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Environmental Impact Assessment Report (EIAR)

Cunlaghfadda Green
Energy Project, Co. Mayo

Chapter 6 - Biodiversity



Table of Contents

6.	BIODIVERSITY	6-1
6.1	Introduction	6-1
6.1.1	Project Referencing	6-1
6.1.2	Requirements for Ecological Impact Assessment	6-2
6.1.3	Review of Relevant Guidance and Sources of Consultation	6-5
6.1.3.1	Additional Relevant Guidance	6-5
6.1.4	Statement of Authority	6-6
6.2	Methodology	6-7
6.2.1	Desk Study	6-7
6.2.2	Scoping and Consultation	6-7
6.2.3	Field Surveys	6-14
6.2.3.1	Multi-disciplinary Ecological Walkover Surveys	6-16
6.2.3.2	Dedicated Habitat and Vegetation Composition Surveys	6-16
6.2.3.3	Terrestrial Fauna Surveys	6-19
6.2.3.4	Fisheries and Aquatic Surveys	6-22
6.2.3.5	Limitations	6-23
6.2.4	Methodology for Assessment of Impacts and Effects	6-23
6.2.4.1	Identification of Target Receptors and Key Ecological Receptors	6-23
6.2.4.2	Determining Importance of Ecological Receptors	6-24
6.2.4.3	Characterisation of Impacts and Effects	6-24
6.2.4.4	Determining the Significance of Effects	6-25
6.2.4.5	Incorporation of Mitigation	6-26
6.3	Establishing the Ecological Baseline	6-27
6.3.1	Desk Study	6-27
6.3.1.1	Designated Sites	6-27
6.3.1.2	NPWS Article 17 Reporting	6-52
6.3.1.3	Vascular plants	6-52
6.3.1.4	Bryophytes	6-53
6.3.1.5	National Biodiversity Data Centre (NBDC) Records	6-53
6.3.1.6	NPWS Protected Species Records	6-54
6.3.1.7	Inland Fisheries Ireland Data	6-55
6.3.1.8	Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)	6-55
6.3.1.9	Hydrological Desk Study	6-55
6.3.2	Conclusions of the Desk Study	6-59
6.4	Baseline Ecological Survey Results	6-61
6.4.1	Description of Habitats and Flora within the Site	6-61
6.4.1.1	Peatland Habitats	6-66
6.4.1.2	Grassland Habitats	6-77
6.4.1.3	Woodland, Scrub, Treeline and Hedgerow Habitats	6-84
6.4.1.4	Watercourses and Waterbodies	6-91
6.4.1.5	Artificial and Cultivated Habitats	6-95
6.4.1.6	Habitats Along the Proposed Grid Connection Route	6-101
6.4.1.7	Habitats Along the Turbine Delivery Route	6-102
6.4.1.8	Protected Habitats and Flora	6-105
6.4.1.9	Invasive Plant Species	6-105
6.4.2	Fauna in the Existing Environment	6-108
6.4.2.1	Badger	6-108
6.4.2.2	Otter	6-108
6.4.2.3	Other Mammals	6-108
6.4.2.4	Marsh Fritillary	6-113
6.4.2.5	Bats	6-113
6.4.2.6	Reptiles and Amphibians	6-114
6.4.2.7	Fisheries and Aquatic Fauna	6-115
6.4.2.8	Other Faunal Species	6-117
6.4.3	Identification of Key Ecological Receptors	6-118
6.5	Ecological Impact Assessment	6-125
6.5.1	Do-Nothing Effect	6-125
6.5.2	Likely Significant Effects During Construction Phase	6-125
6.5.2.1	Effects on Habitats During Construction	6-125
6.5.2.2	Effects on Fauna During Construction	6-142
6.5.3	Likely Significant Effects During Operational Phase	6-158
6.5.3.1	Effects on Habitats during Operation	6-158
6.5.3.2	Effects on Fauna during Operation	6-159

6.5.4	Likely Significant Effects During Decommissioning phase	6-162
6.5.5	Likely Significant Effects on Designated Sites.....	6-163
6.5.5.1	European Designated Sites.....	6-163
6.5.5.2	Nationally Designated Sites	6-164
6.6	Cumulative Impact Assessment	6-165
6.6.1	Assessment of Projects	6-165
6.6.1.1	Other Wind Farm Projects	6-166
6.6.1.2	Other EIA or Large-scale Projects.....	6-170
6.6.1.3	Existing Habitats and Land Uses.....	6-171
6.6.2	Cumulative Impacts and Compliance with Development Plans.....	6-172
6.6.3	Conclusion of Assessment of Cumulative Effects.....	6-178
6.7	Conclusion.....	6-179
6.8	EIA Classification Summary	6-179

TABLE OF FIGURES

<u>Figure 6-1 European Designated Sites with Hydrological Catchments.....</u>	6-29
<u>Figure 6-2 European Designated Sites with Groundwater Catchments.....</u>	6-30
<u>Figure 6-3 Nationally Designated Sites with Hydrological Catchments.....</u>	6-31
<u>Figure 6-4 Nationally Designated Sites with Groundwater Catchments.....</u>	6-32
<u>Figure 6-5 Habitat Map.....</u>	6-62
<u>Figure 6-6 Habitat Map with Proposed Project.....</u>	6-64
<u>Figure 6-7 Annex I and high biodiversity peatland habitats.....</u>	6-76
<u>Figure 6-8 Annex I Molinia meadows within the Site.....</u>	6-83
<u>Figure 6-9 Japanese knotweed locations.....</u>	6-107
<u>Figure 6-10 Mammal Signs within the Site.....</u>	6-111
<u>Figure 6-11 Locations of proposed temporary fencing for the protection of sensitive habitats and species during the construction phase.....</u>	6-156

TABLE OF TABLES

<u>Table 6-1 Organisations consulted with regard to biodiversity.....</u>	6-8
<u>Table 6-2 Ecology surveys undertaken to inform the EIAR.....</u>	6-14
<u>Table 6-3 Categorising types of plots using clustering analysis (after Wiser & de Cáceres, 2013).....</u>	6-17
<u>Table 6-4 Locations of 8 no. aquatic survey sites in the vicinity of the Proposed Project.....</u>	6-22
<u>Table 6-5 Identification of European and Nationally Designated Sites within the Likely Zone of Influence.....</u>	6-33
<u>Table 6-6 Species listed designated under the Flora Protection Order or the Irish Red Data Book in hectad M27.....</u>	6-53
<u>Table 6-7 NBDC records for protected species and species of conservation interest (excl. birds) in hectad M27.....</u>	6-53
<u>Table 6-8 NPWS records for rare and protected species.....</u>	6-55
<u>Table 6-9 EPA Water Quality Monitoring O-Rating Values.....</u>	6-57
<u>Table 6-10 Identification of Key Ecological Receptors within the ZoI of the Proposed Project.....</u>	6-118
<u>Table 6-11 Habitats occurring within the footprint of the Proposed Project.....</u>	6-126
<u>Table 6-12 Assessment of potential for effects on aquatic habitats and associated aquatic species during construction.....</u>	6-127

<u>Table 6-13 Assessment of potential effects on Raised bog (PB1) during construction</u>	6-130
<u>Table 6-14 Assessment of potential effects on Cutover bog (PB4) and associated habitats during construction</u>	6-134
<u>Table 6-15 Assessment of potential effects on Annex I Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] during construction</u>	6-136
<u>Table 6-16 Assessment of potential effects on Scrub (WS1) during construction</u>	6-139
<u>Table 6-17 Assessment of potential effects on Hedgerows (WL1) and Treelines (WL2) during construction</u>	6-140
<u>Table 6-18 Assessment of potential effects on badger during construction</u>	6-143
<u>Table 6-19 Assessment of potential effects on otter during construction</u>	6-144
<u>Table 6-20 Assessment of potential effects on bats during construction</u>	6-145
<u>Table 6-21 Assessment of potential effects on smooth newt during construction</u>	6-149
<u>Table 6-22 Assessment of potential effects on marsh fritillary during construction</u>	6-151
<u>Table 6-23 Assessment of potential effects on aquatic habitats and associated aquatic species during operation</u>	6-158
<u>Table 6-24 Assessment of potential effects on bats during operation</u>	6-160
<u>Table 6-25 Cumulative Study Areas in relation to ecological receptors (birds are assessed separately within Chapter 7 of this EIAR)</u>	6-165
<u>Table 6-26 Wind farm projects within 15km of the Proposed Wind Farm turbines</u>	6-166
<u>Table 6-27 Development Plan Review</u>	6-172
<u>Table 6-28 Impact Assessment Classification Summary</u>	6-179

TABLE OF PLATES

<u>Plate 6-1 Margins of the raised bog to the north of proposed Turbine 1, looking south towards the facebank</u>	6-68
<u>Plate 6-2 Deep existing drainage ditch and facebank along the margins of the raised bog to the north of proposed Turbine 1</u>	6-68
<u>Plate 6-3 Area of Raised bog (PB1) located to the west of the Site. This photo was taken in the centre of the area of remnant raised bog which is located outside of the Site</u>	6-69
<u>Plate 6-4 Area of remnant raised bog surrounded by cutover bog, located to the east of proposed Turbine 3</u>	6-69
<u>Plate 6-5 A small area of remnant raised bog surrounded by cutover bog in the south of the Site</u>	6-70
<u>Plate 6-6 An example of a revegetating Cutover bog (PB4) habitat located at the south of the Site</u>	6-73
<u>Plate 6-7 Area of Cutover bog (PB4) in the northeast of the Site, with sitka spruce (Picea sitchensis) encroachment from the adjacent conifer plantation</u>	6-73
<u>Plate 6-8 An area of species-rich Cutover bog (PB4) habitat in the centre of the Site</u>	6-74
<u>Plate 6-9 Secondary heath community recolonising on Cutover bog (PB4) in the east of the Site</u>	6-74
<u>Plate 6-10 An area of Annex I Transition mire and quaking bog [7140] in the east of the Site</u>	6-75
<u>Plate 6-11 Example of typical sward of Improved agricultural grassland (GA1) within the Site</u>	6-77
<u>Plate 6-12 Example of Dry meadows and grassy verges located at the location of the proposed met mast</u>	6-78

<u>Plate 6-13 Mosaic of Dry meadows and grassy verges and Scrub (GS2/WS1) at the location of the proposed borrow pit.</u>	6-79
<u>Plate 6-14 Example of typical sward of species-poor Wet grassland (GS4) within the northwest of the Site.</u>	6-81
<u>Plate 6-15 An example of Annex I Molinia meadow located southeast of proposed Turbine 5 within the Site (i.e., EIAR boundary).</u>	6-82
<u>Plate 6-16 Example of Scrub (WS1) habitat bordering a wet grassland located to the southwest of Turbine 6.</u>	6-85
<u>Plate 6-17 European gorse (Ulex europaeus) dominated Scrub growing on Cutover bog (PB4/WS1).</u>	6-85
<u>Plate 6-18 A mosaic of Scrub on Cutover bog (PB4/WS1) that has recolonised on an area of previously-felled conifer plantation in the northeast of the Site.</u>	6-86
<u>Plate 6-19 Mixed broadleaved/conifer woodland (WD2) located to the north of proposed Turbine 5.</u>	6-87
<u>Plate 6-20 Small area of Mixed conifer woodland (WD3) in the northern section of the Site.</u>	6-88
<u>Plate 6-21 Area of sitka spruce (Picea sitchensis) dominated conifer plantation located in the northeast of the Site.</u>	6-89
<u>Plate 6-22 Example of a Hedgerow (WL1) in the northern section of the Site.</u>	6-90
<u>Plate 6-23 Treeline (WL2) located to the east of the proposed substation location.</u>	6-91
<u>Plate 6-24 A representative image of the uppermost reaches of the Meander River in the vicinity of the Site.</u>	6-92
<u>Plate 6-25 An example of Drainage ditch (FW4) to the northeast of Turbine 7 within an agricultural grassland.</u>	6-93
<u>Plate 6-26 A newly-dug Drainage ditch (FW4) within cutover bog habitat in the south of the Site.</u>	6-93
<u>Plate 6-27 The margins of the pond located in the southeast of the Site, which have been highly poached by cattle.</u>	6-94
<u>Plate 6-28 Soft rush (Juncus effusus) dominated vegetation within pond in the southeast of the Site.</u>	6-95
<u>Plate 6-29 Area of recently ploughed grassland in the east of the Site, classified as Tilled land (BC3).</u>	6-96
<u>Plate 6-30 Area of Spoil and bare ground (ED2) in the south of the site being used for storage of wood chippings and brash.</u>	6-97
<u>Plate 6-31 Farm track classified as Recolonising bare ground (ED3) located in the north of the Site.</u>	6-98
<u>Plate 6-32 Recolonising bare ground (ED3) at the location of the proposed onsite substation.</u>	6-98
<u>Plate 6-33 Stone walls (BL1) delineate several agricultural fields in the northern areas of the Site.</u>	6-99
<u>Plate 6-34 Old stone building classified as Stonewalls and other stonework (BL1) located at the southeast of the Site.</u>	6-100
<u>Plate 6-35 Main access road to the Site (L15053), classified as Buildings and artificial surfaces (BL3).</u>	6-101
<u>Plate 6-36 An example of overhanging Treelines (WL2) along the proposed Turbine Delivery Route which are proposed for pruning, located along the L55512.</u>	6-103
<u>Plate 6-37 An intensively sheep-grazed agricultural grassland within the land-take area at the junction of the L55512 and the R320, along the proposed Turbine Delivery Route.</u>	6-104
<u>Plate 6-38 A small stream classified as an Eroding/upland river (FW1) at the junction of the L1506 and the L1505.</u>	6-104

<u>Plate 6-39 Large stands of Japanese knotweed present within the south of the Site.</u>	6-106
<u>Plate 6-40 Significant numbers of seedlings showing the spread of Japanese knotweed through the south of the Site.</u>	6-106
<u>Plate 6-41 Irish hare (<i>Lepus timidus hibernicus</i>) within the Site in July 2023.</u>	6-110

APPENDICES

Appendix 6-1 Botanical Assessment Report

Appendix 6-2 Bat Report

Appendix 6-3 Aquatic Baseline Report

Appendix 6-4 Biodiversity Management and Enhancement Plan

Appendix 6-5 Invasive Species Management Plan

Appendix 6-6 Ecology Project Team CVs

Confidential Appendix 6-7 Location of Marsh Fritillary Larval Webs and Suitable Habitat

Mayo Planning Authority - Inspection Purposes Only

6. BIODIVERSITY

6.1 Introduction

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the Proposed Project may have on Biodiversity, Flora and Fauna, and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified. Mitigation by design was applied to the finalised Proposed Project layout wherever possible to avoid impacts on Biodiversity. The residual impacts on biodiversity are then assessed. 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 Birds of this EIAR. The full description of the Proposed Project is provided in Chapter 4 of this EIAR.

The chapter is structured as follows:

- The Introduction provides a description of the legislation, guidance and policy context applicable to Biodiversity.
- 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 ecological conditions at the Site and receptor evaluation is then provided.
- This is followed by an assessment of effects which are described with regard to each phase of the Proposed Project: construction phase, operational phase and decommissioning phase. Potential cumulative effects in combination with other projects are fully assessed.
- Proposed mitigation and best practice measures to avoid, reduce or offset the identified effects are described and discussed. This is followed by an assessment of residual effects taking into consideration the effect of the proposed mitigation and best practice measures.
- The conclusion provides a summary statement on the overall significance of predicted effects on biodiversity.

6.1.1 Project Referencing

For the purposes of this EIAR:

- Where the 'Proposed Wind Farm' is referred to, this refers to turbines and associated foundations and hardstanding areas, including access tracks, underground cabling, permanent meteorological mast, temporary construction compound, peat and spoil management, biodiversity enhancement, tree felling, site drainage, operational stage signage, turbine delivery route and junction accommodation works, turbine delivery route and junction accommodation works, and all ancillary works and apparatus. The Proposed Wind Farm is described in detail in Chapter 4, Section 4.4.1 of this EIAR.
- Where the 'Proposed Grid Connection' is referred to, this refers to the proposed 110kV onsite substation, underground 110kV cabling and end masts connecting the proposed 110kV substation to the 110kV Castlebar to Cloon overhead line, access tracks and all ancillary works and apparatus. The Proposed Grid Connection Route is described in detail in Chapter 4, Section 4.4.2 of this EIAR.
- Where the 'Proposed Project' is referred to, this encompasses the entirety of the project (Proposed Wind Farm and Proposed Grid Connection) for the purposes of

this EIA in accordance with the EIA Directive. The Proposed Project is described in detail in Chapter 4 of this EIAR.

- Where ‘the Site’ is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-2 of the EIAR and encompasses an area of approximately 165 hectares.

In addition:

- ‘**Key Ecological Receptor**’ (KER) is defined as a species or habitat occurring within the Zone of Influence of the Proposed Project upon which likely significant effects are anticipated.
- The ‘**Zone of Influence**’ (ZoI) for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. The extent of the ZoI can vary depending on the ecological feature in question, its sensitivity to environmental change and the nature of the proposed works or development. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. ZoIs differ depending on the sensitivities of particular habitats and species and were assigned in accordance with best available guidance and through adoption of a precautionary approach (CIEEM, 2018).

6.1.2 Requirements for Ecological Impact Assessment

National Legislation

The Wildlife Act, 1976 (as amended) (hereafter referred to as the Wildlife Act), is the principal piece of legislation governing protection of wildlife in Ireland. The Wildlife Act provides strict protection for species of conservation value. The Wildlife Act conserves wildlife (including game) and protects certain wild animals and flora. These species are therefore considered in this report as ecological receptors.

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that are designated for the protection of flora, fauna, habitats and geological sites. Only NHAs are designated under the Wildlife Act. NHAs are legally protected from damage from the date that they are formally proposed for designation¹. A list of pNHAs was published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, these sites are considered to be of significance for wildlife and habitats as they may form statutory designated sites in the future.

The Flora (Protection) Order 2022 (S.I. No. 235) lists the species, hybrids and/or subspecies of flora protected under Section 21 of the Wildlife Act. It provides protection to a wide variety of protected plant species in Ireland including vascular plants, mosses, liverworts, lichens and stoneworts. Under the Flora (Protection) Order it is illegal to cut, pick, collect, uproot or damage, injure or destroy species listed or their flowers, fruits, seeds or spores or wilfully damage, alter, destroy or interfere with their habitat (unless under licence).

National Policy

Ireland's 4th National Biodiversity Action Plan 2023-2030 (Department of Housing, Local Government and Heritage, 2024) (the “**NBAP**”) strives for a “whole of government, whole of society” approach to the governance and conservation of biodiversity. It demonstrates Ireland’s continuing commitment to meeting and acting on its obligations to protect Ireland’s biodiversity for the benefit of future generations and will implement this through a number of key targets, actions and objectives.

¹ National Parks and Wildlife Service [online]. Available at: <https://www.npws.ie/protected-sites/nha> [Accessed 24/02/2026].

The Wildlife (Amendment) Act 2023 (hereafter referred to as the Wildlife 2023 Act) introduced a new public sector duty on biodiversity. The legislation provides that every public body, as listed in the Wildlife 2023 Act, is obliged to have regard to the objectives and targets in the NBAP. The NBAP sets out five key objectives as follows:

- **Objective 1: Adopt a Whole-of Government, Whole of Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.
- **Objective 2: Meet Urgent Conservation and Restoration Needs.** Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.
- **Objective 3: Secure Nature's Contribution to People.** Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy.
- **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.
- **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.** Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.

In addition, the National Biodiversity Data Centre published guidance on Pollinator-friendly management of Wind Farms². This identifies an evidence-based action plan for wind farm operators that can help pollinators by employing changes to existing management strategies.

Such policies have informed the evaluation of ecological receptors recorded within the site and the ecological assessment process. Pollinator friendly measures have been incorporated into the Proposed Project and these are detailed within the Biodiversity Mitigation and Enhancement Plan (BMEP) (see Appendix 6-4).

European Legislation

Habitats and species of European importance are provided legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive) and the EU Birds Directive 2009/147/EC (the Birds Directive) this legislation forms the cornerstone of Europe's nature conservation within the EU. It is built around two pillars: the Natura 2000 network of protected sites (hereafter referred to as European sites³) and the strict system of species protection. Both the Habitats and Birds Directives have been transposed into Irish law by Part XAB of the Planning and Development Acts 2000 (as amended) (from a land use

² <https://pollinators.ie/wp-content/uploads/2022/12/Wind-Farm-Pollinator-Guidelines-2022-WEB.pdf> [Accessed 24/02/2026].

³ The term Natura 2000 network was replaced by 'European site' under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

planning perspective) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended).

Annex I of the Habitats Directive lists habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. Annex II of the Habitats Directive lists animal and plant species (e.g. marsh fritillary, Atlantic salmon, and Killarney fern) whose conservation also requires the designation of SAC. Annex IV lists animal and plant species in need of strict protection such as all bat species and otter, and Annex V lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish hare, common frog and pine marten. Species can be listed in more than one Annex, as is the case with otter and lesser horseshoe bat which are listed on both Annex II and Annex IV. Per Article 12 of the Habitats Directive, the disturbance of species (in particular the deliberate disturbance of Annex IV species during the period of breeding, rearing, hibernation or migration, and the deterioration or destruction of breeding sites or resting places) has been specifically assessed in this EIAR.

The Birds Directive instructs Member States to take measures to maintain populations of all bird species naturally occurring in the wild state in the EU (Article 2). According to Recital 1 of the Birds Directive, Council Directive 79/409/EEC on the conservation of wild birds was substantially amended several times and in the interests of clarity and rationality, the Birds Directive codifies Council Directive 79/409/EEC into Irish Law. Such measures may include the maintenance and/or re-establishment of habitats in order to sustain these bird populations (Article 3). A subset of bird species has been identified in the Birds Directive and are listed in Annex I as requiring special conservation measures in relation to their habitats. These species have been listed on account of inter alia: their risk of extinction; vulnerability to specific changes in their habitat; and/or due to their relatively small population size or restricted distribution. Special Protection Areas (SPAs) are to be identified and classified for these Annex I listed species and for regularly occurring migratory species, paying particular attention to the protection of wetlands (Article 4). This Biodiversity Chapter assesses the potential for significant effects on all aspects of biodiversity, flora and fauna, excluding birds. The potential for significant effects on bird species is described in detail in Chapter 7 Birds of this EIAR.

In summary, the species and habitats provided National and International protection under these legislative and policy documents have been considered in this Biodiversity Chapter. A detailed assessment of the likelihood of the Proposed Project having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs, SPAs or cSPAs) has been carried out in the Appropriate Assessment (AA) Screening Report and Natura Impact Statement (NIS), which are also submitted with the planning application for the Proposed Project. A separate assessment has not been carried out in this chapter, to avoid duplication of assessments. However, the relevant conclusions have been cross-referenced and incorporated.

In addition to the above, the following legislation applies with respect to habitats, fauna, invasive species and water quality in Ireland and has been considered in the preparation of this chapter:

- The International Convention on Wetlands of International Importance especially Waterfowl Habitat (Concluded at Ramsar, Iran on 2 February 1971)
- S.I. No. 272 of 2009: European Communities Environmental Objectives (Surface Waters) Regulations 2009 and S.I. No. 722 of 2003 European Communities (Water Policy) Regulations 2003 which give further effect to EU Water Framework Directive (2000/60/EC).
- The following legislation applies with respect to non-native species - Regulation 49 and 50 of European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) and the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024).

6.1.3

Review of Relevant Guidance and Sources of Consultation

The assessment methodology is based primarily upon the Transport Infrastructure Ireland's (TII, formerly the National Road Authority) *Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2* (TII, 2009) (referred to hereafter as the TII Ecological Impact Assessment Guidelines), and the survey methodology is based on the TII *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes* (TII, 2008a). 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 consulted in the preparation of this document to provide the scope, structure and content of the assessment:

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester. This assessment has been carried out in accordance with the Environmental Impact Assessment guidance as outlined in Section 1.2.1 of Chapter 1 of this EIAR.

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

- Mayo County Development Plan 2022-2028
- Northern & Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032
- Ireland's 4th National Biodiversity Action Plan 2023-2027
- National Planning Framework Ireland 2040
- National Development Plan 2021-2030.

6.1.3.1

Additional Relevant Guidance

In addition, the guidelines listed below were consulted in the preparation of this document to provide the scope, structure, and content of the assessment:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2022).
- Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester (CIEEM, 2017).
- Environmental Impact Assessment of National Road Schemes –A Practical Guide (TII, 2008c);
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments, Unpublished NPWS report (NPWS, 2025; 2019);
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments, Unpublished NPWS report (NPWS, 2025; 2019);
- Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland (NPWS, 2021);
- Guidelines for Consideration of Bats in Wind Farm Projects (Rodrigues *et al.*, 2015);
- Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation (NatureScot, 2021);
- Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell *et al.*, 2022);
- Bat Survey, Assessment and Mitigation Guidelines for Onshore Wind Turbines in Ireland (Bat Conservation Ireland, 2026);
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (TII, 2006a);

- Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (TII, 2006b)
- Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (TII, 2008b)
- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020);
- IW-AMT-SOP-009 Information and Guidance Document on Japanese knotweed (Irish Water, 2016)
- Code of Practice for the Management of Japanese knotweed (Property Care Association, 2018)
- The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Environment Agency, 2013)
- Great Crested Newt Mitigation Guidelines. English Nature, Peterborough (English Nature, 2001)

6.1.4 Statement of Authority

This EIAR chapter has been prepared by Katy Beckett (B.A., M.Sc.). Katy is a Project Ecologist with MKO with close to three years' consultancy experience. She is an experienced ecologist with skills covering habitat and botanical assessments and specialist mammal (including all bat species) surveys. Katy has undertaken numerous Ecological Impact Assessments (EcIAs) and AA assessments for public and private sector clients. This report has been reviewed by Sarah Mullen (B.Sc., M.Sc., Ph.D., ACIEEM). Sarah has over ten years' experience in ecological consultancy. She is a skilled ecologist having authored and/reviewed numerous EcIAs, EIAR Biodiversity Chapters and Habitats Directive Assessment Reports for a variety of projects across a range of sectors. She is also an experienced field ecologist with experience in botanical, habitat and faunal surveys.

The baseline terrestrial ecological surveys were conducted by MKO ecologists Amy McDermott (B.Sc.), Caití Farren (B.A.), Chandra Walter (B.Sc.), Ciara Lynn Sheehan (B.Sc.), Deepali Mooloo (M.Sc.), Ellen Tuck (B.Sc.), Fiona Killeen (B.Sc.), Kate O'Donnell (B.Sc., ACIEEM), Katy Beckett, Mairead Kavanagh (B.Sc.), Rudraksh Gupta (B.Sc., M.Sc., ACIEEM), Ryan Connors (B.Sc., M.Sc.) and Sarah Mullen. All surveyors have relevant academic qualifications and are competent in undertaking habitat and ecological assessments.

MKO's Ecology team includes a dedicated bat unit with expertise in scoping, conducting, and reporting bat surveys, as well as preparing impact assessments. All ecologists hold relevant academic qualifications, licences, and training to meet required survey standards. Bat survey scope development and project management was overseen by Aoife Joyce (B.Sc., M.Sc., MCIEEM). Bat surveys were carried out by Clare Mifsud (Ph.D.), Marie Greaney (B.Sc., M.Sc.), and Kate Leahy (B.Sc.). Data manual ID were carried out by Marie Greaney. The Bat Report (included as Appendix 6-2) was prepared by Kate Leahy and Clare Mifsud and was reviewed and approved by Aoife Joyce. Staff's roles and relevant training are presented in Table 1-2 of the Bat Report in Appendix 6-2.

Aquatic surveys were undertaken by Triturus Environmental Ltd, as outlined in the Aquatic Baseline Report in Appendix 6-3.

The CVs of all surveyors and competent experts from the Ecology Project Team have been included in Appendix 6-6 of this EIAR.

6.2

Methodology

The following sections describe the methodologies followed to establish the baseline ecological condition of the Site and surrounding area. 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).

6.2.1

Desk Study

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

- Review of National Parks and Wildlife Service (NPWS) Article 17 reporting and mapping 2025, 2019, 2013 and 2007.
- NPWS Site Synopses for Designated Sites within the Likely ZoI.
- Review of the Irish Ramsar Wetlands Committee⁴ web-mapper of Ramsar Sites in Ireland
- Review of online web-mappers: NPWS⁵, Environmental Protection Agency (EPA)⁶, Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI)⁷.
- IFI Reports, where available.
- Data on potential occurrence of rare plant and bryophytes – as per NPWS online map viewers; Flora (Protection) Order Map Viewer – Bryophytes⁸ and Flora Protection Order 2022 Map Viewer⁹.
- Review of relevant Plans, including the NBAP and the All-Ireland Pollinator Plan 2021-2025.
- Records from the NPWS web-mapper and review of specially requested records from the NPWS Rare and Protected Species Database for the hectad in which the Proposed Project is located.
- Review of the NPWS Semi-Natural Grassland Survey 2007-2012, Grasslands Monitoring Survey 2015-2017, Floodplains and Callows Grasslands in Ireland 2023, National Survey of Native Woodlands 2003-2008 and Ancient and Long-Established Woodland datasets
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper¹⁰.
- Potential for in-combination effects have been considered in Chapter 2 of this EIAR and Section 6.7 of this Chapter. This was informed by a review of the planning files prepared for other plans and projects occurring in the wider area.

6.2.2

Scoping and Consultation

MKO undertook a scoping exercise during preparation of this EIAR, as described in Chapter 2, Section 2.7 of this EIAR.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-12 in Chapter 2 of this EIAR describes where the comments raised in the scoping responses received have

⁴ Irish Ramsar Wetlands Committee [online]. Available at: <https://www.irishwetlands.ie/irish-sites/> [Accessed 24/02/2026]

⁵ NPWS Maps and Data [online]. Available at: <https://www.npws.ie/maps-and-data> [Accessed 24/02/2026]

⁶ EPA Maps [online]. Available at: <https://gis.epa.ie/EPA/Maps/> [Accessed 24/02/2026]

⁷ IFI Open Data Portal [online]. Available at: <https://opendata-ifeo.hub.arcgis.com/> [Accessed 24/02/2026]

⁸ NPWS FPO Bryophytes [online]. Available at: <http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=71f8df33693f48e4dbb70369d7fb26b7e> [Accessed 24/02/2026]

⁹ NPWS Flora (Protection) Order 2022 Map Viewer [online]. Available at: <https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=a41ef4e10227499d8de17a8abe42bd1e> [Accessed 24/02/2026]

¹⁰ NBDC Biodiversity Maps [online]. Available at: <https://maps.biodiversityireland.ie/Map> [Accessed 24/02/2026]

been addressed in this assessment. Table 6-1 provides a list of the organisations consulted with regard to biodiversity during the scoping process, notes where scoping responses were received and provides details of the contents of the scoping responses. Responses received in to scoping undertaken in 2026 are included, with additional responses from 2023 included where no response was received in 2026.

Table 6-1 Organisations consulted with regard to biodiversity.

Consultee	Date Received	Response	
An Taisce	N/A	No response received at the time of writing.	N/A
Bat Conservation Ireland	N/A	No response received at the time of writing.	N/A
Butterfly Conservation Ireland	N/A	No response received at the time of writing.	N/A
Department of Agriculture, Food and the Marine	16 th of February 2026	➤ A Felling License must be obtained from this Department before trees are felled or removed. ➤ The factors considered by the Forest Service when assessing applications to fell trees was outlined, including the interaction of these proposed works with the environment locally and more widely, in addition to potential direct and indirect impacts on designated sites and water. Consultation with relevant environmental and planning authorities may be required where specific sensitivities arise (e.g. local authorities, National Parks & Wildlife Service, Inland Fisheries Ireland, and the National Monuments Service). ➤ It was highlighted that where developments are subject to an EIA procedure, Appropriate Assessment procedure or where the Proposed Project requires the felling and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species, that there is a requirement inter alia under the EIA Directive for an overall assessment of the effects of the project or the alteration thereof on the environment to be undertaken, including the direct and indirect environmental impact of the project. ➤ Additionally, pursuant to Article 2(3) of the EIA Directive, the	As outlined in Chapter 4 Description of this EIAR, the 0.7ha of commercial forestry felling required as part of the Proposed Project will be the subject of a Limited Felling Licence (LFL) application to the Forest Service in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. An overall assessment of the effects of the Proposed Project and associated forestry and tree felling biodiversity, flora and fauna has been undertaken within this Biodiversity Chapter, including the direct and indirect environmental impacts. Where appropriate, an assessment of the potential impact of and measures to prevent, mitigate or compensate for any potential effects identified on biodiversity, flora or fauna arising from such felling and replanting of trees and deforestation for the purposes of conversion to another type of land use are included in Section 6.5 of this Biodiversity Chapter.

Consultee	Date Received	Response	
		Department of Agriculture, Food and the Marine strongly recommends that, notwithstanding the fact that a parallel consent in the form of felling licence may also have to be applied for, any EIAR and/or NIS produced in connection with the application for planning permission to the Local Planning Authority or An Bord Pleanála, should include an assessment of the impact of and measures, as appropriate, to prevent, mitigate or compensate for any significant adverse effects direct or indirect identified on the environment arising from such felling and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species.	
Department of Climate, Energy and the Environment (Geological Survey Ireland)	5 th of March 2026	Geological Survey Ireland is the national earth science agency and is part of the Department of Climate, Energy and the Environment. ➤ It was recommended to use the various data sets available on the Geological Survey Ireland website when conducting the EIAR, SEA, planning and scoping processes for developments, plans and policies. ➤ No issues were raised in relation to biodiversity, flora or fauna.	Datasets provided by Geological Survey Ireland have been consulted during the preparation of this EIAR, as outlined in Section 6.3.1 below, where relevant to biodiversity. Further details are provided in Chapter 8 Land, Soils and Geology and Chapter 9 Water of the EIAR which accompanies this planning application. These data have been used to inform the ecological impact assessment within this Biodiversity Chapter, where appropriate.
Department of Housing, Local Government and Heritage	9 th of March 2026	<u>Active raised bog (7110) and Degraded raised bog still capable of regeneration (7120)</u> ➤ The Department notes that some areas of cutover bog are now considered to have potential to correspond to the Annex I habitat Active Raised Bog (7110), therefore the Department recommends that the habitat survey and assessment included in the EIAR uses the preliminary classification and assessment methodology for cutover bogs outlined in the document <i>The Habitats of Cut-over Bog</i> (Smith and Crowley, 2020) where appropriate. ➤ The Department recommends characterising the areas of cut-over bog within the zone of influence of	Detailed assessments have been undertaken to assess the potential for habitats within the Site to conform to Annex I habitats. These include remnant Active raised bog [7110] and Degraded raised bog still capable of regeneration [7120] in line with Fernandez <i>et al.</i> (2014), as well as Active raised bog occurring on cutover bog habitats per Smith and Crowley (2020). Species-rich grasslands with the potential to conform to the Annex I habitat <i>Molinia</i> meadows [6410] were also assessed in line with Martin <i>et al.</i> (2018), a guidance which builds upon and improves the methodologies employed by O'Neill <i>et al.</i> (2013).

Consultee	Date Received	Response	
		any proposed infrastructure accordingly to help inform the design of any layout and demonstrate the implementation of the mitigation hierarchy as necessary. ➤ Areas of the Annex I habitat Active Raised Bog (7110) should be avoided where possible. If direct impacts on such areas are unavoidable, the effects of those impacts should be correctly characterised in the EIAR, and mitigation provided as necessary. ➤ The condition assessment for any Annex I Habitats present should also be used to inform any proposed compensation or enhancement measures being proposed as necessary ➤ The Department also recommends that the areas of high bog occurring both within the Site, and in the zone of influence of the Site, are characterised adequately to determine the presence of the Annex I habitats Active Raised Bog (7110) and Degraded Raised Bog still capable of natural regeneration (7120), in line with <i>Raised Bog Monitoring and Assessment Survey</i> (Fernandez et al., 2013) ➤ The presence, or absence, of any corresponding Annex I habitats should be established, and their condition assessed as necessary, to help inform the design of the layout and demonstrate the implementation of the mitigation hierarchy as necessary. ➤ The potential for indirect hydrological impacts on both the areas of high bog, and cutover bog, within the Site should be addressed. The proposed turbine bases, roads, and borrow pit, are located in areas of cut-over adjoining areas of high bog. There is potential to cause drainage effects which can indirectly impact on the adjoining areas of both cut-over and high bog and the vegetation communities thereon. Excavations, associated pumping, and the breaching of any impermeable layer may cause changes to the hydraulic gradients within the site which may affect vegetation communities, including those of any Annex I bog habitats	Methodologies for the assessment of Annex I habitats are outlined in Section 6.2.3.2 of this Biodiversity Chapter, and detailed survey results are provided in Section 6.4 and within Appendix 6-1 Botanical Assessment Report. The results of these surveys were used to inform the design of the Proposed Project and to inform appropriate enhancement measures as necessary. Full details on the ecological impact assessments, including the potential for drainage effects on Annex I habitats are included in Section 6 below.

Consultee	Date Received	Response	
		that may occur, on either the cut-over and high bog areas. <u>Species-rich grasslands</u> - It was highlighted that areas of species-rich grassland may occur within the Site, and recommended that any such areas are characterised using the Irish Vegetation Classification system. - Areas corresponding to Annex I habitats should be identified and their condition assessed using the appropriate methodology (O'Neill <i>et al.</i>, 2013) to inform the design and implementation of the mitigation hierarchy, and the design of any proposed compensation or enhancement areas as necessary.	
Environmental Protection Agency	N/A	No response received at the time of writing.	N/A
Fáilte Ireland	25 th of February 2026	Fáilte Ireland's '<i>Guidelines for the Treatment of Tourism in an ELA</i>' was shared, which noted the following in relation to Biodiversity: - Landscapes which are 'unspoiled' can be attractors of tourism. However, the disturbance to ecology must be managed to minimise impacts. - Biodiversity is also a tourism asset and should be protected as such from other development and should be provided for in proposals where possible. - The assessment should also consider current Government policy on nature conservation as outlined in the National Biodiversity Action Plan 2017-2021 (NBAP) (and subsequent iterations (Including draft NBAP recently open for public consultation, to cover 2023 to 2027) which also includes Ireland's vision for biodiversity: '<i>That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.</i>'	The potential for the Proposed Project to result in significant effects on all aspects of Biodiversity have been assessed within this Biodiversity Chapter, and the potential for likely significant effects on European Sites is addressed within the accompanying NIS. The latest National Biodiversity Action Plan (2023-2030) has been fully reviewed and compliance of the Proposed Project with this Biodiversity Action Plan is considered within Section 6.6 below.

Consultee	Date Received	Response	
Geological Survey Ireland	5 th of March 2026	See above response received from the Department of Climate, Energy and Environment.	See above response received from the Department of Climate, Energy and Environment.
Inland Fisheries Ireland	23 rd of June 2023	➤ The River Robe is a brown trout fishery which feeds Lough Mask, site of Lough Mask SPA (004062) and Lough Carra/Mask Complex SAC (001774). Drumady lake is the source for the Ballynew stream. Ballynew is a trout spawning channel and IFI have a fisheries development project planned for the lower section of it in 2023. The Water Framework Directive has classed the Ballynew stream (Robe-030) as of good ecological status, a status which must be maintained. ➤ The proposed site crosses both the Meander River and Robe River catchments. The Meander River provides salmon and trout spawning and nursery habitat for the wider River Moy system. The Meander River forms part of the River Moy Special Area of Conservation which is designated for the protection of Atlantic salmon, white-clawed crayfish and lamprey species. This catchment has been allocated good ecological status and this status must be protected to comply with the Water Framework Directive. ➤ The EIS should assess the potential impacts the Proposed Project may have including, damage to the aquatic and associated riparian habitat, pollution of water, changes to hydrology, introduction of non-native species and interference with upstream and downstream movement of aquatic life. The assessment should include all aspects of the development. ➤ All watercourses that will receive drainage from the construction site including the turbines or the access roads must be assessed. IFI request an electrofishing fish survey and invertebrate sampling assessment are carried out. ➤ There must be no spread of invasive species as a result of the proposed development. A survey for the presence of invasive species should be carried out and a	Detailed baseline aquatic and fisheries assessments were undertaken during the preparation of this Biodiversity Chapter and accompanying NIS. The potential for the Proposed Project to result in significant effects on all downstream watercourses and associated aquatic habitats and species have been assessed within Section 6.5 of this Chapter as well as within Chapter 9 Water. Where there is the potential for likely significant effects on aquatic receptors associated with European Sites, those are also fully addressed within the accompanying NIS prepared for the Proposed Project. All aspects of the Proposed Project have been considered within this assessment. Mitigation measures for the protection of all downstream watercourses and designated sites are prescribed in Section 9.5 of Chapter 9 Water, and mitigation measures relevant to the protection of downstream European Sites are outlined within Section 6 of the NIS. A water quality monitoring program is detailed in the accompanying Construction Environmental Management Plan. Groundwater vulnerability is discussed in Section 6.3.1.9.5 of this Biodiversity Chapter and further detail is provided within Section 9.3.11 of Chapter 9 Water. The design phase of the Proposed Project also included detailed constraints mapping which applied 50m buffers to rivers and streams and 100m buffers to lakes. Where in-stream works are required along the proposed Turbine Delivery Route, these have been fully considered and mitigation measures for the protection of aquatic habitats and species prescribed within Section 6.5 of this Chapter, following best practice guidelines. Due to the presence of the invasive species Japanese knotweed (<i>Reynoutria</i>

Consultee	Date Received	Response	
		management plan put in place where found. > A construction and operational phase water quality and habitat monitoring programme must be put in place. The monitoring of all surface flows during construction is essential and remote sensing equipment should be considered as a normal precaution and extended into the post construction phase. > Adequately sized aquatic buffer zones must be established along all watercourses. IFI recommends a minimum width of 15 metres from a minor watercourse to low-risk parts of the construction site with larger buffer zones required for more sensitive habitats and higher risk operations e.g., 50m from a turbine. > Groundwater vulnerability ranges from moderate to extreme across the site. The location of turbines and main construction works must avoid high groundwater vulnerability areas. > Watercourse crossings existing on site or along the proposed delivery routes must be assessed to determine if works will be required to facilitate site access and the potential impacts of such works. The locations and design of any proposed new watercourse crossings should be provided. All instream works or other works which may impact directly on a watercourse should only be carried out during the open season which is from 1st July to 30th of September (so as to avoid impacting on the aquatic habitat during the spawning season.)	<i>japonica</i>) within the Site, a site-specific Invasive Species Management Plan has been prepared, included as Appendix 6-4 of this Chapter, which outlines measures to prevent the potential spread of this species within the Site or to any potential pathways for spread beyond the Site.
Irish Peatland Conservation Council	N/A	No response received at the time of writing.	N/A
Uisce Éireann	10 th of March 2026	No issues raised in relation to biodiversity, flora or fauna.	N/A
Irish Wildlife Trust	N/A	No response received at the time of writing.	N/A

Consultee	Date Received	Response	
Mayo County Council – Environmental Department	N/A	No response received at the time of writing.	N/A
Office of Public Works	29 th of April 2026	No issues were raised in relation to biodiversity, flora or fauna.	N/A
The Heritage Council	N/A	No response received at the time of writing.	N/A
Waterways Ireland	29 th of May 2023	No comments were provided on the Proposed Project as the Site is not located within the Zone of Influence of any Waterways Ireland waterways.	N/A

6.2.3 Field Surveys

A comprehensive survey of the biodiversity within the Site was undertaken on various dates between 2023 and 2026, as outlined in Table 6-2. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies, dates of survey and guidance followed.

Table 6-2 Ecology surveys undertaken to inform the EIAR

Survey Type	Dates	Study Area	Guidance
Multi-disciplinary Ecological Walkover Surveys (including habitats, mammals, invasive species etc.)	22 nd and 28 th of June 2023 10 th of August 2023 20 th and 28 th of September 2023 19 th of October 2023 7 th of December 2023 31 st of July 2024 11 th of September 2024 23 rd of April 2025 17 th of June 2025 7 th of July 2025 25 th of February 2026	The Site	Smith <i>et al.</i> (2011); TII (2008a); TII (2020)
Dedicated Habitat and Vegetation	22 nd and 28 th of June 2023 25 th of July 2023	Targeted locations within the Proposed Project footprint, and within Annex I and high biodiversity value habitats.	Fossitt (2000); Martin <i>et al.</i> (2018); Smith and Crowley (2020); NPWS (2025); EC (2013); Irish Vegetation

Survey Type	Dates	Study Area	Guidance
Composition Surveys	17 th of June 2025 7 th of July 2025 14 th of April 2026		Classification (IVC) and ERICA: Engine for Relevés to Irish Communities Assignment.
Badger Surveys	22 nd and 28 th of June 2023 10 th of August 2023 20 th and 28 th of September 2023 19 th of October 2023 7 th of December 2023 31 st of July 2024 11 th of September 2024 23 rd of April 2025 17 th of June 2025 7 th of July 2025 25 th of February 2026	The Site	TII (2008a); TII (2006); CIEEM (2013)
Bat Surveys	17 th of April 2025 7 th of May 2025 4 th and 26 th of June 2025 21 st of August 2025 9 th of September 2025 25 th of February 2026	The Site	NatureScot (2021); NIEA (2021; amended 2024); Collins (2023)
Camera Trap Surveys	Camera traps were deployed under licence between the 25 th of July until the 10 th of August 2023	Areas identified as potential mammal breeding sites within the Site	TII (2005); TII (2008a)
Marsh Fritillary Surveys	19 th and 20 th of September 2023 11 th of September 2024 22 nd of September 2025	Areas identified as potential suitable habitat for marsh fritillary within the Site	TII (2008a); NBDC (online)
Aquatic Surveys (including otter)	10 th and 11 th of July 2023 23 rd of October 2023	Freshwater watercourses which could be affected directly or indirectly by the	CEN (2003); CFB (2008); EA (2003); Toner <i>et al.</i> (2005); TII (2008a); Reynolds <i>et al.</i>

Survey Type	Dates	Study Area	Guidance
	3 rd and 4 th of July 2025	Proposed Project (outlined in Appendix 6-2)	(2010); Gamble <i>et al.</i> (2021); IFI (2010)

6.2.3.1 Multi-disciplinary Ecological Walkover Surveys

Multi-disciplinary ecological walkover surveys were undertaken within the Site on a number of dates (refer to Table 6-2 above). These surveys were carried out in accordance with best practice TII *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna* on National Road Schemes (TII, 2008a).

The walkover surveys were designed to detect the presence, or likely presence, of a range of protected habitats and species. All habitats recorded within the Site and described in this EIAR chapter have been classified in accordance with ‘*A Guide to Habitats in Ireland*’ (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The extent of each habitat within the Site was mapped using aerial photography, handheld GPS and smartphone technology. A representative photograph was also taken for each of the habitats recorded on site, including all relevés (see Section 6.2.3.2 below). Plant nomenclature for vascular plants follows ‘*New Flora of the British Isles*’ (Stace, 2019), while mosses and liverworts nomenclature follows ‘*Mosses and Liverworts of Britain and Ireland - a field guide*’ (British Bryological Society, 2010). Habitat/vegetation survey timings fall within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011).

The multi-disciplinary ecological walkover surveys included a search for evidence of or suitable habitat for a range of protected mammal species, including otter, badger, pine marten, Irish stoat, red squirrel, pygmy shrew, and hedgehog. In addition a search was conducted for signs of or areas of suitable habitat for amphibians, reptiles and lepidoptera within the Site. These surveys comprehensively covered the entire Site. Incidental records were also incorporated from other dedicated species/habitat specific surveys, where relevant.

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, as amended) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted.

Based on the multi-disciplinary walkover survey findings, further detailed targeted surveys were carried out for a number of ecological receptors and these survey methodologies are described in the following subsections.

6.2.3.2 Dedicated Habitat and Vegetation Composition Surveys

Detailed botanical surveys were undertaken at a number of targeted locations within the Site on the dates set out in Table 6-2 above. Targeted locations included representative habitats at each turbine base and other Proposed Project infrastructure including the proposed temporary construction compounds, proposed borrow pit, proposed met mast and proposed onsite substation. In addition, detailed botanical surveys were also undertaken across the Site in areas of species-rich habitats of high biodiversity value, and within habitats identified as having potential to conform to habitats listed under Annex I of the EU Habitats Directive. A total of 26 no. relevés were undertaken, the full details and results of which are provided in Appendix 6-1. The locations of all relevés are shown in Figure 1-1 of Appendix 6-1. The size of all relevés were 2m x 2m with the exception of species-rich cutover bog, which was 10m x 10m in extent (in accordance with Smith and Crowley, 2020) and relevés within remnant raised bog were 4m x 4m in extent (in accordance with Fernandez *et al.*, (2014).

The data from all relevés undertaken were analysed in accordance with the Irish Vegetation Classification (IVC) system. The IVC is a project with aims to classify, describe, and map in detail all aspects of natural and semi-natural vegetation in Ireland within a single, unified framework. The National Vegetation Database (NVD), upon which the IVC is based, holds data for over 30,000 relevés and is the core resource upon which the classification system is based.

A fundamental requirement of the IVC is to “*aid in definition and **identification** of EU Habitat Directive (92/43/EEC) Annex I habitats*” and to “*inform the planning process, for example through environmental impact assessments*”.

The Engine for Relevés to Irish Communities Assignment (ERICA)¹¹ web application was used to analyse all relevés and to assign vegetation data to communities defined by the IVC. The quantitative vegetation cover data collected from relevés within the Site were uploaded to ERICA, checked for errors, analysed and the results were downloaded. ERICA covers grassland, woodland, duneland, saltmarsh, heath, bog, fen and mire, freshwater, saline water and rocky habitats, and weed communities (Perrin, 2025).

The ERICA analysis procedure uses a clustering process to assign classification affinity to vegetation plots based on a degree of membership to each of the communities defined by the IVC. Table 6-3 details the categorising types of plots utilising the clustering analysis (Perrin, 2025).

Table 6-3 Categorising types of plots using clustering analysis (after Wisser & de Cáceres, 2013).

Plot Type	Definition
Assigned	The plot has membership ≥ 0.5 for one of the vegetation communities and therefore relates to the core definition of that vegetation community.
Unassigned	The plot has membership ≥ 0.5 for the noise class and is poorly represented by the current classification scheme
Transitional	The plot has membership < 0.5 for all vegetation communities and for the noise class. It falls within the scope of the current classification scheme but does not relate to the core definition of any of the vegetation communities.

This categorising procedure was utilised to determine if the grassland, transition mire or species-rich bog plots within the Site had any affinity to Annex I habitats and whether further assessment was required. For those relevés undertaken within the Proposed Project footprint, the IVC classification data were used to provide more detail on the vegetation communities present within habitats proposed to be lost as part of the Proposed Project. These data were used to inform the design of the Proposed Project where relevant.

Where habitats were considered to have potential to conform to Annex I habitats, reference was made to the European Commission’s *Interpretation manual of European Union habitats* (2013)¹² and the latest NPWS Article 17 Habitats Assessments (NPWS, 2025)¹³. In addition, detailed habitat assessments were undertaken in line with the guidance documents outlined in the following subsections:

¹¹ Perrin, 2025, ERICA – Engine for Relevés to Irish Communities Assignment V6.4 User’s Manual [online]. Available at: https://biodiversityireland.shinyapps.io/vegetation-classification/w_9cd4889a/manual.pdf [Accessed 27/04/2026]

¹² European Commission (2013) *Interpretation manual of European Union habitats*. EUR 28. European Commission DG Environment.

¹³ NPWS (2025). *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments*. Unpublished NPWS report. Edited by: Domhnall Finch, Aoife Delany, Fionnuala O’Neill and Deirdre Lynn.

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*) [6410]

The assessment of grassland areas within the Site identified as having potential to conform to the Annex I habitat *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*) [6410] was undertaken in line with Irish Wildlife Manual No. 102 ‘*The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats*’ (Martin *et al.*, 2018)¹⁴ and the references therein.

The structure and function assessment of this habitat was undertaken according to the methodology described and implemented by Martin *et al.* (2018) and the Annex I grassland assessment criteria listed in Appendix 1 therein. This involved recording the presence/absence of high quality and positive indicator species within a 2m x 2m relevé area, percentage cover of negative indicator species, and detailed vegetation structure data including cover of scrub, forbs, graminoids and litter, sward height, as well as the cover of bare soil and signs of grazing or disturbance.

Transition mire and quaking bogs [7140]

One area of revegetating cutover bog was identified within the Site as having potential to conform to Annex I Transition mires and quaking bogs [7140]. According to Smith and Crowley (2020), well-developed transition mire on cutover bog may correspond to the Annex I habitat type Transition mires and quaking bogs [7140]. However, as outlined within that report, “*although transition mire was recorded in cutover bog in this study, there were too few relevé data collected from a range of transition mire communities to define a cutover bog transition mire habitat type*”. In the absence of a defined Annex I Transition mire and quaking bogs community on cutover bog, the relevé data collected from this habitat was analysed using the ERICA application. The IVC synopsis document for the resulting vegetation community was then consulted and the conservation value of the habitat within the Site was assessed based on the information presented therein.

Active raised bog [7110] on Cutover Bog

Where areas of species rich cutover bog with high *Sphagnum* cover were recorded within the Site, these areas were assessed for their potential to conform to Annex I Active raised bog [7110]. The assessment of the Annex I habitat Active raised bog [7110] located on cutover bog habitat was undertaken in line with Irish Wildlife Manual No. 128 ‘*The habitats of cutover raised bog*’ (Smith and Crowley, 2020)¹⁵ and the references therein.

Per this guidance document, to qualify as Annex I Active raised bog, a relatively homogenous area of cutover bog must meet the following criteria:

- Total *Sphagnum* cover >40%
- Presence of all eight constant species (see Table 19; Smith and Crowley, 2020) within a 100 m² plot
- Presence of an additional four indicator species, or species groups, (see Table 19; Smith and Crowley, 2020) within a 100m² plot
- Absence of calcareous fen species, such as brown mosses
- <10% cover of species not typical of ombrotrophic raised bog

As such, a 10m x 10m relevé was undertaken and conformity with each of the above criteria was assessed.

¹⁴ Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018) *The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.*

¹⁵ Smith, G.F. & Crowley, W. (2020) *The habitats of cutover raised bog. Irish Wildlife Manuals, No. 128. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.*

Active raised bog [7110] and Degraded raised bogs still capable of natural regeneration [7120]

Where areas of remnant, uncut raised bog were identified within and/or adjacent to the Site, detailed relevés and vegetation assessments were carried out in line with Irish Wildlife Manual 81 ‘*Raised Bog Monitoring and Assessment Survey 2013*’ (Fernandez *et al.*, 2014)¹⁶ and the references and appendices therein. These surveys were undertaken in order to assess the conformity of these habitat areas to the Annex I habitats Active raised bog [7110] and Degraded raised bogs still capable of natural regeneration [7120].

Per this guidance document, 4m x 4m relevés were undertaken within areas of remnant uncut raised bog. As well as this vegetation cover data, the following data were collected:

- Ground firmness;
- Physical indicators (i.e. burning, bare peat, erosion channels, algae);
- *Calluna vulgaris* height and cover;
- Macro-topography (i.e. steep slope, slight slope, flat, depression);
- Micro-topography (i.e. hummocks, flats, hollows, pools);
- Pools type (i.e. regular, interconnected, tear) and cover (if present);
- Tussocks type (*Trichophorum cespitosum* or *Eriophorum vaginatum*);
- Evidence of degradation or regeneration;
- Cover of *Cladonia* and *Sphagnum* species and *Narthecium ossifragum*;
- Dominant species cover and
- Any additional comments.

Following this, these data were collated and the habitats were aligned with an ecotope (face-bank, marginal, sub-marginal, sub-central, central) based on the local physical characteristics and characteristic/dominant species - see Table 2.2 of Fernandez *et al.* (2014) for details on the criteria for each ecotope classification.

These assessments, together with reference to Article 17 Reporting (2025, 2019), were used to assess the Annex I status of the areas of raised bog within the Site.

6.2.3.3 Terrestrial Fauna Surveys

The results of the desk study, scoping replies and incidental records of protected species recorded during the multidisciplinary ecological walkover surveys described above were used to inform the scope of targeted faunal surveys required. Dedicated surveys for bats, badger and marsh fritillary butterfly were undertaken at the times set out below with the methodologies followed also provided below. The Meander River, a lowland/depositing river, flows along the southern boundary of the Site. No other EPA mapped watercourses are located within the Site. Drumady Lough is located adjacent to the eastern boundary of the Site. An unnamed stream outfalls from the south of this lake and discharges to the River Robe approximately 5.6km downstream. Dedicated surveys for otter were carried out by Triturus Environmental Ltd at downstream locations along the Meander River, the unnamed tributary of the River Robe and at Drumady Lough. Following the completion of multi-disciplinary ecological walkover surveys described above, no requirement for further dedicated faunal surveys was identified.

6.2.3.3.1 Badger Survey

¹⁶ Fernandez, F., Connolly K., Crowley W., Denyer J., Duff K. & Smith G. (2014) *Raised Bog Monitoring and Assessment Survey 2013. Irish Wildlife Manuals, No. 81. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland.*

Areas identified as providing potential habitat for badger were subject to specialist targeted survey. The badger surveys covered all suitable habitats within the Site, in order to inform the layout of the Proposed Project.

The badger surveys were conducted in order to determine the presence or absence of badger within the Site. This involved a search for all potential badger signs as per TII (2008a) (latrines, badger paths and setts). If encountered, setts would be classified as per the convention set out in TII (2008a) (i.e. main, annexe, subsidiary, outlier).

The badger survey was conducted adhering to best practice guidance (TII, 2008a) and followed the ‘Guidelines for the Treatment of Badger Prior to the Construction of National Roads Schemes’ (TII, 2006) and CIEEM best practice competencies for species surveys (CIEEM, 2013¹⁷).

Camera traps were also deployed under licence between the 25th of July and 10th of August 2023 at mammal burrows identified as potential breeding locations for mammals within the Site. These locations showed signs of activity and likely use by mammal species, therefore camera traps were deployed in order to identify any species present and verify activity levels.

6.2.3.3.2 Otter Survey

In the south of the Site, the Meander River flows in a southerly direction along the southern boundary of the Site. Drumady Lough is located adjacent to the eastern boundary of the Site. A small unnamed watercourse outfalls from the south of Drumady Lough and discharges to the River Robe approximately 5.6km to the south of the Site. Additionally, an unmapped watercourse classified as an Eroding/upland river (FW1) was identified along the proposed Turbine Delivery Route and a small pond was recorded in an area of agricultural grassland within the Site.

Otter surveys were carried out by Triturus Environmental Ltd. at locations on the Meander River, , in the north and south basins of Drumady Lough and on the unnamed tributary of the River Robe as part of baseline aquatic surveys to inform the EIAR for the Proposed Project in 2025, as outlined in the Aquatic Baseline Report which is included as Appendix 6-3 of this EIAR. Previous otter surveys were also undertaken as part of aquatic baseline surveys in July and October 2023, and the results of these surveys are used to supplement the findings of the 2025 surveys, where relevant. The survey locations are detailed in Table 6-4 (Section 6.2.3.4) below, and shown in Figure 2.1 of the Aquatic Baseline Report (Appendix 6-3). During the walkover surveys, the pond within the Site and the small unmapped stream along the proposed Turbine Delivery Route were also surveyed for signs of otter, and were found have negligible suitability for otter.

Surveys were undertaken in line with best practice TII (2008a) guidelines. Consideration was also given to TII (2006) *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes* and TII (2005) *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*. Notes on the age and location of signs (ITM coordinates) were made, in addition to the quantity and visible constituents of spraint (i.e. remains of fish, crustaceans, molluscs etc.).

6.2.3.3.3 Marsh Fritillary Surveys

All areas of suitable marsh fritillary habitat within the Site were mapped as part of the survey effort and were used to inform the layout of the Proposed Project.

Taking account of the findings of the desk study, which identified records for marsh fritillary in hectad M27, and following the identification of suitable habitat for this species (i.e. abundance of devil’s-bit

¹⁷ CIEEM (2013) *Technical Guidance Series – Competencies for Species Survey*, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/> [Accessed: 25/02/2026]

scabious) within the Site during the multi-disciplinary ecological walkover surveys, targeted larval web surveys for the species were undertaken. The survey methodology followed best practice guidance described in TII (2009) '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes*'. This involved walked surveys to identify suitable areas of marsh fritillary habitat within the Site. Where suitable habitat did occur, detailed surveys to locate larval webs were undertaken. The surveys were undertaken within the optimal period i.e. August – September, on dry days, with no rain and no to little wind.

The NBDC methodology entitled '*Habitat Condition Assessment For Marsh Fritillary*'¹⁸ was also followed in order to assess the condition of each habitat parcel, classifying the habitats as *Good Condition*, *Suitable (Under-grazed)*, *Suitable (Over-grazed)* or *Unsuitable* based on the frequency of devil's-bit scabious (*Succisa pratensis*), the larval foodplant, sward height and cover of scrub.

6.2.3.3.4 Bat Surveys

Dedicated bat surveys of the Site were undertaken throughout 2025 and the results of these surveys form the core dataset used to inform this EIAR chapter. Detailed descriptions of the survey methodologies undertaken at the Site throughout 2025 are provided within the full 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. An assessment of the Proposed Grid Connection and Turbine Delivery Route was also undertaken. The 2025 data were also supplemented by data from previous baseline bat surveys undertaken within the Site in 2023, where relevant. A summary of the findings of these earlier surveys, which were designed to characterise baseline bat activity within the Site and inform subsequent assessment, is provided in Section 4.2.1 of the Bat Report, included as Appendix 6-2.

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) and were undertaken in strict accordance with those prescribed in NatureScot (2021) '*Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*'. Consideration was also given to the Northern Ireland Environment Agency (NIEA) Natural Environment Division '*Guidance on Bat Surveys, Assessment & Mitigation for Onshore Wind Turbine Developments*' (NIEA, 2021; amended 2024). This is in line with standard best practice industry guidelines.

The survey programme included bat habitat suitability walkover surveys to assess the suitability of habitats within the Site to support roosting, foraging and commuting bats, as well as targeted roost surveys, manual activity surveys and ground-level static surveys, summarised as follows:

- **Bat Habitat Suitability Appraisal:** Bat walkover surveys were undertaken across the Site to assess the suitability of habitats to support roosting, foraging and commuting bats. Habitat suitability was assessed in accordance with Collins (2023), with connectivity of suitable habitats with the wider landscape also considered.
- **Roost Surveys – Daytime Roost Inspections:** A search for roosts was undertaken within 200m plus the rotor radius (i.e. 268m) of the proposed turbine locations (NatureScot, 2021). The aim of these searches was to determine the presence of roosting bats and the need for further survey work or mitigation. Three structures within 268m of proposed Turbine 5 were identified as Potential Roost Features (PRFs) and a roost assessment was undertaken, which comprised a detailed inspection of the interiors and exteriors to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises. Targeted ground-level inspections were undertaken of trees within the Proposed Project development footprint and along the TDR where junction

¹⁸ National Biodiversity Data Centre [online]. Available at: <https://biodiversityireland.ie/app/uploads/2021/11/Marsh-Fritillary-Habitat-Condition-Form.pdf> [Accessed 31/03/2026]

accommodation works are required. Trees were visually assessed for tree rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other PRFs.

- **Roost Surveys – Emergence Surveys:** Structures identified during daytime roost inspections as supporting PRFs were subject to presence/absence surveys in the form of dusk emergence surveys. The emergence surveys commenced at least 15 minutes before sunset and concluded 90 minutes after sunset and were carried out in favourable weather conditions. Where possible, bat species identification was made in the field, using full-spectrum bat detectors (Bat logger M). Other relevant information was also noted during the survey, e.g., numbers of bats present, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications.
- **Manual Activity Surveys:** Walked and driven transect surveys were conducted across the Site in spring, summer, and autumn 2025, using full-spectrum bat detectors (Batlogger M). All bat activity was recorded for subsequent analysis to confirm species identifications
- **Ground-level Static Surveys:** Full-spectrum static detectors (Song Meter SM4BAT) were deployed at seven locations for at least 10 nights in spring, 20 nights in summer, and 10 nights in autumn 2025 (Figure 3-1 in Appendix 6-2). Detector placement was based on the proposed turbine locations. Detectors were programmed to record from 30 minutes before sunset to 30 minutes after sunrise. Weather conditions were monitored throughout to ensure appropriate conditions were captured.

All recorded bat calls were analysed using Kaleidoscope Pro software and manually verified to species or genus level, where possible, and activity levels were quantified as bat passes per hour (bpph).

6.2.3.4 Fisheries and Aquatic Surveys

Dedicated aquatic baseline surveys were undertaken in the vicinity of the Site by Triturus Environmental Ltd in 2025, on the dates outlined in Table 6-2 above. Previous aquatic baseline surveys were also undertaken by Triturus in relation to the Site in July and October 2023, and the results of these surveys are used to supplement the findings of the 2025 surveys, where relevant. All freshwater watercourses and waterbodies which could be affected directly or indirectly by the Proposed Project were considered as part of the current assessment. The aquatic baseline surveys included watercourses and waterbodies in vicinity of the Site inclusive of rivers, lakes and ponds. A total of $n=8$ sites were selected for detailed aquatic assessment. These survey sites were located on the Meander River (EPA code: 34M05) which flows along the southern boundary of the Site, an unnamed tributary of the River Robe (no EPA code) which outfalls from Drumady Lough which is located adjacent to the eastern boundary of the Site, within the north and south basins of Drumady Lough itself, and at a small pond within the Site. These survey locations are detailed in Table 6-4 below. All aquatic survey locations are shown in Figure 2.1 of the Aquatic Baseline Report, which is included as Appendix 6-2 of this EIAR.

Table 6-4 Locations of 8 no. aquatic survey sites in the vicinity of the Proposed Project

Site no.	Watercourse	EPA code	Location	X (ITM)	Y (ITM)	Distance Downstream of the Site
A1	Meander River	34M05	Cappagh North	528928	777233	150m
A2	Meander River	34M05	Maltpool	528240	775653	1.8km
A3	Meander River	34M05	Oory	526087	775116	4.5km
B1	Unnamed stream	n/a	Clogher Beg	529745	776187	1.5km

Site no.	Watercourse	EPA code	Location	X (ITM)	Y (ITM)	Distance Downstream of the Site
B2	Unnamed stream	n/a	Garravlagh	530452	773056	5.0km
P1	Pond	n/a	Cunlaghfadda	529145	777734	Within the Site
L1	Drumady Lough (north basin)	n/a	Drumady	529572	777795	50m from eastern Site boundary
L2	Drumady Lough (south basin)	n/a	Drumady	529752	777224	450m

Survey effort focused on both instream and riparian habitats at each aquatic sampling location. Surveys undertaken at each of the survey sites included a fisheries assessment (electro-fishing and/or fisheries habitat appraisal), white-clawed crayfish survey, macrophyte and aquatic bryophyte survey and (where suitable) biological water quality sampling (Q-sampling) and macro-invertebrate sweep sampling.

In addition, to validate site surveys and to detect potentially cryptically-low populations, composite water samples were collected from the Meander River and the unnamed tributary of the River Robe and analysed for lamprey (*Lampetra* sp.), European eel (*Anguilla anguilla*), freshwater pearl mussel (*Margaritifera margaritifera*), white-clawed crayfish (*Austropotamobius pallipes*) and crayfish plague (*Aphanomyces astaci*).

Full details of the methodology followed for the aquatic surveys as well as details of the locations of survey sites and dates of surveys are provided in the Aquatic Baseline Report, Appendix 6-3.

6.2.3.5 Limitations

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the Site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. The habitats and species recorded on site were readily identifiable and comprehensive assessments were made during the field visits. No limitations in respect of the surveys undertaken have been identified.

In line with the European Commission's *Guidance on the preparation of the Environmental Impact Assessment Report* (2017), it is considered that the description of the current state of the environment is sufficiently detailed and accurate to ensure that the effects, arising both during the development of the Proposed Project and in the future, can be adequately assessed.

6.2.4 Methodology for Assessment of Impacts and Effects

6.2.4.1 Identification of Target Receptors and Key Ecological Receptors

The methodology for assessment followed a precautionary screening approach with regard to the identification of KERs. Following a comprehensive desk study, initial site visits and stakeholder

consultation; “Target Receptors” likely to occur in the ZOI of the Proposed Project were identified. The Target Receptors included habitats and species that were protected under the following legislation:

- Annexes of the EU Habitats Directive.
- Qualifying Interests (QI) of SACs within the likely ZOI.
- Species protected under the Wildlife Act (as amended).
- Flora (Protection) Order 2022 S.I. No. 235.

6.2.4.2 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 TII Ecological Impact Assessment Guidelines (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. These 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 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 (SAC or SPA) 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 TII Ecological Impact Assessment 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 the TII Ecological Impact Assessment Guidelines 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. This is not to say that they are of no biodiversity value, but that impacts on these habitat types in their local context are not likely to result in a significant effect on biodiversity. It should be noted that this relates to the impact on the habitat itself as distinct from considering the role these habitat types play in supporting KER fauna species.

6.2.4.3 Characterisation of Impacts and Effects

The ecological effects of impacts arising from the Proposed Project are characterised as per the CIEEM ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ (2018, updated 2024) (hereafter referred to as CIEEM 2018 Guidelines). The CIEEM 2018 Guidelines are the industry standard for the completion of Ecological Impact Assessment (EcIA) in the UK and Ireland. This chapter has also been prepared in accordance with the corresponding EPA Guidelines (EPA 2022) as detailed in Section 1.2.1 of Chapter 1. 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 Proposed Project results 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.

6.2.4.4 Determining the Significance of Effects

The ecological significance of the effects of the Proposed Project are determined following the precautionary principle and in accordance with the methodology set out in Section 5 of the CIEEM 2018 Guidelines.

For the purpose of 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.

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 (TII, 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.

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 EU Habitats Directive 92/43/EEC, 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 TII 2009 Guidelines 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).

6.2.4.5 **Incorporation of Mitigation**

Section 6.5 of this EIAR assesses the potential effects of the Proposed Project to ensure that all effects on sensitive ecological receptors are adequately addressed. Where significant effects on KERs are predicted, mitigation is incorporated into the project design or layout to address such effects, as is the case with the Proposed Project. The implemented mitigation measures avoid or reduce or offset potential significant residual effects, post mitigation.

6.3

Establishing the Ecological Baseline

6.3.1

Desk Study

The following sections describe the results of a survey of published material that was consulted as part of the desk study for the purposes of the ecological assessment. It provides a baseline of the ecology known to occur in the existing environment. Material reviewed includes the Site Synopses for designated sites within the Likely ZoI, as compiled by the NPWS, plant distribution atlases and other research publications.

Please note that the results of desktop studies in relation to bats and birds are detailed in the Bat Report, Appendix 6-2 and Chapter 7 Birds of this EIAR, respectively.

6.3.1.1

Designated Sites

The potential for the Proposed Project to impact on sites that are designated for nature conservation was considered in this Chapter of the EIAR.

SACs and SPAs are designated under the Habitats Directive and the Birds Directive, respectively and are collectively known as 'European Sites'. The potential for significant effects and/or adverse effects on the integrity of European Sites is fully assessed in the AA Screening Report and NIS that accompanies the planning application for the Proposed Project. As per EPA 2022 Guidance, *"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"*. Section 6.5.5 of this EIAR provides a summary of the key assessment findings with regard to European Designated Sites.

Natural Heritage Areas (NHAs) are designated under Section 18 of 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 listed on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, the potential for effects on these sites is fully considered in this Biodiversity Chapter. NHAs and pNHAs are collectively known as 'Nationally Designated Sites'.

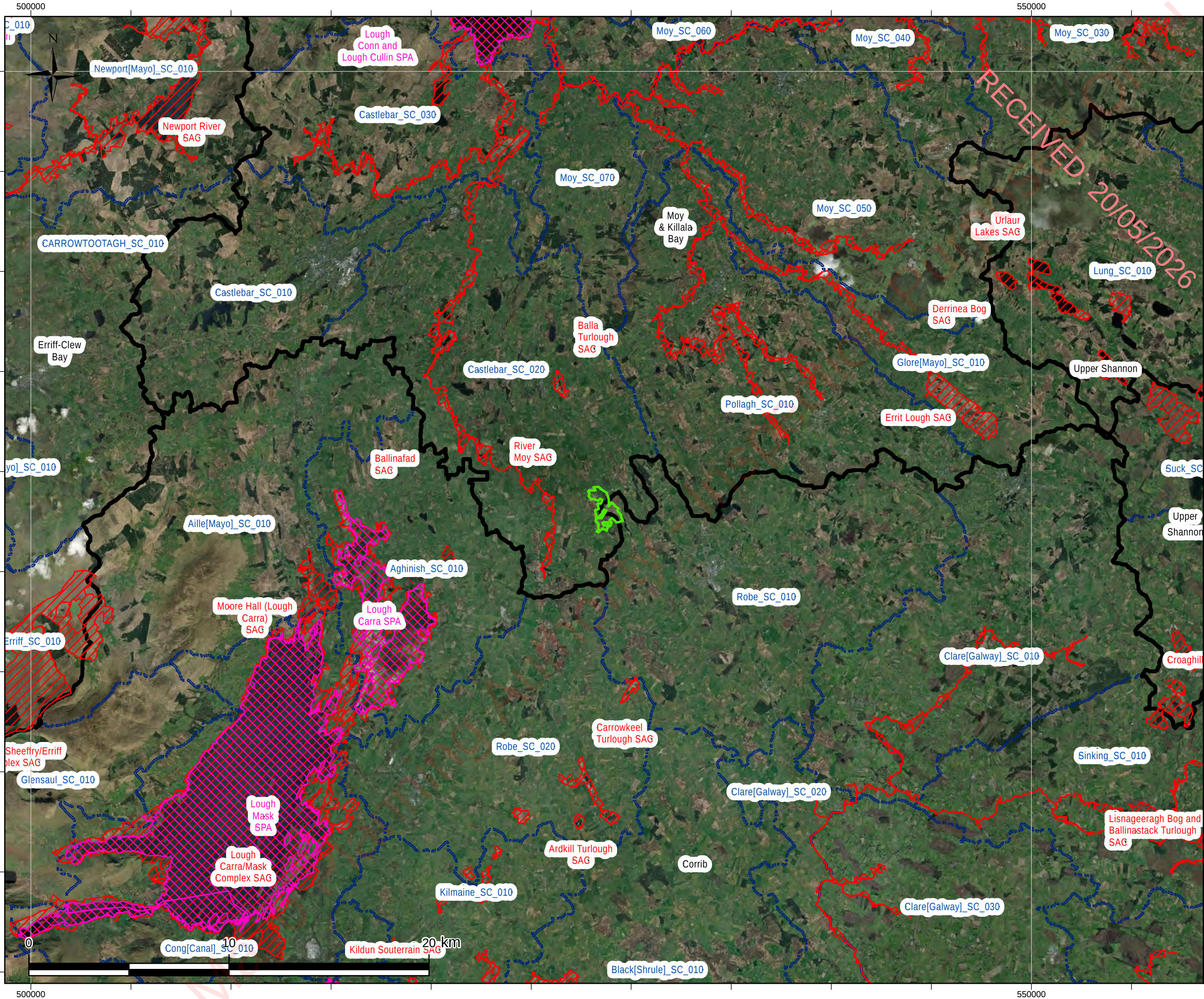
Ireland is one of 172 Contracting Parties to the Convention on Wetlands of International Importance which first convened in Ramsar, Iran in 1971, and since called the 'Ramsar Convention'. This intergovernmental treaty embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance. The Convention's mission is *"the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world"*. A total of 45 wetlands that are of significant value for nature have been identified as Ramsar sites in Ireland. The potential for effects on these sites is fully considered in this Biodiversity Chapter.

The following methodology was used to establish which sites that are designated for nature conservation have the potential to be impacted by the Proposed Project:

- Initially the most up to date GIS spatial datasets for European and Nationally designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie). The datasets were utilised to identify designated sites which could feasibly be affected by the Proposed Project.
- All European and Nationally designated sites within the likely ZoI of the Proposed Project were identified. To provide context for the assessment, European Sites

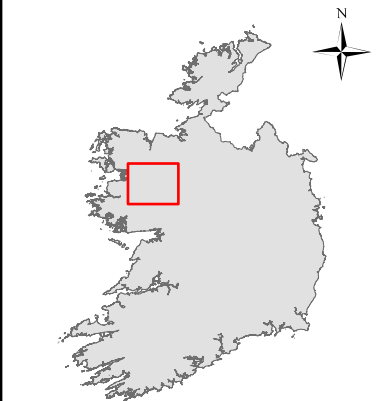
surrounding the Proposed Project are shown on Figures 6-1 and 6-2 and Nationally Designated Sites are shown in Figures 6-3 and 6-4.

- In addition to the European and Nationally Designated Sites considered in Table 6-5 below, SACs, SPAs, NHAs and pNHAs located further downstream were also considered. The Killala May/Moy Estuary SAC, SPA and pNHA and Moy Valley pNHA are located hydrologically downstream of the Site via the Meander River, which flows along the southern boundary of the Site. Additionally, the Lough Corrib SAC, SPA and pNHA, the Galway Bay Complex SAC and pNHA and the Inner Galway Bay SPA are located hydrologically downstream of the Site via the River Robe, which flows downstream of Drumady Lough to the east of the Site. However, due to the significant length of the hydrological flowpaths (>45km) and the presence of large intervening waterbodies, there is no potential for likely significant effects on these European and Nationally Designated Sites and they are not considered for further assessment.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the Site and any designated sites. The hydrological catchments are also shown in Figures 6-1 (European Sites) and 6-3 (Nationally Designated Sites), and groundwater bodies are shown in Figures 6-2 (European Sites) and 6-4 (Nationally Designated Sites).
- Table 6-5 provides details of all relevant European Sites, Nationally Designated Sites and Ramsar Sites as identified in the preceding steps and assesses which are within the likely ZoI. All European Sites are fully described and assessed in the AA Screening and NIS reports submitted as part of this planning application.
- The designation features of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for significant effect are identified, the Site is included within the Likely ZoI and further assessment is required.



Map Legend

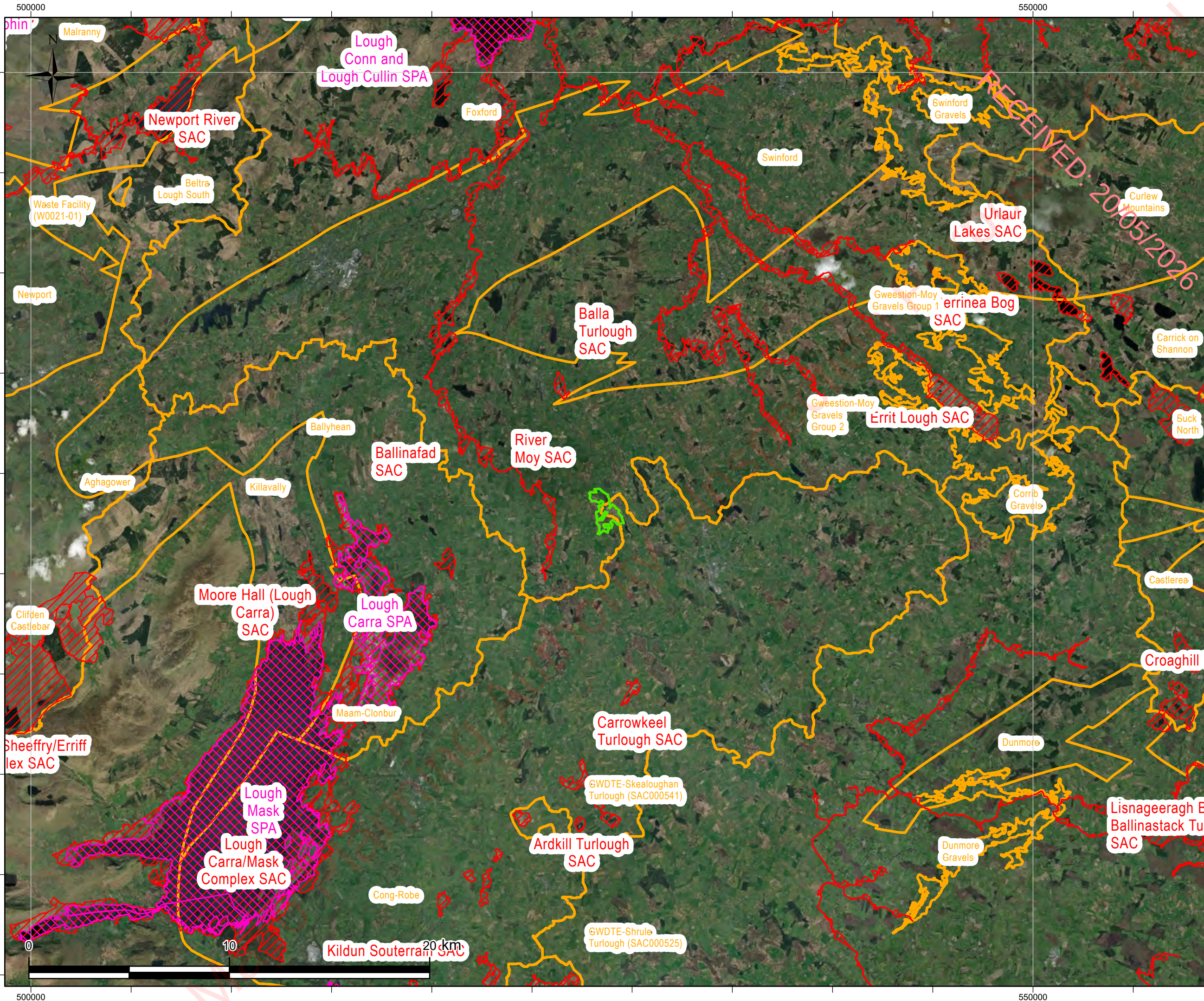
- EIAR Site Boundary
- Special Protection Areas (SPAs)
- Special Area of Conservation (SACs)
- Hydrological Catchments
- Hydrological SubCatchments



SITE LOCATION - NOT TO SCALE

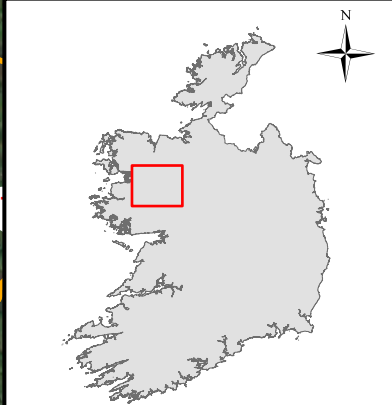
Drawing Title		
European Designated Sites with Hydrological Catchments		
Project Title		
Proposed Cunlaghfadda Green Energy Project		
Project No.	Drawing No.	Scale
220825	6-1	1:175,000
Drawn By	Checked By	Date
MNR	KB	09/04/2026

Email: info@mkofireland.ie Website: www.mkofireland.ie



Map Legend

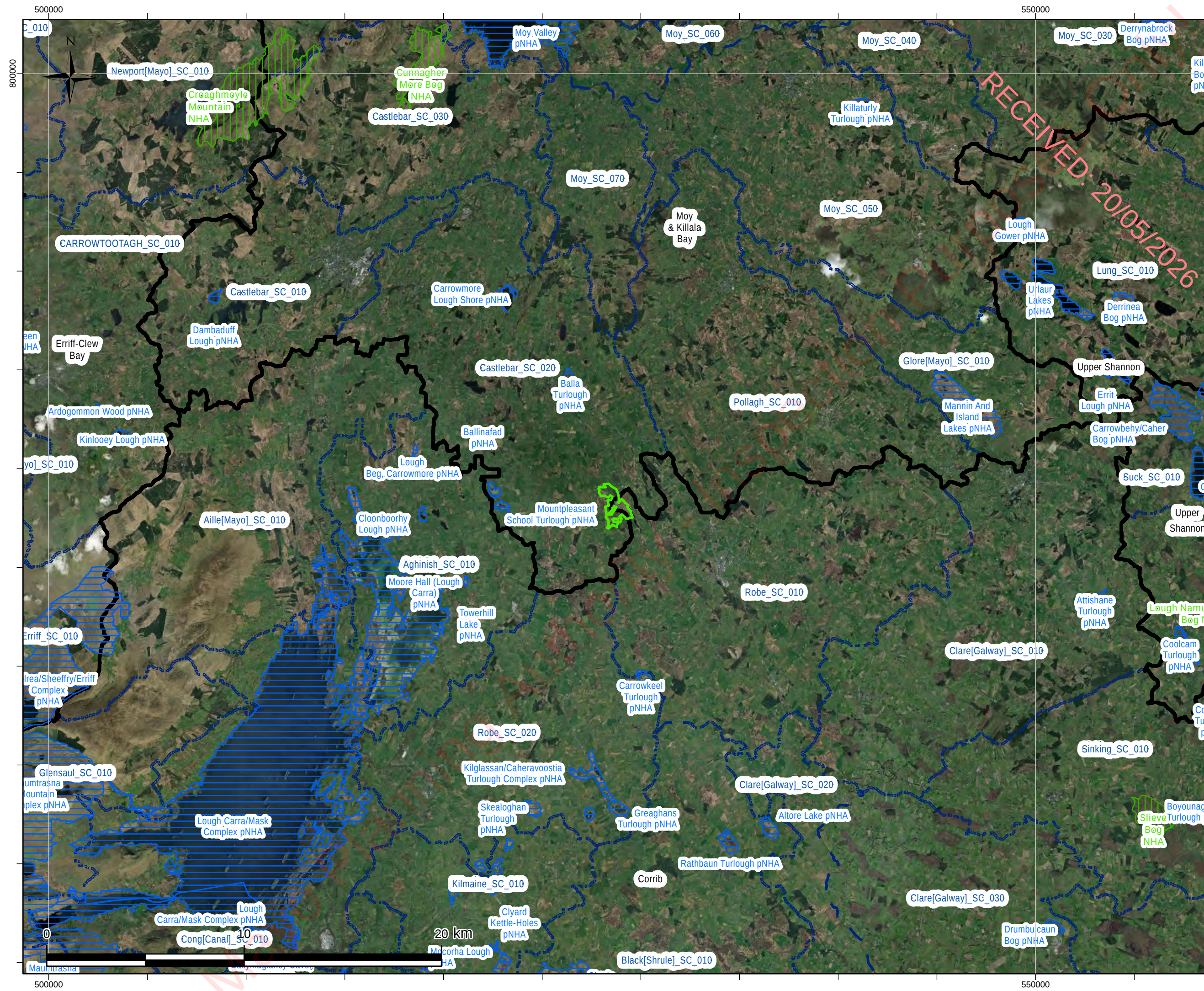
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- Special Protection Areas (SPAs)
- Special Area of Conservation (SACs)
- Groundwater Catchments



SITE LOCATION - NOT TO SCALE

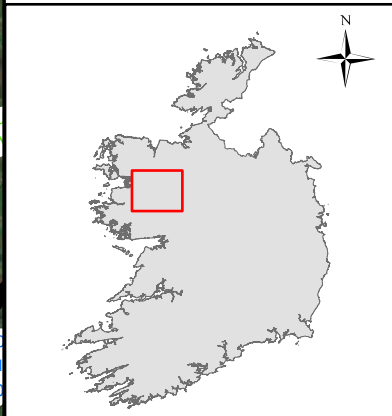
Drawing Title European Designated Sites with Groundwater Catchments		
Project Title Proposed Cunlaghfadda Green Energy Project		
Project No. 220825	Drawing No. 6-2	Scale 1:175,000
Drawn By MNR	Checked By KB	Date 09/04/2026

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Map Legend

- EIAR Site Boundary
- Natural Heritage Areas (NHAs)
- Proposed Natural Heritage Areas (pNHAs)
- Hydrological Catchments
- Hydrological SubCatchments



SITE LOCATION - NOT TO SCALE

Drawing Title
Nationally Designated Sites with Hydrological Catchments

Project Title
Proposed Cunlaghfadda Green Energy Project

Project No. 220825	Drawing No. 6-3	Scale 1:175,000
Drawn By MNR	Checked By KB	Date 09/04/2026

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Email: info@mkofireland.ie/ Website: www.mkofireland.ie

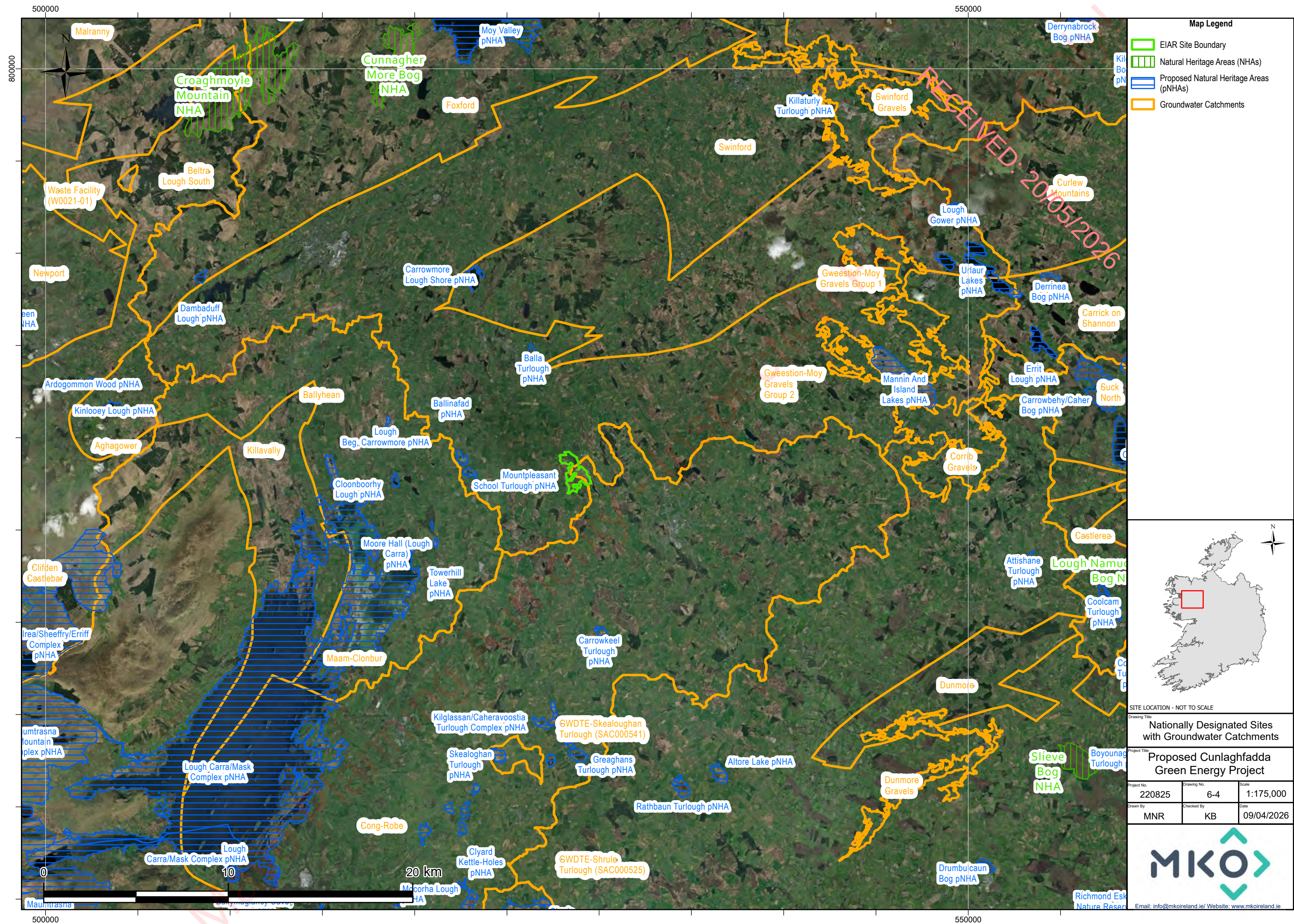


Table 6-5 Identification of European and Nationally Designated Sites within the Likely Zone of Influence

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
Special Areas of Conservation (SACs)		
River Moy SAC [002298]	1.7km Hydrological Distance: approx. 4.9km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. The Meander River flows in a southerly direction along the southern boundary of the Site. This river flows into the River Moy SAC approximately 4.9km downstream. There is potential hydrological connectivity between the Proposed Project and the SAC via drainage ditches within the Site which ultimately discharge to the Meander River which has connectivity with the SAC downstream. Both the Site and River Moy SAC are underlain by the Swinford groundwater body (GWB). As per Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally, the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander River, which has hydrological connectivity downstream with the SAC. Therefore, in the absence of mitigation there is a potential pathway for indirect effect on the SAC during the construction, operational and decommissioning phases of the Proposed Project via deterioration of water quality arising from run-off of pollutants, including silts, hydrocarbons and cementitious materials, to surface waters (including drainage ditches and the Meander River to the south of the Site) potentially affecting the downstream SAC. Given the hydrological regime at the Site, i.e. relatively low groundwater recharge, the main pathway for effect on the SAC is considered to be via surface water pathways. However, taking a highly precautionary approach a potential pathway for indirect effects on the SAC due to deterioration of water quality via groundwater pathways, resulting from percolation of pollutants to groundwater during construction, operation and decommissioning of the Proposed Project was also identified. Additionally, due to the presence of Japanese knotweed (<i>Reynoutria japonica</i>) within the Site, an invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024), taking a precautionary approach and in the absence of mitigation there is potential for the disturbance of this species during construction activities and spread of this species into the SAC via the onsite drains which have hydrological connectivity with the Meander River, which itself flows into the SAC downstream. Given the distance between the Site and the SAC (4.9km downstream), there is potential for otter utilising the Meander River, which flows along the southern boundary of the Site, to be associated with the River Moy SAC population. Potential for likely significant effects on otter as a result of <i>ex-situ</i> disturbance has therefore also been considered. While the Meander River flows along the southern boundary of the Site, it is located over 300m from the nearest proposed infrastructure (proposed Turbine 5), as the Proposed Project has been designed so that all major infrastructure, i.e., turbine bases and hardstands, avoids significant watercourses. Therefore due to the distance between the proposed infrastructure footprint and the nearest suitable habitat for otter, there is no potential for likely significant disturbance effects on otter as a result of the Proposed Project. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on River Moy SAC. Therefore, this European Site is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Balla Turlough SAC [000463]	4.7km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. Both the Site and Balla Turlough SAC are underlain by the Swinford GWB and a Regionally Important Karstic Bedrock Aquifer. As mentioned above, the hydrological regime at the Site is characterised by high rates of surface water runoff and low rates of groundwater recharge, with water generally leaving the Site as surface water rather than as groundwater flows and entering local watercourses including the Meander River and the Robe River. There is no connectivity between these watercourses and the SAC. Nonetheless, given the distance between the Proposed Project and the SAC and the absence of watercourses between the Site and the SAC to which groundwater could discharge taking a highly

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		precautionary approach, there is considered to be low potential for hydrological connectivity between the Site and the SAC via the karstified bedrock aquifer underlying the area. Therefore, a potential pathway for indirect effect on the SAC via deterioration of groundwater quality arising from percolation of pollutants to groundwater during the construction, operational and decommissioning phases of the Proposed Project was identified. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on Balla Turlough SAC. Therefore, this European Site is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Ballinafad SAC [002081]	6.6km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. The Site is located approximately 6.6km from the lesser horseshoe bat (<i>Rhinolophus hipposideros</i>) roost within the SAC. The core foraging range of this species is 2.5km (NPWS, 2018¹⁹), therefore, due to the distance between the Site and the SAC, there is no potential for likely significant effect on this QI species. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Ballinafad SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Towerhill House SAC [002179]	7.2km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. The Site is located approximately 7.2km from the lesser horseshoe bat roost within the SAC. The core foraging range of this species is 2.5km (NPWS, 2018), therefore, due to the distance between the Site and the SAC, there is no potential for likely significant effect on this QI species. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Towerhill

¹⁹ NPWS (2018) Conservation objectives supporting document – lesser horseshoe bat (*Rhinolophus hipposideros*) Version 1. Conservation Objectives Supporting Document Series. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		House SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Carrowkeel Turlough SAC [000475]	7.4km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. This SAC is located approximately 7.4km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the central section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the SAC. Taking the above into account and the distance between the Proposed Project and the SAC there is no potential for significant indirect effects on the SAC via hydrological pathways. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Carrowkeel Turlough SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Lough Carra/Mask Complex SAC [001774]	8.9km Hydrological Distance: approx. 38.7km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. As per Chapter 9 of the EIAR submitted with this planning application, the central section of the Site drains via agricultural and peat drains to Drumady Lough to the east of the Site. A small unnamed watercourse outfalls from the south of Drumady Lough and discharges to the River Robe approximately 5.6km to the south of the Site. This SAC is located over 38km downstream of the Site via the unnamed stream which outfalls from Drumady Lough and the River Robe. Additionally, the unmapped watercourse which is located along the proposed Turbine Delivery Route also

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		discharges into the unnamed stream approximately 3.5km upstream of the River Robe, with the SAC over 35km downstream of the works location. Given the nature and scale of the Proposed Project and the length of the hydrological flowpath between the Site and this SAC, there is no potential for likely significant effects on the SAC as a result of the Proposed Project. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Lough Carra/Mask Complex SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Moore Hall (Lough Carra) SAC [000527]	9.6km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. The Site is located approximately 9.6km from the lesser horseshoe bat roost within the SAC. The core foraging range of this species is 2.5km (NPWS, 2018), therefore, due to the distance between the Site and the SAC, there is no potential for likely significant effect on this QI species. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Moore Hall (Lough Carra) SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Kilglassan/Caheravoostia Turlough Complex SAC [000504]	11.3km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. This SAC is located approximately 11.3km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the central section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the SAC. Taking the above into account and the distance between the Proposed Project and the SAC there is no potential for significant indirect effects on the SAC via hydrological pathways. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Kilglassan/Cahervostia Turlough Complex SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Greaghans Turlough SAC [000503]	13.8km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. This SAC is located approximately 13.8km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the central section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the SAC. Taking the above into account and the distance between the Proposed Project and the SAC there is no potential for significant indirect effects on the SAC via hydrological pathways. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Greaghans Turlough SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
Ardkill Turlough SAC [000461]	14.1km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. This SAC is located approximately 14.1km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the central section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the SAC. Taking the above into account and the distance between the Proposed Project and the SAC there is no potential for significant indirect effects on the SAC via hydrological pathways. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Ardkill Turlough SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Skealoghan Turlough SAC [000541]	14.3km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. There is no potential for indirect effects as the Site is underlain by a separate hydrological groundwater catchment to this SAC. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Skealoghan Turlough SAC is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Special Protection Areas (SPAs)		

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
Lough Carra SPA [004051]	9.0km	There is no potential for direct effect as the Proposed Project is located completely outside of and >9km this European Site. There is no direct surface water connectivity between the Site and this SPA as the River Robe, which is located downstream of the Site, discharges into Lough Mask, located downstream of Lough Carra. Additionally, the SPA is located underlain by a separate groundwater body to the Site, therefore, there is no potential for likely significant effects on the SPA via surface or groundwater pathways. The potential for indirect effects on SCI species where they occur outside the SPA is also considered. While the Site is located within the core foraging range of common gull (25km, Thaxter <i>et al.</i>, 2012), over the four years of detailed ornithological surveys (October 2021 to September 2025) common gull were only observed within the Site on two occasions (refer to Chapter 7 Birds for detailed ornithological survey results). As such, the Site is not considered to be of ecological significance for the SCI species, and there is no potential for likely significant <i>ex-situ</i> effects. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This site is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Lough Mask SPA [004062]	14.5km Hydrological Distance: approx. 39.3km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. As per Chapter 9 Water, the central section of the Site drains via agricultural and peat drains to Drumady Lough to the east of the Site. A small unnamed watercourse outfalls from the south of Drumady Lough and discharges to the River Robe approximately 5.6km to the south of the Site. This SPA is located over 39km downstream of the Site via the unnamed stream which outfalls from Drumady Lough and the River Robe. Additionally, the unmapped watercourse which is located along the proposed Turbine Delivery Route also discharges into the unnamed stream approximately 3.5km upstream of the River Robe, with the SPA located approximately 37km downstream of the works at this location. Given the length of the hydrological flowpath between the Site and this SPA and the nature and scale of the Proposed Project there is no potential for likely significant effects on the SPA due to deterioration of water quality.

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		The potential for indirect effects on SCI species where they occur outside the SPA is also considered. Greenland white-fronted goose, black headed gull, common gull, lesser black-backed gull and tufted duck were all recorded either within the Site, within 500m of the Site or flying over the Site during the dedicated bird surveys undertaken (refer to Chapter 7 Birds for detailed ornithological survey results). These species are listed as SCIs for the SPA and given the distance between the Site and the SPA there is potential for individuals recorded using the Site to be associated with the SPA populations as it is within the foraging range of some of these species. The construction of the Proposed Project will result in a permanent loss of agricultural grasslands within the construction footprint which also provides suitable foraging habitat for some of these species. Although the overall footprint is small relative to the extent of available habitat within the Site and wider landscape, this has the potential to represent a loss of <i>ex-situ</i> habitat for SCI species. Additionally, as SCI bird species were recorded utilising the habitats within the Site, there is potential significant for <i>ex-situ</i> disturbance/displacement effects during the construction and operational phases of the Proposed Project. In addition to the above, there were a number of observations of lesser black-backed gull flying through the Site at potential collision height during vantage point surveys. Therefore there is also potential for collision risk/mortality during operation of the Proposed Project. Therefore on a precautionary basis, a potential pathway for likely significant effects on the SPA due to <i>ex-situ</i> disturbance/displacement, loss of <i>ex-situ</i> supporting habitat and collision risk/ mortality has been identified. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on Lough Mask SPA. Therefore, this European Site is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Lough Conn and Lough Cullin SPA [004228]	21.8km Hydrological Distance: approx. 40km	There is no potential for direct effect as the Proposed Project is located completely outside of this European Site. The Meander River flows in a southerly direction along the southern boundary of the Site. The SPA is located approximately 40km downstream of the Site via the Meander River. Given the length of the hydrological flowpath between the Site and this SPA

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		and the nature and scale of the Proposed Project there is no potential for likely significant effects on the SPA as a result of water quality deterioration arising from Proposed Project. The potential for indirect effects on SCI species where they occur outside the SPA is also considered. While the Site is located within the core foraging range of common gull (25km, Thaxter <i>et al.</i>, 2012), over the four years of detailed ornithological surveys (October 2021 to September 2025) common gull were only observed within the Site on two occasions. Additionally, tufted duck and Greenland white-fronted goose were only observed during hinterland waterbird distribution and abundance surveys outside the Site, and common scoter were not recorded during any surveys undertaken. As such, the Site is not considered to be of ecological significance for the SCI species, and there is no potential for likely significant <i>ex-situ</i> effects. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Lough Conn and Lough Cullin SPA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Natural Heritage Areas (NHAs)		
There are no Natural Heritage Areas (NHAs) located within the likely Zone of Influence of the Proposed Project. The nearest NHA to the Site is the Cunnagher More Bog NHA, located over 21km to the north of the Site. No connectivity or potential pathways for significant effects on this or any other NHAs were identified.		
Proposed Natural Heritage Areas (pNHA)		
Mountpleasant School Turlough pNHA [001472]	4.6km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >4km from this pNHA. This pNHA is located approximately 4.6km to the west of the Site and is underlain by the same GWB, the Swinford GWB, as the northern, southern and western sections of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the pNHA. Taking the above into account, in addition to the presence of the Meander River in the intervening lands which acts as a hydraulic barrier between the Site and this pNHA, there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Mountpleasant School Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Balla Turlough pNHA [000463] <i>This site is also an SAC</i>	4.7km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >4km from this pNHA. Both the Site and Balla Turlough pNHA are underlain by the Swinford GWB and a Regionally Important Karstic Bedrock Aquifer. As mentioned above, the hydrological regime at the Site is characterised by high rates of surface water runoff and low rates of groundwater recharge, with water generally leaving the Site as surface water rather than as groundwater flows and entering local watercourses including the Meander River and the Robe River. There is no connectivity between these watercourses and the pNHA. Nonetheless, given the distance between the Proposed Project and the pNHA and the absence of watercourses between the Site and the pNHA to which groundwater could discharge taking a highly precautionary approach, there is considered to be low potential for hydrological connectivity between the Site and the pNHA via the karstified bedrock aquifer underlying the area. Therefore, a potential pathway for indirect effect on the pNHA via deterioration of groundwater quality arising from percolation of pollutants to groundwater during the construction, operational and decommissioning phases of the Proposed Project was identified. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on Balla Turlough pNHA. Therefore, this pNHA is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
Slishmeen Turlough pNHA [001559]	4.9km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >4km from this pNHA. This pNHA is located approximately 4.9km to the west of the Site and is underlain by the same GWB, the Swinford GWB, as the northern, southern and western sections of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the pNHA. Taking the above into account, in addition to the presence of the Meander River in the intervening lands which acts as a hydraulic barrier between the Site and this pNHA, there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Slishmeen Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Ballinafad pNHA [002081] <i>This site is also an SAC</i>	6.6km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >6km from this pNHA. This pNHA is recognised for a roost of lesser horseshoe bats (<i>Rhinolophus hipposideros</i>). The core foraging range of this species is 2.5km (NPWS, 2018²⁰), therefore, due to the distance between the Site and this pNHA, there is no potential for likely significant effect on this species. No pathway for likely significant effect on this pNHA was identified, when considered in the

²⁰ ²⁰ NPWS (2018) Conservation objectives supporting document – lesser horseshoe bat (*Rhinolophus hipposideros*) Version 1. Conservation Objectives Supporting Document Series. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		absence of any mitigation, individually or cumulatively with other plans or projects. Ballinacfad pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Carrowkeel Turlough pNHA [000475] <i>This site is also an SAC</i>	7.3km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >7km from this pNHA. This pNHA is located approximately 7.3km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the central section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the pNHA. Taking the above into account and the distance between the Proposed Project and the pNHA there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Carrowkeel Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Lough Manan pNHA [001533]	7.4km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >7km from this pNHA. There is no potential for indirect effects as the Site is located in separate surface water and groundwater catchments to this pNHA. Therefore there is no hydrological connectivity between the Site and this pNHA. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Lough

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		Manan pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Towerhill Lake pNHA [000550] <i>This site overlaps partially with Towerhill House SAC [002179]</i>	7.4km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >7km from this pNHA. There is no potential for indirect effects as the Site is located in separate surface water and groundwater catchments to this pNHA. Therefore there is no hydrological connectivity between the Site and this pNHA. The SAC with which this pNHA partially overlaps is recognised for a roost of lesser horseshoe bats. The core foraging range of this species is 2.5km (NPWS, 2018), therefore, due to the distance between the Site and the pNHA, there is no potential for likely significant effect on this species. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Towerhill Lake pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Cloonboorhy Lough pNHA [001486]	8.8km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >8km from this pNHA. There is no potential for indirect effects as the Site is located in separate surface water and groundwater catchments to this pNHA. Therefore there is no hydrological connectivity between the Site and this pNHA. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Cloonboorhy Lough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Lough Carra/Mask Complex pNHA [001774] <i>This site is also an SAC and overlaps with two SPAs (Lough Carra SPA and Lough Mask SPA)</i>	8.9km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >8km from this pNHA. As per Chapter 9 of this EIAR, the central section of the Site drains via agricultural and peat drains to Drumady Lough to the east of the Site. A small unnamed watercourse outfalls from the south of Drumady Lough and discharges to the River Robe approximately 5.6km to the south of the Site. This

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		pNHA is located over 38km downstream of the Site via the unnamed stream which outfalls from Drumady Lough and the River Robe. Additionally, the unmapped watercourse which is located along the proposed Turbine Delivery Route also discharges into the unnamed stream approximately 3.5km upstream of the River Robe, with the pNHA located approximately 36km downstream of the works location. Given the nature and scale of the Proposed Project and the length of the hydrological flowpath between the Site and this pNHA, there is no potential for likely significant effects on the pNHA as a result of the Proposed Project. However, the Site provides potential supporting habitat for a number of the SCI species associated with the SPAs that overlap with this pNHA. The Site is located within the core foraging range of several of the bird species associated with this pNHA therefore, there is potential for these species to be commuting and foraging through the Site. As a result, there is potential for <i>ex situ</i> disturbance of bird species and for habitat loss during construction as well as displacement and collision risk of this species during the operational phase of the Proposed Project. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on Lough Carra/Mask Complex pNHA. Therefore, this pNHA is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Lough Beg, Carrowmore pNHA [001528]	9.4km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >9km from this pNHA. There is no potential for indirect effects as the Site is located in separate surface water and groundwater catchments to this pNHA. Therefore there is no hydrological connectivity between the Site and this pNHA. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Lough Beg, Carrowmore pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Moore Hall (Lough Carra) pNHA [000527]	9.6km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >9km from this pNHA.

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
<i>This site is also an SAC</i>		This pNHA is recognised for a roost of lesser horseshoe bats. The core foraging range of this species is 2.5km (NPWS, 2018), therefore, due to the distance between the Site and the pNHA, there is no potential for likely significant effect on this species. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Moore Hall (Lough Carra) pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Carrowmore Lough Shore pNHA [001492]	10.0km	There is no potential for direct effects as the Proposed Project is located entirely outside of and 10km from this pNHA. There is no potential for indirect effects as the Site is underlain by a separate hydrological groundwater catchment to this pNHA. While this pNHA is located within the same surface water sub-catchment at the Site, the Castlebar_SC_020 sub-catchment, there is no downstream hydrological connectivity between the Site and this pNHA. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Carrowmore Lough Shore pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Kilglassan/Caheravoostia Turlough Complex pNHA [000504] <i>This site is also an SAC</i>	11.2km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >11km from this pNHA. This pNHA is located approximately 11.2km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the eastern section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		connectivity between these watercourses and the pNHA. Taking the above into account and the distance between the Proposed Project and the pNHA there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Kilglassan/Caheravoostia Turlough Complex pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Greaghans Turlough pNHA [000503] <i>This site is also an SAC</i>	13.7km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >13km from this pNHA. This pNHA is located approximately 13.7km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the eastern section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the pNHA. Taking the above into account and the distance between the Proposed Project and the pNHA there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Greaghans Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Ardkill Turlough pNHA [000461] <i>This site is also an SAC</i>	14.2km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >14km from this pNHA.

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		This pNHA is located approximately 14.2km to the south of the Site and is underlain by the same GWB, the Cong-Robe GWB, as the eastern section of the Site. As outlined in Chapter 9 Water of this EIAR, Site investigations have confirmed the absence of karst features and shallow bedrock at the Site. Additionally the bedrock is protected by thick overburden deposits (>10m), characterised by low permeability peat and glacial tills which protect the bedrock and restrict groundwater recharge. The hydrological regime at the Site is therefore typically characterised by high rates of surface water runoff and relatively low rates of groundwater recharge. Water will generally leave the Site as surface water, rather than as groundwater flows, and will enter local rivers, including the Meander and Robe River downstream of the Site. There is no hydrological connectivity between these watercourses and the pNHA. Taking the above into account and the distance between the Proposed Project and the pNHA there is no potential for significant indirect effects on the pNHA via hydrological pathways. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Ardkill Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Skealoghan Turlough pNHA [000541] <i>This site is also an SAC</i>	14.3km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >14km from this pNHA. There is no potential for indirect effects as the Site is underlain by a separate hydrological groundwater catchments to this pNHA. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Skealoghan Turlough pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Lough Conn and Lough Cullin pNHA [004228] <i>This site is also an SPA and overlaps with the River Moy SAC</i>	21.7km	There is no potential for direct effects as the Proposed Project is located entirely outside of and >21km from this pNHA. The Meander River flows in a southerly direction along the southern boundary of the Site. The pNHA is located approximately 40km downstream of the

Designated Site	Distance from Proposed Project (km)	Likely Zone of Influence Determination
		Site via the Meander River. Given the length of the hydrological flowpath between the Site and this pNHA and the nature and scale of the Proposed Project there is no potential for likely significant effects on the pNHA as a result of water quality deterioration arising from Proposed Project. The potential for indirect effects on SCI species associated with the SPA that overlaps this pNHA where they occur outside the pNHA is also considered. While the Site is located within the core foraging range of common gull (25km, Thaxter <i>et al.</i>, 2012), over the four years of detailed ornithological surveys (October 2021 to September 2025; see Chapter 7 'Birds' of this EIAR for full details) common gull were only observed within the Site on two occasions. Additionally, tufted duck and Greenland white-fronted goose were only observed during hinterland waterbird distribution and abundance surveys outside the Site, and common scoter were not recorded during any surveys undertaken. As such, the Site is not considered to be of ecological significance for the SCI species, and there is no potential for likely significant <i>ex-situ</i> effects. No pathway for likely significant effect on this pNHA was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. Lough Conn and Lough Cullin pNHA is not within the Likely Zone of Influence of the Proposed Project. Therefore, it is not considered further in this assessment.
Ramsar Sites		
There are no Ramsar Sites located within the likely Zone of Influence of the Proposed Project. The nearest Ramsar Site to the Proposed Project is the Lough Corrib SAC, located over 15km to the south of the Site, at a hydrological distance of over 45km. No connectivity or potential pathways for significant effects on this or any other Ramsar Sites were identified.		

Designated Sites identified as being within the Likely Zone of Influence

The following European Sites are identified as being within the Likely Zone of Influence and are assessed further in the NIS which has also been submitted with the planning application for the Proposed Project:

- River Moy SAC [002298]
- Balla Turlough SAC [000463]
- Lough Mask SPA [004062]

The following Nationally Designated Sites have been identified as being within the Likely Zone of Influence of the Proposed Project and having a pathway for significant effects and as such are assessed further within this Biodiversity Chapter:

- Balla Turlough pNHA [000463]
- Lough Carra/Mask Complex pNHA [001774]

6.3.1.2 NPWS Article 17 Reporting

The most recent NPWS data on the recorded distribution of EU Habitats Directive Annex I listed habitats was reviewed in relation to the Site. This included the latest available NPWS Article 17 reporting (NPWS, 2025), as well as the most recent GIS data from the 2019 Article 17 dataset as part of ‘*The Status of EU Protected Habitats and Species in Ireland*’ (NPWS, 2019)²¹.

The Semi-Natural Grassland Survey 2007-2012, Grasslands Monitoring Survey 2015-2017, Floodplains and Callows Grasslands in Ireland 2023, National Survey of Native Woodlands 2003-2008 and Ancient and Long-Established Woodland datasets were also reviewed in relation to the Site.

No areas of semi-natural grassland, native woodland, or ancient and long-established woodland are mapped as part of these datasets within or adjacent to the Site. The closest native woodland according to the National Survey of Native Woodlands 2003-2008 dataset is located at Hollowpark approx. 5.9km northwest of the Site. This area is also classified as a long-established woodland for which no evidence of antiquity could be found in older documentation. The nearest mapped semi-natural grasslands are non-Annex I Dry meadows and grassy verges (GS2) and Wet grassland (GS4), and these are located approx. 4.2km to the north of the Site near Balla, Co. Mayo.

There are no mapped areas of Annex I habitat within or adjacent to the Site within the Article 17 dataset. The nearest mapped terrestrial Annex I habitat is a small area of Active blanket bog [7130] approximately 780m to the east of the Site, approximately 1.2km from the nearest proposed infrastructure (proposed Turbine 5), and to the east of Drumady Lough.

NPWS Article 17 data on the recorded distribution and ranges of EU Habitats Directive Annex II listed species were also assessed.

The Annex II species marsh fritillary (*Euphydryas aurinia*) has been recorded within the hectad M27 in which the Site is located, with the nearest record approximately 3.9km to the southwest of the Site.

Atlantic salmon (*Salmo salar*) and brook lamprey (*Lampetra planeri*) are two Annex II listed fish species that have been mapped within hectad M27 in which the Proposed Project is located. These species are both listed as QIs of the River Moy SAC. Additionally, white-clawed crayfish (*Austropotamobius pallipes*) has been recorded approximately 5.5km downstream within the River Robe. There are also mapped records of Annex II otter (*Lutra lutra*) in the River Robe approximately 10km downstream of site.

Seven of the nine Irish bat species, all listed under Annex IV of the Habitats Directive, have been recorded within the hectad overlapping the Site, including lesser horseshoe bat (*Rhinolophus hipposideros*) which is also listed under Annex II of the Habitats Directive.

The Annex V species Irish hare (*Lepus timidus*) has also been recorded immediately adjacent to the Site, approximately 90m to the north while the common frog (*Rana temporaria*) and pine marten (*Martes martes*) both have records within 2.5km of the Site. White cushion moss (*Leucobryum glaucum*) is also an Annex V listed bryophyte which has been mapped approximately 1.5km northeast of the Site.

6.3.1.3 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 II of the EU Habitats Directive, in The Ireland Red List No. 10 - Vascular Plants (Wyse Jackson *et al*, 2016) or the Flora (Protection) Order

²¹ NPWS [online]. Available at: <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17> [Accessed 31/03/2026]

2022 had been recorded in the relevant hectad in which the Site is situated (M27). Species of conservation concern are listed in Table 6-6.

Table 6-6 Species listed designated under the Flora Protection Order or the Irish Red Data Book in hectad M27

Common Name	Scientific Name	Status
Upright brome	<i>Bromopsis erecta</i>	NT
Field gentian	<i>Gentianella campestris</i>	NT
Least bur-reed	<i>Sparganium natans</i>	NT

FPO – Flora Protection Order 2022; Red List Status –NT – Near Threatened

The NPWS Flora (Protection) Order 2022 online map viewer⁹ was also consulted on 25th of February 2026 for records of FPO species within or adjacent to the Site boundary. No FPO species were identified within the hectad M27.

6.3.1.4 Bryophytes

A search of the NPWS online database for bryophytes⁸ (non-vascular land plants comprising of mosses, hornworts and liverworts) was also undertaken on the 25th of February 2026. The desktop search indicated that no protected bryophytes have been recorded within or adjacent to the Site.

6.3.1.5 National Biodiversity Data Centre (NBDC) Records

A search of the NBDC website was conducted in advance of undertaking field surveys between 2023 and 2025, and an updated search was carried out on the 6th of February 2026. This helped to inform survey effort and provide a baseline of likely species composition in the area.

NBDC and Bird Atlas records for birds are provided in Chapter 7 and are not repeated here.

6.3.1.5.1 Fauna

Records of protected fauna recorded from hectad M27 are provided in in Table 6-7.

Table 6-7 NBDC records for protected species and species of conservation interest (excl. birds) in hectad M27

Common Name	Scientific Name	Red List Status	Protection Status
Badger	<i>Meles meles</i>	LC	WA
Brown long-eared bat	<i>Plecotus auritus</i>	LC	Annex IV, WA
Common frog	<i>Rana temporaria</i>	LC	Annex V, WA
Common newt	<i>Lissotriton vulgaris</i>	LC	WA
Common pipistrelle	<i>Pipistrellus pipistrellus sensu stricto</i>	LC	Annex IV, WA
Daubenton's bat	<i>Myotis daubentonii</i>	LC	Annex IV, WA
Hedgehog	<i>Erinaceus europaeus</i>	LC	WA

Common Name	Scientific Name	Red List Status	Protection Status
Irish hare	<i>Lepus timidus subsp. hibernicus</i>	LC	Annex V, WA
Irish stoat	<i>Mustela erminea subsp. hibernica</i>	LC	WA
Leisler's bat	<i>Nyctalus leisleri</i>	LC	Annex IV, WA
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	LC	Annex II, IV, WA
Marsh fritillary	<i>Euphydryas aurinia</i>	VU	Annex II
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	LC	Annex IV, WA
Natterer's bat	<i>Myotis nattereri</i>	LC	Annex IV, WA
Otter	<i>Lutra lutra</i>	LC	Annex II, IV, WA
Pine marten	<i>Martes martes</i>	LC	Annex V, WA
Pipistrelle	<i>Pipistrellus pipistrellus sensu lato</i>	LC	Annex IV, WA
Pygmy shrew	<i>Sorex minutus</i>	LC	WA
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	LC	Annex IV, WA
White-clawed crayfish	<i>Austropotamobius pallipes</i>	-	Annex II, V, WA

Annex II, Annex IV, Annex V – Of EU Habitats Directive; WA – Wildlife Acts (as amended); Red List Status – LC – Least Concern, VU – Vulnerable (per Marnell et al., 2019²²; King et al., 2011²³; Regan et al., 2010²⁴)

6.3.1.5.2 Invasive Species

The NBDC database also contains records of invasive species identified within the relevant hectad. Just one species, Japanese knotweed (*Reynoutria japonica*) subject to restrictions under Regulations 49 and 50 and included in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was found to have records in hectad M27.

6.3.1.6 NPWS Protected Species Records

An information request was sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database on the 5th of February 2026. A response was received on the 14th of April

²² Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

²³ King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

²⁴ Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) Ireland Red List No. 4 – Butterflies. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.

2026. Table 6-8 lists rare and protected species records within hectad M27, in which the Site is located, as obtained from NPWS.

Table 6-8 NPWS records for rare and protected species

Common name	Scientific name	Designation
Common frog	<i>Rana temporaria</i>	Annex V, WA, LC
Eurasian badger	<i>Meles meles</i>	WA, LC
Eurasian otter	<i>Lutra lutra</i>	Annex II, IV, WA, LC
Irish hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>	Annex V, WA, LC
Irish stoat	<i>Mustela erminea</i> subsp. <i>hibernica</i>	WA, LC
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Annex II, IV, WA, LC
Pine marten	<i>Martes martes</i>	Annex V, WA, LC
West European hedgehog	<i>Erinaceus europaeus</i>	WA, LC
White-clawed crayfish	<i>Austropotamobius pallipes</i>	Annex II, V, WA

Annex II, Annex IV, Annex V – Of EU Habitats Directive; WA – Wildlife Acts (as amended); Red List Status – LC – Least Concern, VU – Vulnerable, RE – Regionally Extinct.

6.3.1.7 Inland Fisheries Ireland Data

The 'Water Framework Directive Rivers Fish Ecological Status 2008 to recent' dataset from the Inland Fisheries Ireland open data portal was reviewed on 25th of February 2026 for reports covering any of the waterbodies downstream of the Site. There are no records of Fish Ecological Status within the Meander River downstream of the Site.

However, in 2019 several sites downstream of the Site within the River Robe were surveyed using ten-minute electrofishing and single pass boat electrofishing. Approximately 5.2km downstream of the Site, the only fish species recorded was brown trout (*Salmo trutta*), giving the river a Fish Ecological Status of 'Poor' (Site code: 30_3378_28A).

Approximately 10km downstream of the Site, a further two locations were also surveyed 400m downstream from one another. Brown trout (*Salmo trutta*), minnow (*Phoxinus phoxinus*) and pike (*Esox lucius*) were recorded at both of these sites, while perch (*Perca fluviatilis*) and three spined stickleback (*Gasterosteus aculeatus*) were additionally recorded at the more upstream location, giving both locations a Fish Ecological Status of 'Moderate' (Site codes: 30_3558_166A, 30_3558_152A).

6.3.1.8 Freshwater Pearl Mussel (*Margaritifera margaritifera*)

The NPWS *Margaritifera* Sensitive Area map (Version 10, 2020) was consulted during the desk study. The entire area of the Site is located outside of any *Margaritifera* catchments or sensitive areas. There are no records of freshwater pearl mussel in any watercourses downstream of the Site.

6.3.1.9 Hydrological Desk Study

The following sections have been summarised from the hydrological and hydrogeological assessment carried out for Chapter 9 Water of this EIAR and provides a baseline of the local hydrological conditions, where pertinent in the assessment of potential effects on biodiversity, flora and fauna.

6.3.1.9.1 Regional and Local Hydrology

Regionally, the Site lies at the boundary between 2 no. WFD surface water catchments. The north and south of the Site are mapped in the Moy and Killala Bay Catchment within Hydrometric Area 34. This catchment includes the area drained by the River Moy and all streams entering the tidal water in Killala Bay, between Benwee Head and Lenadoon Point. Meanwhile, the centre of the Site is located in the Corrib Catchment within Hydrometric Area 30. This catchment includes the areas drained by the River Corrib and all stream entering the tidal water between Renmore Point and Nimmo's Pier, Galway.

Within the Corrib Catchment, the Site is mapped in the Robe River sub-catchment (Robe_SC_010) and the Robe_030 WFD river sub-basin. Within this river sub-basin there are no EPA mapped watercourses within the Site. The nearest EPA mapped watercourse to this area of the Site is a small 1st order stream which outfalls from the south of Drumady Lough. Drumady Lough itself is located outside of the Site boundaries, immediately to the east and 240m from the closest turbine (T4). The stream which outfalls from the lake, flows to the south and discharges into the River Rober (EPA Code: 30R01) ~5.6km to the south of the Site. The River Robe flows to the southwest past Hollymount and Ballinrobe before it discharges into Lough Mask ~18.5km to the southwest of the Site.

Within the Moy and Killala Bay Catchment, the Site is mapped in the Castlebar River sub-catchment (Castlebar_SC_020) and 2 no. WFD river sub-basins. The south of the Site is mapped in the Meander_010 WFD river sub-basin whilst the north is mapped in the Tullymore (Mayo)_010 WFD river sub-basin. Within the Meander_010 WFD river sub-basin Lough Nambrackkeagh is situated directly to the south of the Site. The Meander River (EPA Code: 34M05) outflows from Lough Nambrackkeagh, initially flowing to the south before veering to the northwest and discharging into the Manulla River (EPA Code: 34M01) ~5.5km to the northwest of the Site. The Manulla River continues north and drains into the Castlebar River (EPA Code: 34C01) ~16.6km northwest of the Site. From this point the Castlebar River feeds into the Toormore and Clydagh Rivers respectively, meandering further north (~10km) to discharge into Lough Cullin.

The northern portion of the Site resides within the Tullymore (Mayo)_010 WFD river sub basin. The Meander River flows along the southern boundary of the Site, approximately 372m southwest of Turbine 5. The Tullymore Stream is located ~5km northwest of the Site and flows to the north into the Little Strade River. Inspection of local base maps reveal the presence of some hydrological features which drain this section of the Site and flow to the north and discharge into Lough Fark, located ~700m to the north of the Site.

It is noted that the Turbine Delivery Route works will require the extension of a culvert along an existing stream adjacent to the L1506. These works are proposed within the Robe River sub-catchment (Robe_SC_010) and the Robe_030 WFD river sub-basin. This stream does not form part of the EPA blue line database but was recorded during site walkover surveys of the Turbine Delivery Route. This unmapped stream discharges into the Temp Stream (EPA Code: 30A92) which discharges into the River Robe ~3km to the south of the proposed works location.

A regional hydrology map showing the WFD catchments and sub-catchments is included as Figure 9-1 [see Chapter 9 of this EIAR]. A local hydrology map for the Site, shown as Figure 9-2 [see Chapter 9 of this EIAR], presents the WFD river sub-basins.

6.3.1.9.2 Site Drainage

As stated above, the central section of the Site drains towards Drumady Lough situated immediately to the southeast. A mixture of peat and agricultural drainage systems direct drainage towards this lake. The southern section of the Site drains towards the Meander River. This area is predominantly comprised of a peat drainage network that directs surface run off towards Lough Nambrackkeagh. The north of the Site is also drained by a network of manmade drainage features which direct water to the

north towards Lough Fark. An existing drainage map for the Site is shown as Figure 9-6 [see Chapter 9 of this EIAR].

In places the natural drainage is further facilitated by a network of manmade drains. The nature of these manmade drains depends on the local land use and comprise of agricultural field drains or forestry drains. Drains are also present in the peat areas where turbary cutting has been taking place.

The forestry plantations within the Site are generally drained by a network of mound drains which typically run perpendicular to the topographic contours of the Site and feed into collector drains, which discharge to interceptor drains down-gradient of the plantation. Mound drains and ploughed ribbon drains are generally spaced approximately every 15m and 2m respectively. Interceptor drains are generally located up-gradient (cut-off drains) and down-gradient of forestry plantations.

6.3.1.9.3 EPA Biological Water Quality Monitoring

Biological Q-rating data for EPA monitoring points on the Meander and Robe rivers from 2022 to 2024 are shown in Table 6-9 below. The Q-Rating is a water quality rating system based on both the habitat and the invertebrate community assessment and is divided into status categories ranging from 0-1 (Poor) to 4-5 (Good/High).

Within the Corrib Catchment, the closest EPA monitoring station downstream of the Site is located on the River Robe at a bridge northeast of Hollybrook House. The River Robe achieved a Good Q-status at this station in 2024. Further downstream at Hollymount Bridge the River Robe was assigned a Moderate Q-status in 2024. The Q-status improved further downstream at Atkins Bridge to High Q-status.

Within the Moy and Killala Bay Catchment, the closest EPA monitoring station downstream of the Site for which recent data is available is located on the Meander River at a bridge northwest of Rathnacreeva. The Meander River achieved a High Q-status at this location in 2022. Further downstream the Manulla and Castlebar rivers achieved Good Q-status in recent monitoring rounds. Meanwhile, the Little Strade River downstream of the Site via the Tullymore (Mayo)_010 WFD river sub-basin achieved High Q-status in 2022 at a bridge northwest of Sraheens.

Table 6-9 EPA Water Quality Monitoring Q-Rating Values

Watercourse	Location and Station ID	Year	Easting	Northing	EPA Q-Rating Status
Corrib Catchment					
River Robe	Br E of Hollybrook House (RS30R010310)	2024	128313	272068	4 (Good)
River Robe	Hollymount Bridge (RS30R010400)	2024	125978	268613	3-4 (Moderate)
River Robe	Akit Bridge (RS30R010600)	2024	119458	264943	4-5 (High)
Moy and Killala Bay Catchment					
Meander River	Br N.N.W. of Rathnacreeva (RS34M050400)	2022	123482	280086	4-5 (High)
Manulla River	Bridge at Ballycarra (RS34M010200)	2022	119965	284278	4 (Good)
Manulla River	Manulla Bridge (RS34M010300)	2022	121300	288600	4 (Good)
Manulla River	Bridge u/s Castlebar River (RS34M010500)	2022	121937	293360	4 (Good)

Watercourse	Location and Station ID	Year	Easting	Northing	EPA Q-Rating Status
Castlebar River	Br 1 km W. of Ballyvary (RS34C010400)	2022	123360	294478	4 (Good)
Little (Strade) River	Bridge NW Sraheens (RS34L020300)	2022	127630	291066	4-5 (High)

6.3.1.9.4 Hydrogeology

Regional Hydrogeology

The Site is mapped to be underlain by 2 no. Groundwater Bodies (GWBs). The north and south of the Site are underlain by the Swinford GWB (IE_WE_G_0033) whilst the central section of the Site is underlain by the Cong Robe GWB (IE_WE_G_0019). The boundaries of these GWBs in the area of the Site is the same as the boundaries of the regional surface water catchments.

The GSI's Initial Characterisation Report for the Cong-Robe GWB (GSI, 2004) states that this GWB occupies the area between Claremorris and Cong. Within the GWB, a surface water catchment has been shown to be bypassed by groundwater flowing beneath surface water channels and across surface water catchment divides. Tracer tests have shown that flow lines exist that do not relate to the expected flow lines inferred from water table maps. A large number of karst features are present, particularly in the southwestern part of the GWB. In general, the degree of interconnection in karstic systems is high and they support regional scale flow systems. The main discharges are to the rivers, large springs, Lough Mask and Lough Corrib. In winter, groundwater discharges to the many turloughs and transmitted via the artificial channels that were installed to alleviate flooding. There is a high degree of interaction between surface water and groundwater. There are a number of terrestrial ecosystems which have varying dependence on groundwater (GSI, 2004).

The GSI's Initial Characterisation Report for the Swinford GWB (GSI, 2004) states that this GWB occupies an area stretching from Knock to Castlebar to Swinford. The aquifer is a Regionally important karstified aquifer (Rkc). Several karst features are recorded, and these include turloughs, caves and swallow holes but this is thought to only represent a fraction of the existing karst features. The main discharges are to the small springs, streams, rivers and lakes. The stream density is relatively high, probably due to the subsoils overlying the GWB (GSI, 2004).

Site Hydrogeology

The Site is typically overlain by peat and mineral soils with small occurrences of made ground. Where present the peat depth is relatively shallow, with an average depth of 1.2m and 91% of peat probes encountering peat depths less than 1. A small number of localised readings recorded peat depths between 3.5 and 6.1m.

Shallow groundwater was encountered in 15 of the 28no. trial pits excavated at the Site at depths of 0.6 to 3.2mbgl. 10 of these were described on the logs as medium ingresses of groundwater, with 2 no. fast inflows recorded and 3 no. slow/minor seepages of groundwater.

The site investigations indicate that the Site is underlain predominantly by peat and low permeability till deposits. These deposits protect the underlying regional bedrock groundwater system, preventing significant rates of groundwater recharge within the Site. This is supported by observations made during the site walkover surveys whereby a high density of surface water drainage features were recorded on site. Furthermore, no karst features were recorded during walkover surveys, and no significant karst was encountered in the borehole at the proposed borrow pit location.

Therefore, the hydrogeological regime at the Site is characterised by high rates of surface water runoff and low rates of groundwater recharge.

6.3.1.9.5 Groundwater Vulnerability

The GSI mapped vulnerability rating of the bedrock aquifer at the majority of the Site ranges between “Moderate” to “High” with a small portion mapped as “Low”. This reflects the variable soils/subsoils across the Site with the area of peat having low to moderate groundwater vulnerability. The areas of mineral soils have moderate to high groundwater vulnerability.

Meanwhile, a small area of ‘Extreme’ vulnerability is mapped at the location of the proposed borrow pit. This corresponds with the GSI mapped occurrence of a small area of karstified bedrock outcrop or subcrop in this area. It is important to note that site investigations have revealed the depth to rock as being 10.6mbgl in this area, with the limestone bedrock overlain by a substation thickness of gravels, clays and sands.

The site investigations and walkover surveys indicate that there are low groundwater recharge rates at the Site, with the local soils/subsoils providing protection to the underlying regional groundwater system. Therefore, surface water bodies such as drains and streams/rivers are more vulnerable (to contamination from human activities) than groundwater across much of the Site, although localised areas may have higher rates of groundwater recharge.

6.3.2 Conclusions of the Desk Study

The desk study has provided information about the existing environment in hectad M27, within which the Proposed Project is located. The Site is located in the Corrib and Moy and Killala Bay WFD catchments and is underlain by the Cong-Robe and Swinford groundwater bodies. The EPA mapped Meander River flows along the southern boundary of the Site, and the River Robe flows downstream of Drumady Lough, which is located adjacent to the eastern boundary of the Site. Potential pathways for indirect effects on the River Moy SAC which is located downstream within the Zone of Influence of the Site via the Meander River, due to deterioration of water quality was identified. Balla Turlough SAC/pNHA was also identified as being within the Zone of Influence of the Proposed Project as there is potential groundwater connectivity between the Site and this SAC/pNHA. The Site was also identified as providing suitable habitat for SCI species associated with Lough Mask SPA and Lough Carra/Mask Complex pNHA. The potential for significant effects on bird species is assessed in detail within Chapter 7 Birds and is not addressed further in this Chapter.

The desk study identified that a variety of protected faunal species are known to occur within the wider study area, including bats, otter, badger and marsh fritillary. Given the records of marsh fritillary near the Site as well as the presence of peatland habitats, there is potential for this species to occur within the Site. The mammal species recorded during the desk study informed the survey methodologies undertaken during the site visits. The mammal species recorded within the relevant hectad have widespread ranges and distributions in Ireland and are likely to be recorded frequently throughout Ireland (Marnell *et al*, 2009²⁵).

The desk study revealed that there are no mapped Annex I Article 17 habitats present within or in close proximity to the Proposed Project, similarly no known records of rare or protected flora have been recorded within the Site but may be present within the hectad.

The desk study provided useful information to inform the ecological surveys undertaken on site as well as the identification of pathways for potential impact on sensitive ecological receptors.

²⁵Marnell, F., Kingston, N. & Looney, D. (2009) Ireland Red List No. 3: Terrestrial Mammals, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

6.4

Baseline Ecological Survey Results

6.4.1

Description of Habitats and Flora within the Site

The habitat mapping and descriptions presented in this section are informed by multidisciplinary and detailed vegetation surveys of the Site undertaken by MKO in 2023, 2024, 2025 and 2026. Detailed botanical data from relevés recorded within the Proposed Project footprint and across the Site in areas of species-rich habitats of high biodiversity value, and within all habitats identified as having potential to conform to habitats listed under Annex I of the EU Habitats Directive are provided in Appendix 6-1 of this EIAR. A habitat map of the Site is provided in Figure 6-5a-b The Proposed Project footprint is shown overlaying the habitat map in Figures 6-6a-b.

The Site comprises primarily areas of cutover bog and agricultural grassland habitats. Cutover bog habitats dominate the southern sections of the Site, and largely encompass areas of dry, revegetating peatlands with some areas of bare peat also present where turbary activities are ongoing. Areas of species-rich cutover bog and transition mire were identified within some parts of the cutover bog, and are described in detail in the following sections. A small marginal area of remnant uncut raised bog is also present within the west of the Site and extends beyond the Site boundary.

Much of the north of the Site is characterised by improved agricultural grasslands, with small sections of conifer plantation and scrub also present in the northeast. In the southeast of the Site wet grasslands dominate, and vary from species-poor agricultural wet grasslands to species-rich. These habitats are traversed and bordered by a network of stone walls, treelines and hedgerows, with existing roads and tracks present through the centre of the Site.

A total of 23 habitats and mosaic habitats were recorded within the Site and associated works areas including:

- Raised bog (PB1)
- Cutover bog (PB4)
- Transition mire and quaking bog on Cutover bog (PB4/PF3)
- Improved agricultural grassland (GA1)
- Dry meadows and grassy verges (GS2)
- Dry meadows and grassy verges / Scrub mosaic (GS4/WS1)
- Wet grassland (GS4)
- Mixed broadleaved/conifer woodland (WD2)
- Mixed conifer woodland (WD3)
- Conifer plantation (WD4)
- Hedgerows (WL1)
- Treelines (WL2)
- Scrub (WS1)
- Scrub on Cutover bog (PB4/WS1)
- Depositing/lowland river (FW2)
- Drainage ditches (FW4)
- Pond (Other)
- Tilled land (BC3)
- Stone walls and other stonework (BL1)
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Eroding/upland river (FW1) – Turbine Delivery Route only

The habitats present across the Site are described in the following subsections. Subsequent subsections provide additional location-specific detail for habitats occurring within the Proposed Project footprint, including the Proposed Grid Connection and Turbine Delivery Route.