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# Illaunbaun Wind Farm - Environmental Impact Assessment Report

## Appendix A08-05: Terrestrial Mammals Baseline

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This report considers the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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# Quality Assurance

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The findings outlined within this report and the data we have provided are to our knowledge true and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines. Where pertinent CIEEM Guidelines used in the preparation of this report include the *Guidelines for Ecological Report Writing* (CIEEM, 2017a), *Guidelines for Preliminary Ecological Appraisals* (CIEEM, 2017b) and *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2024). CIEEM Guidelines include model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment. Also, where pertinent, evaluations presented herein take cognisance of recommended Guidance from the EPA such as *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022), and in respect of European sites, *Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2019).

Due cognisance has been given at all times to the provisions of the *Wildlife Acts 1976-2023,* the *European Union (Natural Habitats) Regulations*, the *European Communities (Birds and Natural Habitats) Amendment Regulations 2021,* EU Regulation on Invasive Alien Species under *EU Regulation 1143/2014*, the EU Birds *Directive 2009/147/EC* and *Habitats Directive 92/43/EEC*.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Any limitation to the methods applied or constraints however are clearly identified within the main body of this document.

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| Version | Date | | Name | Signature |
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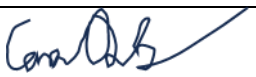
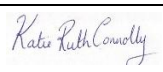
| 3 | 25/04/2025 | **Report Updated and Amended by:** | Conor Daly MSc BSc ACIEEM |  |
| 4 | 30/07/2025 | **Report Amended by:** | Katie Connolly MSc BSc |  |

| **Project Reference** | **2216L** | **Title** | Terrestrial Mammals Baseline Technical Appendix |
|---|---|---|---|

**Notice**

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***List of Figures:***



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# 1. INTRODUCTION

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## 1.1. Purpose of Technical Appendix

This technical appendix presents the Mammals ecological baseline information for the proposed Illaunbaun Wind Farm Project (from here on referred to as 'the Proposed Development') and the associated Zone of Influence (ZoI) relevant to Mammal sensitivities with respect to Wind Farm developments to inform the Biodiversity chapter of the Environmental Impact Assessment (EIA). The Proposed Development comprises all the land under consideration at the time of surveys that falls within the "Site Layout" of the Wind Farm site and is provided in the Description of the Development in the Main EIA Document.

### 1.1.1. Statements of Authority

This report has been prepared by experienced Inis Environmental Consultants Ltd (INIS) ecologists, based on field data collected by skilled INIS ecologists who are experienced in undertaking field surveys in relevant habitats and for relevant species. The contributors to this chapter are listed below:

**Dr Alex Copland PhD BSc MIEnvSc MCIEEM** is Technical Director with INIS and reviewed this report. Alex has over 30 years of professional experience working in both statutory and private companies, in third-level research institutions and with environmental NGOs. He is a full member of the Institute of Environmental Sciences (IES) and the Chartered Institute of Ecology and Environmental Management (CIEEM). He is proficient in experimental design and data analysis and has managed several large-scale, multi-disciplinary ecological projects, managing staff and resources to meet budgetary constraints and the successful delivery of projects on time. These have included research and targeted management work for species of conservation concern, ecological assessments (including fieldwork and reporting) for large-scale infrastructure projects (including Strategic Infrastructure Developments) and delivering successful planning outcomes, the design and delivery of practical conservation actions with a range of stakeholders and end-users, education and interpretation on the interface between people and the environment and the development of coordinated, strategic plans for birds and biodiversity. He has written numerous scientific papers, developed and contributed to evidence-based position papers, visions and strategies on birds and habitats in Ireland. He has supervised the successful completion of research theses for several post-graduate students, including doctoral candidates and is a collaborative researcher with both UCD and UCC. He also sits on the Editorial Panel of the scientific journal, *Irish Birds*, which publishes original ornithological research relevant to Ireland's avifauna, and CIEEM'S Irish Policy Group.

**Mr Conor Daly ACIEEM MSc BSc (Hons.) (Ecologist, INIS)**: Conor is the Report Team Lead with Inis Environmental and authored this report as part of the Inis report writing team baseline technical reports submissions. Conor was awarded an MSc in Biodiversity and Conservation from Trinity College Dublin in 2017 and an Honours BSc in Zoology for the University of Galway in 2016. Conor has been conducting ornithological surveys for projects since 2021 for a variety of projects including industrial estates and Wind Farms (Small-Large). Conor has experience in raptor conservation with ample experience with bird of prey pressures and threats to protected species and has provided reports for EIAR and NIS reports while working with Inis Environmental Ltd for mammal, bat, amphibian, aquatic receptors for renewable energy projects across Ireland.

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**Ms Katie Connolly MSc BSc:** has contributed to the amendments of this technical appendix. She was awarded an MSc in Applied Environmental Science from UCD and a BSc (Hons) in Zoology from University College Dublin (UCD), specialising in pollinator and marine ecology, and is a Qualifying member of CIEEM. She has conducted habitat, mammal, invasive species, entomological, marine and bat surveys for conservation monitoring projects, species reintroduction projects and private developments. Throughout her year of experience as an ecologist, Katie has written and reviewed Appropriate Assessment (AA), Natura Impact Statement (NIS), and Invasive Alien Species (IAS) Survey reports as well as Invasive Species Management Plans (ISMP), Environmental Management Plans (EMP), and Site-Specific Environmental Control Plans (SSECP) for private developments, renewable energy, water conservation, broadband infrastructure development and other civil development projects. Including:

- Reviewed and amended EIAR text for a 4-turbine wind farm in Co. Donegal, with a generating output of 18MW; and
- Reviewed and amended EIAR, NIS and SHMP text for a 6-turbine wind farm in Co. Clare, with a generating output of 25.2MW.

**Cillian Burke BSc**: conducted the May 2024 mammal walkover survey. He is an ecologist with a BSc (Hons) in Environmental Science from the Galway University. Cillian has four years experience in undertaking multi-disciplinary surveys including habitat classification, ornithology vantage point surveys, breeding wader surveys, Ecological Clerk of Works (EcoW) and bat surveys, and has authored ecological reports including EIARs, AA Screening Reports, NIS, EcIA and Biodiversity Net Gain (BNG) Reports. He is a Qualifying member of CIEEM.

**Molly O'Hare MSc BSc** carried out mammal walkover surveys and deployed camera traps on this project. She is a bat ecologist with Inis Environmental Consultants Ltd, has a BSc in Ecology and Environmental Biology and an MSc in Marine Biology from University College Cork. She was the lead surveyor for bat surveys for this project with 3 years of experience conducting general mammal surveys. Molly also has experience in the preparation and writing of reports, including ecology reports and screening for Appropriate Assessment.

**Ms Emma Condron BSc** was the Environmental Manager with Inis Environmental Consultants Ltd., in charge of all ECoW operations and onsite reviews who deployed camera traps. Emma conducted general mammal walkover as well as otter, badger and red squirrel target surveys for this project. She was awarded an honours BSc degree in Wildlife Biology from the Institute Technology Tralee. This course provided her with the knowledge and understanding of Irish Wildlife and the environment. Emma has experience in bat emergence and re-entry surveys for various construction projects across Ireland and has received training in bat ecology and bat call analysis. She had three years' experience in conducting ecological bird survey, including both field surveys and data management. She has taken part in CIEEM led report writing training and is a Qualifying member of CIEEM. Emma's report writing and review experience includes Appropriate Assessment Screening and ECoW audits.

### 1.1.2. Structure of Technical Appendix

This technical appendix has been set out as follows:

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- **Section 2** sets out the approach and methodology used for obtaining the desk-study and survey data. The detail of the desk-study information acquired is presented in **Section 2.1**, whilst the field study methodology is presented in **Section 2.2**.
- **Section 3** sets out the results of the desk and field studies used to inform the baseline conditions and summarises the ecological features present for mammals within the study area. **Section 3.1** provides the list desk study reviews. **Section 3.2** lists the results of the field study surveys for the relevant target species.
- **Section 4** describes the biodiversity baseline for the Proposed Development based on the field study results. **Section 4.1** provides a brief description of the overall mammal baseline within the study area by target species. **Section 4.2** summarises the Important Ecological Features (IEFs) scoped in for the main reports impact assessment.
- **Annex A** provides a table detailing a schedule of mammal walkover surveys completed and associated results.
- **Annex B** provides images of tunnel features recorded during surveys, see **Section 3.2.2**.

## 1.2. Legislation and Policy

The following legislation has been used and considered in developing and understanding of the baseline ecological conditions of the Proposed Development with regard to terrestrial mammals:

- EU Habitats Directive (1992) Council Directive 92/43/EEC[1];
- Irish Wildlife Acts 1976 to 2023 ("Wildlife Acts")[2];
- 4th National Biodiversity Action Plan 2023 – 2030;
- Clare County Development Plan 2023 – 2029; and
- Clare Biodiversity Action Plan 2017-2023.

## 1.3. Guidance and Best Practice

The following guidance has been used and considered when developing the baseline with regard to terrestrial mammals for the Proposed Development:

- CIEEM (2017a) Guidelines for Ecological Report Writing. Chartered Institute of Ecology and Environmental Management;
- CIEEM (2017b) Guidelines for Preliminary Ecological Appraisal (2nd Ed). Chartered Institute of Ecology and Environmental Management;
- CIEEM (2021) Good Practice Guidance for Habitats and Species. Version 3. Chartered Institute of Ecology and Environmental Management, Winchester;
- CIEEM (2024) 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;
- Environmental Protection Agency (2022) Guidelines on the Information to be contained in EIA Reports, Draft;

[1] *Directive - 92/43 - EN - Habitats Directive - EUR-Lex*
[2] *Revised Acts*

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- Marnell *et al.* (2019) NPWS 'Ireland Red List No. 12: Terrestrial Mammals';
- Lysaght and Marnell (2016) 'Atlas of Mammals in Ireland 2010-2015';
- Lawton *et al.* (2020) 'Irish Wildlife Manual 121, All-Ireland Squirrel and Pine Marten Survey 2010';
- Sleeman *et al.* (2009) How many Eurasian Badgers are there in Ireland? European Journal of Wildlife Research;
- NRA (2008) Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes. National Roads Authority;
- NRA (2006) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. National Road Authority;
- NRA (2005) Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes;
- National Roads Authority (2009a) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes;
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b);
- Reid *et al.* (2013) 'Irish Wildlife Manuals No. 76, National Otter Survey of Ireland 2010/12; and
- Practice Note PN02: Environmental Impact Assessment Screening for Development Management. OPR (2021).

## 1.4. Zone of Influence

The Zone of Influence (ZoI) is the area defined by the assessment in which an ecological feature may be subject to impacts and subsequent effects (both positive and negative) as a result of the Proposed Development.

The maximum extent of ZoI considered for mammals is the areas with the respective potential for project impact sources from the Proposed Development to interact with mammal receptors via terrestrial or hydrological pathways (Office of the Planning Regulator (OPR), 2021). Mammals vary in their commuting, foraging and nesting ranges. As such, ZoI was based on species specific ranges (where evidence was available).

### *1.4.1.* Otter

Otter (*Lutra lutra*) is primarily found near suitable waterbodies with supporting banks comprised of varying densities of grasses, shrub and fens. As such, the riparian habitats associated with watercourses connected to the Proposed Development were considered to be within the ZoI.

Otters have a foraging range of 13.2km ± 5.3km (Reid *et al.*, 2013). Due to the nature of otter ranges and the potential for suitable habitat being present within the ecological baseline, the following ZoI was assigned:

- Any designated site within 18.5km of Proposed Development via hydrological pathways;
- 150m upstream and downstream of all water crossings and areas within 50m of those watercourses (NRA, 2006; NRA, 2008; Reid *et al.*, 2013);
- 50m from all road works; and



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- 50m from the Project elements.

### 1.4.2. Eurasian Badger

The ZoI for badger (*Meles meles*) was identified as all areas within 50m of the Proposed Development, in line with NRA Guidance (NRA, 2005).

### 1.4.3. Other non-volant mammals

The ZoI of all other mammal species were assigned a general ZoI of 50m from the Proposed Development boundary (based on ZoI for badger (NRA, 2005)).

## 1.5. Study Area and Survey Ranges

The desktop study focused on the receiving environment of the Proposed Development. The study area consisted of the two 10km grid squares within which the Proposed Development is located (NBDC, 2025):

- R08; and
- R18.

The survey area for the field study focused primarily on the Wind Farm element of the Proposed Development with one survey replicate undertaken which targeted otter along the grid connection route. Each receptor type and their respective surveys are outlined in **Table 1.1**.

**Table 1.1:** *Receptor surveys and survey ranges.*

| Receptor | Survey Type | Survey Area | Reasoning |
|---|---|---|---|
| Otter | Otter watercourse crossing surveys | 150m upstream/ downstream of crossing | Maximum range for impact proximity based on guidance (NRA, 2006; NRA, 2008; Reid *et al.,* 2013) |
| All Mammals | Walkover surveys | Within 50m of red line boundary | Reasonable range of interaction with mammal species and the Proposed Development based on the most sensitive receptor's disturbance distance (NRA, 2005; NRA, 2006). |
| Eurasian Badger | Walkover surveys | Within 50m of red line boundary | |
| All Mammals | Camera traps | Within the red line boundary of the Proposed Development | |

## 1.6. Scoping of Important Ecological Features (IEFs)

Species of varying ecological importance are expected to be present on site and within the receiving environment of the Proposed Development. Following the desk study and field survey efforts, ecological values were assigned to species present on site with consideration of their conservation and/or protected status. Reasoning and conclusions are provided in **Section 4.1,** and a summary table of IEFs scoped in is provided in **Section 4.2**. **Table 1.2** below provides details on determining importance at the varying levels **(International, National, County, Local (Higher Value)** or Local (Lower Value)) as set by NRA Guidance (2009b) and in consideration of the more recent CIEEM guidance for Ecological Impact Assessment (EcIA) (CIEEM, 2024).

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**Table 1.2:** *Determining the importance of IEFs, as set out in NRA/CIEEM Guidance.*

| Resource Evaluation | NRA Criteria |
|---|---|
| **International Importance** | • 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation;<br>• Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network;<br>• Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;<br>• World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972);<br>• Biosphere Reserve (UNESCO Man & The Biosphere Programme). Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979); and<br>• Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). |
| **National Importance** | • Site designated or proposed as a Natural Heritage Area (NHA);<br>• Statutory Nature Reserve;<br>• Refuge for Fauna and Flora protected under the Wildlife Acts;<br>• National Park;<br>• Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); and<br>• Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive. |
| **County Importance** | • Area of High Amenity, or equivalent, designated under the County Development Plan;<br>• Resident or regularly occurring populations (assessed to be important at the County level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list;<br>• County important populations of species, viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared; and<br>• Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level. |
| **Local Importance (Higher Value)** | • Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared; and<br>• Resident or regularly occurring populations (assessed to be important at the Local level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in |

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| Resource Evaluation | NRA Criteria |
|---|---|
| | Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. |
| Local Importance (Lower Value) | • Sites or features containing non-native species that are of some importance in maintaining habitat links. |

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# 2. METHODOLOGY

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## 2.1. Desk Study

A review of the National Park and Wildlife Service (NPWS) Protected Species Database and the National Biodiversity Data Centre (NBDC)[3] website was conducted to identify any mammals of conservation concern recorded within the wider ecological baseline, to inform the extent of mammal biodiversity for the field study. The two 10km$^2$ grid squares that the proposed scheme overlaps are the R08 and R18.

Designated sites listing otter as a Qualifying Interest (QI) within 15km of, or hydrologically upstream of the project elements were also considered during the desk study to inform necessary survey efforts for the field study.

## 2.2. Field Study

Mammal surveys were conducted within the extent of the Proposed Development and an additional 50m buffer survey area which included a focus on the primary Annex II listed mammals, including otter (protected under EU Habitats Directive) and other species of conservation concern such as badger.

Surveys followed appropriate survey methodologies outlined by the National Road Authority (2005; 2006; 2008; 2009) and were conducted the 2022/2023 winter period for the camera trap and general walkover surveys. Otter watercourse crossing surveys were conducted in June 2023. The field survey methodologies are described in the Sections below. An additional mammal survey was conducted in Autumn 2024 due to site layout changes. This was conducted at the same time as other uplift surveys such as Bat PRA survey (**Appendix A08-04**) and the Habitat Walkover survey (**Appendix 08-02**).

### 2.2.1. Mammal Walkover Survey

Mammal walkovers were conducted in November 2022 in line with the NRA Guidelines for the '*Treatment of Badgers Prior to Construction of National Road Schemes*' (NRA, 2005). Transect walkovers were conducted along the access road routes where access was possible, and within those fields that turbines are planned to be erected in (**Figure 2.1**). A supplemental mammal walkover survey was conducted in Autumn 2024 due to a design change impacting the layout of the site. Details recorded included evidence/field sign type, species, location and supporting descriptions (**Table A.1**). This information is considered suitable to inform the current mammal baseline data and the extent of risk posed to this baseline by the Proposed Development.

Evidence of Otter (spraint, slides, holts, feeding [cracked shells, fish bones]) were searched for along waterbodies adjacent to the Proposed Development as part of these surveys following NRA (2006) guidance.

Other mammal species were surveyed for and included recording the following field signs of all mammals during terrestrial mammal surveys undertaken within the study area:

- Well-used pathways;
- Prints/tracks;

[3] *https://maps.biodiversityireland.ie/Map*

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- Scats/spraints/droppings;
- Signs of feeding (foraged pinecones, badger snuffle holes, etc); and
- Places of shelter and features or areas likely to be of particular value as foraging resources (NRA, 2005).

Photographs and detailed notes were also recorded of features of potential value to relevant mammal species and subsequently mapped using QGIS (see **Figure 3.1 for map, Annex B for photographs**).

Records of incidental sightings of individuals or other evidence observed during other surveys (incidental records) were also considered to inform the baseline data.

### 2.2.2. Camera Trap Surveys

The suitable habitat for mammals was identified within the Wind Farm element of the Proposed Development. Cameras were deployed once at each of eight locations (**Table 2.1**). Four deployed 30th November 2022 and collected 9th December 2022. Four additional were deployed 3rd January 2023 and collected 13th 2023. The majority of these were located near or between the South-West entrance roads, borrow pits and T3; and between T2 and T5 with one along the North-Eastern access road to the Wind Farm element (**Figure 2.2**). Deployment locations were chosen based on likelihood of mammal use and framed to best capture mammal activity. Camera deployment focused on areas near infrastructure features such as access roads, paths, borrow pits, and turbine locations (particularly around T2, T3, and T5), with a concentration on the western side of Lough Keagh and three sites located to the north. Site selection aimed to maximise detection probability based on likely mammal movement corridors and habitat connectivity. (**Figure 2.2**).

All captured images from these deployments were processed and analysed by an experienced ecologist (reference **Section 1.1.1**) to identify all mammal species within the receiving environment. Other ecological receptor groups recorded during these efforts were also noted as incidental records (where applicable).

**Table 2.1:** *Camera trap deployment locations and dates.*

| Camera trap No. | Camera Coordinates (ITM) | Deployment date | Collection date |
|---|---|---|---|
| INIS19069 | 510132, 681461 | 01/03/2023 | 13/01/2023 |
| INIS19071 | 509916, 681316 | 01/03/2023 | 13/01/2023 |
| INIS19070 | 509713, 680986 | 01/03/2023 | 13/01/2023 |
| INIS19068 | 509619, 680824 | 01/03/2023 | 13/01/2023 |
| INIS19060 | 509803, 680703 | 30/11/2022 | 09/12/2022 |
| INIS19062 | 511118, 682056 | 30/11/2022 | 09/12/2022 |
| INIS19063 | 509837, 681189 | 30/11/2022 | 09/12/2022 |
| INIS19064 | 510050, 681733 | 30/11/2022 | 09/12/2022 |

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## 2.3. Constraints and Limitations

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There are a number of limitations inherent to field-based surveying, in particular for mammal surveys. These relate mainly to the availability of suitable weather conditions. As such, when undertaking and completing fieldwork, careful consideration and planning was made to ensure optimal weather conditions during survey periods. Due to the nature of the survey methodology, access to all areas within the survey area was not always possible (areas of dense vegetation and waterlogged peatland). Where areas were inaccessible for walkovers to be conducted, these areas were noted as such in the field data. Survey area was observable from within 50m of the surveyors, as such, despite certain areas not being directly traversable, the full survey area was observed for evidence of mammals.

The mammal data presented in this report was collected in optimal weather conditions during winter 2022/2023 and Autumn 2024 for walkover surveys. Daytime walkovers included searching for evidence of mammal species, not just directed sightings. Camera trap deployments were across multiple dates to sample nocturnal and crepuscular mammal species, utilizing the habitats within the Proposed Development. As such, it is considered that no significant constraints occurred during the monitoring period, and the survey data provides accurate detail on the baseline biodiversity in relation to terrestrial mammals within the Proposed Development and surrounding environs as areas that were not accessible are represented by habitat niches surveyed during efforts.

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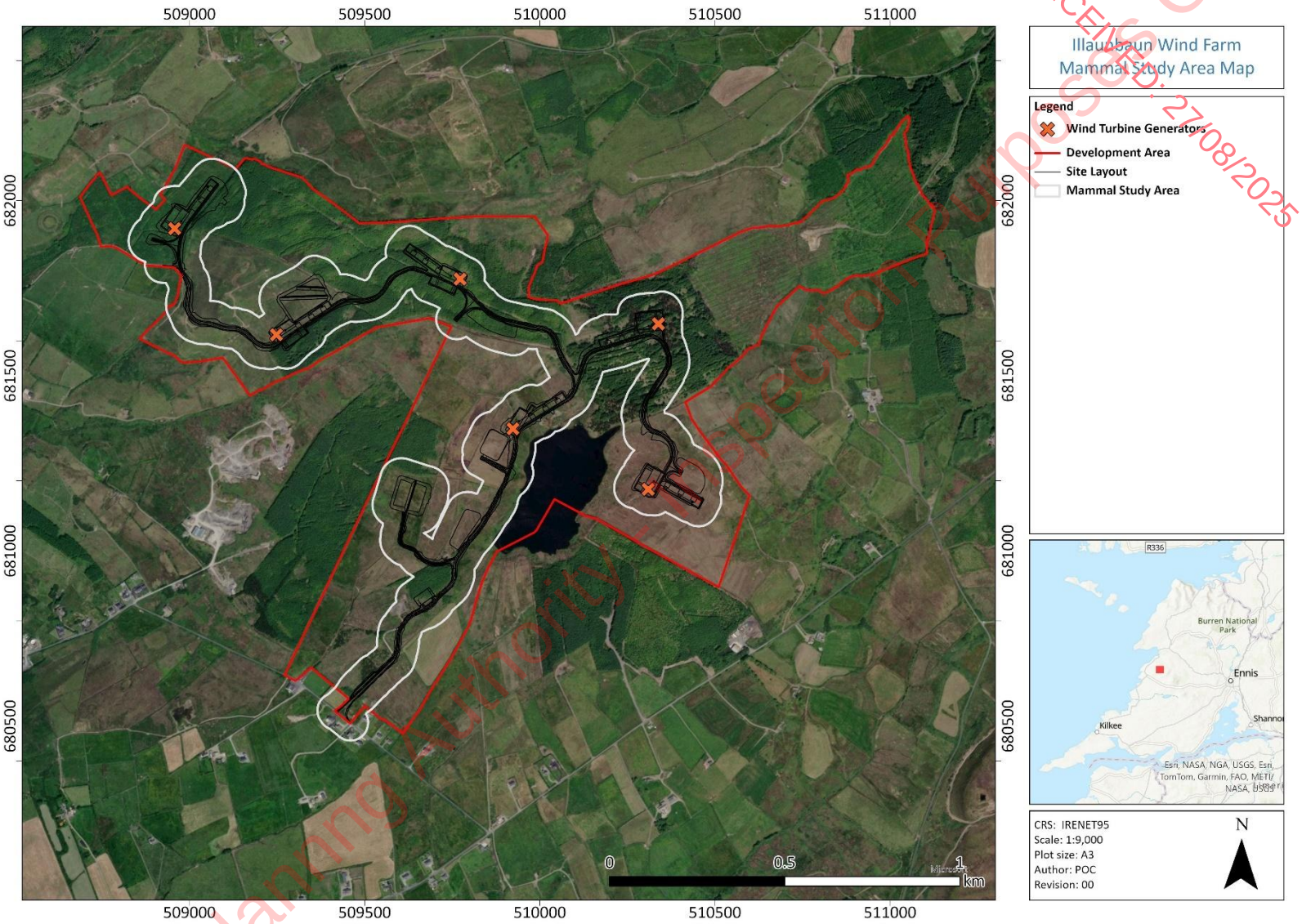


**Figure 2.1:** *Mammal Walkover study area 2022/2024 consolidated.*

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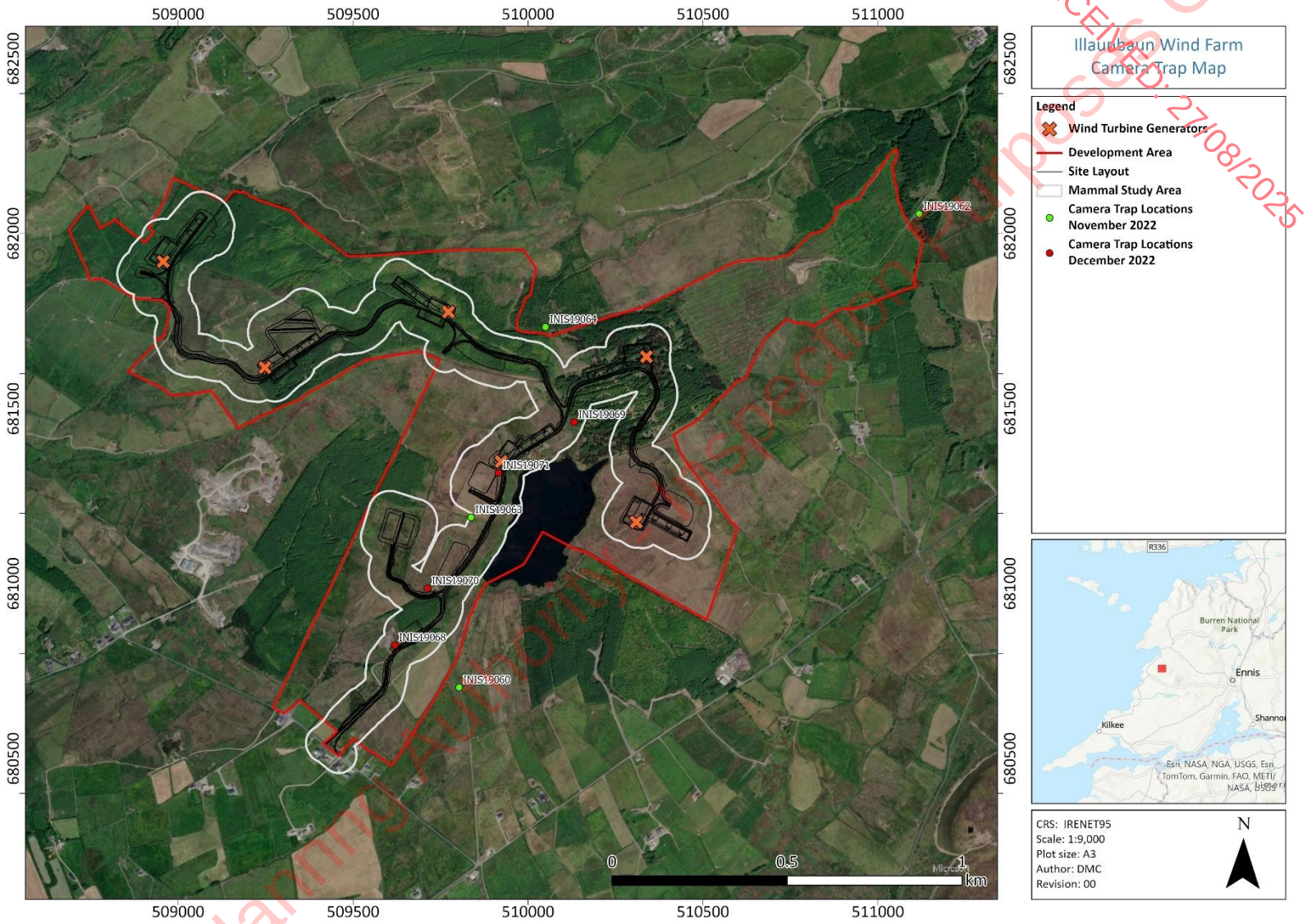


**Figure 2.2:** *Camera trap deployment locations.*

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# 3. RESULTS

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## 3.1. Desk Study

The record data for the 10km grid squares that overlap with the Proposed Development yielded seven terrestrial mammal species that are within the receiving environment of the Proposed Development. Terrestrial Mammals of conservation concern recorded within the R08 and R18 10km grid squares that overlap with the Proposed Development are shown below in **Table 3.1**.

**Table 3.1:** *NBDC records of mammal species in grid squares R08 and R18.*

| Grid Square | Species name | Record count | Date of last record | Designation |
|---|---|---|---|---|
| R08 | Otter (*Lutra lutra*) | 3 | 20/09/2010 | EU Habitats Directive Annex II |
| | Pine marten (*Martes martes*) | 3 | 31/12/2012 | EU Habitats Directive Annex V, Wildlife Acts |
| | Badger (*Meles meles*) | 14 | 31/12/2015 | Wildlife Acts |
| | Irish hare (*Lepus timidus subsp. hibernicus*) | 4 | 04/06/2021 | Wildlife Acts |
| | Irish stoat (*Mustela erminea subsp. hibernica*) | 1 | 29/10/2014 | Wildlife Acts |
| | Raccoon (*Procyon lotor*) | 1 | 10/10/2018 | Invasive Species: Invasive Species >> High Impact Invasive Species \|\| EU Regulation No. 1143/2014 |
| R18 | Badger (*Meles meles*) | 54 | 11/03/2017 | Wildlife Acts |
| | Hedgehog (*Erinaceus europaeus*) | 1 | 20/05/2016 | Wildlife Acts |
| | Irish hare (*Lepus timidus subsp. hibernicus*) | 16 | 27/08/2022 | Wildlife Acts |
| | Irish stoat (*Mustela erminea subsp. hibernica*) | 1 | 30/08/2023 | Wildlife Acts |
| | Otter (*Lutra lutra*) | 1 | 03/09/2010 | EU Habitats Directive Annex II, Wildlife Acts |
| | Pine marten (*Martes martes*) | 10 | 08/07/2020 | EU Habitats Directive Annex V, Wildlife Acts |
| | Red squirrel (*Sciurus vulgaris*) | 1 | 12/09/2017 | Wildlife Acts |
| | Raccoon (*Procyon lotor*) | 1 | 18/09/2018 | Invasive Species: Invasive Species >> High Impact Invasive Species \|\| EU |

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| | | | | |
|---|---|---|---|---|
| | | | | Regulation No. 1143/2014 |
| | Fallow deer (*Dama dama*) | 1 | 31/12/2008 | Invasive Species: Invasive Species >> High Impact Invasive Species \|\| Regulation S.I. 477 (Ireland) \|\| Protected Species: Wildlife Acts |

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Mammal presence within the ecological baseline of the Proposed Development was considered to be represented by the records within the two 10km grid squares that overlap with the Proposed Development. The nearest European site that lists the only Annex II species (otter) is greater than 19km from the Wind Farm element of the Proposed Development (**Appendix A08-01**). NPWS records also include those for pine marten within the areas South-West of the Proposed Development [4]. No SACs within the ZoI of the Proposed Development list otter as a QI.

## 3.2. Field Study

Mammal walkover surveys results are provided in detail in **Table A.1**. Camera trap results are provided in **Table 3.6**. Below are the results of the survey efforts focussing on target species where relevant to the observations of the field study.

### 3.2.1. Otter

No observations of otter were recorded during otter-specific surveys, mammal walkover or camera trap surveys, and no secondary evidence was recorded during these surveys. However, a tunnel deep in vegetation, suitable for otter, near Lough Keagh (IE_SH_28_64) was recorded near the Proposed Development access tracks (ITM: 509752, 680953) (**Figure B.1**).

No SAC within the ZoI of the Proposed Development list otter as a QI (**Appendix A08-01**).

### 3.2.2. Badger

See Secondary evidence of badger was recorded within the Receiving environment along the road that provides access to the Proposed Development (ITM: 510049.53, 681795.379). An extensive potential sett and associated tunnel system was recorded South of turbine hardstand location T3. (**Table A.1**, **Figure B.1**, **Figure B.2**, **Figure 3.2**). Three project elements fall within 50m of these tunnel entrances (Access Track Verge, Access Track, Earthworks). No direct evidence of badger or other mammals was present at the tunnel entrances. Under a precautionary principle and following best evidence, these "tunnel features" may potentially be used by badger but may not be in regular use.

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[4] https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=2

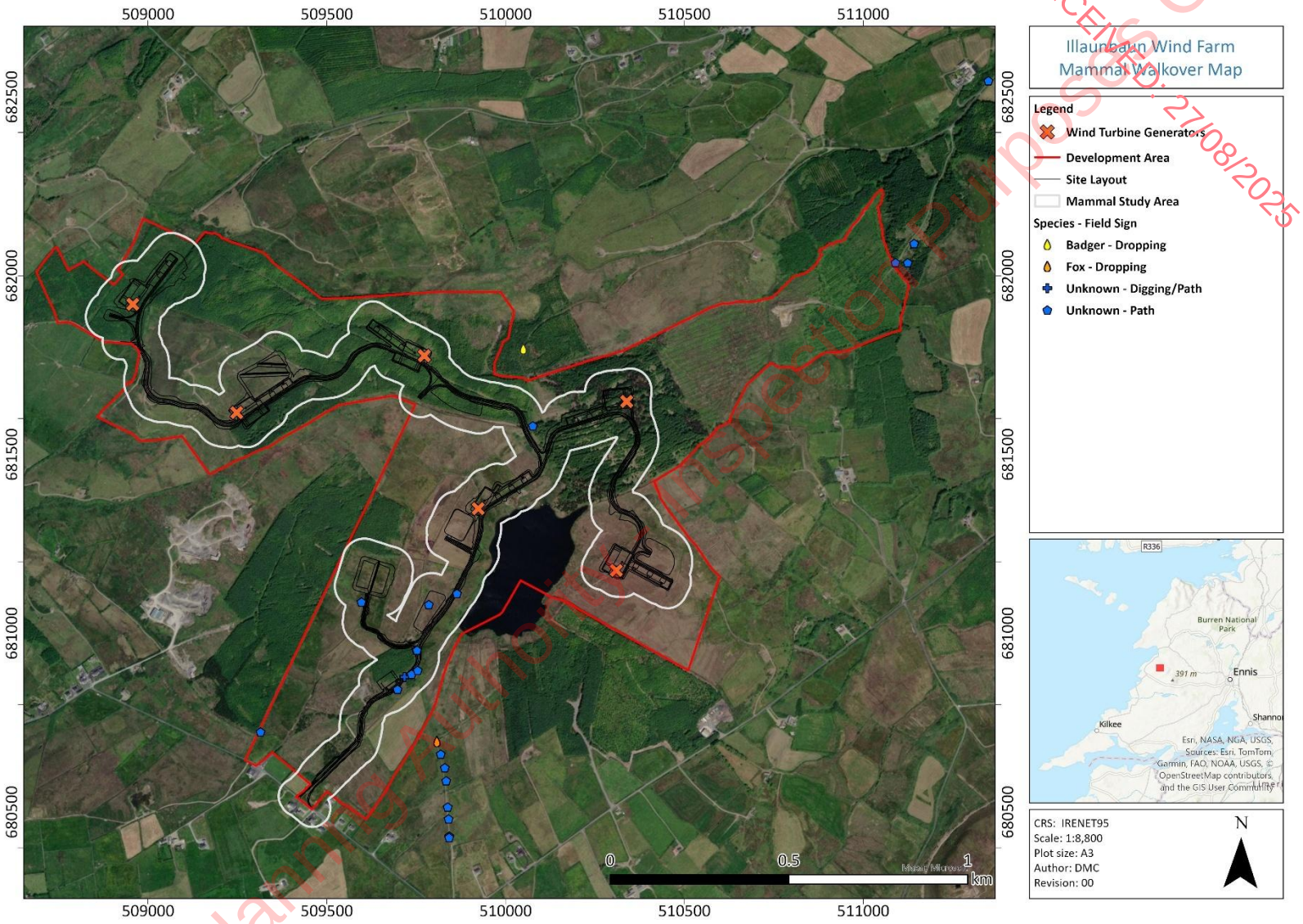


**Figure 3.1:** *Mammal walkover results.*

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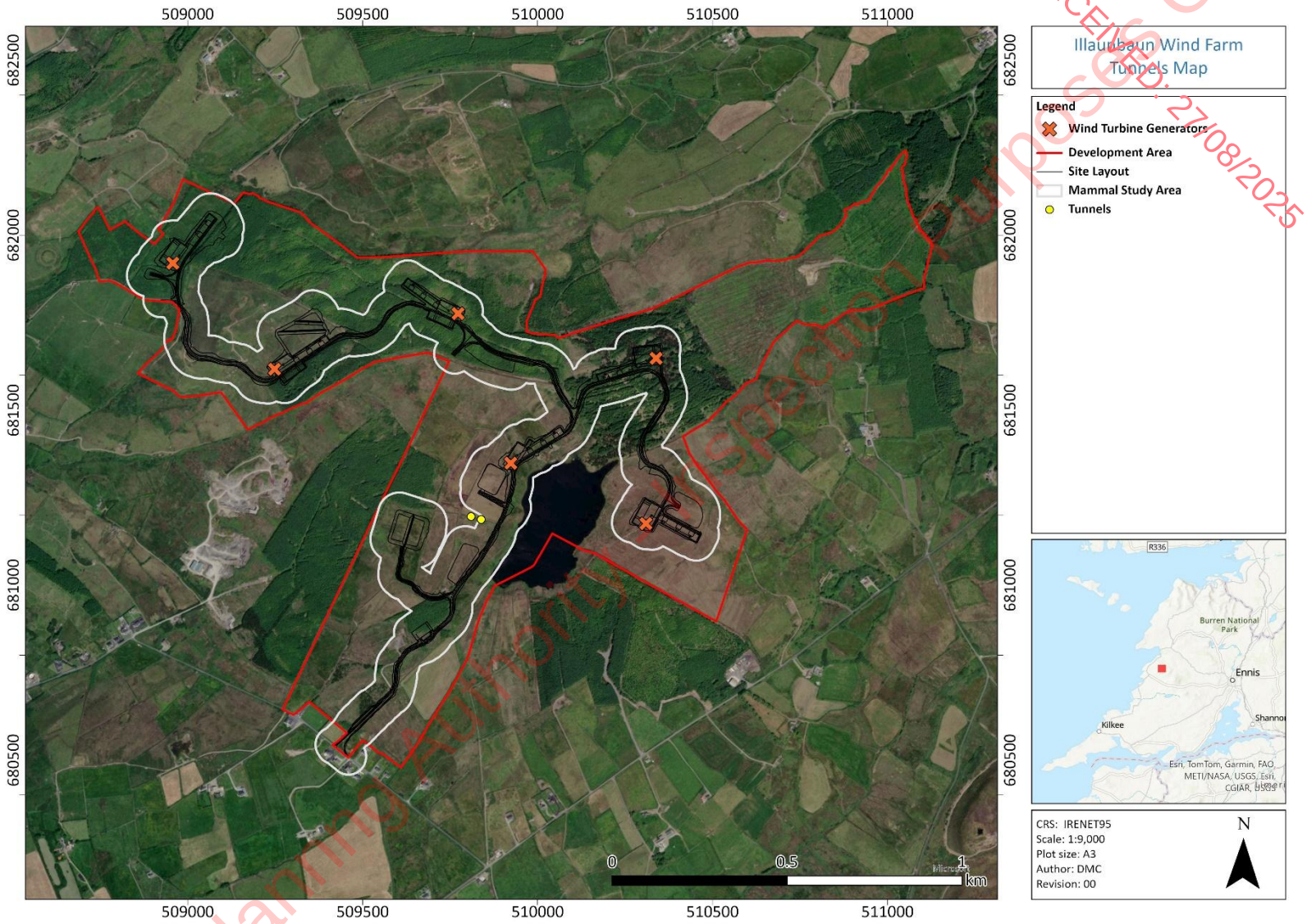


**Figure 3.2:** *Location of tunnel features within the development redline boundary.*

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### 3.2.3. Red squirrel

Red squirrel (*Sciurus vulgaris*) specific surveys were conducted in February 2023 following Carey *et al.* (2007) methodology. No records were observed during any of the ecological surveys. Due to the extent of mixed woodland forestry adjacent to the Proposed Development's and coniferous forestry within the Redline Boundary, there is suitable habitat for this species. It is listed under the Bern convention III and the Wildlife Acts. Despite its scarce presence within the ecological baseline, it is a species of importance for local biodiversity.

### 3.2.4. Other Non-Volant Mammals

The habitat recorded within the Proposed Development study area (i.e., forestry, improved agricultural grassland, and lake) is considered suitable for various mammal species (**Appendix A08-02**). Three species were recorded by the camera trap surveys: Irish hare *(Lepus timidus* subsp. *Hibernicus)*; red fox (*Vulpes vulpes*), and wood mouse (*Apodemus sylvaticus*). Multiple mammal runs were recorded with no species-specific evidence observed. The majority of records from the mammal walkover were of general mammal tracks and fox scat (**Figure 3.1**).

#### 3.2.4.1. Irish hare

Irish hare were on recorded five occasions during the camera trap deployments (**Table 3.6**). No walkover survey sightings were observed. This species is listed under the Wildlife Acts 1976-2023. Therefore, this species is considered of **Local Importance (Higher Value).**

#### 3.2.4.2. Red fox

Red fox was recorded twice on the same date in January during camera trap surveys (**Table 3.6**). These sightings were recorded near the South-West access road near the conifer plantation forestry before the junction to the Burrow Pit (509619, 680824). One record of fox droppings was observed during walkover surveys. It is not listed under the Habitat's Directive but is listed under the Wildlife Acts and is therefore of Local Importance (Lower Value) with consideration to the Proposed Development.

#### 3.2.4.3. Wood mouse

Wood mouse was recorded five times across two dates in January during camera trap surveys (**Table 3.6**). No evidence was observed during walkover surveys. The species is not listed under the Habitat's Directive or the Wildlife Acts 1976-2023 and is therefore only of Local Importance (Lower Value) consideration for this Proposed Development.

#### 3.2.4.4. Pine marten and Irish stoat

No sightings or records of these species were recorded during survey efforts.

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**Table 3.2:** *Camera trap survey results.*

| Camera trap No. | Camera Coordinates (ITM) | Photo ID | Species | Date of photo | No. of individuals |
|---|---|---|---|---|---|
| **January 3rd – January 13th 2023** | | | | | |
| INIS19069 | 510132, 681461 | NA | Nil Sightings | NA | NA |
| INIS19071 | 510132, 681461 | 1060011 | Hare | 06/01/2023 | 1 |
| INIS19071 | 510132, 681461 | 1110012 | Hare | 11/01/2023 | 1 |
| INIS19071 | 510132, 681461 | 1110012 | Hare | 11/01/2023 | 1 |
| INIS19071 | 510132, 681461 | 1110013 | Hare | 11/01/2023 | 1 |
| INIS19071 | 510132, 681461 | 1110014 | Hare | 11/01/2023 | 1 |
| INIS19070 | 509713, 680986 | NA | Nil Sightings | NA | NA |
| INIS19068 | 509619, 680824 | 3010351 | Hare | 03/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3010352 | Hare | 03/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3010353 | Hare | 03/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3040358 | Hare | 04/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3040360 | Fox | 04/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3040361 | Fox | 04/01/2023 | 1 |
| INIS19068 | 509619, 680824 | 3060388 | Hare | 06/01/2023 | 1 |
| **November 30th – December 9th 2022** | | | | | |
| INIS19060 | 509803, 680703 | NA | Nil Sightings | NA | NA |
| INIS19062 | 511118, 682056 | 12020019 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12020018 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12020017 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12020016 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12060024 | Wood mouse | 06/12/2022 | 1 |
| INIS19063 | 509837, 681189 | NA | Nil Sightings | NA | NA |
| INIS19064 | 510050, 681733 | NA | Nil Sightings | NA | NA |
| INIS19060 | 509803, 680703 | NA | Nil Sightings | NA | NA |
| INIS19062 | 511118, 682056 | 12020019 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12020018 | Wood mouse | 02/12/2022 | 1 |
| INIS19062 | 511118, 682056 | 12020017 | Wood mouse | 02/12/2022 | 1 |

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# 4. DESCRIPTION OF THE MAMMAL BASELINE

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Evidence of mammal trails indicates the presence of mammal species within the ecological baseline of the Proposed Development.

The field study evidence supports badger, Irish hare and red fox as the main species confirmed to be present within the study area of the Proposed Development.

## 4.1. Scoping of IEFs

### 4.1.1. Otter

Otter was sighted on ten occasions within the two 10km Grid Squares (NBDC, 2025) in which the Proposed Development is located (NBDC, 2025).

Suitable otter habitat is present on within the Proposed Development study area (Lough Keogh and drain pathways to healthy river networks) but no sightings or secondary evidence were observed. No evidence of otter was recorded along the grid connection water crossings. Otter is likely to be present along the many watercourses that flow through the area. Due to the sparce occurring local populations of the species based on desk study records, as well as their protected status under the Habitats Directive, otter is of conservation value as an Annex II Habitats directive species, and due to the historical records of this species within the ecological baseline, the population of otter is of **County Importance** and is considered an IEF for detailed consideration in the impact assessment.

### 4.1.2. Badger

Badger was recorded 68 times within the two 10km grid squares overlapping the Proposed Development (NBDC, 2025). Badger is likely present within the ecological baseline based on the desk study results, the evidence recorded during field study surveys and suitable habitat present within the immediate surrounding area of the Proposed Development with potential to be used by badger as a sett. Due to the extent of resident local populations of the species as well as their protected status under the Wildlife Acts, badger is of **Local (High value) Importance**.

### 4.1.3. Red squirrel

Red squirrel is protected by the Protected Wildlife Acts (1976-2023) and is considered of Least Concern on the IUCN Red List. Despite the absence of red squirrel records during the field study, The only records for this species are the five recorded in 2022 within the R18 10 km grid square. As, such, it is likely to be present within the surrounding area of the Proposed Development (i.e. mixed woodland directly West of the Redline Boundary. As such, this species is scoped in as an IEF of **Local (High Value) Importance** based on its ecological value and the suitable habitat present within the surrounding area.

### 4.1.4. Other Non-Volant Mammals

#### 4.1.4.1. Irish hare

Irish hare was recorded 28 times within the two 10km grid squares overlapping the Proposed Development (**Table 3.1**; NBDC, 2025). Irish hare was recorded during camera trap surveys. *Lepus timidus subsp. hibernicus* is a sub-species specific to Ireland and is protected by the Wildlife Acts and

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Appendix III of the Bern Convention, and is considered of Least Concern on the IUCN Red List. Due to this, and its presence within the ecological baseline Irish hare is considered an IEF of **Local (High Value) Importance**.

#### 4.1.4.2. Red fox

Red fox was recorded during camera trap surveys in January and indicates ample food sources and suitable habitat within the receiving environment of the Proposed Development and the immediate surrounding habitats. Despite its presence, red fox is not considered an IEF due to its conservation status.

#### 4.1.4.3. Wood mouse

Wood mouse is present within the ecological baseline of the Proposed Development from the camera trap surveys, however, as it is neither a protected or threatened species, it is not scoped in as an IEF.

#### 4.1.4.4. Pine marten, Irish stoat and Pygmy shrew

Pine marten (*Martes martes*) and Irish stoat (*Mustela erminea subsp. hibernica*) were recorded within two 10km grid squares overlapping the Proposed Development (**Table 3.1**; NBDC, 2025). Both species are listed under Annex IV of the EU Habitats Directive. Due to the absence of records or evidence of pine marten, Irish stoat and pygmy shrew within the Proposed Development survey area, neither of these species are considered an IEF despite their high ecological value under the guidance set out in **Table 1.2** and the desk study results indicating their presence in the surrounding environment due to the absence of evidence supporting presence from field study results.

Pine marten is considered an IEF due to its conservation status and desk study indication of presence within the wider ecological baseline under the precautionary principle.

Due to the nature of the mammal survey methodology (scat evidence becoming less detectable over time) and the elusive behaviour of some of the species indicated by the desk study, these challenges informed the field study results and the conclusion of which species should be scoped in as IEFs. See **Section 4.1** for Summary of IEFs.

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## 4.2. Summary of IEFs

A total of five mammal species are deemed IEFs in relation to the Proposed Development. The full list of mammal receptors and whether they have been scoped in or out as IEFs following the assessment completed in sections **4.1.1** to **4.1.4** is provided below in **Table 4.1**:

**Table 4.1:** *Scoping of Important Ecological Features.*

| Species | Legislation/Designation | Receptor Value | Scoped In/Out as Important Ecological Features |
|---|---|---|---|
| Otter | EU Habitats Directive Annex II | **County** | **In** |
| Badger | Wildlife Acts | **Local (High)** | **In** |
| Red squirrel | Bern Convention III | **Local (High)** | **In** |
| Irish hare | Wildlife Acts | **Local (High)** | **In** |
| Red fox | | Local (Low) | **Out** |
| Pine marten | EU Habitats Directive Annex V; Wildlife Acts | **Local (High)** | **In** |
| Pygmy Shrew | Wildlife Acts | | **Out** |
| Irish stoat | Wildlife Acts | **Local (High)** | **Out** |
| Wood mouse | | Local (Low) | **Out** |

Based on both the desk study and field surveys, the above scoping exercise has determined the non-volant mammal baseline present during the first year of the Proposed Development lifespan.

The 'future baseline' (i.e., the expected baseline in the absence of the Proposed Development) describes the mammalian receptors as they would be likely to be in the first year of operation in the 'Do Nothing' scenario. These receptors are influenced by future developments and factors that have a high degree of uncertainty, such as future land management and climate change.

Where information exists on planned future developments, this will be taken into consideration during the assessment.

Long-term climatic predictions suggest that warmer, wetter, winters and drier summers will become more frequent, with more extreme weather events likely. This combined with changes in land management, increased urbanisation and increased biotic pressures may lead to an alteration in the national, regional and local populations and distributions of some mammal species. However, such changes are unlikely to be material during the intervening period between the completion of the field surveys and the first year of operation of the Proposed Development.

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# ANNEX A

**Table A.1:** *Mammal walkover survey results table.*

| Date | Survey Types | Species | Field Sign | ITM | Notes |
|---|---|---|---|---|---|
| **20/10/2022** | Otter & badger | Otter & badger | Den | 509838.851, 681187.729 | Den entrance to a tunnel system. Located between Heath/bog and conifer plantation. (**Figure 3.1**, **Figure 3.2**) |
| **20/10/2022** | Otter & badger | Otter & badger | Tunnel | 509809.981, 681195.946 | Smaller tunnel - can see through. Located between Heath/bog and conifer plantation. |
| **18/11/2022** | Walkover | Mammal | Digging and mammal run | 509717.123, 680877.507 | Worn paths and signs of digging. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509770.877, 680885.452 | Circular gap in dead grass into hedgerow. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509750.649, 680953.419 | Small, worn gap in grass towards tree line. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509596.903, 681087.984 | Worn path into hedgerow from field. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509785.219, 681080.729 | Path worn through field. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 510076.211, 681580.563 | Path on either side of the clearing. |
| **18/11/2022** | Walkover | Badger | Droppings | 510049.53, 681795.379 | Large, dark faeces. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509314.641, 680724.56 | Path near hedgerow. |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509842.352, 680433.289 | - |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509840.586, 680481.279 | - |
| **18/11/2022** | Walkover | Mammal | Mammal run | 509838.089, 680514.58 | - |
| **18/11/2022** | Walkover | Fox | Droppings | 509807.81, 680697.433 | - |
| **03/01/2022** | Walkover | Mammal | Mammal run | 509752.186, 680953.179 | No prints, very muddy and wet. Tunnel in grass verge (**Figure 3.1**). |
| **13/01/2022** | Walkover | Mammal | Mammal run | 511090.076, 682036.919 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 511124.41, 682036.811 | - |

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| Date | Survey Types | Species | Field Sign | ITM | Notes |
|---|---|---|---|---|---|
| **13/01/2022** | Walkover | Mammal | Mammal run | 511142.39, 682090.491 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 511349.964, 682545.611 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509818.513, 680662.476 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509829.838, 680624.403 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509833.745, 680587.948 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509842.075, 680429.221 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509697.779, 680843.768 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509754.11, 680896.728 | - |
| **13/01/2022** | Walkover | Mammal | Mammal run | 509863.938, 681111.67 | - |
| **13/02/2023** | Otter & badger | Mammal | Nil Sightings | - | - |
| **14/02/2023** | Red squirrel | Mammal | Nil Sightings | - | - |
| **09/05/2024** | Walkover | Mammal | Nil Sightings | | |

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# ANNEX B

**Figure B.1:** *Tunnel in vegetation.*

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**Figure B.2:** *Potential badger sett.*

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