bog/ Wet heath (PB2/HH3)



Drawing Title

Habitat Map

Project Title

Substitute for Consent Application for
Meenbog Wind Farm

Drawn By

MK

Checked By

PR

Project No.

240505-a

Drawing No.

Figure 6.7

Scale

1:25,000

Date

09.06.2026



MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

Microsoft product screen shots reprinted with
permission from Microsoft Corporation

6.5.2 Results of Faunal Surveys

The results of the faunal surveys carried out as part of the 2017 EIAR have been taken into account. This section includes results of the surveys undertaken subsequently up to 2026.

6.5.2.1 Multi-disciplinary walkover surveys

6.5.2.1.1 Summary results of Surveys undertaken to support permitted development

The Site was surveyed for protected faunal species during the preparation of the 2017 EIAR. During these surveys, fox (*Vulpes vulpes*) scat, Irish hare (*Lepus timidus. ssp. hibernicus*), red squirrel (*Sciurus vulgaris*) pine marten (*Martes martes*), red deer (*Cervus elaphus*) and sika deer (*Cervus nippon*) were all recorded. No signs of otter were recorded during the surveys for the 2017 EIAR. However, the suitability of the Site and downstream watercourses for the species was acknowledged and they were identified as a KER. No signs of badger (*Meles meles*) or other mammals such as pygmy shrew (*Sorex minutus*), hedgehog (*Erinaceus europaeus*), and stoat (*Mustela erminea*) but they are likely to be present, at least on occasion

In addition to these mammalian species, common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) were also recorded and suitable breeding habitats were identified. Whilst none were recorded, suitable habitat for common lizard (*Zootoca vivipara*) was identified and it was considered likely to occur on the Site.

The surveys also included an evaluation of the Site and construction footprint for suitable marsh fritillary (*Euphydryas Aurinia*) habitat, with none recorded.

6.5.2.1.2 Results of Walkover Surveys 2021 -2025

Mammals

The following species (or signs thereof) were recorded during the walkover surveys. The surveys undertaken and evidence recorded indicated that the Site was not of particular significance for mammals and as such, no requirement for further dedicated surveys to inform an impact assessment was identified for these species.

Badger

There was a single recording of a badger within the Site, this was a sighting of an individual. No setts, definitive foraging signs, prints or other signs of the species were recorded during any of the surveys undertaken. Whilst the Site offers suitable habitat, no evidence that it is of particular importance to the species was recorded.

Fox

Fox was recorded on two occasions and scat was recorded frequently throughout the Site during the walkover surveys undertaken on the Site. The species was also recorded in the general area outside the Site on two occasions.

Red Deer

This species was recorded on the Site on two occasions during the walkover surveys but signs in the form of prints and droppings were frequently recorded throughout the Site. It was recorded within the enhancement lands also.

Hare

Hare were recorded frequently throughout the open areas within the Site and are a typical species of upland grassland and peatland habitats.

Pine Marten

This species was recorded once within the Site and once in the surrounding area. The Site provides suitable habitat for the species and likely scat was recorded on tree stumps occasionally within the Site. No dens or other signs that the Site was of particular significance to the species were recorded.

Red Squirrel

Feeding signs of this species were recorded occasionally within conifer plantation forestry within the Site and a single animal was recorded outside the Site boundary. No dreys or other signs that the Site was of particular significance to the species were recorded.

Otter

Suitable otter habitat was recorded within the Site in the form of the Bunadaowen and Shruhangerve Rivers and anywhere that the footprint was within 150m of this suitable habitat was the subject of dedicated otter surveys, which are described below. In addition, dedicated aquatic surveys both within the Site and downstream in the catchments included otter surveys.

Other mammals

Pygmy shrew was recorded on the Site and other mammalian species such as hedgehog (*Erinaceus europaeus*), wood mouse (*Apodemus sylvatica*) and stoat (*Mustela erminea*) are also likely to be present, at least on occasion. However, no signs that the Site was of particular significance to any such species were recorded.

Amphibians and Reptiles

Common frog was recorded on the Site frequently during the walkover surveys. It was noted that the peat repositories, artificial ponds and other peripheral habitats associated with the Existing Development provided good habitat for the species with additional pools, ditches and wet areas when compared to the pre-development situation. No frog spawn was recorded during the surveys, but it is highly likely that the species breeds on the Site and it supports a large amount of suitable habitat.

No other reptile or amphibian species were recorded but it is highly likely that smooth newt and common lizard are present on the Site. The Existing Development has led to an increase in small pools and wet areas in and around the peat cells and on the Shruhangerve River, which provide suitable habitat for newt.

Terrestrial Invertebrates

During the walkover surveys, the suitability of the Site for other protected species such as marsh fritillary was assessed with no significant habitat for the species recorded. The Site does provide suitable habitat for a range of invertebrate that favour upland peatland and wet grassland/forestry habitats. Habitat diversity for these species has increased as a result of the Existing Development with the pre-existing conifer plantations broken up to provide more open areas with wetlands created in the peat repositories and sheltered glades, in the place of blanket forestry.

Aquatic species

The Site contains two main watercourses, the Bunadaowen and the Shruhangerve. In addition, a small tributary of the Glendergan is located in the southeastern section of the Site and flows out via the southeastern boundary. These watercourses were visited during the walkover surveys but were the subject

of detailed aquatic surveys, which are provided in **Appendix 6-2** and are summarised in subsequent sections below. These dedicated surveys also assess the baseline biodiversity in the downstream Mourne Beg, Lowerymore and Glendergan Rivers.

6.5.2.2 Dedicated Otter Survey

A dedicated otter survey was undertaken on the Bunadaowen and Shruhanganve Rivers that are within the Site. This involved a walkover of the relevant watercourses where they occur within 150m of the existing or Prospective Development. Otter spraint was recorded under a bridge over the Bunadaowen River, where the wind farm road crosses it, during each of the dedicated surveys (and during many of the walkover surveys). This bridge was the subject of works to facilitate the Existing Development and is clearly a regularly used sprainting area. No other signs of otter activity were recorded within the Site during any of the surveys undertaken. A map showing the areas surveyed and location of the spraint site is shown in **Figure 6-8**.

In addition to the dedicated surveys for otter within the Site, otter were recorded during the aquatic surveys that are provided in Appendix 6-2 and described in subsequent sections.

6.5.2.3 Bat Surveys

Full details of the bat survey results are available in the baseline bat report available as **Appendix 6-1** of this EIAR and a summary is provided below.

A comprehensive desk study, field survey programme and site-specific analysis were undertaken in accordance with NatureScot (2021) guidance and relevant best practice to characterise baseline conditions, including bat habitat suitability, roosting potential, activity levels and species composition. The Study Area was found to comprise predominantly commercial conifer plantation and smaller areas of peatland habitats, with bat foraging and commuting habitat assessed as largely of Low to Moderate suitability. No bat roosts were identified within the Site, and no features of High roosting suitability were recorded.

The following species were recorded during the surveys in 2024:

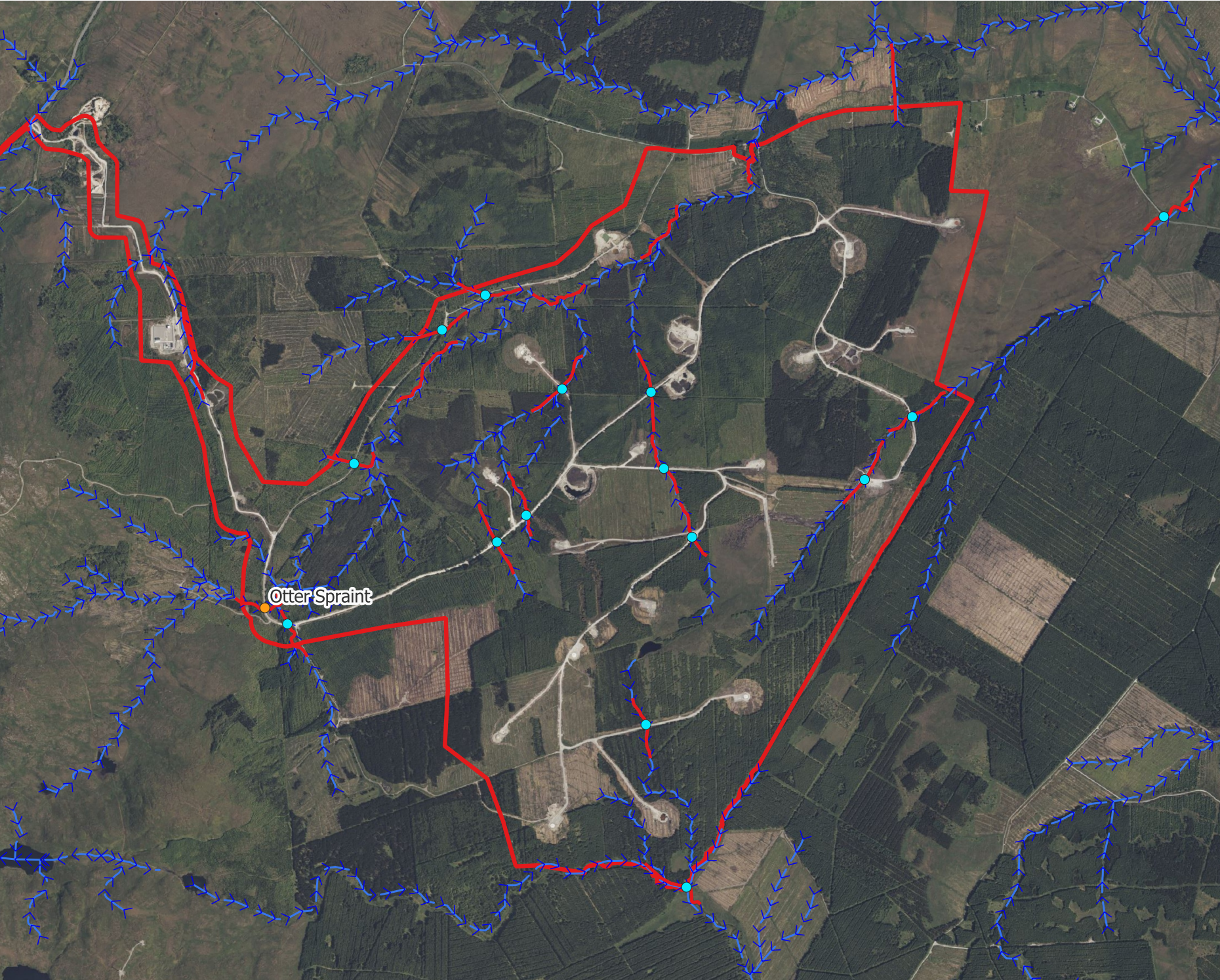
- Leisler's Bat (transect and static surveys)
- Myotis Spp. (transect and static surveys)
- Soprano pipistrelle (transect and static surveys)
- Common Pipistrelle (transect and static surveys)
- Brown long-eared bat (static surveys only)
- Nathusius' pipistrelle (static surveys only)

Ground-level static detector surveys and manual transect surveys recorded generally low levels of bat activity, with seasonal and spatial variation typical of upland forestry landscapes. High activity was recorded only at a small number of detector locations during limited periods, and these were localised and not indicative of sustained or widespread use of the Wind Farm Site by high collision-risk species.

Based on typical (median) activity levels, collision risk for high-risk bat species was assessed as Low across the Wind Farm Site and Grid Connection Site. While peak activity risk reached Medium or High for certain species during specific seasons, these peaks were spatially and temporally constrained and do not alter the overall risk profile of the Wind Farm Site and Grid Connection Site.

All trees within the Study Area occur within commercial conifer plantations and were assessed as having *Negligible* roosting potential. No bat roosts were identified within the Study Area during the 2024 surveys, and all inspected structures were assessed as offering *Negligible* or no roosting potential. No roosts were recorded within the Site.

The information contained in the bat survey report informs both this rEIAR for the Existing Development and the EIAR for the Prospective Development.



Map Legend

- Site Location
- Otter Survey Stretch
- Crossing Points
- Otter Signs
- Rivers



Drawing Title

Otter Survey Map

Project Title

Substitute for Consent Application for
Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.8
Scale	Date
1:25,000	09.06.2026



MKO
Planning and
Environmental
Consultants

Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: www.mkofireland.ie

6.5.2.4 Aquatic Surveys

The results of the aquatic surveys undertaken are provided in full in Appendix 6-2. To avoid repetition, they are not included here but the main findings of each report are summarised below.

6.5.2.4.1 2017 Report- Meenbog Wind Farm Fisheries Assessment

This report was provided as Appendix 6-3 to the 2017 EIAR and includes a desk study of available information on the Derg catchment as a whole rather than specific information on the Mourne Beg. It also provides more detailed information on the smaller streams within and adjacent to the Wind Farm Site including the Shruhangarve, Bunadaowen and Mary Breen's Burn. It provides a baseline of the fisheries environment in advance of any works associated with the Existing Development.

The report identifies the known presence of the following fish species within the catchment:

- Atlantic salmon (*Salmo salar*)
- Brown trout and sea trout (*Salmon trutta*)
- Eel (*Anguilla anguilla*)
- Minnow (*Phoxinus phoxinus*)
- River/Brook lamprey (*Lampetra sp*)
- Sea lamprey (*Petromyzon marinus*)
- Three-spined stickleback (*Gasterosteus aculeatus*)
- Stone loach (*Noemacheilus barbatula*)
- Pike (*Esox lucius*)
- Perch (*Perca fluviatilis*)
- Roach (*Rutilus rutilus*)
- Gudgeon (*Gobio gobio*)

It then provides a desk study of relevant data on Salmonids, Lamprey and Freshwater Pearl Mussel (not present in Mourne Beg catchment).

The field surveys included site specific information on each of the streams surveyed:

Shruhangarve

Moderate quality stream with eel the only species recorded.

Bunadaowen

Good Quality stream with brown trout throughout and eel recorded.

Mary Breen's Burn

Poor quality stream but with significant fish stock. Brown trout recorded.

6.5.2.4.2 2017-Aquatic Macroinvertebrate Surveying

This report was included as Appendix 6-2 to the 2017 EIAR and includes information on the macroinvertebrate populations in the watercourses within and downstream of the Existing Development in advance of any associated works. It is provided in Appendix 2 of this EIAR and includes two survey stations on Mary Breen's Burn, one on the Bunadaowen, one on the Mourne Beg (upstream of the November 2020 Peat Slide area) and one on a tributary of the Lowerymore near the wind farm entrance onto the N15. There were no surveys undertaken on the Mourne Beg downstream of the Shruhangarve confluence or on the Shruhangarve River at that time.

In all samples, the recorded Q value was 3-4, indicating moderate water quality. None of the sampled streams achieved 'Good' status during the pre-works baseline survey.

6.5.2.4.3 **2021 – Aquatic & Fisheries Assessment of November 2020 Peat Slide**

An excerpt from the non-technical summary of the report that is included within Appendix 6-2 is provided below.

Triturus Environmental Ltd. in conjunction with McCarthy Keville O’Sullivan, the Lough’s Agency and RIVUS Ltd., undertook a fisheries and aquatic habitat assessment of the Mourne Beg catchment draining Meenbog wind farm near Ballybofey, Co. Donegal. Following a significant peat-slide event that occurred at the site in November 2020, the surveys focused on the Shruhanganarve (peat slide pathway) and downstream Mourne Beg River to determine impacts to fish populations, fish spawning and nursery habitat. The assessment also considered direct impacts to riverbed condition in addition to biological water quality and hydromorphology. Long-term Loughs Agency fisheries data and salmonid spawning (redd count) data was also reviewed and used to inform our assessment. A total of 18.95km of riverine channel was surveyed, both upstream and downstream of the peat impact zone, in July and October 2021.

The July 2021 site surveys found that siltation impacts (from peat) were evident throughout the length of our Mourne Beg River survey area some 8 months after the peat slide event, extending to >14km downstream of the Shruhanganarve confluence. Siltation, in terms of riverbed surface cover, infiltration into riverine gravels and oxygen exchange (redox) was often severe. This resulted in significant reductions in the quality of habitat for salmonids and macro-invertebrates. Whilst siltation was evident in almost all areas of the peat impact zone (including shallow, fast-flowing reaches), the most significant volumes were present in depositional slow-moving glide and pool areas. Reductions in riverbed condition also impacted the hydromorphology of the river, mainly through the deterioration of bed condition, albeit much of the survey area retained hydromorphology equivalent to WFD good status (as would be expected for a natural upland river system).

Based on long term monitoring data (2011-2021), there was a significant restriction in the distribution of salmonid spawning areas (redds) in the first spawning season after the peat slide. This was primarily due to the (often severe) siltation of routinely used spawning areas. However, despite a considerable reduction, salmonid spawning was confirmed in several impacted areas of the Mourne Beg River in the December 2020-January 2021 period. Of note was the marked increase in spawning in the upper Mourne Beg River, upstream of the peat impact zone, in December 2020-January 2021. Despite evident impacts, numbers of juvenile Atlantic salmon (recorded via electro-fishing) increased in 2021 compared to the previous year (before the peat slide), thus indicating successful spawning and recruitment within the system. However, the increasing numbers of juvenile salmon may also be explained by a parallel reduction in trout consequential of the peat slippage event. Juvenile brown trout numbers were noticeably reduced within the impact zone in 2021 and this is thought to be linked to a higher degree of impact due to an earlier (than salmon) spawning season that likely coincided with the peat slide event causing significant mortality.

A swift recovery in biological water quality of the impact zone was observed (as assessed by Q-sampling of macro-invertebrates). Most sites sampled on the Mourne Beg River had recovered to Q4 (good status) water quality by October 2021, having been significantly worse in December 2020 (when some sites supported an absence macro-invertebrate life due to severe siltation impacts). An increased diversity of clean water indicator species, such as mayflies and stoneflies, were recorded in October 2021 demonstrating an improvement in biological water quality. The Shruhanganarve, where peat slide impacts were most severe, was failing to meet Q4 (good status) thresholds in October 2021. In conclusion, the Meenbog peat slide caused and continues to cause considerable impacts to the quality of aquatic habitats within the Shruhanganarve and Mourne Beg River. Whilst there is evidence of considerable recovery, impacts are predicted to last long-term. Given the large volumes of peat present within the system as a result of the peat slide, the spate nature of the Shruhanganarve and Mourne Beg River will likely result in medium-term resuspension and flushing of peat downstream, providing a lasting source of peat and associated impacts to fisheries and aquatic habitats. Other sources of impact to aquatic habitats

and water quality, namely coniferous afforestation and agriculture, were identified during the 2021 surveys.

6.5.2.4.4 2024/2025 Aquatic Baseline Reports

Aquatic surveys were undertaken in both 2024 and 2025 and full details of these are provided in Appendix 6-2. The main conclusions are summarised below.

Fisheries

A typical diversity of fish species for the Mourne Beg_SC_010, Mourne Beg_SC_020, and Eske_SC_010 river sub-catchments was recorded during the electro-fishing survey, with Atlantic salmon, brown trout, stone loach, minnow, three-spined stickleback and Red-listed European eel captured. In contrast to previous surveys, an anadromous sea trout (also *Salmo trutta*) was also recorded at a site on the upper reaches of the Mourne Beg River.

Salmonid populations were widespread in vicinity of Meenbog wind farm, being present at all except one survey site. Annex II Atlantic salmon were recorded from a total of 11 no. sites on the Croaghonagh River, lower Bunadown River, Lowerymore River and all survey sites on the Mourne Beg River.

The highest salmonid densities were recorded from the Mourne Beg River which represents the most valuable salmonid watercourse in vicinity of the wind farm. As per previous surveys, no lamprey ammocoetes (*Lampetra* sp.) were recorded, reflecting the poor habitat suitability across the survey area (Appendix A of that report in Appendix 6-2). Low densities of Red-listed European eel were recorded in the Bunadown River and Shruhangerve River in addition to 5 no. sites on the Mourne Beg River. Siltation pressures (mostly from peat escapement) and eutrophication pressures (e.g. afforestation) were evident throughout much of the survey area, particularly on the Bunadown, Mourne Beg and Glendergan rivers, and were impacting the quality of fisheries habitat.

Annex I Aquatic Habitats

Although not diverse examples, the Annex I habitat ‘Water courses of plain to montane levels, with submerged or floating vegetation of the *Ranunculus fluitantis* and *Callitriche-Batrachion* (low water level during summer) or aquatic mosses (3260)’ (aka floating river vegetation) was present on the Mourne Beg River. Here, several indicator species (EC, 2013) were present including water crowfoot (*Ranunculus* sp.), various-leaved pondweed (*Potamogeton gramineus*), alternate milfoil (*Myriophyllum alterniflorum*) and well-developed aquatic bryophytes communities supporting *Fontinalis antipyretica*, *Fontinalis squamosa* and *Chiloscyphus polyanthos*. These sites also supported 3260 habitat in July 2024.

Carrickaduff Lough, located within the footprint of Meenbog wind farm, represented the Annex I habitat ‘Natural dystrophic lakes and ponds (3160)’. Annex I acid oligotrophic lakes are typically associated with small lakes and ponds in Atlantic and upland blanket bog and wet heath (Gray et al., 2022; O’Connor, 2015), such as that present at Meenbog. Annex I (3160) habitats are considered species-poor botanically with a community characterised by bryophytes of the genus *Sphagnum* and sustain the *Utricularietalia* phytosociological order (EC, 2013). In Ireland, this lake habitat has been broadly interpreted as “species poor lake and pond systems dominated by *Sphagnum* mosses and restricted to blanket bogs and wet heaths” (O’Connor, 2015). As per the previous survey, Carrickaduff Lough was dominated by *Sphagnum* species such as *S. cuspidatum*, with common associates for 3160 habitat such as floating bur-reed (*Sparganium angustifolium*), bog bean (*Menyanthes trifoliata*), bulbous rush (*Juncus bulbosus*) and bladderwort (*Utricularia* agg.) (EC, 2013).

Biological Water Quality & Macro-invertebrates

No rare or protected macro-invertebrate species (according to national red lists) were recorded in the biological water quality or sweep samples taken from a total of 19 no. sites in July 2025, i.e. none of greater than Least Concern. The water boatman *Hesperocorixa moesta* was recorded in moderate numbers from Carrickaduff Lough. Whilst not protected or Red-listed, this is a rare and poorly

understood corixid species in Ireland (Mantell & Anderson, 2020) with a paucity of records (NBDC data). It was not recorded during the 2024 surveys.

Biological water quality recorded a slight overall upward trend observed in the Mourne Beg River downstream of the Shruhingarve confluence, as well as an improvement in the Shruhingarve River itself between the 2024 and 2025 surveys.

Eight of the survey sites as shown in Figure 4.1 of the report in Appendix 6-2 achieved Q4 (good status) in 2025. These included all survey locations on the Mourne Beg that are located downstream of the November 2020 Peat Slide except at the confluence with the Shruhingarve where there was a slight decrease from 2024 (Q3 2025 and Q4 in 2025). The other areas that achieved ‘Good’ status were on an unnamed Croaghonagh River tributary, Barrack Hill River and the Lowerymore River.

The other 10 survey sites were either valued at Q 3/4 (Moderate) or Q3 (Poor) and were located primarily on small streams upstream of the November 2020 Peat Slide and in many cases, not connected to the existing project.

Macro-invertebrate abundance, species diversity and taxon richness per site was broadly similar in both the 2024 and 2025 surveys. A swift recovery in biological water quality (mostly to Q4) of the Mourne Beg River occurred following the November 2020 Peat Slide and, despite other ongoing impacts, much of the watercourse is currently achieving good status as of July 2025.

The Shruhingarve River, was failing to meet Q4 (good status) thresholds in October 2021 (Triturus, 2022) and in July 2024 (Triturus, 2025a). However, the macroinvertebrate community has continued to recover in the interim period, with a greater proportion of pollution sensitive species present in 2025, including the EPA group A stonefly species *Protonemura meyeri* and group B mayfly *Paraleptophlebia cincta* which were both absent in 2024. The biological water quality of the Shruhingarve had improved to Q3-4 (moderate status) in July 2025.

As per previous surveys (2021 and 2024), both eutrophication (primarily from coniferous afforestation) and peat escapement (siltation) pressures were evident throughout the survey area. Clear-felling activities had occurred along the Mourne Beg River since the previous survey, likely leading to nutrient escapement to the watercourse.

6.5.2.4.5 2026 Redd Surveys

The findings of the 2026 Redd surveys are provided below and shown on **Figure 6-9**.

Croagh Bridge (Grid Ref: E212540 N385755), downstream for approximately 1.3km.

Confirmed Redds at Grid Refs E212848 N385636 and E213047 N385674, Potential Redd at E212620 N385627 (unconfirmed due to poor visibility)

Bridge at Grid Ref: E2352 N385183, downstream for approximately 120m.

Two confirmed redds around Grid Ref: E214359 N385072 and two unconfirmed redds around E214363 N385115 (unconfirmed due to poor visibility).

From confluence of Bunadaowen with Mourne Beg (Grid Ref: E208296 N387861) upstream for a distance of approximately 500m.

Seven redds confirmed throughout section – good visibility, shallower water and narrower stream than downstream. Numerous unconfirmed redds.

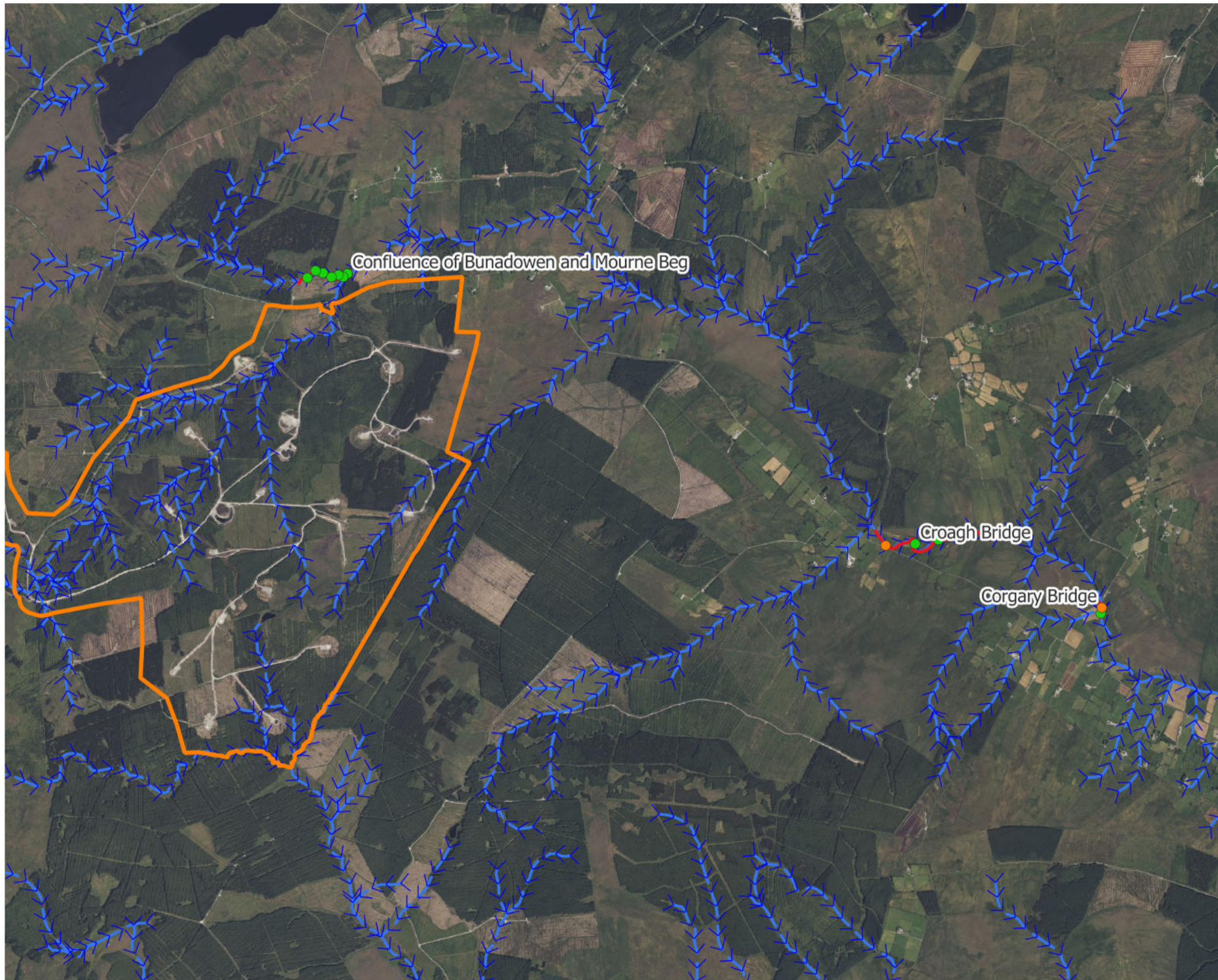
In total, four redds were recorded within the 1.42km surveyed downstream of the November 2020 Peat Slide and seven were recorded in the 500m surveyed upstream of the confluence with the Bunadaowen. It is highly likely that this is an underestimation due to the poor visibility at time of surveying. It does however, confirm that spawning is occurring throughout the Mourne Beg system. Representative photographs of redds are provided below.



Plate 6-17 Confirmed Redd downstream of bridge at H 14359 85072



Plate 6-18 Confirmed Redd upstream of Bunadaowen Confluence



Map Legend

-  EIAR Site
-  Survey Area
-  Confirmed Redd
-  Potential Redd
-  Rivers



Drawing Title

Salmon Redd Survey Map

Project Title

Substitute for Consent Application for
Meenboq Wind Farm

Drawn By

MK

Checked By

PR

Project No.

240505-a

Drawing No.

Figure 6.9

Scale

1:40,000

Date

09.04.2026



MKO
Planning
and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
emailinfo@mkofireland.ie
Website: www.mkofireland.ie

6.5.2.4.6 **Loughs Agency data 2021 -2025**

Raw data was received from redd and electro-fishing surveys undertaken by the Loughs Agency from 2021 - 2025.

Redd Survey Data

The surveys show redds distributed widely throughout the Mourne Beg system. A map is provided in **Figure 6-10** below. Redd numbers recorded are as follows:

- > 2012 - 7
- > 2013 - 12
- > 2015 - 32
- > 2016 - 4
- > 2017 - 44
- > 2018 - 32
- > 2019 - 69
- > 2020 - 41
- > 2021 - 74
- > 2022 - 83
- > 2024 - 56
- > 2025 - 24

Whilst there was a decline in redds in 2025, it is still comparable with redd count data from prior to the Existing Development. There is a high level of variability in the number of redds recorded annually.

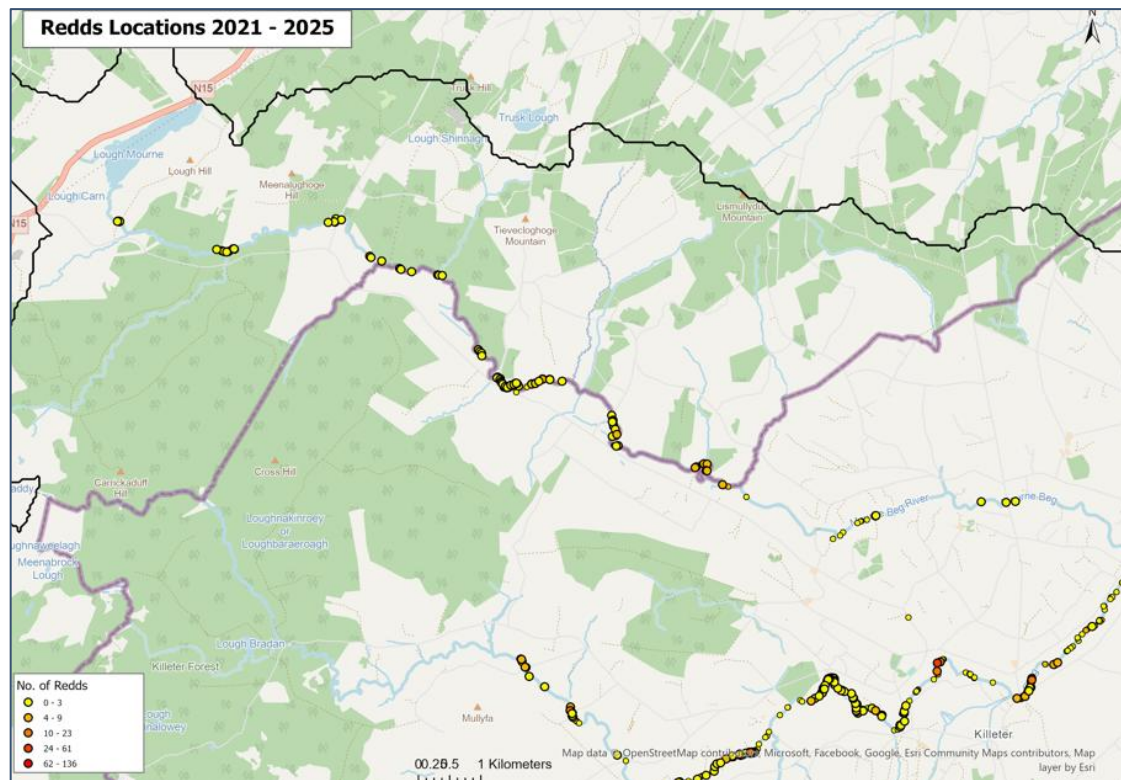


Figure 6-10 Location of Redds on the Mourne Beg and Derg system 2021 - 2025

Electro Fishing Data

The electro fishing data received from the Lough's Agency is provided in Appendix 6-2. It shows low numbers of brown trout recorded throughout the system in 2022 and low numbers of Atlantic salmon

recorded in 2023. This trend occurs throughout the system, both upstream and downstream of the Existing Development. Both species are recorded in good numbers in the 2024 and 2025 surveys.

6.5.2.4.7 Summary of Aquatic Survey Results

In summary, the relevant findings of the aquatic surveys undertaken are shown below.

No evidence of deterioration of the aquatic environment having occurred as a result of the construction of the Existing Development has been recorded, with the exception of the November 2020 Peat Slide.

Impacts of the November 2020 Peat Slide were recorded from the Shruhangarve River and downstream in the Mourne Beg River for a distance of >14km. These effects included excessive siltation and associated decline in water quality and salmonid spawning habitat. Despite this, the water quality within the river recovered to good status (Q4) in all surveyed areas downstream of the confluence between the Shruhangarve and the Mourne Beg (including all areas within the River Finn SAC and River Foyle and Tributaries SAC) within 11 months of the November 2020 Peat Slide. In addition, there was an increase in salmon fry recorded during electro-fishing undertaken in 2021. There was, however a decrease in brown trout numbers. Whilst salmonid redds were recorded downstream of the November 2020 Peat Slide in the 2021 surveys, their number was reduced, with a marked increase in redds recorded upstream of the November 2020 Peat Slide in the Mourne Beg upstream of its confluence with the Bunadaowen during that year. Loughs Agency data revealed widespread use of the river for spawning between 2021 and 2025. Electro fishing undertaken by the Loughs Agency between 2021 and 2025 appeared to show low numbers of trout in 2022 and low numbers of Atlantic salmon in 2023. Numbers of both species increased in 2024 and 2025.

Surveys undertaken in 2024 and 2025 recorded continued good water quality in the November 2020 Peat Slide affected area and typical ratios of salmonid and trout fry. In addition, redd surveys have confirmed continued spawning throughout the system. The 2024 and 2025 surveys were undertaken four seasons after the November 2020 Peat Slide event and showed no signs of reduced productivity. Such a reduction would be expected if there had been a significant effect on productivity in 2020. This would have led to a reduction in adults returning from migration four years later and a resultant impact on productivity.

Ongoing pressures from siltation and nutrient enrichment have been noted throughout the system (including areas that are not hydrologically linked to the Existing Development) but no evidence of this occurring as a result of the Existing Development were recorded.

The Shruhangarve River has shown steady improvement over the years between 2020 and 2025 and the restoration works undertaken following the November 2020 Peat Slide event have successfully stabilised the river and its banks. It was not surveyed for water quality before the construction of the Existing Development, but it is possible that (like all the other small streams surveyed) it did not meet 'good' water quality standards at that time.

6.5.2.5 Invasive Species

During field surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011) was conducted. Two established invasive non-native terrestrial plant species were noted during the surveys: Rhododendron (*Rhododendron ponticum*), and Himalayan knotweed (*Persicaria wallichii*). Rhododendron was found occasionally within the Site, but there were no large patches, just single bushes or very small clumps. A stand of Himalayan knotweed was recorded at one location outside the Site, along a public road to the north of the Site (H08630, 87790).

In addition, a rare semi-aquatic form of the invasive species, New Zealand flatworm was recorded in a kick sample in the Mourne Beg River in July 2024 (as discussed in Appendix 6-2). Sika deer were also recorded during the surveys to inform the 2017 EIAR but were not recorded during the surveys for the current application. This species is listed as a high-risk invasive species under the Irish Invasive Species Regulation (SI 477 2011 and SI 374/2024).

6.5.3

Importance of Ecological Receptors

Table 6-9 lists all identified receptors and assigns them an ecological importance in accordance with the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009). This table also provides the rationale for this determination and identifies the habitats and species that are **Key Ecological Receptors (KERs)**.

Table 6-9 Key Ecological Receptors identified during the assessment.

Ecological feature or species	Reason for inclusion as a KER	KER
Designated Sites		
European Designated Sites	The following Special Areas of Conservation are identified in the AA Screening as being within the Likely Zone of Impact and are assessed fully in the NIS that accompanies this application: ➤ Croaghonagh Bog SAC [000129] ➤ River Finn SAC [002301] ➤ River Foyle and Tributaries SAC [UK0030320] ➤ Lough Eske and Ardnamona Wood SAC [000163] These Sites are assigned International Importance and included as KERs as the potential for indirect effects on them via water pollution has been identified. The potential for other effects on Croaghonagh Bog is identified on a precautionary basis due to its proximity to the Prospective Development.	Yes
Nationally Designated Sites	The following Nationally Designated Sites has been identified as being within the likely Zone of Impact: ➤ Lough Eske and Ardnamona Wood pNHA (000163) This Site is assigned National Importance and included as a KER as the potential for indirect effects to occur on it via water pollution has been identified.	Yes
Habitats		
Upland Blanket Bog (PB2) / Wet Heath (HH3) County Importance	A mosaic of Blanket Bog/Wet Heath habitat occurs within the Site. This mosaic includes peatlands that conform to the EU Habitats Directive Annex I habitats Active Blanket Bog (7130* priority) and Atlantic Wet Heaths with <i>Erica tetralix</i> (4010) It is assigned County Importance as, although it supports Annex I habitats, they are highly fragmented and affected by forestry and agriculture. These habitats are not designated as either SAC, NHA or pNHA. The Prospective Development will not result in the loss or degradation of any ecologically significant peatland habitat. It will result in the loss of approximately 0.2ha of heavily cutover active turbary (PB4) along the entrance road. However, the Existing Development resulted in the loss and or deterioration of approximately 0.9 hectares of blanket bog habitat (as permitted under APB-303729-19). In addition, the November 2020 Peat Slide affected approximately 2.2ha of blanket bog habitat.	Yes

	In light of the above loss, the Prospective Development includes a proposal for the enhancement of approximately 6.2 ha. of peatland habitat through the felling of conifer forestry and undertaking of enhancement measures. In addition, the Prospective Development will also fell a further approximately 108 ha. of conifer forestry and recreate heath and scrub habitats to offset potential impacts on birds. As such peatland is included as a KER. The cut over bog that is located within the Site is located outside the footprint of the works and no pathway for significant effects was identified – it was not identified as a KER.	
Dystrophic Lakes (FL1) County Importance	Whilst this habitat was recorded on the Site no connection between the works and the lake were identified and no potential pathways for the Prospective Development to result in significant effects on this habitat. It is assigned County Importance as it is a good example of the Annex I habitat the Annex I habitat 3160 Natural Dystrophic Lakes and Ponds but is surrounded on all sides by coniferous forestry.	No
Eroding/upland rivers (FW1) Local Importance (Higher Value)	Three natural watercourses were located within the Site. The Bunadaowen River, The Shruhangerve Stream and the Glendergan River. These rivers flow into the Mourne Beg River and River Derg, which are designated for conservation as part of the River Finn SAC and River Foyle and Tributaries SAC. In addition, a section of the Site (access road and grid connection) drains to the Lowerymore River, which is designated as part of the Lough Eske and Ardnamona Wood SAC downstream and another section drains to Mary Breen's Burn, which discharges to the Mourne Beg. These Rivers and Streams have been assigned Local Importance (Higher Value) as they are of high biodiversity value and connect to downstream waterbodies in the local area. The SACs are not designated for upland eroding rivers but are of International Importance for associated aquatic species and in the case of River Foyle and Tributaries SAC, the Annex I habitat, Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation. They are identified as KERs as pathways for the Prospective Development to have significant effects thereon were identified. The drainage ditches on the Site are highly modified from their natural state and whilst they do provide some additional wet habitat throughout the Site, they are not included as KERs but considered in the context of their connectivity with downstream watercourses.	Yes
Artificial Lakes and Ponds (FL8) Local Importance (Higher Value)	This habitat was only recorded in two locations in the surveys undertaken for the Permitted Development and in both cases, was associated with quarrying and a historic borrow pit for forestry road building. Neither were of particular ecological significance and both have been affected by the Existing Development. In addition, there has been an increase in the habitat throughout the Site through the construction of ponds in the peat and spoil management areas and on the Shruhangerve River. They provide additional biodiversity in the local area but are unlikely to be affected by the existing development into the future some will be retained and will continue to colonise with more species and habitat quality will likely improve. There is potential for	No

	some sections of these habitats to be lost into the future, where they exist within peat and spoil management areas. They have not been identified as a KER.	
Conifer plantation (WD4), Scrub (WS1) and Wet Grassland (GS4) Local Importance (Lower Value)	Conifer Plantation (WD4) is the most abundant habitat type in the Site. This habitat was primarily planted on peatland habitats but has been highly modified through drainage and planting of coniferous forestry. Approximately 109 hectares will be felled to facilitate the BMEP and some small areas around the proposed turbines. This habitat was primarily planted on peatland habitats but has been highly modified through drainage and planting of coniferous forestry. The scrub and wet grassland habitats are peripheral to forestry and wind farm infrastructure and are similarly highly modified from their natural state. Such habitats are common and widespread in the wider landscape and are not of high ecological value. There is no potential for the Prospective Development to have significant effects on biodiversity as a result of losses of these habitats associated with the works that are yet to be completed. For these reasons, these habitats have not been identified as a KER.	No
Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3)	These habitats are of low ecological significance and were either already present on the site or have been created as a result of the Existing Development. They are not identified as a KER.	No
Fauna		
Aquatic and Fisheries Species among the Qualifying interests of the Downstream SACs Atlantic salmon, freshwater pearl mussel, otter International Importance	A pathway for significant effects on these species was identified in the form of water pollution. This pathway is indirect as it pertains to the construction, operation and decommissioning of the Prospective Development, which does not involve any instream works. An additional pathway for effect on otter was identified in the form of disturbance during construction. As such, these aquatic species have been identified as KERs. They are assigned International importance as they are QIs of downstream SACs.	Yes
Other Aquatic and Fisheries Species Brown trout, European eel Local Importance (Higher Value)	The same pathway for these aquatic species was identified in the form of water pollution. As such, these aquatic species have been identified as KERs. They were assigned Local Importance (Higher Value) because there are resident and regularly occurring populations present that are assessed to be important at the local level.	Yes
Bats Local Importance (Higher Value)	Six bat species were recorded commuting and foraging on the Site, no roosts or significant roosting features were identified and no potential for significant effects in the form of habitat loss or fragmentation was identified. The Wind Farm Site continues to provide suitable opportunities for bat commuting and foraging, particularly along retained conifer plantation edges and watercourses. Furthermore, the opening up of areas of formerly closed-canopy commercial forestry has increased the extent of woodland edge and linear habitat features within the Wind Farm Site. Such features are known to be preferentially used by commuting and foraging bats and, at a local scale, may have locally increased habitat	Yes

	heterogeneity and the availability of edge features used by commuting and foraging bats. However, there is potential for the operating wind farm to result in direct mortality through collision or barotrauma and potentially through disturbance through noise and lighting. Bats are identified as a KER.	
Reptiles and Amphibians Local Importance (Higher Value)	The Site provides good habitat for common frog, smooth newt and common lizard. However, the Existing Development has led to an increase in pools, wet grassland and other suitable habitat on the Site. The Prospective Development will provide similar habitats surrounding the infrastructure. As such, no pathway for significant effects on these species was identified and they are not included as KERs.	No
Mammal Species (excluding otter) Local Importance (Lower Value)	Mammal species recorded included deer species, red squirrel, fox, pine marten and Irish hare. It is likely that other species such as wood mouse, stoat and pygmy shrew are found on the Site also. However, no evidence that the Site is of particular significance to any of the above species was recorded, with similar habitats common and widespread in the wider area and no significant populations were recorded. No pathway for significant effects on these species was identified. They are assigned Local Importance (Lower Value) given that they are present on the site and add biodiversity value.	No
Invasive Species		
Rhododendron, Himalayan knotweed, New Zealand Flatworm, sika deer Local Importance (Higher Value)	No pathway for the Prospective Development to result in the spread of Himalayan knotweed, New Zealand flatworm or sika deer was identified. The knotweed was recorded outside the Site and not affected; the flatworm was a single individual located in a kick sample on the Mourne Beg River and sika deer are not already present and unlikely to have been spread by the Existing Development (also not recorded since 2016 surveys) or to be spread by the Prospective Development. Rhododendron is however, present throughout the Site and could potentially be spread by the Prospective Development. It is included as a KER.	Yes

6.6 Ecological Impact Assessment

6.6.1 Do Nothing Impact

If the Prospective Development is not undertaken, it is likely that the Site will continue to be managed for forestry production. It is likely that it will be subject to ongoing road maintenance and forest activities such as rotational and periodic clear felling, planting and establishment. It is unlikely that significant road or infrastructure building activity will occur and thus unlikely that there will be any loss of habitats, other than rotational forestry. There is likely to be the continuation of likely impacts on the downstream watercourses as a result of nutrification and sediment release as a result of ongoing land management practices.

6.6.2 Likely Significant Impacts During Construction

The Prospective Development will be primarily built upon or adjacent to the infrastructure comprising the Existing Development. However, it will result in the loss of 22.3 ha. of habitats of Local Importance (Lower Value) including conifer plantation, pre-existing built habitats associated with the Existing Development and forestry operations, along with small fragmented areas of scrub and wet grassland that is peripheral to the aforementioned infrastructure. Whilst the Prospective Development will impact upon these habitats, these effects are not ecologically significant, given the low value of the habitats for biodiversity and their abundance in the wider area. No habitats of Local Importance (Higher Value) will be lost to facilitate the Prospective Development.

Similarly, the Prospective Development will result in impacts on the habitat of species that have not been identified as KERs. However, any such impacts will not have significant effects on any of the identified species as no evidence that any of the non-KER species are dependent on the affected areas and the habitats are common and widespread in the locality. Given that mobile species may migrate into the Site over time, a pre commencement walkover survey will be undertaken to ensure that any faunal species that may migrate into the Site over time are appropriately considered during the construction phase, and any unforeseen impacts are adequately mitigated.

Two habitat types were identified as KERs due to their ecological sensitivities and the identification of the potential for effects on biodiversity resulting from the Prospective Development.

- Blanket bog and wet heath
- Upland eroding rivers

In addition, the following species were identified as KERs and are linked to the impacts on the watercourses and are assessed alongside them to avoid repetition.

- Atlantic salmon
- Brown trout
- European eel
- Otter
- Freshwater pearl mussel

These KERs are assessed in detail below.

6.6.2.1.1 Effects on Upland Blanket Bog (PB2) and Wet Heath (HH3)

Table 6-10 Blanket Bog (PB2) and Wet Heath (HH3)

Description of Effect	The Prospective Development will not result in the loss or deterioration of any areas of these habitats. All works are strongly associated with the footprint of the Existing Development and surroundings and are already disturbed. The Prospective Development will result in the loss of approximately 0.07ha of peatland that is already degraded and included within the area that has already been degraded by the existing wind farm. The Geotechnical and Peat Stability Report for the Prospective Development that is provided as Appendix 8-4 to this EIAR concludes that the Site has an acceptable margin of safety and therefore is considered to be at low risk of peat failure subject to the specified mitigation measures and is suitable for the Prospective Development. Further peat slides are not anticipated. However, the Prospective Development includes the felling of approximately 108 hectares of forestry on peatland to create heath and bog habitats along with a mosaic of scrub. The restoration area will include an area of 6.2 hectares of wet blanket bog that will be enhanced through restoration measures such as drain blocking, surface smoothing and stump flipping if required. These measures will offset losses and deterioration of peatland associated with the Existing Development. The Existing Development and the November 2020 Peat Slide have resulted in the loss and deterioration of approximately 3.1 hectares of peatland habitats. The Prospective Development will result in a Long Term, Positive effect. It is of a large extent and High Magnitude. A Biodiversity Management and Enhancement Plan (BMEP) is provided in Appendix 6-4.
Assessment of Significance prior to mitigation	The Prospective Development will result in a Significant positive effect on peatland habitats, through the permanent felling of conifers and enhancement of the peatland habitats thereon.
Mitigation	No mitigation required
Residual Effect following Mitigation	The Prospective Development will result in a Significant positive effect on peatland habitats, through the permanent felling of conifers and enhancement of the peatland habitats thereon.

6.6.2.1.2 Effects on eroding/upland rivers and associated aquatic species

Table 6-11 eroding/upland rivers and associated aquatic species

Description of Effect	The Prospective Development has the potential to result in indirect impacts on a number of watercourses resulting from direct habitat loss and deterioration during the replacement of a culvert, run off of pollutants such as silt, hydrocarbons and cementitious material as a result of tree felling and construction activity. These watercourses include Mary Breen's Burn, the Shruhagarve, the Bunadaowen, the Glendergan, the Lowerymore and the Mourne Beg. Such impacts could also affect KERs including otter, freshwater pearl mussel, Atlantic salmon, brown trout and European eel in the form of siltation, eutrophication and reduction in water quality. Any such effects would be short term as they would only be felt during the construction period, and reversible but could potentially be significant. Given the nature and scale of the works, they would unlikely be of anything more than moderate magnitude. The Geotechnical and Peat Stability Report for the Prospective Development as provided in Appendix 8-4 finds the Site to be stable and at a low risk of peat failure. No evidence of otter breeding or resting places was identified within 150m of any works in this catchment and no potential for significant disturbance was identified. However, given that they are a mobile species, the possibility that they may migrate into the Site has been considered
Assessment of Significance prior to mitigation	In the absence of mitigation, there is potential for Short Term, Significant Effects on water quality resulting from construction activity. This could affect watercourses of Local Importance (Higher Value) and International Importance (where they are designated as SACs)

	There is little potential for Significant effect on otter as a result of disturbance, given the lack of breeding/resting places that were recorded. However, given that they are a mobile species, the possibility that they may migrate into the Site has been considered.
Mitigation	Measures to prevent significant effects on watercourses are fully set out in Chapter 9 of this EIAR and are not repeated here but include: › Avoidance of Watercourses (with the exception of one culvert replacement) › Control of surface waters through construction areas in accordance with a detailed drainage plan (Appendix 4-4) › Silt fences and bags › Settlement ponds › Level Spreaders and vegetation filters › Timing of sensitive works to avoid periods of high rainfall › Monitoring and maintenance plan – construction phase › Tree felling in line with DAFM Guidance Documents › Specific mitigations to control waters on the Site during felling operations › Application of felling buffers around watercourses Whilst no otter breeding or resting places were recorded on the Site during the surveys undertaken, a pre commencement survey for otter will be undertaken in advance of construction to ensure that the species is treated appropriately, should it migrate into the Site.
Residual Effect following Mitigation	Following the implementation of mitigation no significant residual effects on any of the identified watercourses and associated aquatic habitats and species will occur.

6.6.2.2 Invasive Alien Species

Rhododendron was identified as a KER and was recorded occasionally throughout the Site during all surveys. The 2017 EIAR included an outline plan for invasive species management within the CEMP. Whilst it was anticipated that all invasive species could be avoided during the construction of the development, it required that detailed invasive species surveys be carried out in advance of the construction works and that, if required, specific management plans be made to ensure that any species encountered was treated in accordance with best practice and in line with the legislation of the time (Wildlife Acts, 1976-2012. Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (S.I. 477 of 2011)). No requirement for interaction with rhododendron was identified during the walkover surveys as, with the exception of the Habitat Enhancement Area, there will be limited habitat loss associated with the Prospective Development and the species is occasional throughout the Site.

Notwithstanding the above, a detailed IAS survey will be undertaken prior to commencement to update the surveys previously undertaken. This will identify any invasive alien species listed on the First Schedule of the S.I. No. 374/2024 - European Union (Invasive Alien Species) Regulations 2024. The locations of any such species will be recorded and their locations mapped. Should any be located within or adjacent to the footprint of the Prospective Development, the measures set out in the Invasive Species Management Plan (ISMP) that is included as Appendix 6-4 will be adhered to. In addition, this sets out site hygiene biosecurity measures that will be adhered to at all times.

6.6.3 Likely Significant Effects During Operational Phase

6.6.3.1 Effects on Habitats

There will be no additional loss of habitats associated with the operational phase of the Prospective Development.

However, the positive effects of the Biodiversity Management and Enhancement Plan (Appendix 6-4) will be ongoing through the operational phase of the Prospective Development, and the Biodiversity Enhancement Site will be managed, maintained and monitored throughout.

There is however potential for the operation of the Prospective Development to result in significant effects on the identified KER eroding/upland rivers and associated aquatic species and this is discussed in **Table 6-12** below.

Table 6-12 eroding/upland rivers and associated aquatic species

Description of Effect	The effects on water quality are fully described in Chapter 9 ‘Water’ of this EIAR and are described here in relation specifically to ecology. This section assesses the potential for likely significant effects on upland eroding rivers and associated aquatic faunal species, including, otter, European eel, salmonids and freshwater Pearl Mussel The Prospective Development will lead to an increased amount of hard standing/impermeable surfaces associated with the wind farm infrastructure. This has the potential to lead to faster run off of surface waters from the Site into the KER watercourses causing potential hydrological change. It may also include periodic maintenance works, which could lead to small scale pollution as a result of siltation, hydrocarbons, cementitious material or other pollutants. The operating wind farm substation will have toilet facilities but these will be managed within a sealed and monitored system and emptied by a licenced contractor. Whilst the majority of the groundworks and supporting infrastructure are in place, the additional hard standing etc. that will be constructed as part of the Prospective Development will be small and the corresponding magnitude of any impact on the aquatic KERs will be slight. Given the location of the infrastructure, buffering from watercourses and infrequent nature of operational activity, there is no potential for significant effects as a result of disturbance to otter.
Assessment of Significance prior to mitigation	In the absence of mitigation, there is no potential for significant effects on these KERs as a result of the operation of the Prospective Development.
Mitigation	Whilst no significant effect on these KERs is predicted as a result of the operation of the Prospective Development, Mitigation is set out in Chapter 9 of this EIAR to avoid and minimise any operational impacts on a precautionary basis. These measures are fully described in the drainage plan and associated drawings that are provided in Appendix 4-3 to this EIAR.
Residual Effect following Mitigation	There will be no significant residual effect on aquatic habitats or species as a result of the Prospective Development.

6.6.3.2 Effects on Fauna during operation

No potential for significant effect on any non-aquatic faunal species was identified with the exception of bat species, which are discussed below and summarised in **Table 6-18**.

6.6.3.2.1 Assessment of Impacts on Bats

Potential for significant effects on bat species resulting from the operation of the Prospective Development were identified. The impact assessment is based on information set out in the Bat Survey Report that is provided in Appendix 6-2. These impacts are described below in terms of:

- Collision mortality, barotrauma and other injuries
- Loss of, or damage to commuting and foraging habitat
- Loss of, or damage to, roosts
- Displacement of individuals or populations

A summary is provided in Table 6-18.

Assessment of Collision Risk

The following High-risk species were recorded during the dedicated bat surveys:

- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle
- Nathusius' pipistrelle

Overall collision risk for these species was determined in accordance with Table 3b of NatureScot (2021) guidance (Appendix 3), by cross-referencing the site risk level (*Medium*) with species-specific activity categories. Assessments were undertaken for both **median** activity (representing typical conditions) and **maximum** activity (representing peak levels). NatureScot recommends using the most appropriate measure (i.e. median or maximum) to determine overall risk. As per NatureScot guidance there is no requirement to complete an Overall Risk Assessment for Low-risk species. During the extensive suite of surveys undertaken the following Low-risk species were recorded:

- > *Myotis* spp.
- > Brown long-eared bat

Overall activity levels were *Low* for the above species; therefore, no significant collision related effects are anticipated. Activity levels for these species will continue to be assessed during operational monitoring following the implementation of best practice mitigations provided. Further mitigation will be implemented after Year 1 if deemed necessary.

Leisler's bat

The Wind Farm Site is located within the current range of Leisler's bat in Ireland (NPWS, 2025). Leisler's bat is recognised as a species of high population vulnerability due to its relatively high susceptibility to turbine collision (NatureScot, 2021). Leisler's bat was recorded during both manual transects and static detector surveys undertaken across the Wind Farm Site.

When assessed in the context of the identified site risk and in accordance with NatureScot (2021; Table 3b), collision risk to Leisler's bat was assessed as *Low* at typical activity levels, represented by median bat pass rates. At peak activity levels, collision risk was assessed as *Medium* during spring and autumn and *High* during summer (see Table 6-13).

The use of median (typical) activity levels is considered appropriate for impact assessment, as this metric reflects sustained and repeatable site use over the survey period and reduces the influence of short-term or anomalous peaks in activity (Lintott & Mathews, 2018). Static detector data indicate that Leisler's bat activity across the Wind Farm Site is generally *Low* and spatially restricted, consistent with the predominance of commercial conifer plantation and limited availability of high-quality foraging habitat.

While occasional peak activity events were recorded at individual detector locations, these were temporally and spatially limited and are not considered representative of regular or sustained use of the Wind Farm Site by Leisler's bat. Maximum activity values are therefore interpreted as isolated peak events rather than indicative of typical collision exposure.

On this basis, and with reference to typical activity levels derived from static detector surveys, the collision risk to the local Leisler's bat population is assessed as ***Low***.

Table 6-13 Leisler's bat - Overall risk assessment

Survey Period	Site Risk	Typical Activity (Median)	Typical Risk Assessment (as per Table 3b NatureScot 2021)	Activity Peaks (Maximum)	Peak Risk Assessment (as per Table 3b NatureScot 2021)
Spring	<i>Medium</i> (3)	<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Moderate-High</i> (4)	Peak Risk is <i>Medium</i> (12)
Summer		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>High</i> (5)	Peak Risk is <i>High</i> (15)
Autumn		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Moderate-High</i> (4)	Peak Risk is <i>Medium</i> (12)

Soprano pipistrelle

The Wind Farm Site is located within the current range of the soprano pipistrelle in Ireland (NPWS, 2025). Soprano pipistrelle is a widespread species with medium population vulnerability but is recognised as having a relatively high susceptibility to turbine collision at wind energy developments (NatureScot, 2021). Soprano pipistrelles were recorded during both manual transects and static detector surveys undertaken across the Wind Farm Site.

When assessed in the context of the identified site risk and in accordance with NatureScot (2021; Table 3b), collision risk to soprano pipistrelle was assessed as *Low* at typical activity levels (median bat pass rates) during spring, summer and autumn. At peak activity levels, collision risk was assessed as *Medium* during spring and summer and *High* during autumn (see Table 6-14).

The use of median (typical) activity levels is considered appropriate for impact assessment, as this metric reflects sustained and repeatable site use over the survey period and reduces the influence of short-term peak activity events (Lintott & Mathews, 2018). Static detector data indicate that soprano pipistrelle activity across the Wind Farm Site is generally *Low* and spatially variable, consistent with a landscape dominated by commercial conifer plantation and limited high-quality foraging habitat.

While elevated activity levels were recorded at individual detector locations during autumn, these peaks were spatially localised and temporally limited and are not considered indicative of regular or sustained use of the site at levels likely to result in elevated collision risk.

On this basis, and with reference to typical activity levels derived from static detector surveys, the collision risk to the local soprano pipistrelle population is assessed as *Low*.

Table 6-14 Soprano pipistrelle - Overall risk assessment

Survey Period	Site Risk	Typical Activity (Median)	Typical Risk Assessment (as per Table 3b NatureScot 2021)	Activity Peaks (Maximum)	Peak Risk Assessment (as per Table 3b NatureScot 2021)
Spring	<i>Medium</i> (3)	<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Moderate</i> (3)	Peak Risk is <i>Medium</i> (9)
Summer		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low-Moderate</i> (2)	Peak Risk is <i>Medium</i> (6)
Autumn		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>High</i> (5)	Peak Risk is <i>High</i> (15)

Common pipistrelle

The Wind Farm Site is located within the current range of the common pipistrelle in Ireland (NPWS, 2025). Common pipistrelle is a widespread species with medium population vulnerability and is recognised as having a relatively high susceptibility to turbine collision at wind energy developments (NatureScot, 2021). Common pipistrelles were recorded during both manual transects and static detector surveys undertaken across the Wind Farm Site.

When assessed in the context of the identified site risk and in accordance with NatureScot (2021; Table 3b), collision risk to common pipistrelle was assessed as *Low* at typical activity levels (median bat pass

rates) across all survey periods. At peak activity levels, collision risk was assessed as *Medium* during all survey periods (see Table 6-15).

The use of median (typical) activity levels is considered appropriate for impact assessment, as this metric reflects sustained and repeatable site use over the survey period and reduces the influence of short-term peak activity events (Lintott & Mathews, 2018). Static detector data indicate that common pipistrelle activity across the Wind Farm Site is generally *Low* and spatially variable, consistent with a landscape dominated by commercial conifer plantation and limited high-quality foraging habitat.

While elevated activity levels were recorded at individual detector locations during autumn, these peaks were spatially localised and temporally limited and are not considered indicative of regular or sustained use of the Wind Farm Site at levels likely to result in elevated collision risk.

On this basis, and with reference to typical activity levels derived from static detector surveys, the collision risk to the local common pipistrelle population is assessed as *Low*.

Table 6-15 Common pipistrelle - Overall risk assessment

Survey Period	Site Risk	Typical Activity (Median)	Typical Risk Assessment (as per Table 3b NatureScot 2021)	Activity Peaks (Maximum)	Peak Risk Assessment (as per Table 3b NatureScot 2021)
Spring	<i>Medium</i> (3)	<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low-Moderate</i> (2)	Peak Risk is <i>Medium</i> (6)
Summer		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low-Moderate</i> (2)	Peak Risk is <i>Medium</i> (6)
Autumn		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Moderate-High</i> (4)	Peak Risk is <i>Medium</i> (12)

Nathusius' pipistrelle

The Wind Farm Site is located outside the core Irish range of Nathusius' pipistrelle, as reported in the most recent Article 17 assessment (NPWS, 2025). Nathusius' pipistrelle is considered a relatively rare species in Ireland, with high population vulnerability and a high susceptibility to turbine collision at wind energy developments (NatureScot, 2021). A small number of Nathusius' pipistrelle passes were recorded during the 2024 ground-level static detector surveys.

Detections were infrequent and recorded at a limited number of detector locations, indicating occasional presence rather than regular or sustained use of the Wind Farm Site. This pattern is consistent with the site's location outside of the species' known range and the prevailing landscape context, which is dominated by commercial conifer forestry with limited high-quality linear commuting or foraging features.

When assessed in the context of the identified site risk and in accordance with NatureScot (2021; Table 3b), collision risk to Nathusius' pipistrelle was assessed as *Low* at typical activity levels (median bat pass rates) across all survey periods. At peak activity levels, collision risk reached *Medium* during summer and autumn, while remaining *Low* during spring (see Table 6-16).

The use of median (typical) activity levels is considered appropriate for impact assessment, as this metric reflects sustained site use and reduces the influence of isolated detections or short-term activity peaks (Lintott & Mathews, 2018). The limited number of detections and *Low* activity levels recorded across the Wind Farm Site do not indicate regular use of the Wind Farm Site by Nathusius' pipistrelle.

On this basis, and with reference to typical activity levels derived from static detector surveys, the collision risk to Nathusius' pipistrelle at the Wind Farm Site is assessed as *Low*.

Table 6-16 *Nathusius' pipistrelle* - Overall risk assessment

Survey Period	Site Risk	Typical Activity (Median)	Typical Risk Assessment (as per Table 3b NatureScot 2021)	Activity Peaks (Maximum)	Peak Risk Assessment (as per Table 3b NatureScot 2021)
Spring	<i>Medium</i> (3)	<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low</i> (1)	Peak Risk is <i>Low</i> (3)
Summer		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low-Moderate</i> (2)	Peak Risk is <i>Medium</i> (6)
Autumn		<i>Low</i> (1)	Typical Risk is <i>Low</i> (3)	<i>Low-Moderate</i> (2)	Peak Risk is <i>Medium</i> (6)

Collision Risk Summary

Following NatureScot (2021) guidance and application of site-specific activity thresholds, typical site-level collision risk for *High* collision-risk bat species within the Wind Farm Site was assessed as **Low** overall. At peak activity levels, collision risk reached *High* for Leisler's bat during the summer survey period and for soprano pipistrelle during the autumn survey period. Peak collision risk for common pipistrelle was assessed as *Medium* across all survey periods. *Nathusius' pipistrelle* peak collision risk reached *Medium* during summer and autumn, while remaining *Low* during spring.

Overall bat activity levels were considered representative of the habitat composition within the Wind Farm Site, which comprises predominantly of plantation forestry, with linear features such as conifer plantation edges and rivers or streams providing suitable commuting and foraging opportunities for bats.

Detailed detector-level analysis identified detector **D01** as the only location where **High** median activity for *High* collision-risk species was recorded, occurring during the **autumn** survey period for both soprano pipistrelle and common pipistrelle (Table 6-17).

Table 6-17 Detector locations recording *High* median activity values for *High*-risk bat species

Detector ID	Corresponding Turbine	Species	<i>High</i> Median Activity Survey Period
D01	T01	Soprano pipistrelle	Autumn 2024
D01	T01	Common pipistrelle	Autumn 2024

Overall, while elevated collision risk was identified at peak activity levels for high collision-risk species, this was localised, limited in duration and not representative of overall Wind Farm Site conditions. Typical site-level collision risk is assessed as *Low*, and elevated activity was confined to a single turbine location during a single survey period.

Assessment of Loss of, or damage to Commuting and Foraging Habitat

Prospective Development

The Prospective Development includes the completion of wind farm infrastructure within the Wind Farm Site and the implementation of biodiversity enhancement measures within the BMEP Site, including forestry felling and habitat restoration. Full details of the Prospective Development are described in Chapter 4 of the EIAR.

Within the Wind Farm Site, the Prospective Development will involve limited additional forestry felling associated with the completion of infrastructure. These works will largely occur within areas already subject to disturbance or within habitats assessed as having *Low* suitability for bat commuting and foraging. The majority of turbines will be located within key-holed areas of conifer plantation, with linear forestry edges largely retained. No habitats of *High* suitability for commuting or foraging bats have been identified within the areas affected by the Prospective Development, and watercourses and other key linear features will be avoided.

Within the BMEP Site, the Prospective Development will involve the felling of commercial conifer plantation to facilitate habitat restoration. These habitats are of *Low* suitability for bat commuting and

foraging, with slightly higher suitability limited to localised forestry edges. The removal of plantation forestry will not result in the loss of habitats of higher suitability or key commuting corridors.

Taking account of habitat suitability, activity patterns and the scale and nature of habitat affected, the loss or damage to bat commuting and foraging habitat associated with the Prospective Development is assessed as **Not Significant**. However standard design and good practice measures are proposed as part of the Prospective Development and described below.

Loss of or damage to Roosts

No roosts were recorded within the Wind Farm Site, the BMEP site or on the Grid Connection Site and no significant potential for roosting habitat was identified. Accordingly, **no significant effects** relating to the loss of, or damage to, bat roosts have been identified in relation the Prospective Development.

Displacement of Individuals or Populations

The Prospective Development will largely occur within areas already subject to groundworks and infrastructure development associated with the Existing Development or within habitats of *Low* suitability, with key linear features such as watercourses and retained forestry edges avoided. As a result, commuting and foraging habitats will remain available within and adjacent to the Wind Farm Site.

Given the *Low* overall activity levels, the absence of high-quality foraging habitat or roosts within the Wind Farm Site, and the retention of habitat connectivity, any disturbance effects are expected to be localised and temporary. There is no evidence to suggest that bats regularly using the Wind Farm Site would be displaced from critical habitat or that population-level effects would occur. Potential disturbance effects associated with lighting and operational noise could potentially result in some disturbance. However, given the low level of activity on the site, any such effects are unlikely to be significant. Nonetheless standard design and good practice measures are proposed as part of the Prospective Development and described below.

Table 6-18 Assessment of Potential Effects on Bats

Description of Effect	The following high-risk species were recorded during the dedicated surveys: ➤ Leisler's bat, ➤ Common pipistrelle ➤ Soprano pipistrelle ➤ Nathusius' pipistrelle Together with the following low risk species: ➤ Myotis spp. ➤ Brown long-eared bat Overall activity levels were <i>Low</i> for the above species Impacts considered above included collision, deterioration of commuting or foraging habitat and disturbance.
Assessment of Significance prior to mitigation	No significant effects are anticipated, due to the <i>Low</i> activity levels recorded at the Wind Farm Site, the nature of the Prospective Development and the nature of the habitats present on the site.
Mitigation	Whilst no significant effects were identified, the following best practice mitigation and monitoring will be employed and includes the following as set out in Section 6:

	➤ Noise and lighting restrictions ➤ Vegetation buffers around turbines ➤ Blade feathering ➤ A minimum of three years operational monitoring to assess changes in bat activity patterns post construction will be undertaken to monitor any requirement for the adaptation of the mitigation strategy.
Residual Effect following Mitigation	There will be no significant residual effect on bats as a result of the Prospective Development.

Standard Best Practice Measures

Noise Restrictions

During the construction phase, all plant and machinery will be switched off when not in use. All plant and equipment used on site will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (S.I. No. 632 of 2001, as amended). These measures will minimise unnecessary disturbance and avoid prolonged elevated noise levels within habitats potentially used by bats.

Operational noise associated with the Prospective Development will primarily comprise noise generated by wind turbines and substation infrastructure (e.g. transformer hum and associated cooling systems). These sources generally operate outside the ultrasonic frequency range used by bats for echolocation and navigation.

While limited ultrasonic emissions have been hypothesised from certain electrical components, available evidence indicates that such emissions, where present, attenuate rapidly over very short distances and are unlikely to extend beyond the immediate vicinity of the source. Given the scale and nature of the Subject Development electrical infrastructure, no significant pathway for interference with bat echolocation or behaviour is identified.

On this basis, construction and operational noise is not considered to represent a pathway for disturbance, displacement or behavioural effects on bats, and no specific mitigation measures are required, aside from the measures that are described above.

Lighting Restrictions

Lighting will be avoided wherever possible. Where artificial lighting is required during construction, directional lighting will be used to prevent light spill onto woodland edges, forestry margins and other linear features used by bats for commuting and foraging. This will be achieved through the use of directional lighting accessories, such as hoods, cowls, louvers and shields, to direct light only to the intended area (Stone, 2013).

Measures of this nature were prescribed as part of the permitted development in the 2017 EIAR and form part of the embedded design of the Existing Development. These measures will continue to be applied, where relevant, during any remaining construction activities associated with the Prospective Development.

During operation, as part of the Prospective Development, lighting will be designed to prevent upward and lateral light spill to minimise light trespass and avoid illumination of surrounding habitats. Lighting design will comply with the Institution of Lighting Professionals Guidance Note GN08/23 – *Bats and Artificial Lighting at Night* (ILP, 2023).

In addition, the Applicant commits to the Dark Sky Ireland Lighting Recommendations, which require that lighting is used only where necessary, directed only to the area requiring illumination, minimised in intensity, and of an appropriate spectral composition, with warm white light sources (≤ 2700 K) used where feasible.

Aviation lighting will be limited to that required for safety and regulatory compliance. While such lighting has the potential to influence bat behaviour, significant effects are not anticipated. Post-construction monitoring will include consideration of any lighting-related impacts on bats. Should monitoring identify any unforeseen effects, site-specific mitigation measures will be reviewed and amended as necessary to avoid significant impacts.

Bat Felling Buffers

In accordance with NatureScot (2021) and Northern Ireland Environment Agency (NIEA, 2021) guidance, a minimum buffer of 50 m will be maintained between turbine blade tips and habitat features used by bats, including treelines and woodland edges. While larger buffers (100–200 m) are referenced in EUROBATs Publication Series No. 6 and NIEA guidance for woodland habitats, these distances are not currently supported by empirical evidence within the UK or Irish context.

A 50 m buffer between turbine blade tip and the nearest habitat feature has therefore been adopted, based on a turbine configuration (blade length 66.5 m; hub height 90 m; maximum tip height 156.5 m). Buffer distances were calculated using the Natural England / NatureScot methodology and have been incorporated into the turbine layout (Plate 6-1).

The resulting vegetation-free buffer zones form part of the embedded design of the wind farm and will be maintained throughout the operational life of the wind farm as part of the Prospective Development. These buffers are a key component of the design approach to managing bat collision risk.

The distance between the centre of the turbine tower and the edge of the habitat feature (b) was calculated using the following formula:

$$b = \sqrt{(50 - bl)^2 - (hh - fh)^2}$$

Where, bl = Blade length, hh = hub height, fh = feature height all in metres. E.g. (below) $b = 69.3\text{m}$ (Plate 6-19)

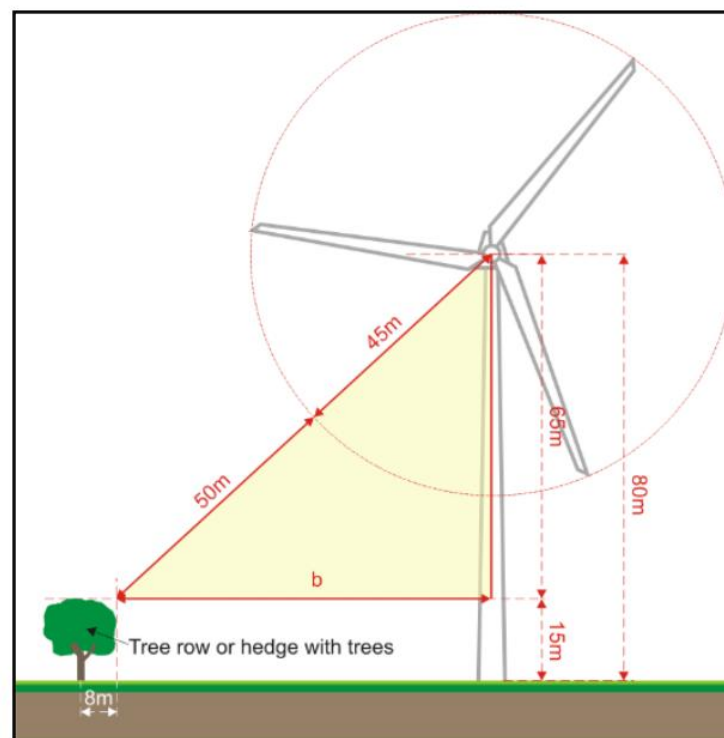


Plate 6-19 Calculation of turbine-habitat buffer distances (NatureScot, 2021)

Blade Feathering

Guidance from the Northern Ireland Environment Agency (NIEA, 2021) and NatureScot (2021) is adopted as best practice and recommends that, in addition to buffers applied to key habitat features, wind turbines implement blade feathering when wind speeds are below the cut-in speed of the turbine.

Blade feathering involves pitching the turbine blades so that they are aligned parallel to the wind, thereby minimising blade rotation while the turbine is idling. Under these conditions, rotor speeds are typically reduced to less than two revolutions per minute. This measure reduces the likelihood of bat collisions during periods of low wind speed, when bat activity is typically highest.

Blade feathering will be implemented as a standard operational measure for the Prospective Development, with turbine blades feathered below the cut-in wind speed. This represents standard turbine operation and is expected to be implemented automatically through the turbine control system.

While overall collision risk for bats is assessed as *Low*, with localised and short-duration peaks in activity recorded at individual turbine locations, blade feathering provides an additional precautionary measure that further reduces collision risk during periods of elevated bat activity.

Bat Monitoring Plan

Overall collision risk for bat species classified as having High collision susceptibility was assessed as *Low* at typical (median) activity levels, with localised *Medium* to *High* risk at peak activity levels for certain species and seasons, as set out in Section 5.1. These risk levels reflect the character of the Wind Farm Site, which comprises predominantly commercial conifer plantation with smaller areas of wet heath and upland blanket bog. Bat activity recorded across the Wind Farm Site was generally *Low*, with higher activity largely confined to specific detector locations and limited seasonal periods.

Taking a precautionary and proportionate approach and recognising that elevated collision risk was identified at peak activity levels for high-risk species, an adaptive bat monitoring and mitigation strategy has been developed for the Prospective Development. This approach follows the principles set out in the case study example provided in Appendix 5 of NatureScot (2021) and is informed by the site-specific activity patterns identified during the 2024 surveys.

Operational Monitoring

In accordance with NatureScot (2021), a minimum of **three years of post-construction bat monitoring** is proposed for the Prospective Development. The objectives of post-construction monitoring are to verify pre-construction risk predictions, assess any changes in bat activity patterns following construction, and determine whether further mitigation measures are required to avoid significant effects on bats.

Post-construction monitoring will comprise a combination of:

- static acoustic monitoring;
- manual activity surveys (walked transects); and
- carcass searches to record any bat fatalities associated with turbine operation.

The results of post-construction monitoring will be used to review the effectiveness of the mitigation strategy. Where monitoring identifies evidence of significant bat mortality, an adaptive mitigation response will be implemented, which may include the introduction or refinement of turbine curtailment measures during periods of elevated collision risk, informed by key activity periods and weather parameters. Any such measures will be developed in line with relevant guidance and reviewed annually.

At the end of each monitoring year, the efficacy of the monitoring and mitigation programme will be reviewed, and any identified refinements incorporated into subsequent monitoring years. This adaptive approach allows for an evidence-based assessment of post-construction bat risk and ensures that mitigation measures remain proportionate, effective and responsive to site-specific conditions. The effectiveness of any curtailment measures will be assessed to determine both:

- (a) whether bat mortality remains incidental; and
- (b) whether turbine downtime can be minimised while maintaining effective protection for bats.

Further detail on the proposed survey effort, timing and mitigation approach is provided below.

Monitoring Year 1

Bat activity surveys

Post-construction bat activity surveys will be undertaken using a comparable survey effort and methodology to the baseline surveys. Static acoustic monitoring will be undertaken during the main bat activity season (April to October), in accordance with NatureScot (2021). Full-spectrum bat detectors will be deployed at turbine locations for a duration and density consistent with the baseline bat surveys.

Bat activity data will be processed and analysed using the same site-specific analytical framework applied to the baseline surveys, including calculation of bat passes per hour (bp/h) and assessment of median and maximum nightly activity levels. This ensures direct comparability between pre-operational and post-operational datasets. Walked transect surveys will also be undertaken to provide supplementary information on bat behaviour across the landscape.

Key environmental parameters known to influence bat activity and collision risk will be recorded and reviewed alongside activity data, including:

- wind speed (m/s), measured at nacelle height;
- ambient temperature (°C); and
- precipitation (mm/hr).

Carcass searches

Carcass searches will be undertaken at each turbine in accordance with NatureScot (2021) guidance to record bat fatalities associated with turbine operation. Surveys will incorporate:

- systematic search protocols;
- searcher efficiency trials; and
- scavenger removal trials, to allow appropriate correction factors to be applied when estimating true mortality rates.

Surveys will be undertaken across relevant activity seasons, with a trained dog detection team utilised to maximise detection efficiency.

Monitoring Years 2 & 3

Monitoring will continue during Years 2 and 3, with survey methods and effort refined based on the findings of the preceding year(s). Where curtailment measures have been implemented, monitoring will assess the effectiveness of these measures relative to baseline conditions and earlier post-operational results.

The performance of any curtailment strategy will be evaluated in relation to bat activity levels, wind speed and temperature thresholds, to confirm that mitigation is neither under- nor over-curtailing turbines during periods of bat activity. Annual reviews will determine whether modifications to the mitigation or monitoring programme are required.

Where no bat fatalities are recorded during Year 1, the scope of curtailment (where applicable) may be reduced, revised or removed in subsequent years, subject to agreement with the relevant consenting authority and continued monitoring to confirm outcomes.

6.6.4

Likely Significant Effects during Decommissioning Phase

The wind turbines proposed as part of the Prospective Development are expected to have an operating period of approximately 25 years. At the end of the proposed 25-year operating period, should it not be considered appropriate to continue the operation of a wind farm at this location (subject to planning permission being obtained), the wind farm will be decommissioned.

In decommissioning the Meenbog Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. The turbines will be disassembled with a similar model of crane that was used for their erection. The turbine components will be separated and removed offsite. The turbine materials will be transferred to a suitable recycling or recovery facility. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in unnecessary environmental emissions such as noise, dust and/or vibration.

The underground electrical cabling connecting the turbines to the onsite 110kV substation will be removed from the cable ducts. The cabling will be pulled from the cable ducts using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at the original cable jointing pits which will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.

Site roadways will be in use for purposes other than the operation of the wind farm by the time the decommissioning of the Meenbog Wind Farm is to be considered, and therefore it will be more appropriate to leave the site roads in situ for continued use. It is envisaged that the roads will serve as agricultural or forestry access roads.

The Grid Connection underground cabling route and onsite 110kV substation will remain in place as it will be under the ownership and control of the ESB and Eirgrid and will have permanent permission in accordance with this application.

A Decommissioning Plan has been prepared (Appendix 4-6). As noted in the Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013) reinstatement proposals for a wind farm are made approximately 30 years in advance, so within the lifespan of the Prospective Development, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore:

“best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm”.

The Decommissioning Plan will be updated prior to the end of the operating period in line with decommissioning methodologies that may exist at that time and will be agreed with the competent authority prior to the commencement of decommissioning of the wind farm. The potential for effects during the decommissioning phase of the Meenbog Wind Farm has been fully assessed in the EIAR.

As stated above, the decommissioning of the wind farm will not result in any loss or deterioration of habitat and will be the subject of a decommissioning plan that will ensure that other impacts on biodiversity such as deterioration of water quality and disturbance to sensitive species are avoided. There are no plans to undertake decommissioning works on the Biodiversity Enhancement Site.

6.7 Impacts on Designated Sites

The EPA Guidance, 2022 states:

“A biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European Sites contained in a Natura Impact Statement” but should “incorporate their key findings as available and appropriate”.

This section provides a summary of the key assessment findings with regard to European Sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) and Nationally Designated Sites (NHAs and pNHAs).

6.7.1 Effects on European Designated Sites

Potential indirect impacts on European Designated Sites (SACs and SPAs) are assessed within a separate Natura Impact Statement accompanying this application.

The potential for likely significant effects on the following European Sites in the absence of any mitigation, individually or cumulatively with other plans or projects, was identified in the NIS:

- Croaghonagh Bog SAC [000129]
- River Finn SAC [002301]
- River Foyle and Tributaries SAC [UK0030320]
- Lough Eske and Ardnamona Wood SAC [000163]

The NIS identified a potential pathway for impact on the River Finn SAC [002301], the River Foyle and Tributaries SAC [UK0030320], and Lough Eske and Ardnamona Wood SAC [000163] in the form of deterioration of water quality resulting from potential hydrological connectivity via surface water in Mary Breen's Burn, the Shruhangerve, Glendergan, Bunadaowen, Mourne Beg and Lowerymore Rivers.

The NIS identified a potential pathway for indirect effects on the qualifying interest (QIs) habitat of the Croaghonagh Bog SAC following the precautionary principle due to the proximity of the SAC to the entrance road to the Wind Farm Site.

However, following the application of mitigation, no potential for adverse effects on any of the European Sites was identified and the NIS concludes as follows:

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 and operation of the Prospective Development does not adversely affect the integrity of European Sites.

Therefore, it can be objectively concluded that the Prospective Development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.

6.7.2

Impacts on Nationally Designated Sites

Impacts on Nationally Designated Sites including NHAs and pNHAs are considered in this section of the report.

The Prospective Development is not located within any Nationally Designated Site and there are no potential direct effects on any such site.

Hydrological connection between the Prospective Development and the Lough Eske and Ardnamona Wood pNHA (000163) was identified via the Lowerymore River. In addition, a similar connection to the River Foyle and Tributaries (AASI229) (UK) was identified via Mary Breen's Burn, the Glendergan, Bunadaowen, Mourne Beg and Shruhangerve Rivers. The potential for significant effects on these pNHA/AASIs was identified as a result of deterioration of water quality resulting from construction activity.

Chapter 9 of this EIAR fully considers the potential for effects on surface water and contains an extensive suite of measures designed to prevent impacts on watercourses to prevent any significant effect on the relevant watercourses and associated downstream receptors including Atlantic salmon, brown trout and freshwater pearl mussel. An impact assessment is provided above in relation specifically to ecology and finds that, following the implementation of mitigation, there will be no significant residual effect on aquatic habitats or species as a result of the Prospective Development.

No potential for significant effects on the Lough Eske and Ardnamona Wood pNHA or River Foyle and Tributaries (AASI229) (UK) to occur as a result of the Prospective Development has been identified.

No pathway for potential indirect effects on any other Nationally Designated Site was identified.

6.8

In Cumulation Effects

This section considers the potential for additional impacts to arise when considering the Prospective Development in cumulation with the Existing Development (i.e. the effects of the Subject Development) on biodiversity.

No significant residual effects on biodiversity were identified as a result of the Existing Development on its own. The potential for significant effects on the identified KERs associated with the Existing Development to occur when considered in cumulation with the Prospective Development are considered below. No additional KERs were identified as a result of the in cumulation assessment.

Table 6-19 Assessment of potential In-Cumulation Effects of the Subject Development

KER Affected	Prospective Development	Existing Development	Subject Development
European Designated Sites	The Prospective Development will not result in any works within any SACs. However, in the absence of mitigation, it does have the potential to result in significant effects on Croaghonagh Bog, Lough Eske and Ardnamona Wood, River Finn and River Foyle and Tributaries SACs in the form of surface water pollution. However, robust mitigation measures will be in place to ensure that no such effects occur.	Whilst temporary effects on the conservation objectives of the QI habitats and species of the River Finn SAC and River Foyle and Tributaries SAC were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Existing Development were identified. No evidence of any significant effect on any other European Site was identified.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject development to have an adverse effect on these European Sites. As such, there is no potential for adverse in cumulation effects on these Designated Sites to occur.
Nationally Designated Sites	The Prospective Development will not result in any works within any Nationally Designated Site. However, in the absence of mitigation, it does have the potential to result in significant effects on Lough Eske and Ardnamona Wood pNHA (000163) and River Foyle and Tributaries (AASI229) (UK) in the form of surface water pollution. However, robust mitigation measures will be in place to ensure that no such effects occur.	Whilst temporary effects on the River Foyle and Tributaries (AASI229) (UK) were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Existing Development were identified. No evidence of any significant effect on any other Nationally Designated Site was identified.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject development to have an adverse effect on these Nationally Designated Sites. As such, there is no potential for adverse in cumulation effects on these Designated Sites to occur.

Peatland Habitats Upland Blanket Bog (PB2) and Wet Heath (HH3)	The Prospective Development will result in the loss of approximately 0.07ha of peatland that is already degraded and included within the area that has already been degraded by the existing wind farm. It will not result in any further loss or degradation of sensitive habitats such as peatlands but will result in a loss of approximately 22.3 ha of low ecological value habitats including conifer plantation, wet grassland and scrub to facilitate completion of the wind farm infrastructure and provision of buffers around turbines. In addition, the Prospective Development includes the felling of over 100 hectares of coniferous forestry on peatland habitats. Approximately 6.2 hectares of this will be specifically managed for the restoration of blanket bog to offset the losses associated with the Existing Development. The remainder will be managed to create and maintain heathland habitats with low growing scrub. These enhancement measures are fully described and assessed in the EIAR for the Prospective Development, which also accompanies this application. This will result in a net positive impact on peatlands as a result of the Prospective Development.[2]	The Existing Development will not result in any further loss or deterioration of habitats but has resulted in the loss and deterioration of approximately 0.9ha of Blanket Bog. In addition, the November 2020 Peat Slide has resulted in the damage to approximately 2.2 hectares of blanket bog habitat, The Existing Development cannot contribute to any in cumulation impacts in this regard.	Considering the In-cumulation effect of the Existing and Prospective developments there is no potential for the Subject Development to have a significant negative effect on these terrestrial habitats. As such, there is no potential for adverse in cumulation effects on these peatland habitats to occur.
Aquatic Habitats and Associated Species	The Prospective Development does have the potential to result in significant effects on the aquatic environment. However, a robust suite of measures are in place to ensure that such effects do not occur.	Whilst temporary significant effects on aquatic habitats and species (brown trout) were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Existing Development were identified.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject Development to have a significant effect on the aquatic habitats and associated species. As such, there is no potential for adverse in cumulation effects on these aquatic habitats and species to occur.
Invasive Species	The Prospective Development has the potential to result in the spread of invasive species including rhododendron that was observed on the Wind Farm Site and Biodiversity Management and Enhancement Site. It also has potential to	The Existing Development has not and will not result in the spread of invasive species	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject Development to have a significant effect on invasive species.

	introduce new invasive species in the absence of biosecurity measures. However, the Prospective Development includes an Invasive Species Management Plan with robust measures to ensure that it will not result in the spread of invasive species..		There is no potential for adverse in cumulation effects as a result of the spread of invasive species to occur.
--	---	--	---

6.9 Cumulative Effects

The potential for the Prospective Development and Subject Development to result or have resulted in significant effects on Biodiversity was assessed cumulatively and in combination with other projects and land uses.

6.9.1 Surrounding Land Uses

The land surrounding the Site is dominated by conifer forestry with upland grasslands that are grazed with sheep and cattle. There are quarrying and peat harvesting activities ongoing in the wider area. The potential for the Prospective Development to contribute to cumulative effects on biodiversity when considered alongside these land uses was assessed. The Coillte planned harvest units for the Croaghonagh South and private forestry activities were considered as part of this assessment.

Effects on Sensitive Terrestrial Habitats and Species

The Prospective Development will not result in any loss or deterioration of ecologically sensitive habitats and species and cannot contribute to any cumulative impacts in this regard. The losses that occurred as a result of the Existing Development will be fully offset by the measures proposed in the Prospective Development and no potential for residual effects on ecologically sensitive terrestrial habitats exists either alone or cumulatively with other land uses.

Effects on Aquatic Habitats and Species

No significant effects on aquatic habitats and species are predicted as a result of the construction, operation or decommissioning of the Prospective Development and a suite of measures are in place to ensure that it cannot contribute to any effect when considered cumulatively with other existing land uses.

6.9.2 Projects Considered

The planning registers for both Donegal and Tyrone County Councils were consulted with regard to recently permitted or constructed developments within the area (most recently 29/05/2026). The list of projects considered as part of this assessment is provided in Section 2.9 of Chapter 2 of this EIAR.

Projects considered included those within approximately 1.5km of the Mourne Beg River, Lowerymore River and the Glendergan River subbasins until Lough Eske downstream of the Lowerymore and River Derg downstream of the Glendergan and Mourne Beg, downstream of the Subject Development. The planning history search was compiled via a desk-based study in which the Donegal County Council (DCC) Planning Portal, the An Coimisiún Pleanála website, and Northern Ireland Planning Portal were consulted.

Details of projects considered in this assessment are provided in **Appendix 2-1 of Chapter 2**, described fully in **Section 2.10- Cumulative Impact Assessment in Chapter 2** of this EIAR.

As with the assessment of the surrounding land uses that are described above, no potential for the Prospective Development to contribute to any significant effects on biodiversity was identified as there were no residual effects on any sensitive receptors and habitat loss from the Existing Development will be fully offset as part of the Prospective Development.

6.9.3 Conclusion of Cumulative Assessment

The Prospective Development will not have any significant residual effect on biodiversity when considered on its own. Following the implementation of mitigation, no potential for significant cumulative effects when considered in combination with other projects and land uses were identified.

A cumulative assessment of the Existing Development was carried out in Chapter 6 Biodiversity of the rEIAR that accompanies this application. Details of projects considered in that assessment are provided in Appendix 2.1 of Chapter 2, described fully in Section 2.10- Cumulative Impact Assessment in Chapter 2 of the rEIAR. This assessment concludes that the Existing Development will not have any significant residual effect on biodiversity when considered on its own and following the implementation of mitigation, no potential for significant cumulative effects when considered in combination with other projects and land uses were identified.

On this basis the Subject Development will not have any significant residual effect on biodiversity. Following the implementation of mitigation, no potential for significant cumulative effects when considered in combination with other projects and land uses were identified

6.10

Transboundary Effects

Given the location of the Prospective Development, close to the border with Northern Ireland, this section considers the potential for transboundary effects as a result of the Prospective Development on its own, in cumulation with the Existing Development and in combination with other land uses and projects.

As the Prospective Development is located entirely within the Republic of Ireland, there is no potential for direct transboundary effects to occur either alone or in combination with other projects and land uses.

In consideration of potential indirect transboundary effects on biodiversity, a single pathway for effect was identified – surface water. The Site is located mainly within the River Derg catchment, which flows through Northern Ireland. The Site is connected to this catchment via the Glendergan, Bunadaowen and Shruhanger Rivers and Mary Breen's Burn.

It is concluded that, following the implementation of mitigation, there is no potential for significant effects on aquatic habitats and species as a result of the Prospective Development and therefore, no potential for significant transboundary effects.

In addition, the Geotechnical and Peat Stability Report that is provided as Appendix 8-4 to this EIAR concludes that the Site has an acceptable margin of safety and therefore is considered to be at low risk of peat failure subject to the specified mitigation measures and is suitable for the Prospective Development.

The Subject Development (Existing and Prospective Developments combined) will not result in any significant residual transboundary effect on biodiversity.

6.11

Conclusion

Following the assessment undertaken, it is concluded that the Prospective Development does not have the potential to result in any significant effects on Biodiversity at any geographic scale either individually, in cumulation with the Existing Development or in combination with other projects and land uses.

No potential for the Prospective Development to result or have resulted in significant effects on any Nationally Designated Site was identified.

The potential for effects on the European Designated Sites are fully described in the NIS that accompanies this application. The NIS concludes:

'Therefore, it can be objectively concluded that the Prospective Development, individually or in-combination with other plans or projects, will not adversely affect the integrity of any European Site.'

Transboundary effects between the Republic of Ireland and Northern Ireland were considered in the assessment and no significant residual effects were identified.