GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Illaunbaun Wind Farm - Environmental Impact Assessment Report

Appendix A08-03: Ornithology Baseline

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

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 1976-2024,* the *European Union (Natural Habitats) Regulations*, the *European Communities (Birds and Natural Habitats) Regulations 2011-2021,* 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.

Version	Date		Name	Signature
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Notice

This report was produced by INIS Environmental Consultants Ltd. (INIS) on behalf of the client, GDG, for the specific purpose of assessing a bird baseline at Illaunbaun Wind Farm, Co. Clare, with all reasonable skill, care and due diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client.

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1. INTRODUCTION

1.1. Purpose of the Technical Appendix

This appendix presents the ornithology baseline for the development project and its Zone of Influence (ZoI) of the proposed Illaunbaun Wind Farm Project (from here on referred to as the 'Proposed Development', for the purposes of the assessment of ornithological features (see **Section 4**), and supports the biodiversity chapter of the Environmental Impact Assessment (EIA) submitted as part of the Proposed Development's planning submission. This included surveys for all bird species which may use the receiving environment in the vicinity of the Proposed Development (**Figure 2.1**).

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:

Conor Daly ACIEEM MSc BSc (Ecologist, INIS): Conor is the Report Team Lead with Inis Environmental. Conor reviewed and checked 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. Conor is an Associate member of CIEEM.

Cillian Burke BSc (Assistant Ecologist, INIS): Cillian reviewed this report and is an ecologist with a BSc (Hons) in Environmental Science from the Galway University. Cillian has experience in undertaking multi-disciplinary surveys including habitat classification, ornithology vantage point surveys, breeding wader surveys, Ecological Clerk of Works and bat surveys, and has authored ecological reports including EIARs, AA Screening Reports, NIS, EcIA and Biodiversity Net Gain (BNG) Reports. He is also a Qualifying CIEEM member.

Laura Stenson BSc (Ecologist, Inis): Laura is an ecologist with Inis Environmental Consultants Ltd. Laura Drafted and edited this report and has an honours BSc in Earth and Ocean Sciences from University of Galway and has three years' experience working in consultancy. Laura has extensive report writing experience, which includes the production, review and editing of Appropriate Assessment Screening Reports (AA), Natura Impact Statements (NIS) and Ecological Impact Assessments (EcIA). She has experience in multi-disciplinary surveys, including habitat classification, mammal surveys, various bird surveys (e.g. Wintering and Breeding birds, I-WeBS, Adapted Brown and Shepherd), invasive species surveys, pre-construction mammal surveys, and bat surveys. She is a Qualifying member of CIEEM.

Camille Groh (CG) BSc MSc (Assistant Ecologist, INIS): Camille conducted Vantage Point (VP) surveys and wintering wetland birds surveys (I-WeBS) for this project. She is an Assistant Ecologist at INIS with a BSc (Hons) in environmental science from Northeastern University and an MSc (Hons) in wildlife conservation from University College Dublin, where her research focused on modelling diversity in

Irish and British bird assemblages. Camille has experience surveying avifauna, mammals and reptiles. As an assistant ecologist, Camille has conducted several surveys in-line with Best Practice standards, including Vantage Point counts, bird transect surveys, specialised raptor surveys, Irish Wetland Bird surveys and bat roost surveys.

Emma Condron (EC) BSc conducted VP surveys I-WeBS for this project, she is an Environmental Manager with Inis Environmental Consultants Ltd and 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. She has experience in bat emergence and re-entry surveys for various construction projects across Ireland. Ms Emma Condron has received training on bat ecology and bat call analysis.

Lisa Kavanagh (LK) BSc MSc (Assistant Ecologist, INIS): Lisa carried out surveys detailed in this report. Lisa is an Assistant Ecologist at Inis Environmental Consultants Ltd. Lisa has achieved a BSc (Hons) in Zoology from the National University of Ireland, Galway and a MSc (Hons) in Biodiversity & Conservation from Trinity College Dublin. She has completed a wide array of surveys including vantage point surveys, I-WeBS, hen harrier roost monitoring, mammal walkover surveys, habitat surveys, camera trapping and breeding bird transects. Lisa is part of the bat survey team where she carries out emergence/re-entry surveys, transects, static detector deployment and bioacoustic analysis. Lisa holds a LANTRA accredited qualification in conservation detection dog handling and is a qualifying member of CIEEM.

Siddharth Sonny (SID) BSc MSc (Assistant Ecologist, INIS): Siddharth completed bird surveys for this project and generated the figures provided in this report. He has completed a BSc in Zoology from Sacred Heart College Kerala, India in 2017 and an MSc in Coastal and Marine environment Science Policy and practices from University of Galway in 2019. Siddharth has conducted multiple ornithological surveys for various projects across Ireland. He has a broad range of experience in surveying, including Vantage Point surveys, breeding/winter bird transects and bat surveys.

Nicole Leadbetter (NL) MSc BSc (Assistant Ecologist, INIS): Nicole completed bird surveys for this project. Nicole has achieved a BSc (Hons) in Animal and Conservation Biology from Edinburgh Napier University and a MSc in Environmental Management from the University of Stirling. She has completed a variety of surveys including vantage point surveys, I-WeBS, habitat surveys, breeding bird transects. Nicole is also part of the bat survey team where she carries out emergence/re-entry surveys, transects, static detector deployment and bioacoustics analysis. Nicole is a Qualifying member of CIEEM.

Julie O'Hare (JOH) BSc MSc (Agr) (Assistant Ecologist, INIS): Julie conducted surveys for this project including VP, I-WeBS, CBS transects, hen harrier roost watches, breeding raptor and wader. She received a BSc (Hons) in Zoology in 2018 and MSc (Agr)in Environmental Resource Management in 2021, both from University College Dublin. She has specialties in wader conservation monitoring and ornithological surveys. Julie has also conducted a variety of bat surveys such as emergence/re-entry surveys and transect surveys all in alignment with Best Practice Guidelines for various renewable energy projects across Ireland while working for Inis Environmental Ltd.

Chris McKiernan (CMcK) BSc ACIEEM (Ecologist, INIS). Chris conducted surveys for this project including VP, I-WeBS, CBS transects, Hen Harrier roost watches, breeding raptor and wader. Chris has over 4 years of experience carrying out professional ornithology surveys in Ireland on a variety of

projects. They received a BSc in Ecology and Environmental Biology from UCC in 2020 and are an Associate member of CIEEM. They have been heavily involved in carrying out and coordinating hen harrier surveys with INIS, for both breeding and wintering. Chris also carried out many of the other surveys for INIS, including Vantage Point surveys, I-WeBS, Woodcock surveys, Red Grouse surveys, Breeding Raptor (Kestrel, peregrine, barn owl, merlin) surveys, CBS transects, mammal walkover surveys and bat surveys.

Emer Hannon (EH) BSc (Team Lead Manager, INIS). Emer conducted surveys for this project including VP, I-WeBS, and Water Connectivity surveys. She is the Team Lead Manager with Inis and has a BSc in Ecology and Environmental Biology. She has bat surveying experience including Preliminary Roost Assessments, bat activity surveys, and she has also worked with Bat Conservation Ireland as a volunteer for the All-Ireland Daubenton's Bat Waterways Surveys. She is experienced in Ecological Bird Survey techniques, both in the field and with data management. She has extensive training in team management and health and safety practices and processes. She is a Qualifying member of CIEEM.

Darren McCartney (DMC) BSc (Hons) HDip ACIEEM (Ecologist, INIS). Darren conducted surveys for this project including VP and I-WeBS. Darren has worked in both the Field Ecology and GIS teams at Inis. He has conducted many Vantage Point surveys for bird species following best practice guidance at the Proposed Development and throughout Ireland. He conducted surveys identifying potential nesting sites for peregrine, kestrel and barn owl, surveys of breeding waders, wintering wildfowl and waders, transect surveys, breeding woodcock, hen harrier and merlin surveys. A competent habitat surveyor using Fossitt and IVC classifications and identifying Annex 1 habitats.

As a member of the Inis GIS team, Darren has contributed the report mapping and habitat calculations for many projects, including SHMPs and Collision Risk Models (CRMs). He has digitised incoming survey data for mapping, using several tools and analyses within GIS software for Inis since 2022.

Heather Murray (HM) BSc MSc (Assistant Ecologist, INIS). Heather conducted surveys for the Water Connectivity surveys. Heather is an Assistant Ecologist at INIS Environmental Consultants Ltd. Heather holds a BSc (Hons) in Animal and Conservation Biology from Edinburgh Napier University and a MSc in Environmental Management from the University of Stirling. She has completed several different ecological surveys including vantage point surveys, breeding bird transects, I-WeBS, and habitat surveys. In addition to this Heather is also experienced in conducting bat transects, emergence and re-entry surveys on trees and buildings, static detector deployment and bioacoustics analysis as part of her role in the bat team. Heather also specialises in using thermal cameras for bat emergence surveys and analysing video footage obtained from the cameras. Heather is a Qualifying CIEEM member.

1.1.2. Structure of Technical Appendix

This technical appendix has been set out as follows:

- **Section 1** establishes the guidance and information utilised to inform the methodology and to identify Important Ecological Features (IEFs)
- **Section 2** sets out the approach and methodology used for obtaining the desk-study and survey data, as well as the results of this data acquisition. 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**. Constraints and limitations on surveys are provided in **section 2.3**.

- **Section 3** sets out the results including the consultation with statutory bodies such as NPWS in **section 3.1**, of the desk study (**section 3.2**) and field studies (**section 3.3**).
- **Section 4** outlines the baseline conditions and summarises the receptors present within the receiving environment of the Proposed Development.
- References are presented in **section 5**.
- Figures of VP survey results by species and season are presented in **section 6**.
- Figures of the I-WeBS Results by species type are presented in **section 7.**
- Data Tables are provided for VP surveys and I-WeBS in **Annex A**.
- **Annex B** provides the survey effort tables for the countryside bird surveys.
- **Annex C** provides the data tables for the breeding Irish Wetland Bird surveys.
- **Annex D** provides the data tables for the breeding merlin surveys.
- **Annex E** provides the data tables for the breeding woodcock surveys.
- **Annex F** provides the data tables for the breeding wader surveys.
- Breeding peregrine and kestrel suitability and activity results including figures are provided in **Annex G** and **H**.
- Hen harrier wintering roost (hinterland) survey data tables are presented in **Annex I**.
- Barn owl suitability and dusk survey data tables are provided in **Annex J**.
- **Annex K** contains the data from the desk study NBDC review of the OS 10 km^2 grid squares.

1.2. Legislation and Policy

The following legislation was considered when developing the baseline for the Project:

- EU Habitats Directive (1992) Council Directive 92/43/EEC.
- EU Birds Directive (1979) Council Directive 2009/147/EC.
- Protected Wildlife Acts 1976 to 2023 (as amended) ("Wildlife Acts").
- National Biodiversity Action Plan (2023 – 2030).
- Clare County Development Plan 2023 – 2029.
- Clare Biodiversity Action Plan 2017-2023.

1.3. Guidance and Best Practice

The following guidance has been used and considered when determining the baseline for the Proposed Development:

- Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms (Scottish Natural Heritage (SNH), 2017).
- Birdwatch Ireland (2012) Guidelines for Countryside Bird Survey Participants.
- Gilbert *et al*. (2021) Birds of Conservation Concern in Ireland 2020-2026.
- Lewis *et al*. (2020) Countryside Bird Survey Report 1998-2019, BirdWatch Ireland.

- Bibby *et al*. (2000). Bird Census Techniques, 2nd Edition. Academic Press, London.
- Thomas and Crowe (2007). An Assessment of the Effects of Arterial Drainage Maintenance on Birds Dependent on Riparian Habitats.
- Percival (2007) Predicting the effects of wind farms on birds in the UK: the development of an objective assessment method.
- Hardey *et al*. (2013) Raptors: A Field Guide for Surveys and Monitoring, third Edition.
- Lusby *et al*. (2011) Assessing the effectiveness of monitoring methods for Merlin, Falco columbarius, in Ireland: The Pilot Merlin Survey 2010.
- O'Brien & Smith (1992). Changes in the status of waders breeding on wet lowland grasslands in England and Wales between 1982 and 1989.
- National Roads Authority (2009). Guidelines for Assessment of Ecological Impacts of National Roads Schemes.
- I-WeBS (2008). Counter Manual. Guidelines for Irish Wetland Bird Survey Counters. BirdWatch Ireland & National Parks and Wildlife Service, Dublin.

1.4. Zone of Influence

The ZoI is defined as 'the area over which ecological features may be affected by biophysical changes as a result of the Project and associated activities' (CIEEM, 2024). The ZoI for ornithological receptors varies per receptor.

In line with OPR (2021) guidance, the Proposed Development will be evaluated based on an identified ZoI with regards to the potential Source-Pathway-Receptor (S-P-R) for ornithological receptors and is defined to include all areas functionally connected to the Proposed Development, such as foraging grounds, flight paths, or roosting sites and is consistent with CIEEM (2024) guidance which considers direct impacts and indirect effects causing a species to move out of the ZoI.

The typical maximum extent of the ZoI considered for a development or project is 15 km from the proposed site boundary (CIEEM, 2017a). Certain projects can have far greater ZoIs where hydrological connectivity creates likely source-impact-receptor pathways to sensitive receptors.

"*For projects, the distance could be much less than 15 km, and in some cases less than 100 m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects*" (DoEHLG, 2010, p. 32).

Following the guidance set out by the National Roads Authority (NRA) (2009) and by the Office of the Planning Regulator (2021), the Proposed Development will be evaluated based on an identified ZoI with regards to the potential Source-Pathway-Receptor (S-P-R) model for the Proposed Development.

The ZoI for different bird species varies depending upon the species' specific ecological requirements. For example, the furthest extent of a ZoI considered for bird receptors was 8 km for foraging White-fronted Goose *Anser albifrons flavirostris* from the proposed turbine locations of the Proposed Development, this scenario was strictly applied through species-specific evidence and not as a standard ZoI. Bird species vary in their commuting, migration, foraging, and nesting ranges. As such, the ZoI considered for each species or species group was based on the specific distributions and ranges of the groups or species concerned (where evidence was available).

The sources of each ZoI for each ecological receptor are outlined in **Table 1.1** below. This information was used to determine if ecological receptors were considered to be Important Ecological Features (IEFs) relevant to the Proposed Development.

It should be noted that buffer distances provided in **Table 1.1** are indicative, not absolute, and should not be interpreted as rigid thresholds. As highlighted in Goodship & Furness (2022), actual disturbance levels vary depending on site-specific conditions, species behaviour, and the nature, intensity, and duration of the proposed activities as well as potential impact pathways such as hydrological, air quality and habitat loss.

Table 1.1: *List of target bird species Zone of Influence.*

Sensitive Receptors ZoI				
Target Group	**Species**	**ZoI Non-Breeding**	**ZoI Breeding**	**Reference**
Raptor	Hen harrier *Circus cyneus*	300-750 m	300-750 m	Goodship & Furness (2022)
	Barn owl *Tyto alba*	>50 m	100 m	Goodship & Furness (2022)
	Kestrel *Falco tinnunculus*	>50 m	100-200 m	Goodship & Furness (2022); RSPB, (2023)
	Peregrine *Falco peregrinus*	>200 m	750 m	Goodship & Furness (2022)
Wader	Curlew *Numenius arquata*	200-650 m	200-300 m	Goodship & Furness (2022)
	Golden plover *Pluvialis apricaria*	500 m	500 m	Goodship & Furness (2022)
Waterbird	White-fronted goose *Anser albifrons flavirostris*	500 m – 1000 m; Foraging Maximum of 8 km		Goodship & Furness (2022); SNH 2016.
	Whooper swan *Cygnus cygnus*	200m -500m; Foraging maximum of 5 km		Goodship & Furness (2022); SNH 2016.
	General	200 m - 500 m (encompasses the minimum and maximum disturbance distances of remaining waterbirds)	200-500 m (encompasses the minimum and maximum disturbance distances of remaining waterbirds)	Goodship & Furness (2022)
Gulls	Lesser black-backed gull *Larus fuscus*; Herring gull *Larus argentatus*;	50 m – 75 m	100 m	Goodship & Furness (2022); Burger & Gochfeld (1983)

Sensitive Receptors ZoI				
Target Group	**Species**	**ZoI Non-Breeding**	**ZoI Breeding**	**Reference**
	Great black-backed gull *Larus marinus*			
Passerines	General	50-200 m	50-200 m	Goodship & Furness (2022)

1.5. Study Area and Survey Area

The desktop survey focused on the study area, which consisted of the R08 and R18 10 km grid squares within which the Proposed Development is located (NBDC, 2025). The results of the desk study are provided in **Section 2.1**.

The survey area is the spatial area within which the Proposed Development is located, which was subject to surveys using specific methods outlined in **Section 2.2**.

The study area was determined using the S-P-R model when identifying relevant Special Protection Areas (SPA) and designated sites of importance to birds. These sites were assessed based on the potential for species of conservation interest (SCIs) and bird species utilising these sites interacting with the Proposed Development through commuting, foraging, disturbance and collision risk. More distant sites were also assessed where potential hydrological linkage exists to wetland habitat important for foraging waterbirds (OPR, 2021). As such, the coastal and waterbird species were considered target species and any area of suitability to them were considered as part of the study area. The study area through the S-P-R model identified potential pathways and defined the survey extents required based on species sensitivities using best practice guidance on monitoring these species for wind farm developments.

Each receptor type and their respective study and survey areas are outlined in **Table 1.2**.

Table 1.2: *Receptor Surveys and Survey Ranges.*

Receptor	Survey Type	Survey Area	Reasoning
All Target Birds	VP Survey	500 m buffer from wind turbines.	Ensures seasonal and spatial representativeness of sensitive receptors flying within the Proposed Development footprint and captures critical flight activity data to inform the CRM. Recommended guidance: SNH, 2017.
Breeding Waders	Breeding waders survey	500 m from wind farm elements.	Identification of key breeding receptors (e.g., ground nesting species), breeding activity and use of habitat within the Proposed Development. Supports assessment of displacement, disturbance, and habitat loss. Recommended guidance: SNH, 2017; Goodship & Furness, 2022.
Breeding Raptor	Nest suitability and activity Surveys	2 km from wind farm elements	Identification of territories, behaviours and nesting activity. Important for assessing disturbance, displacement, loss of foraging or nesting habitat, barrier effects and mortality. Recommended guidance: SNH, 2017.
General Breeding Birds - Passerines	Countryside Bird Surveys (CBS)	Suitable habitat within the Red line boundary.	Records a wide range of bird species, especially breeding passerines and other widespread species not targeted by species-specific surveys. Detection of breeding

			activity (e.g., singing males, nesting behaviour, and territorial displays, enabling identification of likely breeding territories). Assess disturbance, displacement, loss of foraging or nesting habitat and barrier effects. Recommended guidance: CBS, 2012.
Barn owl	Breeding barn owl	2 km	Identification of the presence of active nest or roost sites, breeding activity, seasonal use of structures and extent of foraging habitat. Assess disturbance, displacement, loss of foraging or nesting habitat and barrier effects. Recommended guidance: TII, 2017, Shawyer, 2011; Lusby & O'Clery, 2014.
Hen harrier Winter Roost	Dusk roost surveys	2 km	Identification of seasonally significant roost sites, identifying core foraging ranges during winter. Assesses disturbance and displacement. Recommended guidance (SNH, 2017)
Wintering Wetland Birds (Ducks, geese, swans and waders)	I-WeBS	8 km	Determines if the Proposed Development regularly supports sensitive waders, wildfowl, and other wetland-dependent birds. Identification of foraging wetland birds within the Proposed Development. Assesses disturbance and displacement. Recommended guidance: SNH, 2017; Bibby *et al.,* 2000. Based on SPAs-listing white-fronted goose within 8 km (maximum core foraging range (SNH, 2016)).

1.6. Scoping of Important Ecological Feature (IEF)

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 surveys, an ecological value was assigned to each species recorded as present on site, with consideration given to their conservation and/or protected status. Reasoning and conclusions are provided in **Section 4** with a summary table of IEFs scoped in for subsequent impact assessment provided in **Section 4.1. Table 1.1** provides a summary of reasoning for determining importance at the varying levels (International, National, County, Local (High) Or Local (Low)) as set by NRA (2009) and in consideration of the more recent CIEEM guidance for Ecological Impact Assessment (EcIA) (CIEEM, 2024).

Table 1.3: *Determination of importance set out by 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.* • *Proposed Special Protection Area (SPA) or Important Bird Area (IBA). 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.* • *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.* • *Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).* • *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).* • *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). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park. • Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA). • 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-listed. 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. • 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

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

2. METHODOLOGY

2.1. Desk Study

National Biodiversity Data Centre (NBDC) records pertaining to the region in which the Proposed Development is located, were also referred to for observations of protected birds in the two grid squares that overlaps with the Proposed Development boundary: R08 and R18 (NBDC, 2025). A data request was also sent to National Parks and Wildlife Service (NPWS) on 23/01/2023 for a full inventory of all protected and rare bird species recorded within two grid squares overlapping the general area of the Proposed Development. A response was received 31/01/2023 and is discussed in **Section 2.3**.

Any RAMSAR and IBA sites within 15 km of the Proposed Development were identified.

BirdWatch Irelands website was also consulted for bird species trends. Distribution records were also sourced from the Birdwatch Ireland website.

The Bird Sensitivity to Wind Energy by Birdwatch Ireland (2015) was consulted via the NBDC[1] records for any species sensitivity rating for the area overlapping with the Proposed Development.

The desk study reviewed best practice survey methodologies for all bird species likely to occur within the Redline boundary of the Proposed Development plus survey buffers, and these methodologies were implemented for the field study phase of this report and are detailed in **Section 2.2.**

2.2. Field Study

Bird surveys were undertaken across the Proposed Development site and wider survey area, defined to encompass the ZoI of potential impacts. Surveys were designed to target bird species of conservation concern likely to be affected by the Proposed Development, with particular emphasis on Annex I-listed species under the Birds Directive, and red- and amber-listed species as per Gilbert, Stanbury and Lewis (2021).

Surveys followed appropriate survey methodologies which included: SNH (2017), OPR (2021), CIEEM (2024), CBS (2012), Bibby *et al.* (2000), TII (2017), Shawyer (2011) and Lusby & O'Clery (2014), Lusby *et al.* (2011) and Hardey *et al.* (2013) and were conducted over the winter seasons of 2023/2024 and 2024/2025 and breeding seasons of 2023 and 2024. The field survey methodologies are described in the sections below.

2.2.1. Vantage point survey

Three VPs were selected following viewshed analysis and available guidance (SNH, 2017) to provide ground level coverage of all lands under consideration at the time plus which included all turbine locations and associated infrastructure plus a minimum 500 m buffer (**Figure 2.1**). Viewshed modelling was undertaken in accordance with SNH (2017) guidance, incorporating both topographic and vegetation screening to provide a realistic representation of visibility. All target species were defined before the commencement of surveys, including Annex I, red- and amber-listed species and any remaining bird species with sensitivity to wind farm development impacts, i.e buzzard, were recorded

[1] Maps - Biodiversity Maps

in addition to more common species potentially sensitive to the Proposed Development (i.e. raptors, waterbirds, waders, gulls and passage migrant species).

A combined total of 266 hours of VP surveys were completed during the winters of 2023/2024 and 2024/2025 (**Table 2.1**). VP3 was conducted above the 36 minimum hours as this VP has a considerable overlap with the viewshed of VP1, spatial coverage and flightline records were still maintained across both viewsheds despite this overlap. As such, the minimum number of hours have been achieved within the guidance recommendations (SNH, 2017).

A total of 270 hours of VP surveys were undertaken over the 2023 and 2024 breeding seasons across the three VPs (See **Table 2.2**).

Annex A provides the dates, surveyors and weather during survey efforts over the 2-year monitoring period presented in this report. Surveys were distributed evenly across daylight hours and conditions, in line with SNH (2017) guidance.

Total counts of each species recorded in each season were tallied to inform the key receptors for the CRM (**Appendix A08-08**). Details recorded included flightlines, which were digitised using QGIS software (QField), flight durations, flight direction, and flight heights which aligned with the turbine rotor-swept zone and validated through observer consistency checks. All other bird species were recorded for flight activity to inform the CRM.

Table 2.1: *Winter VP hours surveyed at the Proposed Development.*

VP	Winter season 2023/24								Winter season 2024/25								Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total	
1	0	0	12	6	0	0	12	**30**	6	6	0	8	8	8	6	**42**	**72**
2	0	6	12	6	0	0	12	**36**	0	3	9	6	6	3	9	**36**	**72**
3	0	6	20	16	0	0	24	**66**	24	6	3	9	6	6	6	**60**	**126**
Total	**0**	**12**	**43**	**29**	**0**	**0**	**48**	**132**	**30**	**15**	**12**	**23**	**20**	**17**	**21**	**138**	**266**

Table 2.2: *Breeding Season VP hours surveyed at the Proposed Development.*

VP	Breeding season 2023							Breeding season 2024							Total
	Apr	May	Jun	Jul	Aug	Sep	Total	Apr	May	Jun	Jul	Aug	Sep	Total	
1	6	6	0	12	6	6	**36**	0	12	6	6	12	0	**36**	**72**
2	6	6	0	12	6	0	**30**	0	12	6	6	12	6	**42**	**72**
3	12	6	6	24	2	16	**66**	0	12	6	24	18	0	**60**	**126**
Total	**24**	**18**	**6**	**48**	**14**	**22**	**132**	**0**	**36**	**18**	**36**	**42**	**6**	**138**	**270**

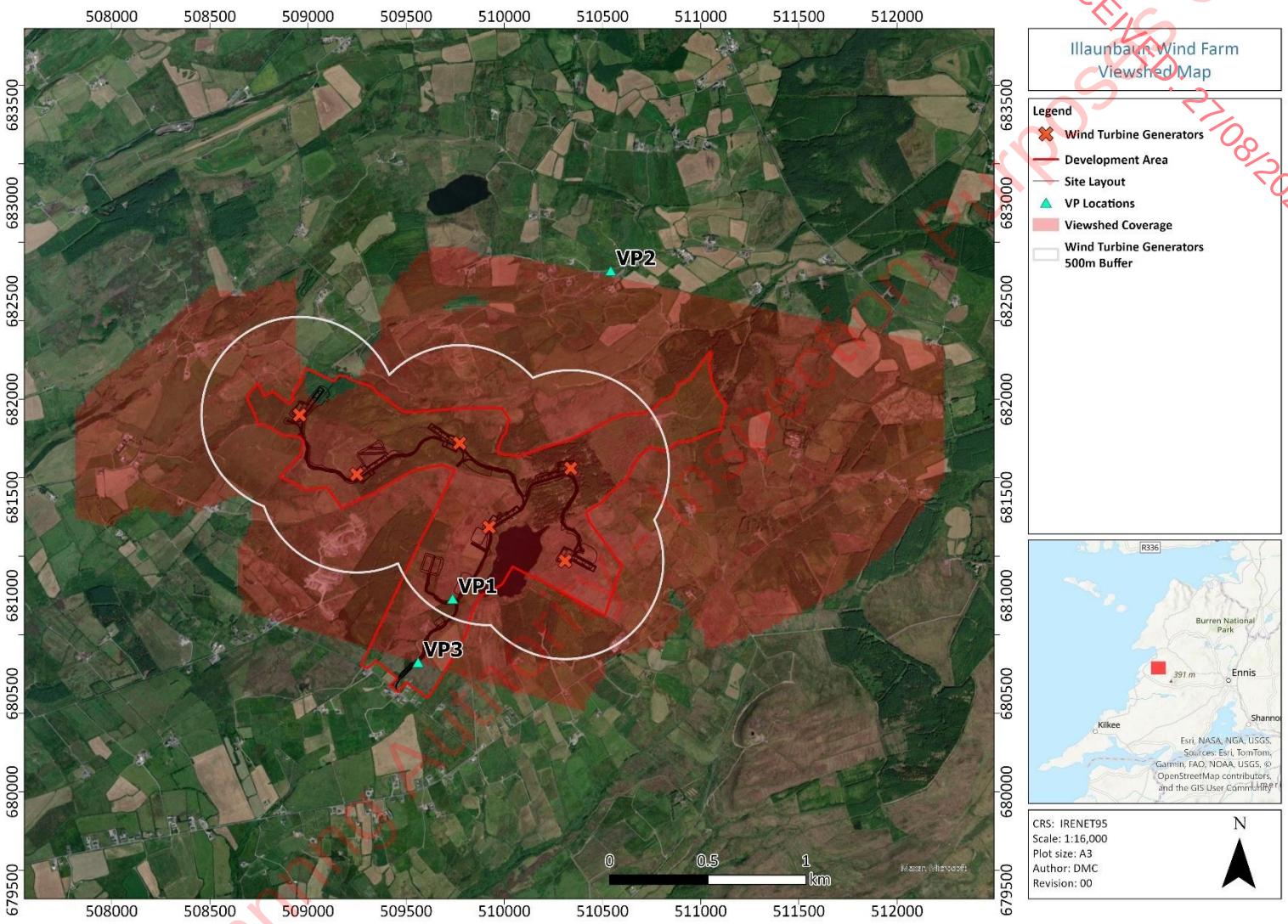

Figure 2.1: *Illaunbaun Wind Farm Vantage Point Viewshed.*

2.2.2. Countryside bird surveys

Two transect routes (T1 and T2) were used throughout the survey period.

One visit for both transect per month was undertaken for the breeding seasons 2023 and 2024.

One visit for both transects per month were undertaken for the winter season 2023/2024, with the exception of March 2024 efforts, where two visits per transects were undertaken. Two visits for both transects per month was undertaken for the winter season 2024/2025.

The methodology followed the standardised line transect methodology for surveying birds CBS Manual: Guidelines for Countryside Bird Survey Participants (CBS, 2012). Two transects, 1km in length which covered heath, conifer forestry and grassland habitat were walked and all birds encountered (visually and aurally) were identified and their abundance recorded (**Figure 2.2**). The surveys were carried out in acceptable weather conditions as per best practice (dry weather, calm winds, high visibility) (CBS, 2012).

One limitation to note was that the winter season 2024/2025 survey efforts were not undertaken during the optimal surveying period (before 11:00am).

The primary target of these surveys were passerine species. Any other species were also recorded for activity including waders, gulls, raptors and waterfowl.

All birds were recorded on standardised recording sheets using QField in four distance categories from the transect route (0-25 m; 25-100 m; 100+ m and in flight).

The conservation status of each species recorded during the field surveys was assessed using the EU Birds Directive and Birds of Conservation Concern in Ireland-listed (Gilbert *et al*., 2021).

Survey efforts each transect surveys undertaken during the breeding seasons 2023 and 2024 and winter seasons 2023/2024 and 2024/2025 are provided in **Annex B: Table B.1 – Table B.4**

2.2.3. Wintering wetland bird surveys (I-WeBS)

Wintering wetland birds include wildfowl (ducks, geese, and swans), waders and other species typically associated with wetland habitats, such as herons, grebes, crakes, rails, and gulls. Wetland birds were surveyed in winter following the standardised approach used for the Irish Wetland Birds Survey (I-WeBS). The I-WeBS methodology is detailed in the I-WeBS Counters Manual (BirdWatch Ireland, 2008) and these methods represent the recommended approach in the Nature Scot guidance documents (SNH, 2017) in relation to assessing impacts of onshore wind farm developments on wintering waterfowl.

Monthly waterbird surveys took place in winter 2023/2024 and winter 2024/2025. Surveys included observing from a vantage point over all lakes and suitable waterbodies (i.e. turloughs, flooded fields). Surveyors used binoculars and telescopes to record the count number, locations and time of sightings of species. A precautionary 5 km buffer of the Proposed Development was used for the survey area and survey locations are provided in **Figure 2.3** and **Figure 2.4**. All wildfowl were recorded (if present) as target species during I-WeBS surveys. Details of survey efforts and dates are provided in **Annex C**. Results are provided in **Section 3.2.3**.

2.2.4. Breeding woodcock survey

To assess the presence of breeding woodcock (*Scolopax rusticola*), areas of suitable woodland habitat were surveyed within a precautionary 500 m buffer of the Proposed Development's turbines. Best practice states typically three dusk are required during the May – June period (Hoodless *et al.,* 2009). The surveys involved six visits in the 2023 breeding season on 30th May, 12th, 20th and 27th June, 5th and 10th of July 2023. Three locations of high suitability for woodcock were visited twice to confirm breeding activity as per best practice (Hoodless, *et al.,* 2009; Heward *et al.,* 2013).

Nine visits were undertaken in the 2024 breeding season on 9th and 13th, 14th, 21st, 22nd and 23rd May, 4th, 17th and 18th June (**Figure 2.5** and **Figure 2.6**). Two locations of high suitability for woodcock were visited twice and one site was visited three times to confirm breeding activity as per best practice (Hoodless, *et al.,* 2009; Heward *et al.,* 2013). The remaining two sites were visited once. The surveys were undertaken in May and June of 2023 and 2024 which align with the roding period for woodcock. Additional surveys were carried out in July 2023 as part of the June 2023 effort. The varying were based on surveyors adjusting viewpoints to cover the wider suitability located within the Proposed Development.

These surveys were informed by the best practice guidelines and were carried out in suitable weather conditions, avoiding heavy wind and rain (Heward *et al.,* 2013). The surveys were conducted 15 minutes before sunset and lasting one hour after sunset (Hoodless *et al.,* 2009). All woodcocks seen or heard were recorded and mapped, with an emphasis on recording any activity suggesting breeding within or near the Proposed Development (e.g., roding males, roding displays over suitable habitat and proximity to nesting cover). Survey efforts and dates are provided in **Annex E**.

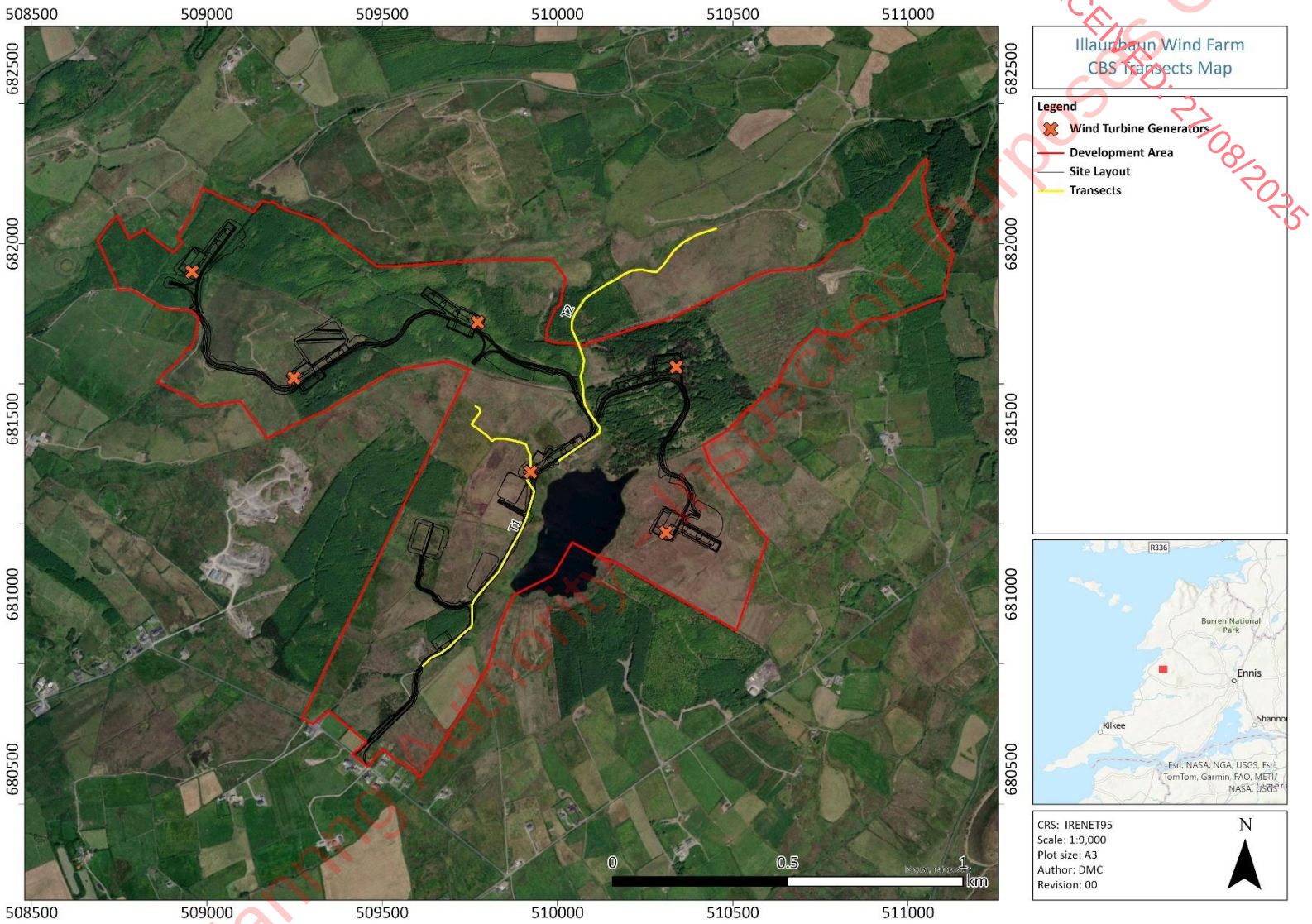

Figure 2.2: *Illaunbaun Wind Farm CBS transect location*.

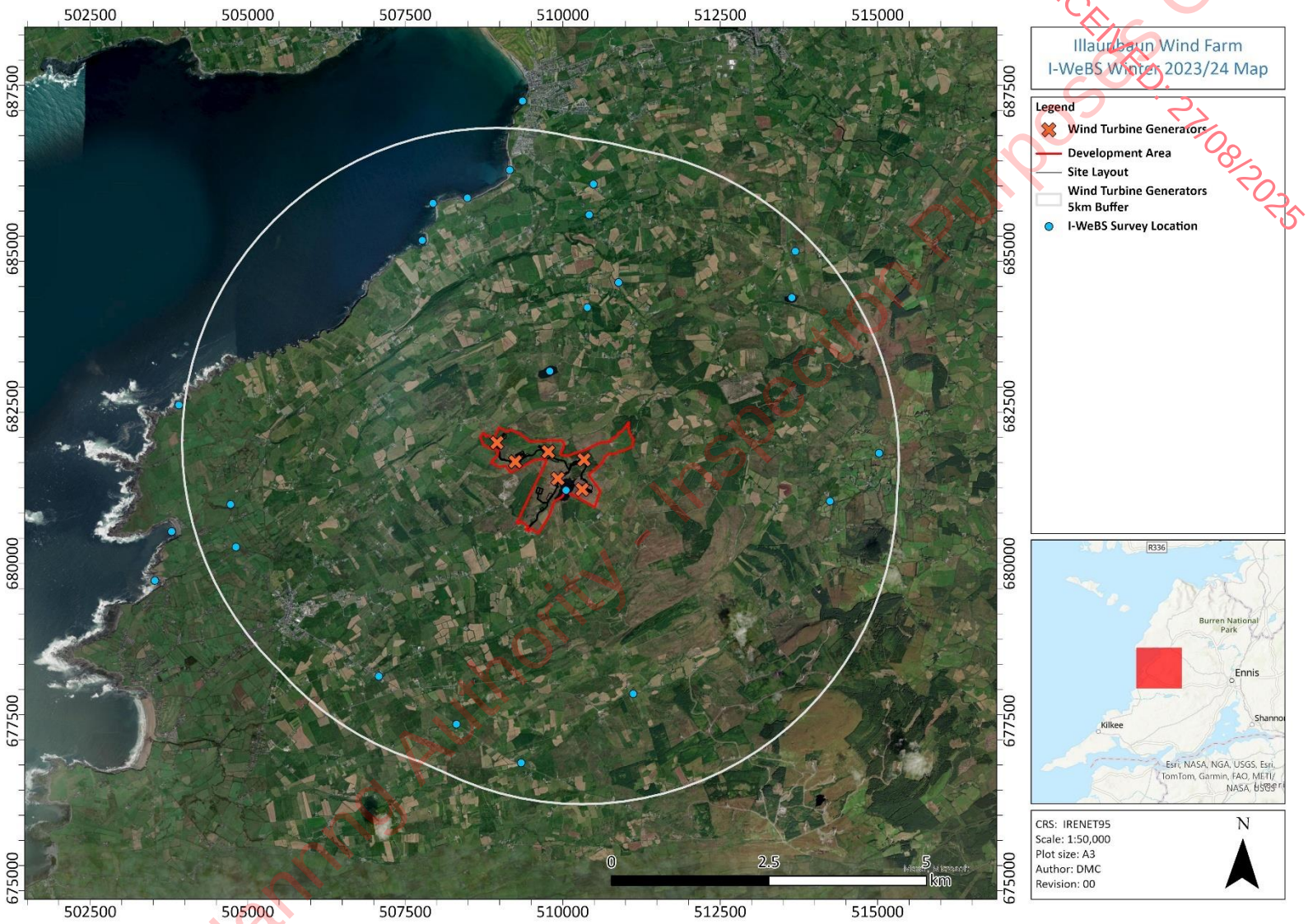

Figure 2.3: *Illaunbaun Wind Farm I-WeBS survey locations and survey area 2023/2024.*

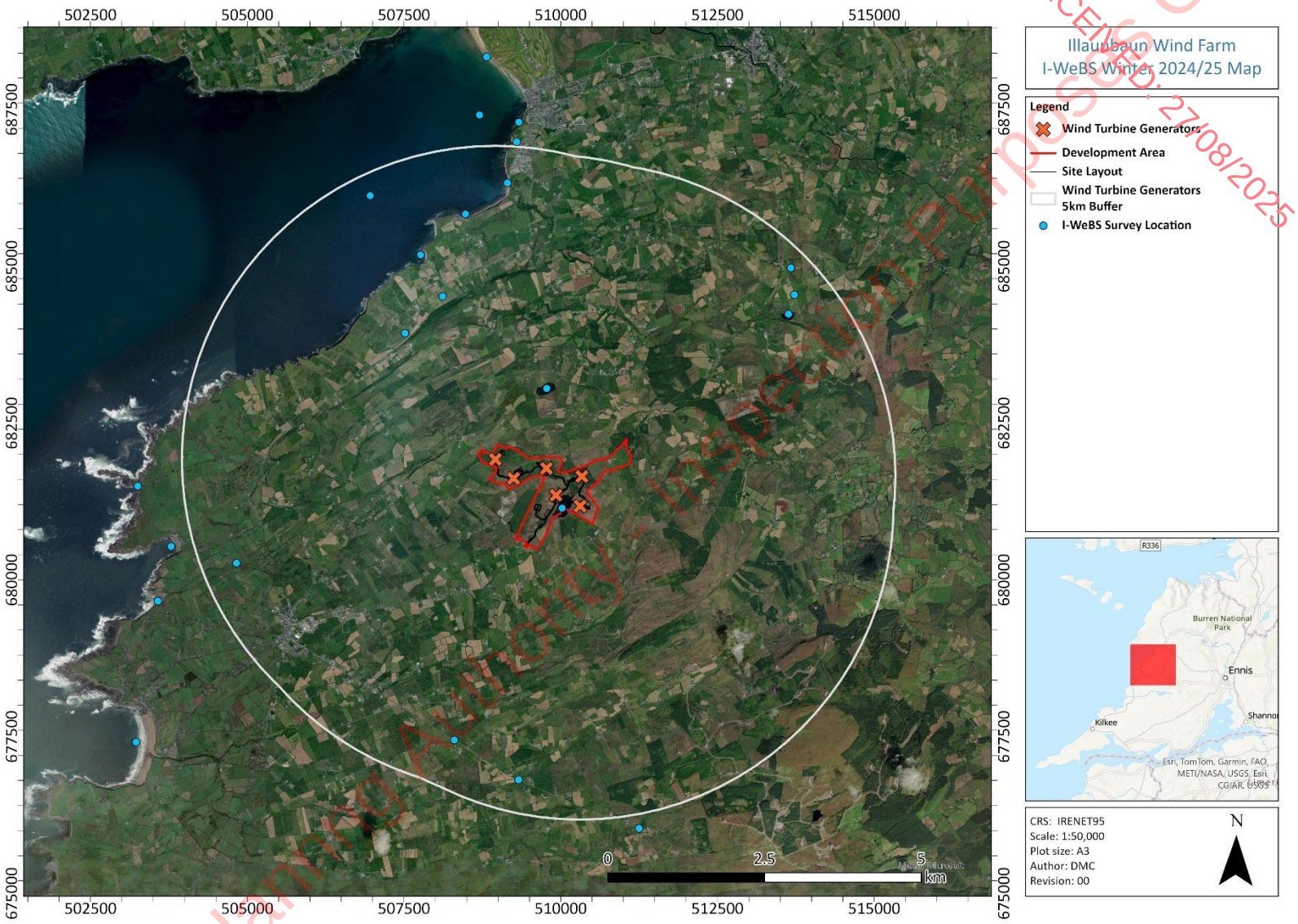

Figure 2.4*: Illaunbaun Wind Farm I-WeBS survey locations and survey area 2024/2025.*

2.2.5. Breeding wader survey

To assess the presence of breeding wader species within the Proposed Development plus a precautionary 500 m buffer, all suitable wetland habitat was surveyed within the Proposed Development and buffer (**Figure 2.7**). Three survey visits were undertaken in total for both the breeding season 2023 and 2024, one visit per month in April, May and July 2023 and 2024 to align with peak territory establishment and chick-rearing phases. These were undertaken in accordance with relevant best practice guidance (Brown & Shepherd, 1993). This involved a single observer walking through the survey area covering ground with a constant search effort within 100 m of all suitable breeding habitat and avoiding unsuitable weather (e.g., heavy showers and strong winds). All wader species and other wetland birds (e.g., wildfowl, rails, gulls and terns) along with any other SCIs were recorded along with behaviour indicative of breeding (e.g., display, alarm-calling, nest-scraping), in line with accepted criteria for territory mapping, SCIs within 500 m of the Proposed Development. Survey efforts and dates are provided in **Annex F**.

2.2.6. Breeding raptor survey

2.2.6.1. Merlin

Merlin (*Falco columbarius*) breeding (presence/absence) confirmatory surveys were conducted in on 18th of July 2023 within the Proposed Development boundary and a 2 km buffer, based on the methods described by Lusby *et al.* (2011) and Hardey *et al*. (2013) (**Figure 2.8**) which involved the use of vantage point observations of known suitable habitat under suitable weather conditions (no rain, good visibility, low winds). The survey effort lasted 5.5 hours. Potentially suitable merlin habitat was initially identified using aerial photography using high resolution imagery to define suitable habitat which determined the survey area. The field surveys consisted of a systemic field search for suitable merlin habitat on foot and identification of potential nesting locations (e.g., old corvid nests or plucking posts (including fence lines, isolated posts, hummocks, boulders, trees, etc.)) which were all checked for faecal droppings, pellets, the plucked remains of kills and moulted merlin feathers. The locations of any merlin field signs found were mapped. Any observations or evidence of merlin were also recorded (if present) during other field surveys including VP surveys (**Annex D**). Additional surveys were not conducted in 2024 as raptor breeding surveys in 2024 were utilised to identify suitable nesting habitat within 2 km, no suitable merlin nesting habitat was observed, as such, no specific target surveys for merlin were conducted.

2.2.6.2. Peregrine and kestrel

Peregrine (*Falco peregrinus)* and kestrel (*Falco Tinnunculus)* nest suitability surveys were conducted during the breeding seasons of 2023 and 2024 on 26th April and 11th May 2023 and 26th April, 8th May and 3rd July 2024.

Potentially suitable nesting habitat within the study area was identified using aerial photography and general on site area searches using a hybrid of both on foot and vehicle searches, including inspections of suitable buildings and other structures and trees that had the potential to host a nest site (Hardey *et al.*, 2013). Activity survey methods followed Hardey *et al.* (2013) in that sites with high or moderate suitability within 2 km of the Proposed Development were identified and surveyed via VPs for breeding

activity (aerial displays, calling) on 17th and 25th 2023, and 15th May and 22nd July 2024 (**Figure 2.9**). Minimum buffer distances of 500 m were used to avoid potential nest disturbance. Suitability efforts are provided in **Annex G**. Activity survey efforts for peregrine and kestrel during the 2023 and 2024 breeding seasons are shown in **Section 3.3.7.**

Detailed results of the kestrel and peregrine activity surveys are shown in **Annex H**.

2.2.6.3. Barn owl

Suitability surveys for breeding barn owl (*Tyto Alba)* were undertaken on 26th April 2023. This survey followed barn owl surveying standards for national road projects (TII, 2017) and other relevant best practice guidance (Shawyer, 2011; Lusby & O'Clery, 2014). The suitability survey involved checking for signs of occupation by barn owls such as pellets, feathers and dropping ('whitewash'). Consideration was also given to the extent and distribution of suitable barn owl foraging habitat during field surveys (e.g., rough grassland). This was carried out throughout the Proposed Development and a precautionary 1 km buffer from the wind farm project elements (roads, buildings and turbines), with any buildings and other artificial habitats (e.g., quarries) identified as having high suitability for nesting and roosting barn owls subject to further surveys (**Figure 2.10; Figure 2.11**).

High and moderate suitable structures were surveyed on 17th and 25th July and 24th August 2023 and on 8th May, 17th June, 25th and 31st July 2024 utilising dusk activity monitoring in line with barn owl surveying standards for national road projects (TII, 2021). Surveys were carried out an hour before sunset and lasted an hour after sunset (Shawyer, 2011; Lusby & O'Clery, 2014). Survey efforts are provided in **Annex J**. No thermal imaging or acoustic assistance equipment was utilised for these surveys.

2.2.6.4. Hen harrier

Breeding hen harrier (*Circus cyaneus)* surveys were conducted in 2022 and 2023 respectively (**Figure 2.12**; **Figure 2.13**). Best Practice guidance (Hardey *et al.*, 2013) indicates that four visits between March and July are required to determine breeding activity (**Table 2.3**) and breeding success levels. Four breeding hen harrier surveys were carried out 13th May, 28th June and 4th and 28th July 2022, eight surveys were carried out in 2023, on 19th April, 8th, 17th, 18th and 30th May, 10th and 21st July and 29th August.

To determine the presence of nesting sites, an assessment of habitat is required. During the first visit, all areas of suitable habitat within 2 km of the Proposed Development, in accordance with SNH (2017) were checked by free-searching on foot, ensuring that the whole area was covered and passing within 250 m of every location with restricted visibility (Hardey *et al.*, 2013) (**Figure 2.12**; **Figure 2.13**). Watches were carried out from suitable VPs. A total of seven VPs were used during the breeding season 2022 surveys and 15 VPs for the 2023 surveys. The location and duration of each VP is provided in **Table 2.3**.

Table 2.3: *Breeding hen harrier VP locations- Breeding Seasons 2022 and 2023*

Date	VP No.	Location (ITM)	Start Time	End Time	Duration of survey (sec)
Breeding season 2022					
13/05/2022	1	509902, 681208	12:00	17:00	18000
28/06/2022	2	509899, 681436	13:25	16:25	10800
04/07/2022	3	510607, 680716	08:45	15:15	3600
04/07/2022	4	511270, 680716	08:45	15:15	3600
04/07/2022	5	512155, 680864	08:45	15:15	3600
28/07/2022	6	508644, 682566	15:15	19:30	3600
28/07/2022	7	511488, 682591	15:15	19:30	3600
Breeding season 2023					
19/04/2023	N/A	Location not recorded	08:05	14:30	23400
08/05/2023	1	509614.87, 680713.3	08:15	13:45	19800
08/05/2023	2	509613.95, 680829.63	08:15	13:45	19800
17/05/2023	2	509613.95, 680829.63	08:05	14:35	21600
08/05/2023	3	511524.33, 680819.13	08:15	13:45	19800
21/07/2023	3	511524.33, 680819.13	10:00	12:00	7200
17/05/2023	4	509755.04, 680914.49	08:05	14:35	21600
17/05/2023	5	509676.38, 680978.73	08:05	14:35	21600
17/05/2023	6	511276.46, 680789.07	08:05	14:35	21600
18/05/2023	7	510545.73, 682657.44	07:53	13:23	21600
30/05/2023	N/A	Location not recorded	11:15	16:14	18000
20/07/2023	8	508404.15, 682430.65	09:15	11:15	7200
20/07/2023	9	509724.42, 682455.17	11:30	13:00	5400
29/08/2023	9	509724.42, 682455.17	15:40	17:30	6600
20/07/2023	10	508756.23, 681869.09	13:15	15:15	7200
21/07/2023	11	513063.95,	08:05	09:35	5400

Date	VP No.	Location (ITM)	Start Time	End Time	Duration of survey (sec)
		679483.25			
21/07/2023	12	511022.49, 679924.2	12:05	14:05	7200
29/08/2023	13	509842.781, 681351.592	13:10	15:00	6600
29/08/2023	14	513477.3, 675581.69	10:15	13:15	10800
29/08/2023	15	512933.96, 675116.96	13:25	16:25	10800

All unsuitable breeding areas were marked on a map and were omitted from repeat visits; these tended to include:

- Land above 600 m;
- Improved pasture and arable land;
- Extensive areas of degraded land with no heather cover and low vegetation;
- The vicinities of cliffs, rocky outcrops, boulder fields and scree; and
- Areas within 100 m of hill farms and occupied dwellings.

Early season effort is essential to identify territories in which pairs may fail to breed successfully and therefore may not be recorded breeding later in the season. To confirm hen harrier breeding activity, three further visits are required to determine occupancy. These visits were undertaken in suitable weather (low winds less than F5 on the Beaufort scale, visibility greater than 2km and no persistent heavy rain), as hen harrier are less readily detected during periods of poor weather (Hardey *et al.*, 2013). Weather data was recorded prior to the commencement of surveys and are provided in **Annex H**.

2.2.7. Hinterland roost surveys

Winter roost watches to determine if the Proposed Development area is used as a roost site by hen harrier were conducted in the winter seasons of 2023/2024 and 2024/2025. A total of five site visits were undertaken in the winter season 2023/2024 on 1st and 20th November 2023, 18th January 2024, 19th March 2024 and 1st May 2024. A total of six visits were undertaken during the winter season 2024/2025 on 24th October 2024, 6th, 7th and 20th November 2024, 12th December 2024 and 2nd January 2025. No sites in the winter season 2023/2024 were revisited during the winter season 2024/2025 survey efforts. A total of three VPs were used during the winter season 2023/2024 surveys and 11 VPs for the winter season 2024/2025 surveys. The location and duration of each VP for the winter seasons 2023/2024 and 2024/2025 is provided in Table 2.4. Hen harrier surveys were conducted with two ecologists in winter 2024/2025. This was to improve detectability by covering two different directions of the same area of interest during each site visit.

Weather data was recorded prior to the commencement of surveys and are provided in Annex I.

Table 2.4: *Hinterland roost survey VP locations- Winter Season 2023/2024.*

Date	VP No.	Location (ITM)	Start Time	End Time	Duration of survey (sec)
Winter season 2023/2024					
01/11/2023	1	509768.52, 680988.93	16:35	18:10	5700
20/11/2023	2	509867.85, 681372.61	15:53	17:35	6120
19/03/2024	2	509867.85, 681372.61	18:00	19:30	5400
01/05/2024	2	509867.85, 681372.61	20:25	21:55	5400
18/01/2024	3	509315.43, 680642.41	16:15	17:49	5640
Winter season 2024/2025					
24/10/2024	1	509909.5, 681209.2	17:50	18:50	3600
06/11/2024	2	509590, 680701.9	16:00	17:45	6300
07/11/2024	3	509879, 681425.6	16:31	17:45	10800
20/11/2024	4	509650.2, 680998	16:05	17:20	4500
20/03/2025	4	510488.1, 680636.8	18:20	19:40	4800
12/12/2024	5	511285, 680741.5	16:14	17:10	3360
02/01/2025	6	511581.7, 680834.7	16:03	17:33	5400
20/01/2025	7	510485.4, 680640.3	16:30	18:00	5400
27/01/2025	8	509917, 683120.3	16:43	17:54	4260
26/02/2025	9	509652.1, 680822.3	17:35	18:50	4500
18/03/2025	10	508683, 682617.7	18:15	19:35	4800
07/04/2025	11	509904, 681130.7	19:50	21:05	4500

Methods followed the '*Irish Hen Harrier Winter Survey'* Guidance (O' Donoghue, 2019; SNH, 2017). Areas of potential suitable habitat (rushy/tussocky grassland, heather moorland and young conifer plantations) for roost locations within 2 km of the wind farm element of the Proposed Development were identified during daytime walkover surveys and for GIS analysis of satellite imagery of the Proposed Development (**Figure 2.14**; **Figure 2.15**).

These areas were then observed at a time associated with roost activity, i.e., the last hour before dusk to determine the arrival of returning birds to roost sites (O'Donoghue, 2019). Roost surveys started 90 minutes before sunset and continued to at least 30 minutes after sunset (or until it was too dark to see) as recommended by best practice methods (Gilbert *et al.*, 2011). Methods followed best practice from O' Donoghue (2019) and SNH (2017), these included observers stationed in VPS around suspected roost areas recording the number of individuals, listening for calling, detection of juveniles and sings of occupancy. Additional information such as arrival/departure times, settling/rising times and direction of arrival/departure as well as general observations were also noted.

Details noted during these surveys included identification of birds flying around the potential roost and bird flight behaviour approaching and departing the potential roost. Survey efforts are detailed in **Annex I**.

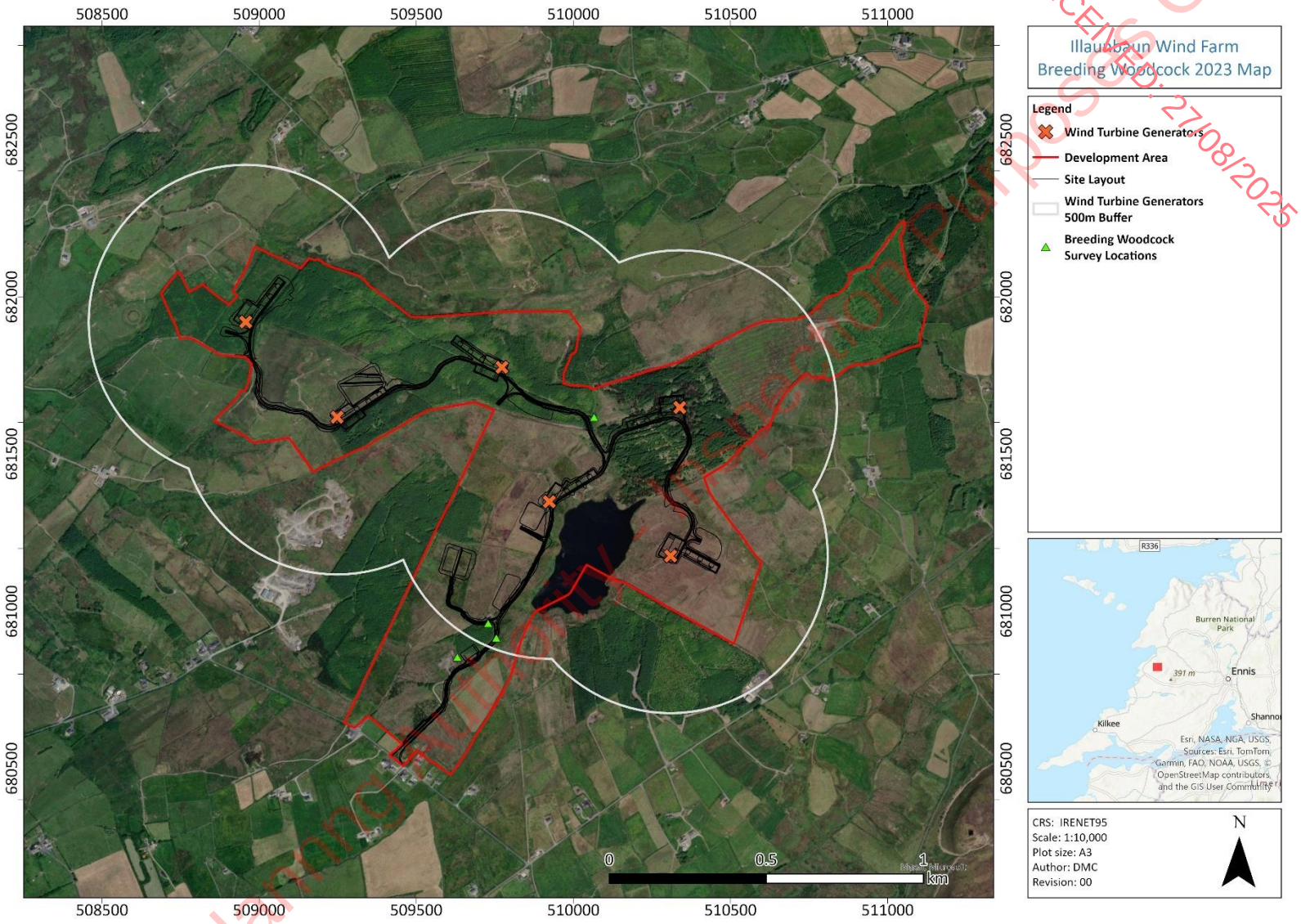

Figure 2.5: *Illaunbaun Wind Farm breeding woodcock survey locations 2023.*

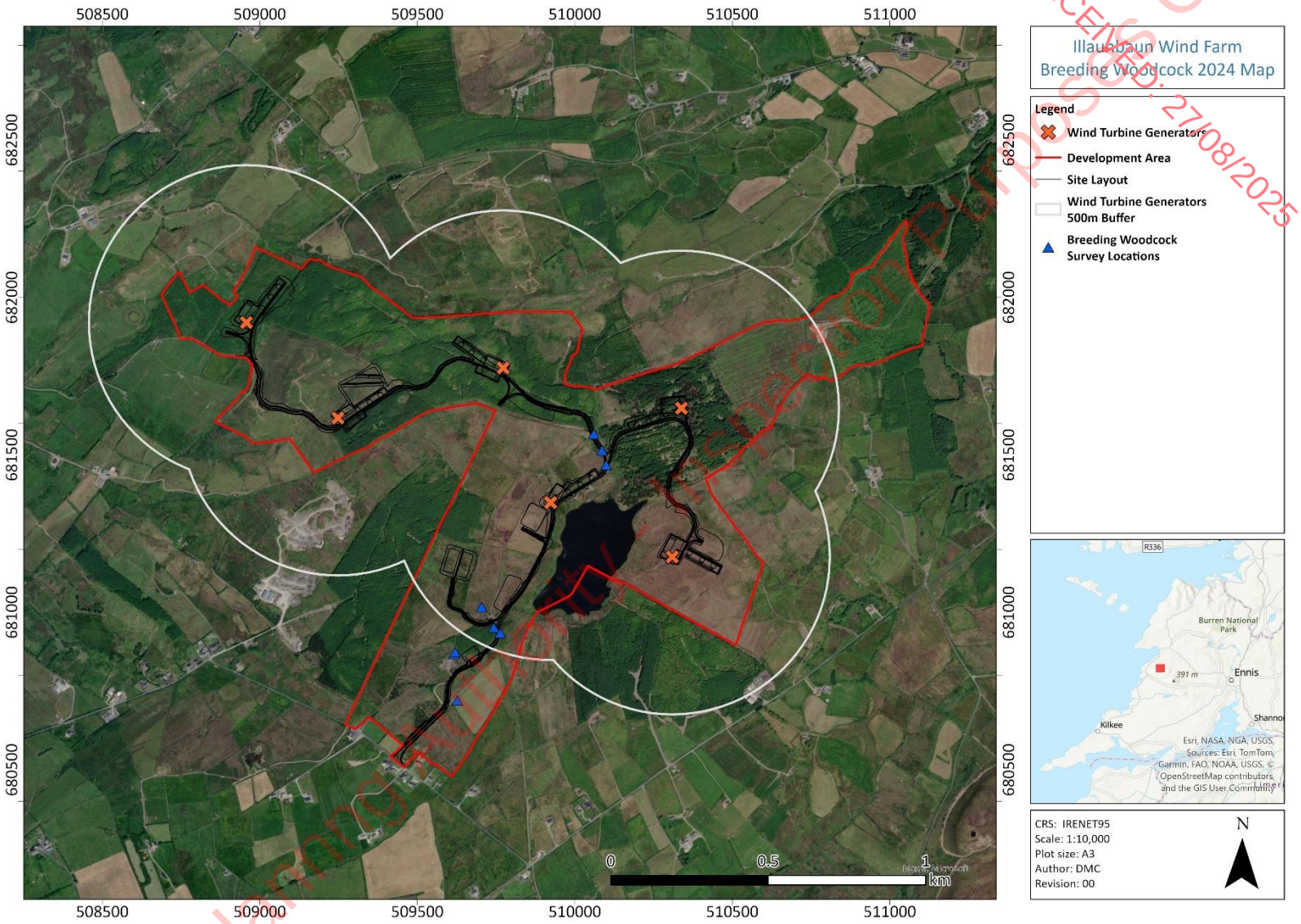

Figure 2.6: *Illaunbaun Wind Farm breeding woodcock survey locations 2024.*

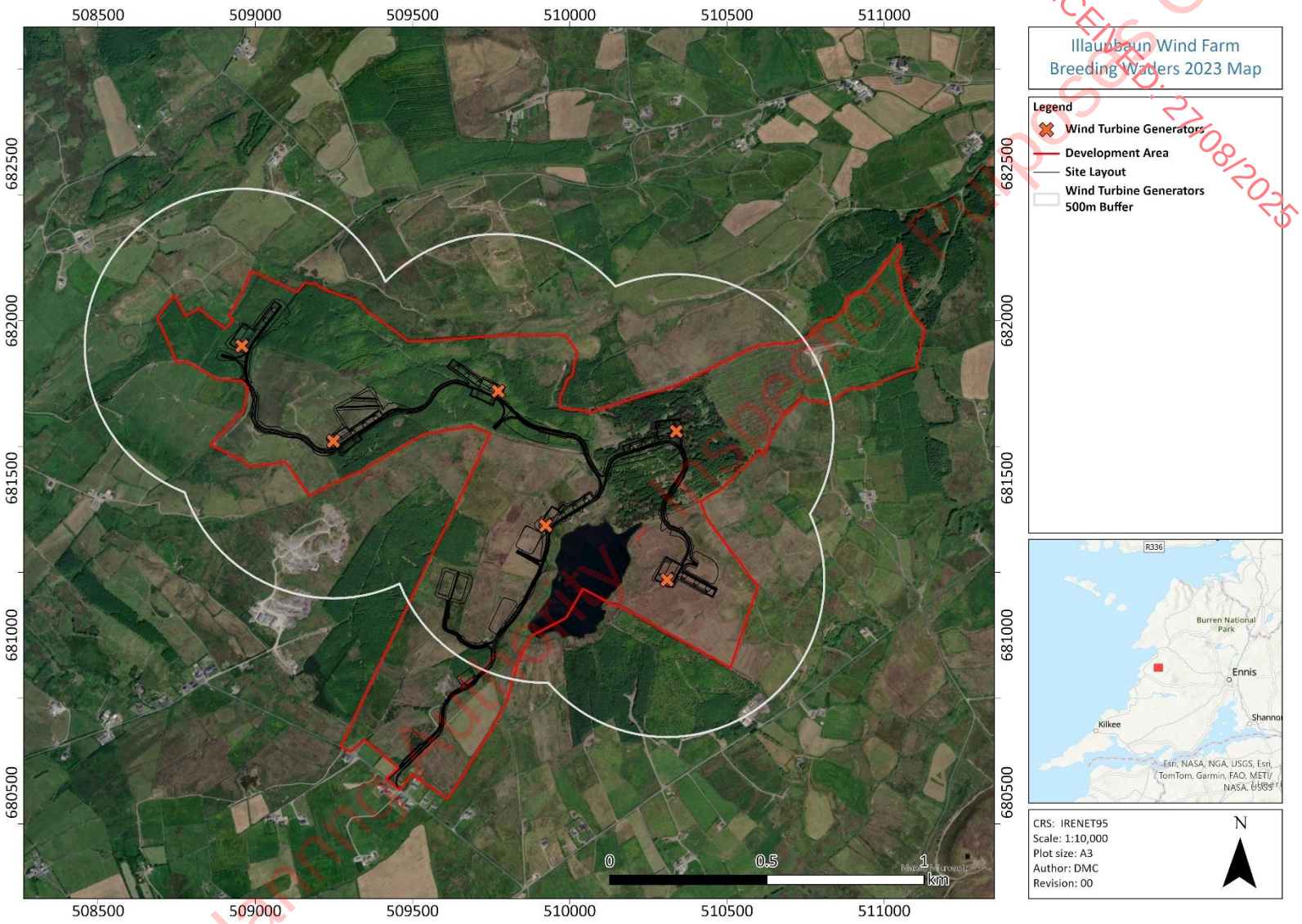

Figure 2.7: *Illaunbaun Wind Farm breeding waders survey area.*

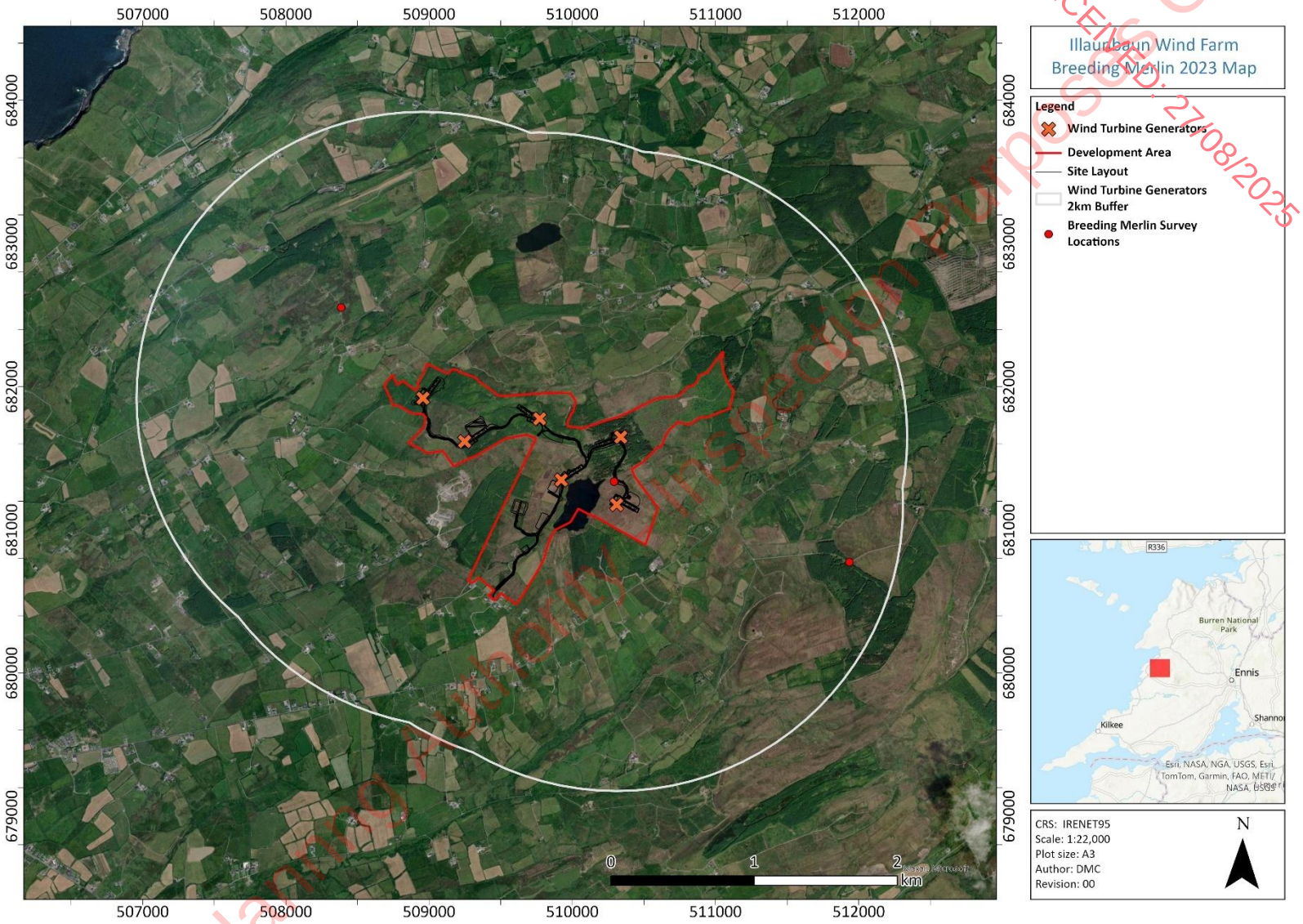

Figure 2.8: *Illaunbaun Wind Farm breeding merlin survey area.*

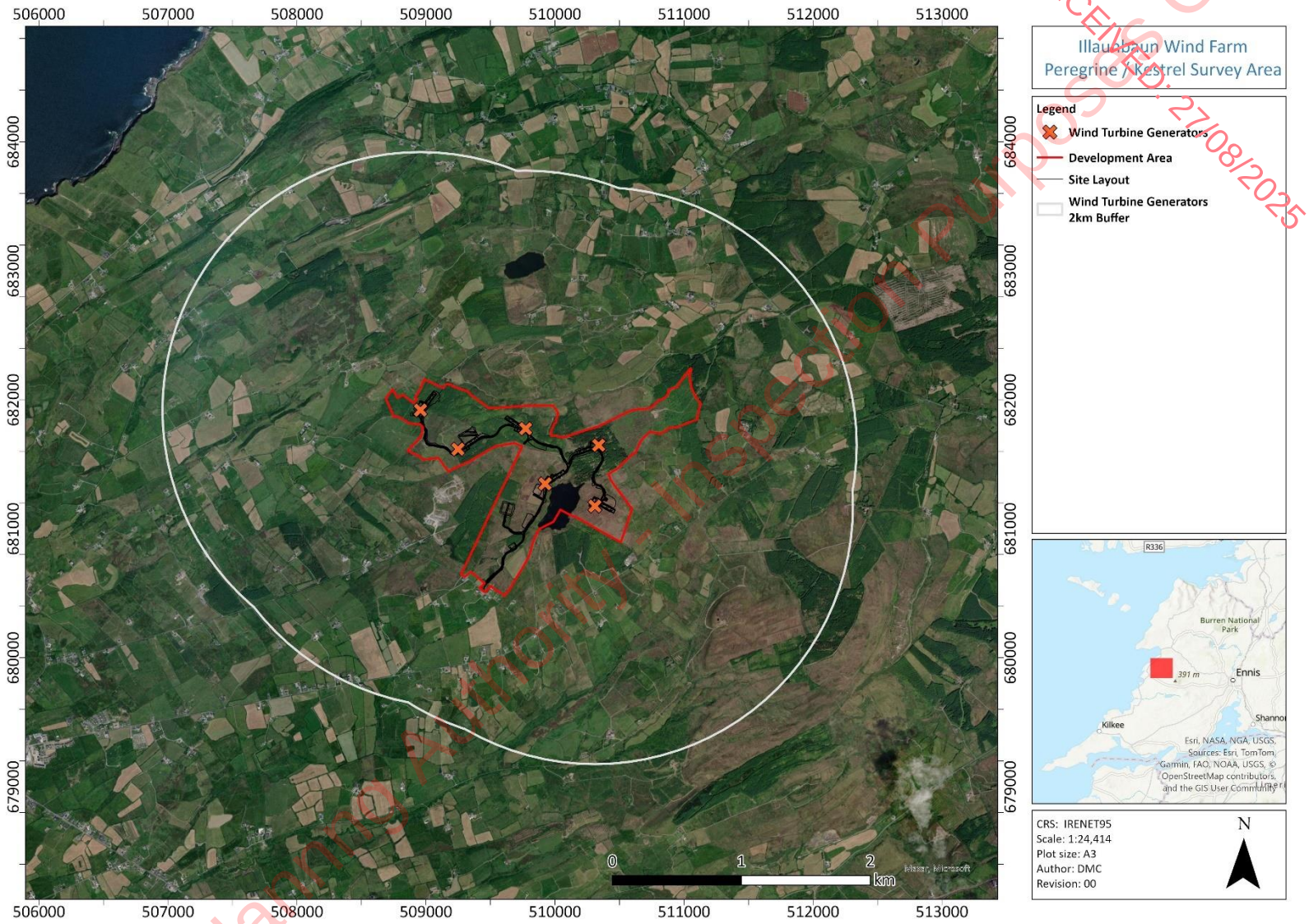

Figure 2.9: *Illaunbaun Wind Farm breeding peregrine and kestrel survey area.*

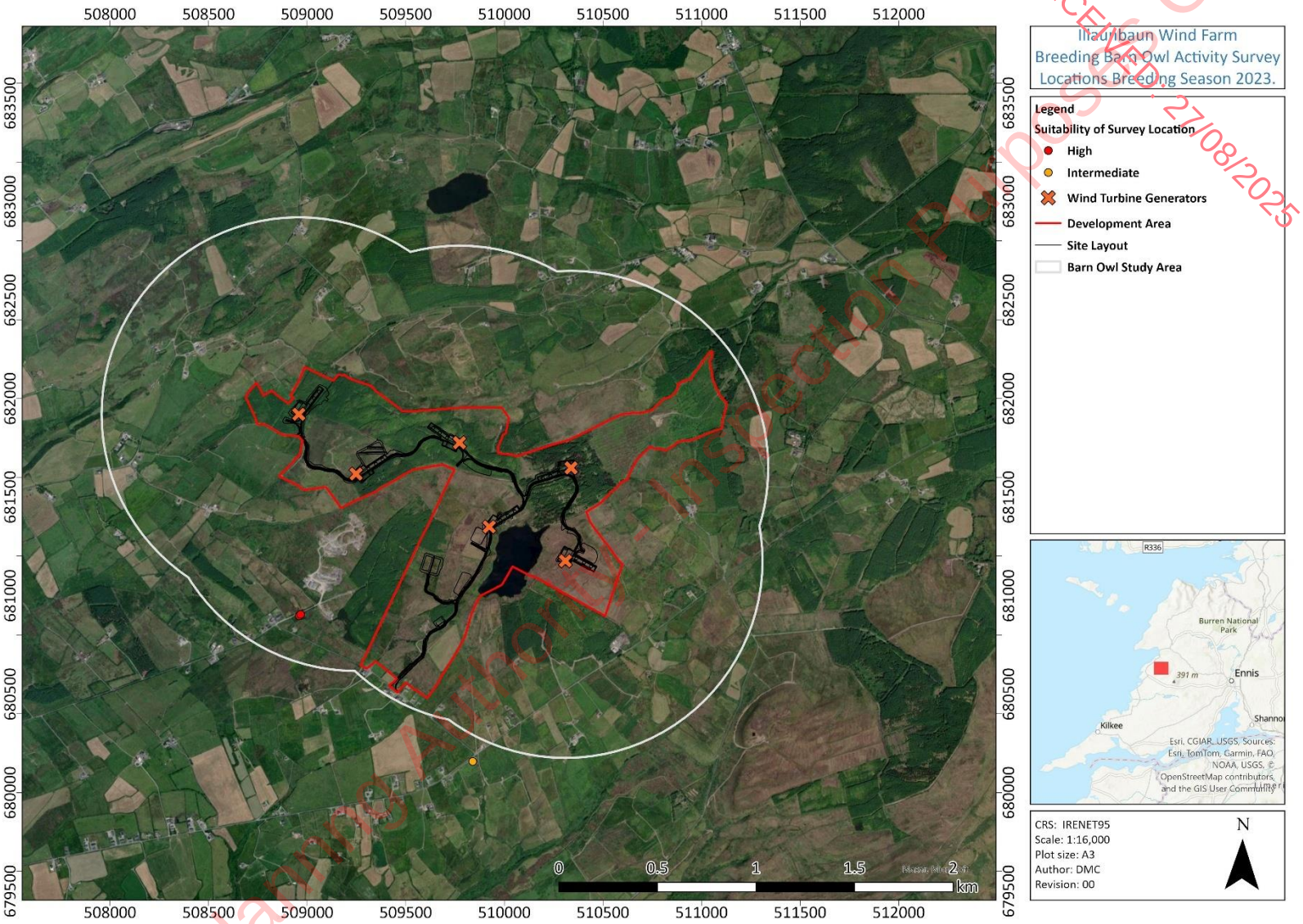

Figure 2.10: *Illaunbaun Wind Farm breeding barn owl survey locations 2023.*

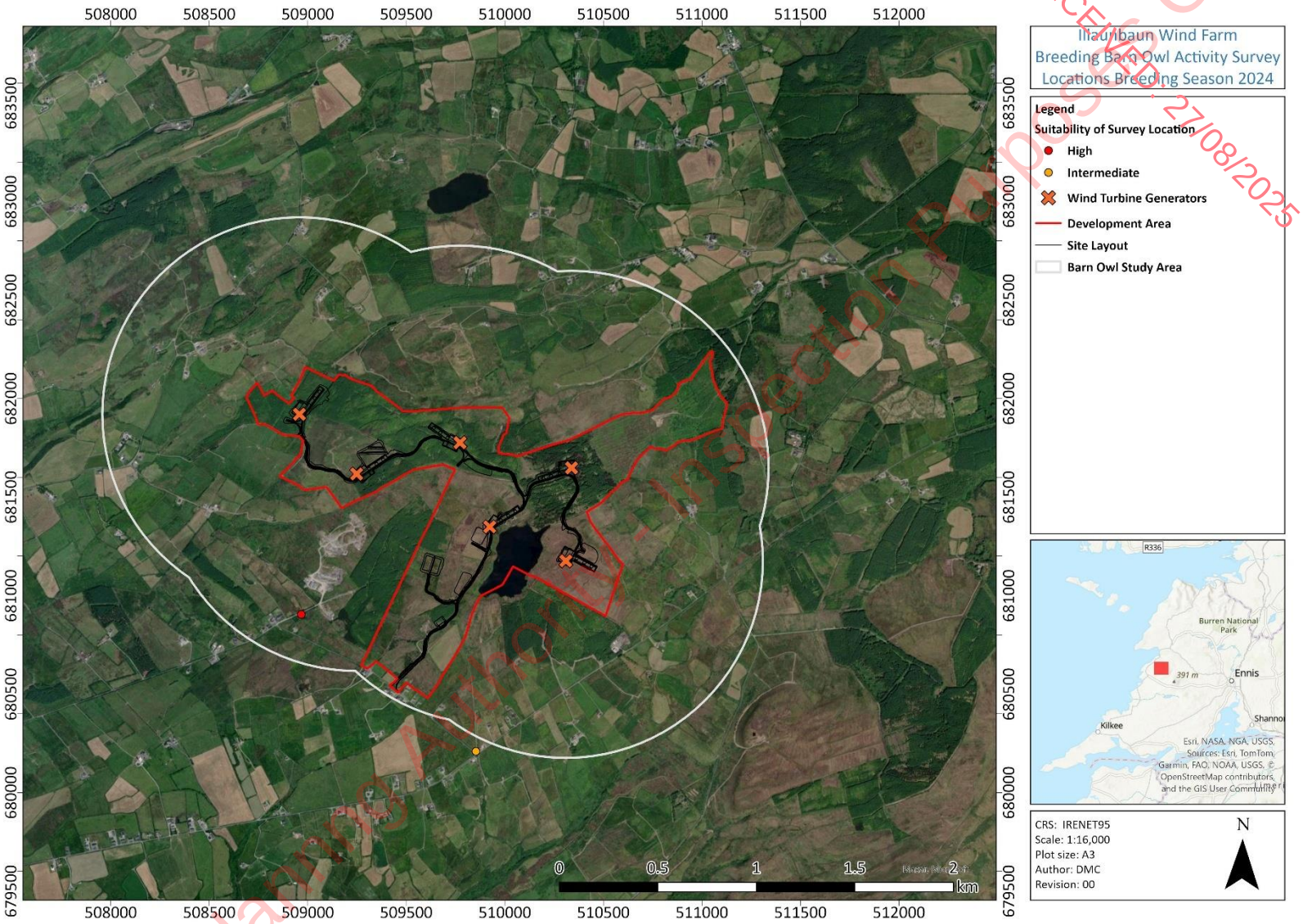

Figure 2.11: *Illaunbaun Wind Farm breeding barn owl survey locations 2024.*

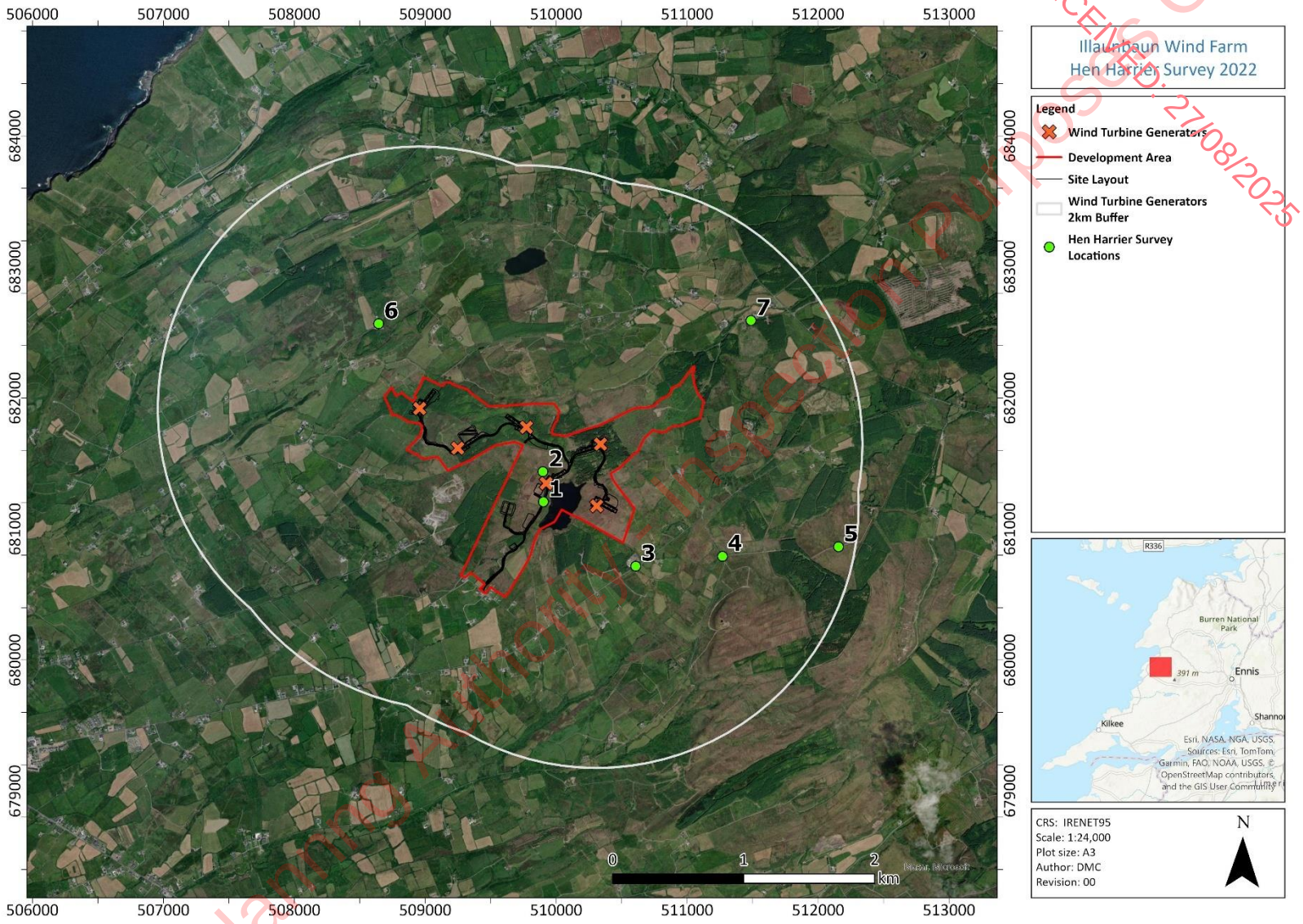

Figure 2.12: *Illaunbaun Wind Farm breeding hen harrier survey area 2022.*

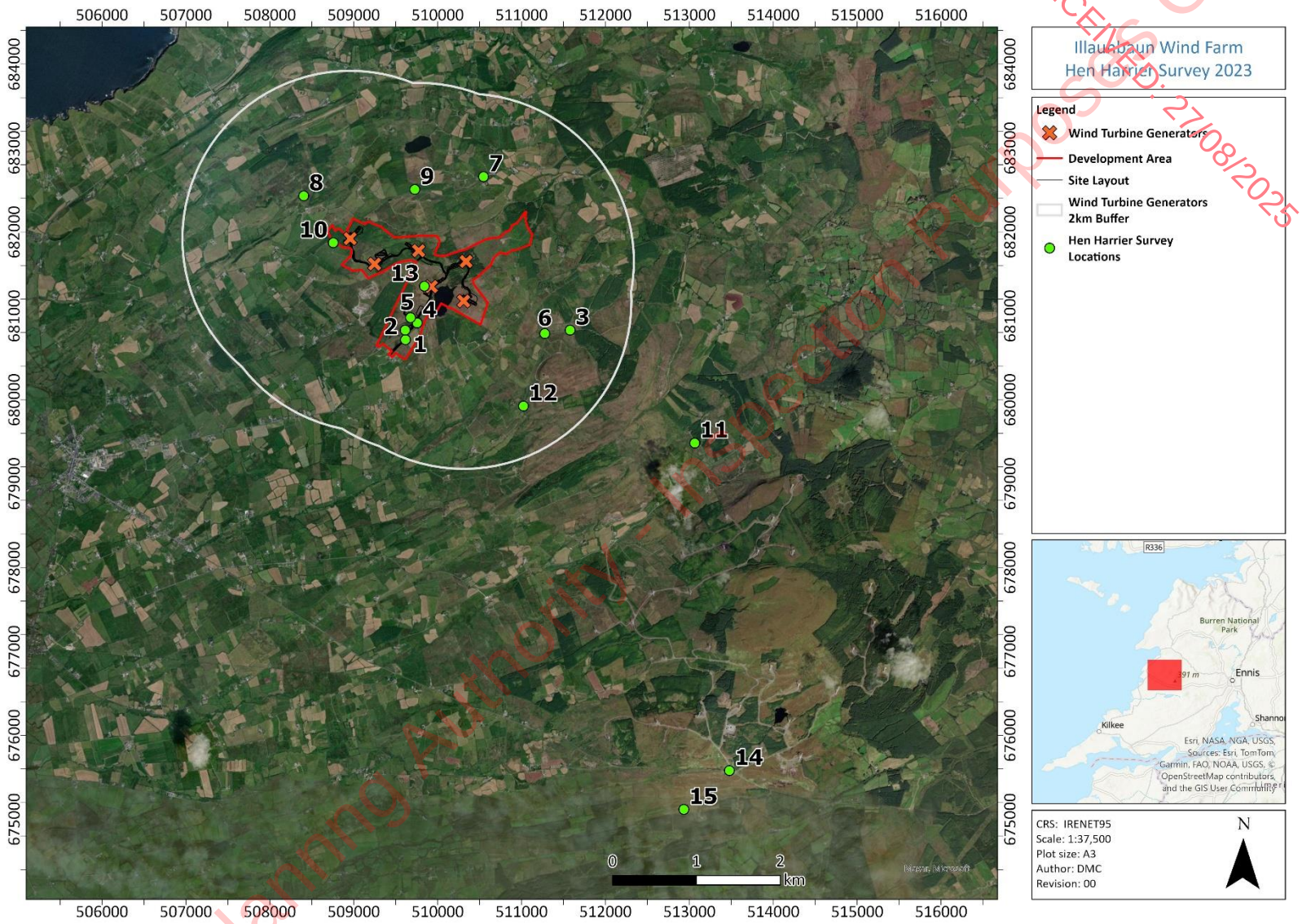

Figure 2.13: *Illaunbaun Wind Farm breeding hen harrier survey area 2023.*

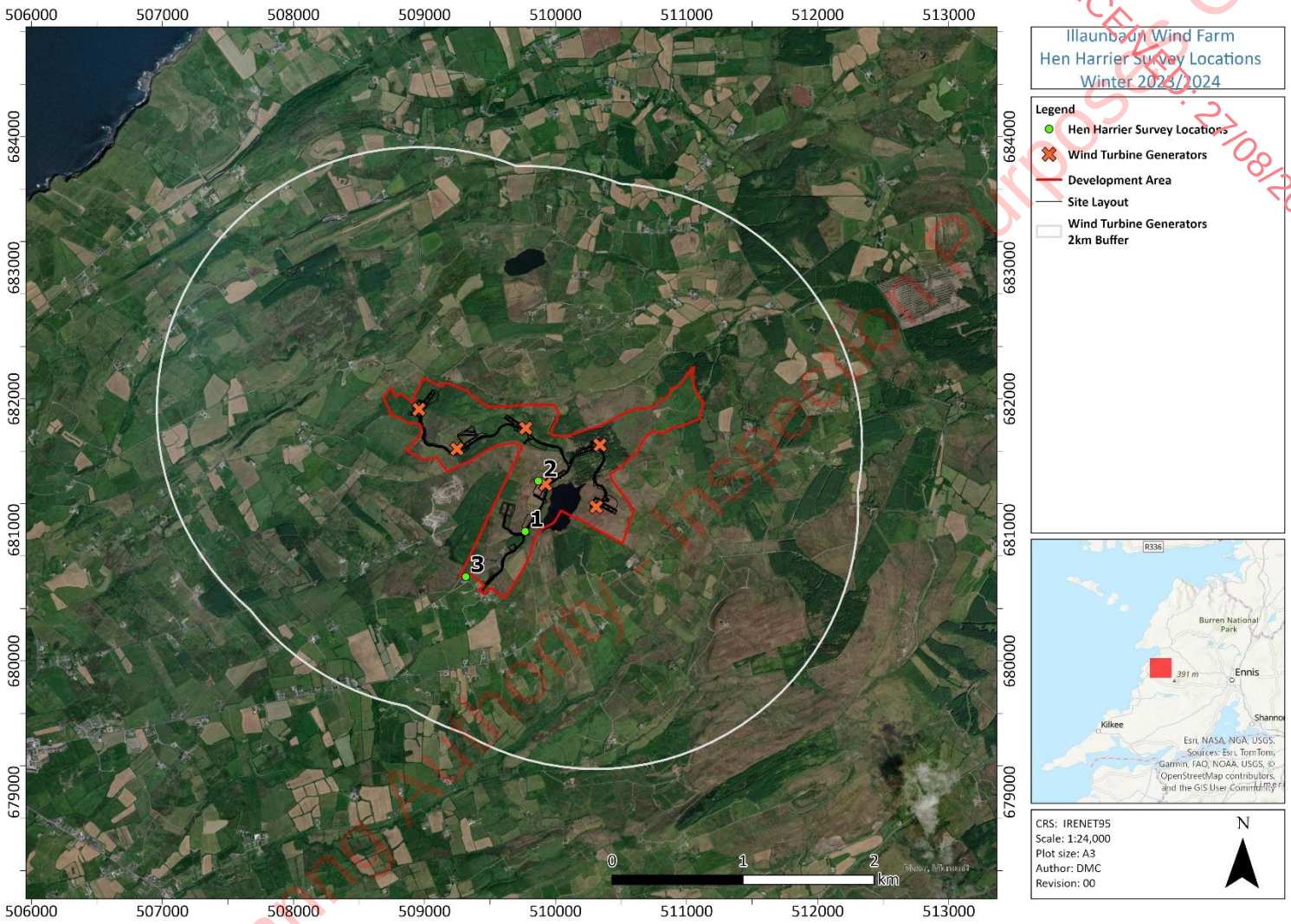

Figure 2.14: *Illaunbaun Wind Farm* hinterland *hen harrier roost survey area and roost watch locations 2023/2024.*

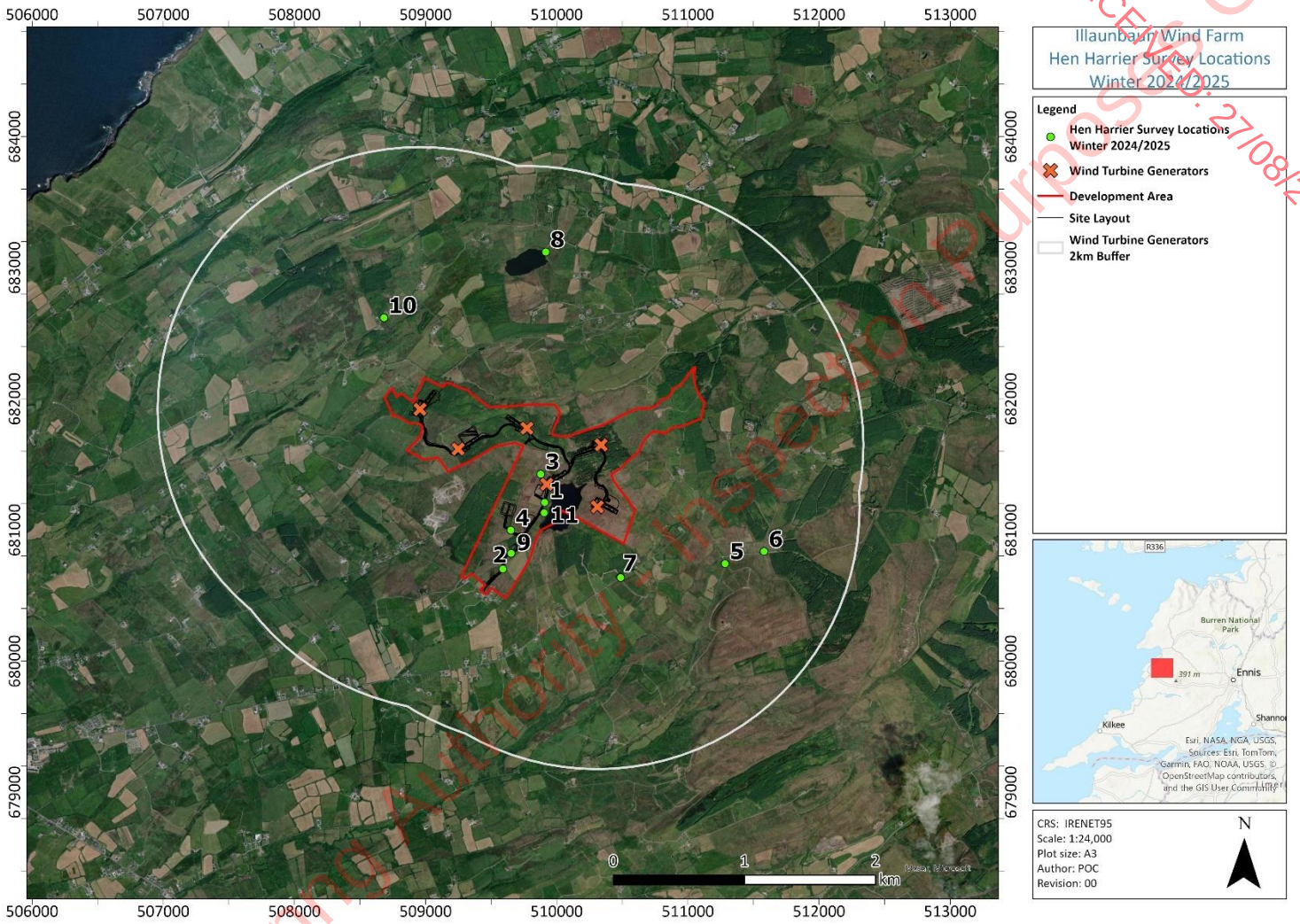

Figure 2.15*: Illaunbaun Wind Farm* hinterland *hen harrier roost survey area and roost watch locations 2024/2025.*

2.3. Constraints and Limitations

There are a number of limitations inherent to field-based surveying, in particular for bird surveys. These relate to availability of suitable weather conditions for completing surveys, with good visibility and little wind or rain. As such, when undertaking and completing fieldwork, careful consideration and planning is made to ensure optimal weather conditions during survey periods.

The ornithology data presented in this report were collected in optimal weather conditions. In some months, VPs were surveyed twice in one month to compensate for months when no survey work took place at a given VP, typically due to local weather conditions being unsuitable to allow the necessary visibility conditions for an accurate VP flight activity survey. The constraints experienced and compensatory measures provided for VP surveys are explained further below.

In the 2023 breeding season survey period, VP1 and VP2 were not surveyed in June. Additional hours were conducted in July to compensate for the June hours. VP1 and VP3 overlap viewsheds and were conducted on the same day for three hours on the 27/07/2023 due to a scheduling error. VP3 was still surveyed for nine hours in July and as such, this constraint is believed to be adequately compensated for in the 2023 season due to all VPs being monitored in 2023 breeding season for at least 36 hours as per best practice guidance (SNH, 2017). VP surveys in breeding season of 2024 followed similar scheduling constraints; no hours were competed in the month of April but were compensated with additional hours in May, no hours were completed in the month of September for VP1 and VP3 but were compensated with additional hours undertaken on August. For the winter season 2024/2025, no hours were recorded for VP1 on November and September 2024, and only three hours were recorded for VP2 on October 2024 and February 2025 and VP3 on November 2024, these constraints are believed to be adequately compensated for in the breeding season 2024 and winter season 2024/2025 season due to all VPs being monitored for both seasons for at least 36 hours as per best practice guidance (SNH, 2017).

Breeding hen harrier surveys were conducted in 2022 and 2023, the remaining surveys outlined within this report were carried out more recently within the years 2023-2025. Per the guidance form SNH (2017), two years of bird activity is considered sufficient for the impact assessment. As such, this data is within the acceptable window for data validity set out by the CIEEM (2019).

VP locations during breeding hen harrier surveys carried out on 19th April and 30th May 2023 were not recorded by the surveyor.

In summary it is considered that no significant constraints exist, and the survey data provides accurate detail on the baseline biodiversity in relation to avifauna within the Proposed Development site and environs.

3. RESULTS

Relevant European sites of nature conservation importance, including SPAs, IBAs and Ramsar sites, are summarised in the Designated Sites Technical Appendix A08-01. These European sites and their hydrological catchments are detailed in the Appropriate Assessment report.

A desktop review was completed to identify relevant features of ecological importance within the study area and surrounding region prior to the commencement of survey work. This involved an online assessment of relevant bird data from published or open-access data and information, and reports from previous bird surveys and studies in the area. Prior to field surveys taking place, any other potential sites of ecological importance and conservation interest were identified by examination of: Ordnance Survey (OS), GIS analysis of satellite imagery to determine land use within the site, GIS spatial datasets for European Designated Sites and Nationally Designated Sites were downloaded from the National Parks and Wildlife Service (NPWS)[2]. Waterbodies present within the study area were checked for connectivity to potential sites of ecological importance and conservation interest and their proximity to project elements using EPA mapping[3].

An indicative-listed of sources of information included within this review included:

- Bird Atlas 2007–11 (Balmer *et al.,* 2013).
- Birds of Conservational Concern in Ireland 2020 –2026 (Gilbert *et al.*, 2021).
- Birds in Ireland (Hutchinson, 1989).
- BirdWatch Ireland. Countryside Bird Survey Square Histories. Accessed at: https://c0cre470.caspio.com/dp.asp?AppKey=4bae30003837d13624fb4a4087d1 [accessed July 2025].
- Irish Birding. Sightings of birds in Ireland. Accessed at: http://www.irishbirding.com/birds/web [accessed July 2025].
- National Biodiversity Data Centre. Biodiversity Maps. Accessed at: https://maps.biodiversityireland.ie/ [accessed July 2025].
- National Parks and Wildlife Service. Maps and Data. Accessed at: https://www.npws.ie/maps-and-data [accessed July 2025].

3.1.1. Consultation

Correspondence inquiring about the presence of vulnerable sensitive avian receptors and key habitats on or near the Proposed Development, were made to the relevant state agencies. Letters of consultation regarding these matters were sent out to Development Applications Unit (DAU) and National Parks and Wildlife Services (NPWS). Responses were received from DAU and NPWS outlining their recommendations and observations with regards to the species and habitats of concern on the site.

A request was submitted to NPWS on 23/01/2023 for comment regarding sensitive receptors of concern within the Proposed Development area. A response was received 31/01/2023. This response

[2] *Available at https://www.npws.ie/protected-sites. Accessed in July 2025.*
[3] *https://gis.epa.ie/EPAMaps/ [Accessed July 2025]*

noted four empty nests for peregrine were recorded during the National Peregrine Survey in 2017 within the two 10 km grid squares concerned and a single sighting of hen harrier from 2010. Advice was also provided to consider breeding seabirds and to refer to the Irish Wildlife Manual 114 on the Article 12 reporting for breeding seabirds which were also considered within the baseline.

A request was submitted to DAU on 23/01/2023 for comment regarding sensitive receptors of concern with the Proposed Development area. A response was received 15/03/2023 with no relevant data provided, the Department states that best practice is expected to be adhered to with regard to survey methodology and surveys for all species should cover bird usage and facilitate assessment of potential collision risk, habitat loss, barrier effect and displacement for these species and should be based around the daily and seasonal activity patterns of the species being surveyed.

3.2. Desk Study

Birds of conservation concern were recorded within the R08, R18 10 km grid squares were utilised on the 31st of July 2025 and are shown in **Annex K**. Extensive records of Annex I, Red-listed and Amber-listed bird species were recorded within the two grid squares, especially R08 due to this grid square extending out to the coast of Co. Clare.

A number of species recorded within the grid square are-listed as SCIs for one of the two SPAs within the ZoI.

Mid-Clare Coast SPA: Cormorant (*Phalacrocorax carbo*) [A017], barnacle goose (*Branta leucopsis*) [A045], ringed plover (*Charadrius hiaticula*) [A137], sanderling (*Calidris alba*) [A144], purple sandpiper (*Calidris maritima*) [A148], dunlin (*Calidris alpina*) [A149], turnstone (*Arenaria interpres*) [A169]

Cliffs of Moher SPA (Fulmar (*Fulmarus glacialis*) [A009], Kittiwake (*Rissa tridactyla*) [A188], Guillemot (*Uria aalge*) [A199], Razorbill (*Alca torda*) [A200], Puffin (*Fratercula arctica*) [A204], Chough (*Pyrrhocorax pyrrhocorax*) [A346])

Two European sites relevant to the EU Birds Directive are present within the potential ZoI of the Proposed Development: Cliffs of Moher SPA and Mid-Clare Coast SPA. Both these sites are designated for coastal bird species and include SCI species that were recorded within the two 10 km grid squares (NBDC, 2025) (see **Annex K**).

3.3. Field Study

The survey area of the Proposed Development supports a wide variety of typical bird species of open countryside and farmland, including birds of prey and wader species. These include resident species, summer and winter migrants (including summer breeders) and species present during spring and autumn passage.

The composition of the baseline bird population of the Proposed Development and adjacent land, presented herein, is based on the results of the detailed field surveys undertaken between 2023 and 2025.

3.3.1. Vantage point surveys

A total of 536 hours of VP surveys were conducted at the site, these included the cumulative efforts from April 2023 to March 2025 across the three VP locations (**Table 2.2**, **Figure 2.1**).

2.2.6.5. Breeding 2023

In the 2023 breeding season, a total of ten bird species were recorded (**Table 3.1, Annex A; Table A.1 and Table A.5**). These species included: Two Red-listed species (kestrel and snipe (*Gallinago gallinago*)) and six Amber-listed species (great black-backed gull, hen harrier, herring gull, lesser black-backed gull, mallard (*Anas platyrhynchos*) and whimbrel (*Numenius phaeopus*)) were recorded during breeding season efforts.

Only two species recorded were Green-listed (raven (*Corvus corax*) and sparrowhawk (*Accipiter nisus*)). Only one species recorded is an Annex I species (Hen harrier).

2.2.6.6. Winter 2023/2024

In the winter season 2023/2024, 13 bird species are recorded (**Table 3.2, Annex A; Table A.2 and Table A.6**). These species included:

Four Red-listed species (golden plover, kestrel, snipe and woodcock) and six Amber-listed species (black-headed gull, hen harrier, herring gull, lesser black-backed gull, mallard, merlin, teal (*Anas crecca*) and turnstone) were recorded during winter season efforts.

Only five species recorded was Green-listed (grey heron (*Adrea cinerea*), little egret (*Egretta garzetta*), peregrine, raven and sparrowhawk). Five species recorded are Annex I species (golden plover, hen harrier, little egret, merlin and peregrine).

2.2.6.7. Breeding 2024

In the breeding 2024 season, a total of 11 bird species were recorded (**Table 3.3, Annex A; Table A.3 and Table A.7**). These species include:

Two Red-listed species (kestrel and golden plover) and five Amber-listed species (common gull (*Larus canus*), hen harrier, herring gull, lesser black-backed gull and mallard) were recorded during breeding season efforts.

Four species recorded were Green-listed (buzzard, great black-backed gull (*Chroicocephalus ridibundus)*, raven and sparrowhawk). Two species recorded are Annex I species (golden plover and hen harrier).

2.2.6.8. Winter 2024/2025

In the winter season of 2024/2025, 13 bird species are recorded (**Table 3.4, Annex A; Table A.4 and Table A.8**). These species included:

Three Red-listed species (golden plover, kestrel and snipe) and five Amber-listed species (hen harrier, herring gull, lesser black-backed gull, mallard and teal); and four Green-listed species (buzzard, grey heron, raven and sparrowhawk).

Only two species recorded are Annex I species (golden plover and hen harrier).

Table 3.1: *VP Breeding Season 2023 Species Counts.*

Breeding 2023 Species	Apr	May	Jun	Jul	Aug	Sep	Total
Great black-backed Gull				4			4
Hen harrier				2	6	2	10
Herring gull				9			9
Kestrel				14	4	9	27
Lesser black-backed gull				84	1	1	86
Mallard				10			10
Raven					4	1	5
Snipe					1		1
Sparrowhawk						3	3
Whimbrel	1						1

Table 3.2*: VP Winter Season 2023/2024 Species Counts.*

Winter 2023/2024 Species	Oct	Nov	Dec	Jan	Feb	Mar	Total
Black-headed gull		1					**1**
Golden plover		30					**30**
Grey heron						7	**7**
Hen harrier			2	2			**4**
Herring gull		3				14	**17**
Kestrel	2	11	6			20	**39**
Lesser black-backed gull						38	**38**
Little egret						1	**1**
Mallard		5				1	**6**
Merlin		1	1			2	**4**

Winter 2023/2024 Species	Oct	Nov	Dec	Jan	Feb	Mar	Total
Peregrine						1	1
Raven			3			2	5
Snipe		3	13				16
Sparrowhawk			2			4	6
Teal		13					13
Turnstone		4					4
Woodcock		1					1
Total	2	72	27	2	0	90	193

Table 3.3: *VP Breeding Season 2024 Species Counts.*

Breeding 2024 Species	Apr	May	Jun	Jul	Aug	Sep	Total
Buzzard						2	2
Common gull			1				1
Golden plover							0
Great black-backed Gull				1			1
Hen harrier				4			4
Herring gull				6	43		49
Kestrel		1	2	4	56	13	76
Lesser black-backed gull		3	7	27	46	1	84
Mallard					3		3
Raven				2			2
Sparrowhawk					1	2	3
Total	0	4	10	44	149	18	225

Table 3.4: *VP Winter Season 2024/2025 Species Counts.*

Winter 2024/2025 Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Buzzard	1					1			2
Golden plover					70		100		170
Grey heron					1		1		2
Hen harrier	1	1					2		4

Winter 2024/2025 Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Herring gull	51				1		1	3	**56**
Kestrel	38	10	10		5	2	12		**77**
Lesser black-backed gull	1	1						1	**3**
Mallard					4	5			**9**
Raven		2		2	2		4	1	**11**
Snipe	1	1		1	1				**4**
Sparrowhawk	2	3			4				**9**
Teal							1		**1**
Total	**93**	**17**	**10**	**3**	**17**	**7**	**18**	**5**	**348**

3.3.2. Countryside bird surveys

The full record of species recorded, and total counts are provided in **Table 3.5** and **Table 3.6.** Each species is colour-coded with a 'traffic light system', with 'red' species of high conservational concern, 'amber' species of medium conservation concern and 'green' species of low conservation concern (Gilbert *et al.,* 2021). In the 2023 breeding season, a total of nine bird species were recorded during the breeding transect surveys. Meadow pipit (*Anthus pratensis*) was the only Red-listed species recorded. (**Table 3.6**).

In the winter 2023/2024 season, a total of 24 species were recorded during the winter transect surveys. Amber-listed species recorded included goldcrest (*Regulus regulus*), mallard, skylark (*Alauda arvensis*), starling (*Sturnus vulgaris*) and teal. Snipe and meadow pipit were the only Red-listed species recorded (**Table 3.6**).

In the 2024 breeding season, a total of 21 bird species were recorded during the breeding transect surveys. Meadow pipit was the only, Red-listed species recorded. Amber-listed species recorded included goldcrest (*Regulus regulus*), lesser black-backed gull, skylark and willow warbler (*Phylloscopus trochilus*). (**Table 3.5**).

In the winter 2024/2025 season, a total of 14 species were recorded during the winter transect surveys. Amber-listed species recorded included herring gull, mallard and teal (**Table 3.6**).

Survey efforts are provided in **Annex B; Table B.1 – Table B.4**.

Table 3.5*: CBS Breeding Transect Results*

Species	Breeding 2023			Breeding 2024			Total
	April	May	Total	May	Jun	Total	
Blackbird	3	2	**5**	4	8	**12**	**17**
Blackcap	-	-	**-**	-	2	**2**	**2**
Blue tit	-	-	**-**	-	3	**3**	**3**
Chaffinch	3	-	**3**	2	6	**8**	**11**
Coal tit	-	-	**-**	-	5	**5**	**5**
Cuckoo	-	-	**-**	4	1	**5**	**5**
Goldcrest	-	-	**-**	-	8	**8**	**8**
Great tit	-	-	**-**	-	3	**3**	**3**
Hooded crow	3	3	**6**	-	1	**1**	**7**
Lesser black-backed gull	-	-	**-**	-	2	**2**	**2**
Magpie	-	1	**1**	-	2	**2**	**3**
Meadow pipit	4	12	**16**	7	11	**19**	**35**
Pheasant	-	-	**-**	2	1	**3**	**3**
Robin	1	1	**2**	-	10	**10**	**12**
Rook	3	3	**6**	-	4	**4**	**10**
Sedge warbler	-	-	**-**	-	3	**3**	**3**
Skylark	-	-	**-**	8	9	**17**	**17**
Stonechat	-	-	**-**	-	5	**5**	**5**
Willow warbler	-	-	**-**	1	11	**12**	**12**
Woodpigeon	2	1	**3**	2	5	**7**	**10**
Wren	6	4	**10**	10	16	**26**	**36**
Total Birds	**25**	**27**	**52**	**40**	**116**	**157**	**209**
Total Species	**8**	**8**	**9**	**9**	**21**	**21**	**21**

Table 3.6: *CBS Non-Breeding Transects*

Species	Non-Breeding 2023-2024				Non-Breeding 2024-2025					Total
	Nov	Dec	Mar	Total	Nov	Dec	Jan	Feb	Total	
Blackbird	-	1	12	**13**	-	-	-	-	-	**13**
Blue tit	-	1	1	**2**	-	4	2	-	**6**	**8**
Chaffinch	1	-	8	**9**	1	2	4	1	**8**	**17**
Chiffchaff	-	-	2	**2**	-	-	-	-	-	**2**
Coal tit	-	-	6	**6**	1	-	-	-	**1**	**7**
Dunnock	1	3	-	**4**	-	-	-	-	-	**4**
Fieldfare	-	-	39	**39**	-	-	-	-	-	**39**
Goldcrest	3	2	11	**16**	-	-	-	-	-	**16**
Great black-backed gull	-	-	11	**11**	-	-	-	-	-	**11**
Great tit	1	-	5	**6**	-	1	-	-	**1**	**7**
Grey heron	-	-	-	**-**	-	-	1	-	**1**	**1**
Herring gull	-	-	-	**-**	-	-	1	-	**1**	**1**
Hooded crow	2	4	8	**14**	-	-	2	2	**4**	**16**
Magpie	-	1		**1**	-	-	1	-	**1**	**2**
Mallard	-	4	3	**7**	-	2	-	-	**2**	**9**
Meadow pipit	-	2	21	**23**	1	-	5	3	**9**	**32**
Mistle thrush	-	-	2	**2**	-	-	-	-	-	**2**
Pheasant	1	-	4	**5**	-	-	-	-	-	**5**
Reed bunting	-	1	11	**12**	-	-	1	-	**1**	**13**
Robin	6	2	14	**22**	-	-	4	1	**5**	**27**
Skylark	-	-	8	**8**	-	-	-	-	-	**8**
Snipe	2	1	-	**3**	-	-	-	-	-	**3**
Starling	-	1	-	**1**	-	-	-	-	-	**1**
Stonechat	1	3	2	**6**	-	-	-	-	-	**6**
Teal	8	1	-	**9**	-	-	14	-	**14**	**23**
Wren	5	9	16	**30**	2	-	6	1	**9**	**39**
Total Birds	**25**	**26**	**89**	**143**	**3**	**2**	**35**	**7**	**47**	**190**
Total Species	**7**	**11**	**10**	**14**	**1**	**1**	**8**	**4**	**9**	**15**

3.3.3. Wintering wetland survey (I-WeBS)

In the winter season 2023/2024, a total of 27 species were recorded during the I-WeBS (**Table 3.7**).

A total of 16 Amber-listed species were recorded: black-headed gull, brent goose (*Branta bernicla*), cormorant, gadwall (*Mareca strepera)*, gannet (*Morus bassana)*, great crested grebe (*Podiceps cristatu),* great northern diver (*Gavia immer),* herring gull (*Larus argentatus)*, lesser black-backed gull (*Larus fuscus)*, mallard, ringed plover (*Charadrius hiaticula)*, teal (*Anas crecca)*, tufted duck (*Aythya fuligula)*, turnstone and wigeon (*Mareca penelope)* and shag (*Phalacrocorax aristotelis*).

A total of five Red-listed species were recorded: curlew (*Numenius Arquata)*, golden plover (*Pluvialis apricaria)*, grey wagtail (*Motacilla cinerea)*, oystercatcher (*Haematopus ostralegus)* and redshank (*Tringa totanus)*.

A number of other wader and waterbird species were recorded (great black-backed gull (*Larus marinus*), greenshank (*Tringa nebularia*), grey heron (*Ardea cinerea*), little grebe, moorhen, sanderling). Maps showing the species locations are provided in **Section 7 (Figure 7.1 – Figure 7.5)**.

Peak counts of each species recorded during the winter 2023/2024 season and winter 2024/2025 season are provided in **Table 3.7** and **Table 3.8**

Table 3.7: *I-WeBS 2023-2024 Results.*

Species	Nov	Dec	Mar	Total
Black-headed gull	45	16	3	**64**
Brent goose	-	-	10	**10**
Cormorant	2	-	2	**4**
Curlew	38	5	3	**46**
Gadwall	-	-	2	**2**
Gannet	-	-	1	**1**
Golden plover	8	-	-	**8**
Great black-backed gull	-	-	4	**4**
Great crested grebe	-	-	2	**2**
Great northern diver	-	1	1	**2**
Greenshank	-	-	2	**2**
Grey heron	-	-	1	**1**
Grey wagtail	-	-	1	**1**
Herring gull	13	5	97	**115**
Lesser black-backed gull	5	6	3	**14**
Little grebe	-	3	1	**4**
Mallard	-	-	8	**8**
Moorhen	1	-	-	**1**
Oystercatcher	65	40	78	**183**
Redshank	-	5	1	**6**
Ringed plover	-	29	4	**33**
Sanderling	-	12	-	**12**
Shag	-	-	1	**1**
Teal	8	7	-	**15**
Tufted duck	2	-	-	**2**
Turnstone	-	5	-	**5**
Wigeon	-	8	-	**8**

Species	Nov	Dec	Mar	Total
Total	**187**	**142**	**225**	**554**

In the winter season 2024/2025, a total of 25 species were recorded during the I-WeBS (**Table 3.8**).

A total of 14 Amber-listed species were recorded during I-WeBS (black-headed gull, brent goose, common gull, cormorant, great northern diver, herring gull, lesser black-backed gull, mallard, ringed plover, shag, teal, tufted duck, turnstone and whooper swan (*Cygnus cygnus)*.

A total of four Red-listed species were recorded: common scoter (*Melanitta nigra)*, curlew, oystercatcher and redshank.

Table 3.8: *I-WeBS 2024/2025 Results.*

Species	Oct	Nov	Dec	Jan	Feb	Mar	Total
Black-headed gull	81	102	147	85	-	92	**507**
Brent goose	-	-	-	-	-	8	**8**
Common gull	3	18	67	133	47	119	**387**
Common scoter	-	-	34	-	-	-	**34**
Cormorant	10	14	6	5	1	10	**46**
Curlew	3	1	31	38	45	-	**118**
Great black-backed gull	-	2	22	1	1	1	**27**
Great northern diver	2	5	6	6	1	14	**34**
Greenshank	-	-	1	-	-	-	**1**
Grey heron	-	1	-	-	-	1	**1**
Herring gull	27	29	15	-	17	83	**171**
Lesser black-backed gull	4	-	10	2	26	29	**71**
Little egret	1	2	-	-	-	-	**3**
Little grebe	-	-	2	3	2	3	**10**
Mallard	8	3	33	3	5	21	**73**
Moorhen	1	-	2	-	-	-	**3**
Oystercatcher	101	42	50	78	35	103	**409**
Redshank	2	-	5	4	-	-	**11**
Ringed plover	18	11	17	16	14	6	**82**
Sanderling	-	-	-	-	-	1	**1**
Shag	-	-	12	11	2	-	**25**
Teal	1	-	5	4	-	-	**10**
Tufted duck	-	-	-	3	4	2	**9**
Turnstone	14	-	7	-	-	-	**21**
Whooper swan	3	-	-	-	-	-	**3**
Total	**279**	**230**	**472**	**392**	**200**	**493**	**2065**

3.3.4. Breeding woodcock survey

Woodcock surveys were undertaken during the breeding season in 2023 and 2024, however, no individuals were observed (**Annex E**). There is suitable forestry verge habitat suitable for woodcock within the Proposed Development site.

3.3.5. Breeding wader survey

In the breeding seasons 2023 and 2024, no waders were recorded during dedicated breeding wader surveys within the Proposed Development site boundary or the 500 m study area (**Annex F**). The surrounding area is mostly exposed to strong coastal winds with high tree cover to the West and East, with most of the fields undergoing high levels of grazing such as improved agricultural grassland (GA1), wet grassland (GS4) and dry-humid acid grassland (GS3) (Fossitt, 2000). Waders require open wet grassland and heath habitat for breeding, no habitat within the receiving environment has good suitability to support breeding waders due to the overgrazing practice recorded during surveys.

3.3.6. Breeding raptor survey

3.3.7.1. Breeding merlin

No direct sightings of merlin were recorded during the breeding season efforts of 2023. Possible secondary evidence of merlin (a plucking post) was observed near Lough Keagh and to the west of the Proposed Development area (**Figure 3.1**). The surrounding habitat does contain suitable habitat for nesting merlin such as scattered lakes and open heath/peatland habitat within the Proposed Development site boundary. Survey efforts are provided in **Annex D**.

3.3.7.2. Breeding peregrine and kestrel

In the breeding season 2023, one 'high' and ten 'intermediate' suitability sites were identified during kestrel and peregrine suitability surveys (**Figure 3.2**, **Figure 3.3, Annex G**; **Table G.1** and **Table G.3**). No kestrel or peregrine were recorded during the suitability surveys. Kestrels were recorded hunting 23 times on the 25th of July during the activity surveys 2023 (**Annex H; Table H.1** and **Table H.3**). Two foraging territories were recorded to the North and South of the Proposed Development boundary as indicated by high flightline activity. Flightline activity was partially located within the Proposed Development site boundary (**Figure 3.4**). No peregrine or kestrel nest sites were identified during the 2023 surveys.

In the breeding season 2024, one 'high' suitability site for peregrine was identified surrounding the site boundary (**Annex G; Table G.2 and Table G.4**). This habitat is described as quarry with cliff ledges which would be suitable for nesting. No peregrine were observed during activity surveys, this site was activity monitored for sings of use such as territorial calls (**Annex H; Table G.2**). Five 'intermediate' suitability sites were identified for kestrel (**Figure 3.2; Figure 3.3**; **Annex G; Table E.2**). One kestrel was seen flying over grassland at one location in 2024, the flightline was partially recorded within the Proposed Development site boundary, 333.3 m South of T01 (**Annex H; Table H.2** and **Table H.3**).

Detailed results of the kestrel and peregrine suitability and activity surveys are shown in **Annex H and Annex G**. Kestrel was recorded at high levels in 2023 and in low levels in 2024 (**Figure 3.4**; **Figure 3.5**).

3.3.7.3. Breeding hen harrier

No sightings of hen harrier were recorded during the breeding season 2022 survey efforts. Five sightings of hen harrier were recorded within the wind farm element footprint during breeding hen harrier surveys in the breeding season 2023. Sightings included male and female individuals hunting. A female was observed carrying prey 379.9 m North of the Proposed Development site boundary over

suitable nesting habitat (**Figure I.1**). No nests were observed within 2 km of the nearest wind farm element of the Proposed Development.

3.3.7.4. Breeding barn owl

Two potential barn owl nesting sites of 'high' suitability were identified within the Proposed Development survey area, described as an old abandoned house and a ruin (**Annex J; Table I.2** and **Table I.3**.**; Figure J.1**). Both buildings were recorded on the same site and located 387.5 m from the Proposed Development site boundary. As both structures were relatively close, there is potential for them to be in use by a breeding pair. Another site of 'intermediate' suitability, a derelict house behind a barn, was identified 396.5 m Southeast of the Proposed Development site boundary (**Figure J.1**).

Dusk activity surveys were undertaken at these three sites which yielded no sightings of barn owl for both breeding seasons of 2023 or 2024. Activity results are provided in **Annex J; Table I.2** and **Table I.3**.

3.3.7. Hinterland roost surveys

Hen harrier roost watches were conducted in winter 2022/23 and winter 2024/2025. No sightings of wintering hen harrier were observed during dusk survey efforts.

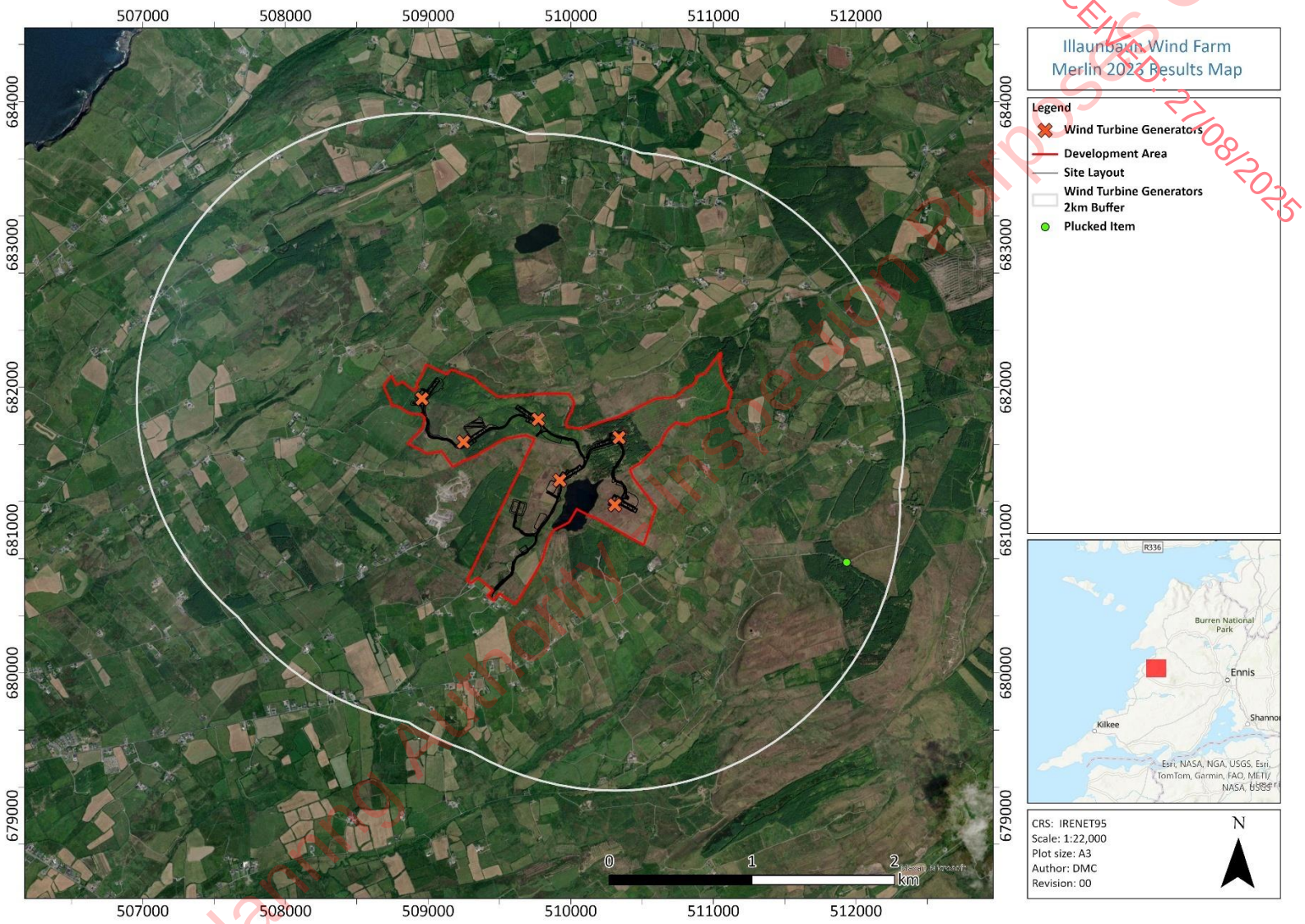

Figure 3.1: *Illaunbaun Wind Farm breeding merlin suitability and activity results 2023.*

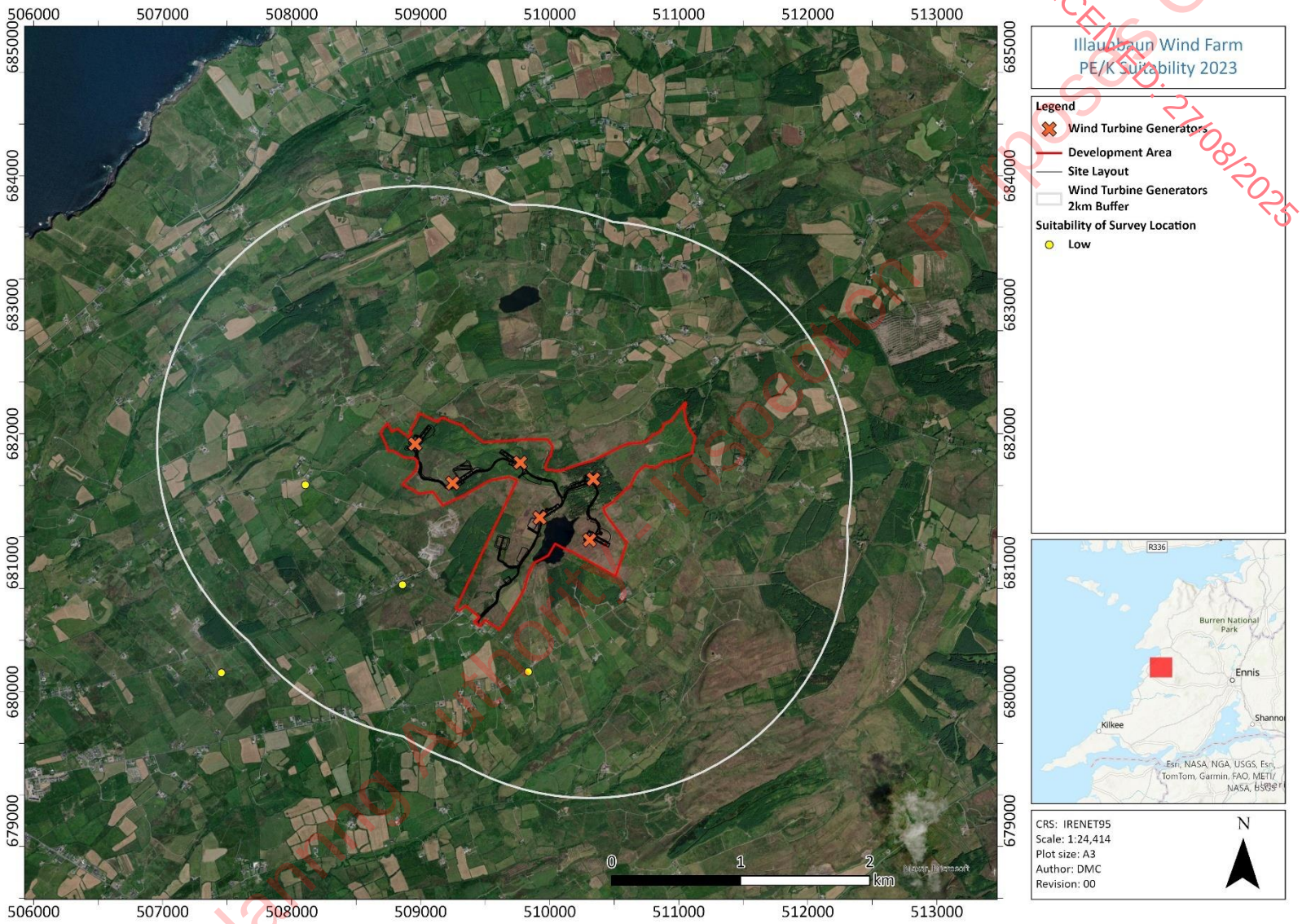

Figure 3.2: *Illaunbaun Wind Farm breeding peregrine and kestrel suitability results 2023.*

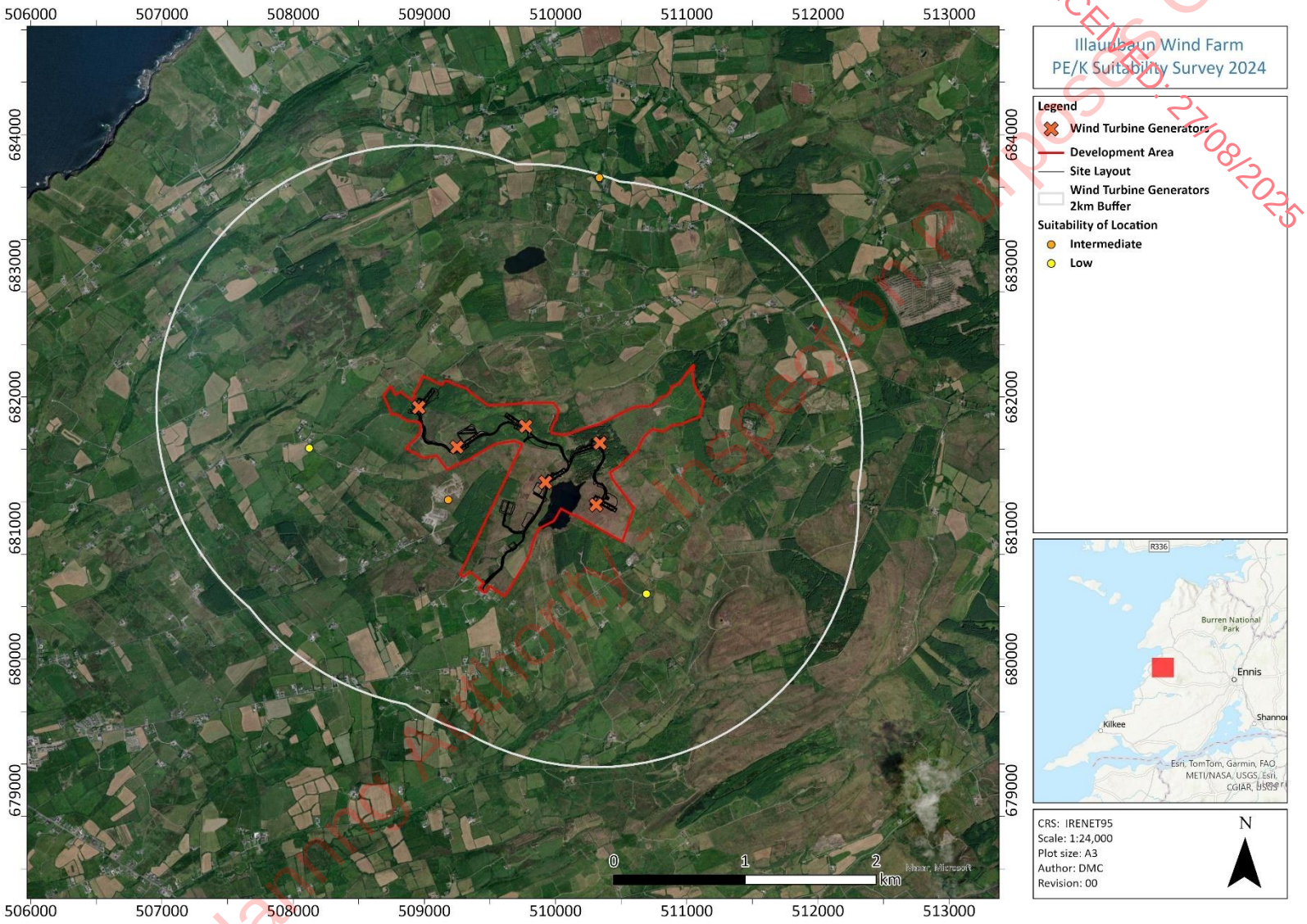

Figure 3.3: *Illaunbaun Wind Farm breeding peregrine and kestrel suitability results 2024.*

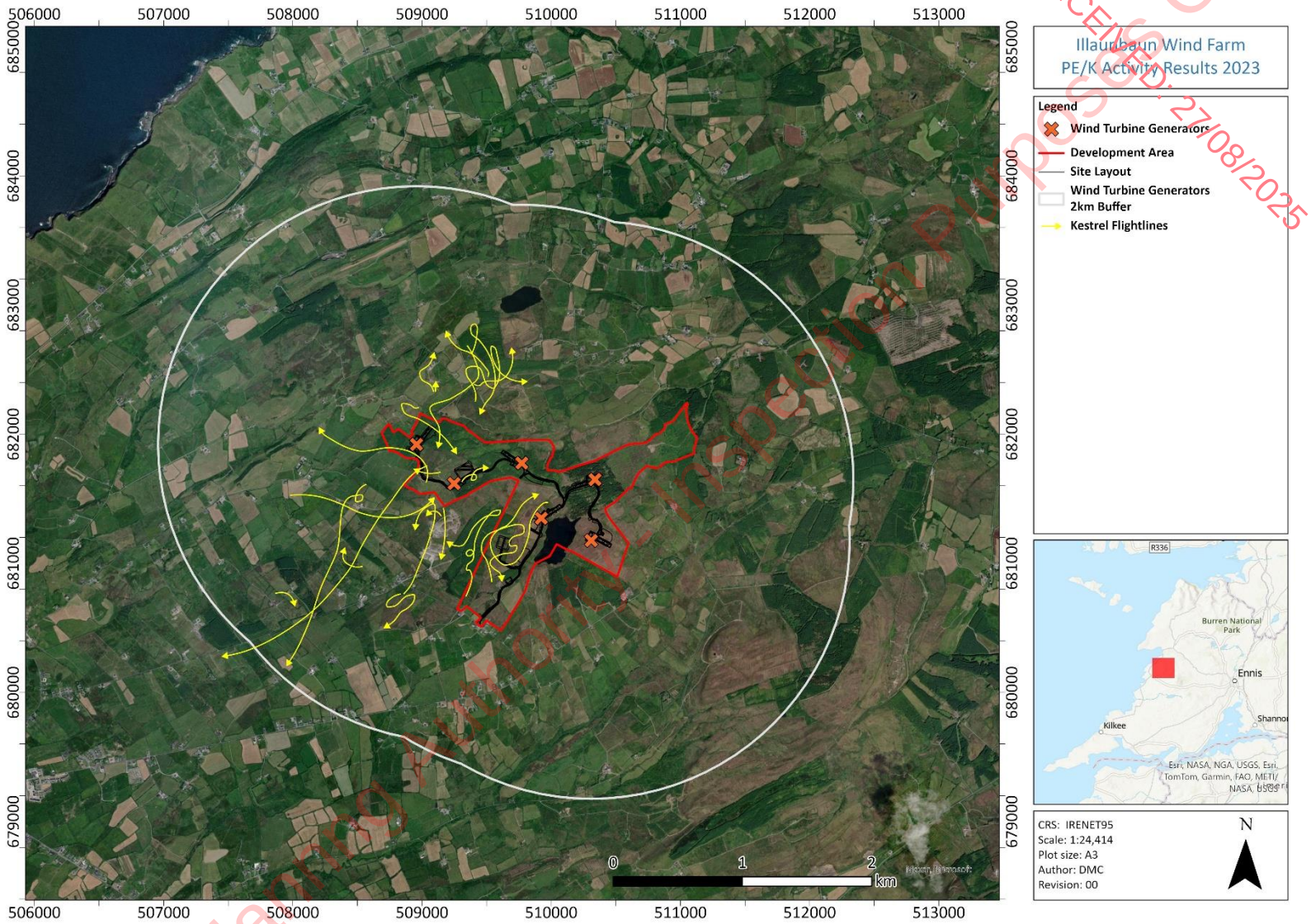

Figure 3.4: *Illaunbaun Wind Farm breeding peregrine and kestrel activity results 2023.*

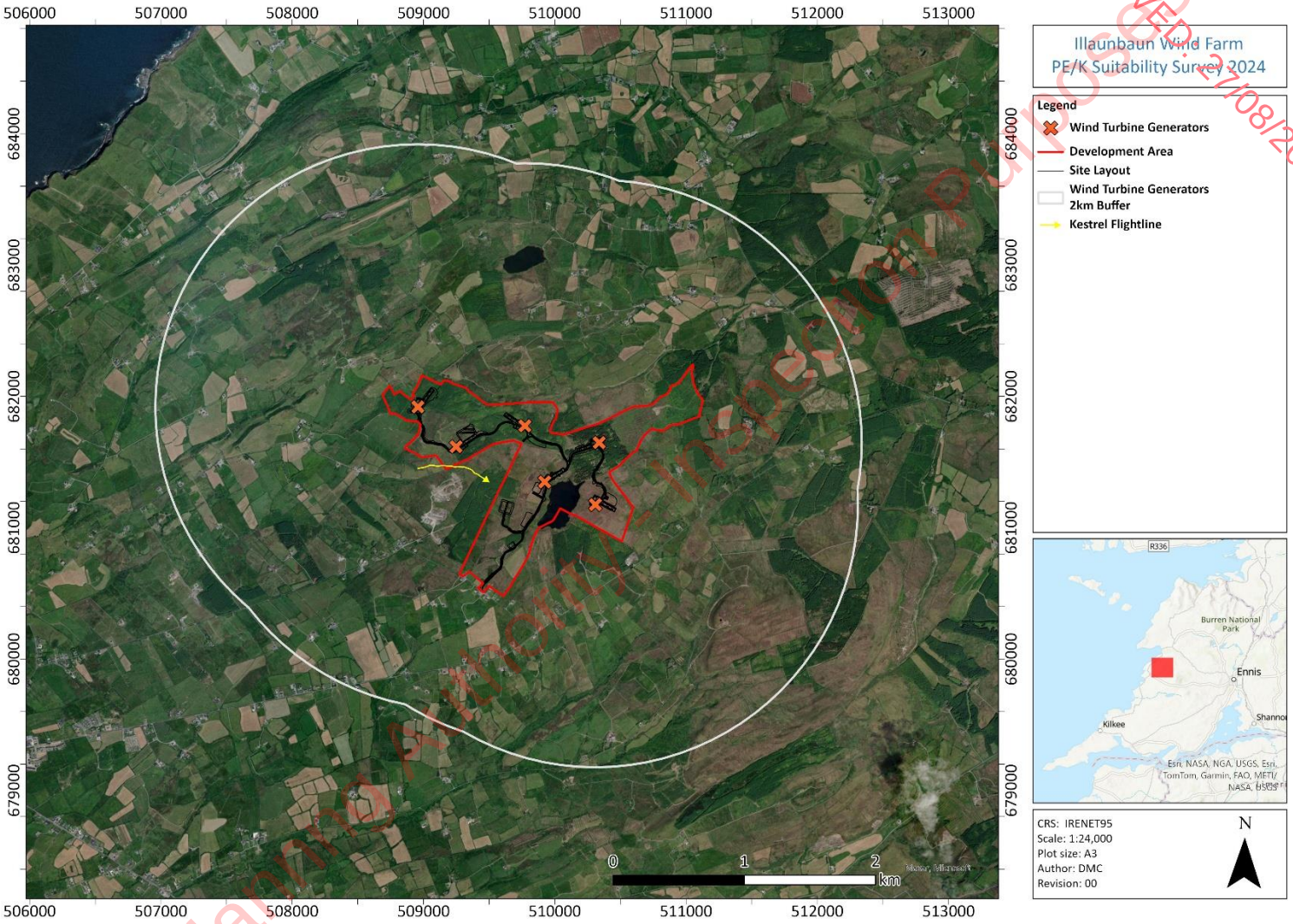

Figure 3.5: *Illaunbaun Wind Farm breeding peregrine and kestrel activity results 2024.*