GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Illaunbaun Wind Farm - Environmental Impact Assessment Report

Appendix A08-02: Habitats 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, 2018).

Due cognisance has been given at all times to the provisions of the Wildlife Act, 1976-2023, 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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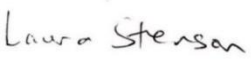
2	02/05/2025	**Updated Report Prepared By:**	Laura Stenson BSc	
2	25/04/2025	**Report Updated and Amended by:**	Conor Daly MSc BSc ACIEEM	
2	26/04/2025	**Report Checked and amended by:**	Dr Alex Copland BSc PhD MIEnvSc MCIEEM	
Project Reference	**2216L**	**Title**	Habitats Baseline Technical Appendix	

Notice

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Table of Contents

1 INTRODUCTION

1.1 Purpose of Technical Appendix

This appendix presents the habitat ecological baseline information for the proposed Illaunbaun Wind Farm project, comprising of primary wind farm development (Henceforth referred to as the "Proposed Development" (**Figure 1.1**) and the Turbine Delivery Route (TDR) (**Figure 1.2**). and the associated Zone of Influence (ZoI) relevant to habitat sensitivities 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 Development in the Main EIA Document.

1.1.1 Statement 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 BSc PhD MIEnvSc MCIEEM reviewed this report. He is a qualified ecologist with over 25 of professional experience working in both statutory and private companies, in third-level research institutions and with environmental NGOs. He is proficient in experimental design and data analysis and has managed several large-scale, multi-disciplinary ecological projects. These have included research and targeted management work for species of conservation concern, 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 co-ordinated, strategic plans for birds and biodiversity. This work has been delivered in Ireland, where he has worked with NGOs and industry as well as public officials, and the EU, where he has worked with EU-level NGOs as well as EU institutions (EU Commission and EU Parliament).

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. He lectures to both undergraduate and post-graduate students at UCD, as well as being 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.

Ms Laura Stenson BSc is an Ecologist with Inis Environmental Consultants Ltd. who drafted this updated report. Laura 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 & Shepherd), invasive species surveys, pre-construction mammal surveys, and bat surveys. She is a Qualifying member of CIEEM.

Mr Conor Daly MSc BSc (Hons.) ACIEEM drafted and amended this report. 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 w333ind 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.

Ms Emma Condron BSc is the Environmental Manager with Inis Environmental Consultants Ltd, in charge of all ECoW operations and onsite reviews who conducted the October 2023 habitat 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. Ms Emma Condron has received training on bat ecology and bat call analysis. She has nearly three years' experience in conducting Ecological Bird Survey techniques, both in the field and with data management. She has taken part in CIEEM led report writing training. Emma is a Qualifying member of CIEEM. Emma has report writing experience, including Appropriate Assessment Screening, and Ecological Clerk of Works (ECoW) audits.

Darren McCartney BSc generated the figures and habitat calculations presented in this report. Darren has worked in both the field ecology and GIS teams at INIS and is a Qualifying member of CIEEM. He has experience of undertaking ornithological field surveys in relevant habitats and completed various surveys to inform this EIAR Report including vantage point surveys, transect surveys, surveys for breeding waders, surveys for breeding and wintering raptors, and surveys for wintering waterbirds.

Mr Calum McSorley BSc MSc undertook the field survey visit. He is Lead Bat Ecologist at Inis Environmental Consultants and has a BSc in Environmental Science from National University of Ireland Galway and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. Calum has extensive bat surveying experience including roost assessments, emergence/re-entry surveys, static detector deployments and various exclusion practices. He also has experience in a range of other ecological surveys including habitat classification, mammal surveys, amphibian surveys and reptile surveys.

1.1.2 Structure of Appendix

This appendix has been set out as follows:

- **Section 2** sets out the approach and methodology used for obtaining the desk-study, field study and secondary data, whilst the field study methodology is presented in **Section 2.2**. This included surveys for habitats within a 50m buffer of the Proposed Development Site Layout;
- **Section 3** presents the results of these studies. The detail of the desk-study information acquired is presented in **Section 3.1**. The field study results are presented in **Section 3.2**. Habitat area calculations are separated into the two subsections to represent the two main elements that comprise the Proposed Development (**Section 1.5**);
- **Section 4** describes and assesses the ecological features present within the full extent of the Proposed Development in order to outline the baseline conditions onsite;
- **Section 5** provides a summary of the ecological features and their importance based on the field study results; and

- **Annex A** provides the Figures mapping out the ecological baseline with regard to habitats that are present.

1.2 Legislation and Policy

Relevant Irish legislation for an ecological assessment includes the following:

- The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477) (transposes EU Birds directive 2009/147/EC and EU Habitats Directive 2009/147/EC, 92/43/EC), amended by EU Directive 2014/52/EU);
- Flora (Protection) Order (FPO), 2022;
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. 272 of 2009) and as amended;
- European Communities (Water Policy) Regulations 2003 Relevant Guidelines;
- National Biodiversity Action Plan 2023 – 2030;
- Clare County Development Plan 2023-2029;
- EU Birds Directive (2009) Directive 2009/147/EC;
- EU Habitats Directive (1992) Council Directive 92/43/EEC;
- Water Framework Directive (2000) Directive 2000/60/EC;
- Irish Wildlife Acts 1976 to 2023; and
- The International Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971.

1.3 Guidance and Best Practice

The following guidance has been used and considered when developing the baseline for the Project:

- The All-Ireland Pollinator Plan 2021-2025;
- Fossitt (2000) A Guide to the Habitats of Ireland;
- Smith *et al.* (2011). Best Practice Guidance for Habitat Survey and Mapping, Heritage Council Ireland;
- National Parks and Wildlife Services (NPWS) (2019). Status of Protected EU Habitats and Species in Ireland;
- National Roads Authority (2009a) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes;
- National Roads Authority (2008) Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes;
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009b);
- Best Practice Guidelines for the Irish Wind Energy Industry (Irish Wind Energy Association, 2012);
- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2024);

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Practice Note PN02: Environmental Impact Assessment Screening Screening for Development Management. OPR (2021);
- Kelly *et al.* (2013a) The economic cost of invasive and non-native species in Ireland and Northern Ireland. A report prepared for the N.I. Environment Agency and NPWS;
- Kelly, *et al.* (2013b) Risk analysis and prioritisation for invasive and non-native species in Ireland and Northern Ireland, A report prepared for the N.I. Environment Agency and NPWS;
- O'Flynn *et al.* (2014) Ireland's invasive and non-native species – trends in introductions, NBDC Series No. 2; and
- Wyse *et al.* (2016) *Ireland Red List No. 10: Vascular Plants*. National Parks and Wildlife Service.

1.4 Zone of Influence

Annex I habitats with potential connectivity, especially where groundwater dependant habitats are present within the same sub catchment as the Proposed Development, were checked for within the ecological baseline of the full potential ZoI to a 15km radius from the Proposed Development.

Although habitats are non-mobile features and are unlikely to be affected beyond 100m of the nearest project element, a precautionary ZoI of 15km was assigned for the purposes of this report to consider any and all habitat areas within the wider environment with reasonable connectivity to be considered for determining habitats for Important Ecological Features (IEFs).

1.5 Study Area and Survey Area

The desktop survey focused on the Proposed Development. The Study Area consisted of the two 10km grid squares within which the Proposed Development is located (R08, R18) (NBDC, 2025).

During the field study, all habitats within a 50m buffer of the Proposed Development were surveyed and classified to a level 3 Fossitt code in line with current standards to inform the habitat baseline within the site boundary in context of the wider ecological features (Fossitt, 2000). The Habitat Survey Area was divided into two areas, the Proposed Development (**Figure 1.1**) and the TDR nodes along both options (**Figure 1.2**). This division was applied to habitat calculations relevant to the project works that will interact with a particular or specific project element.

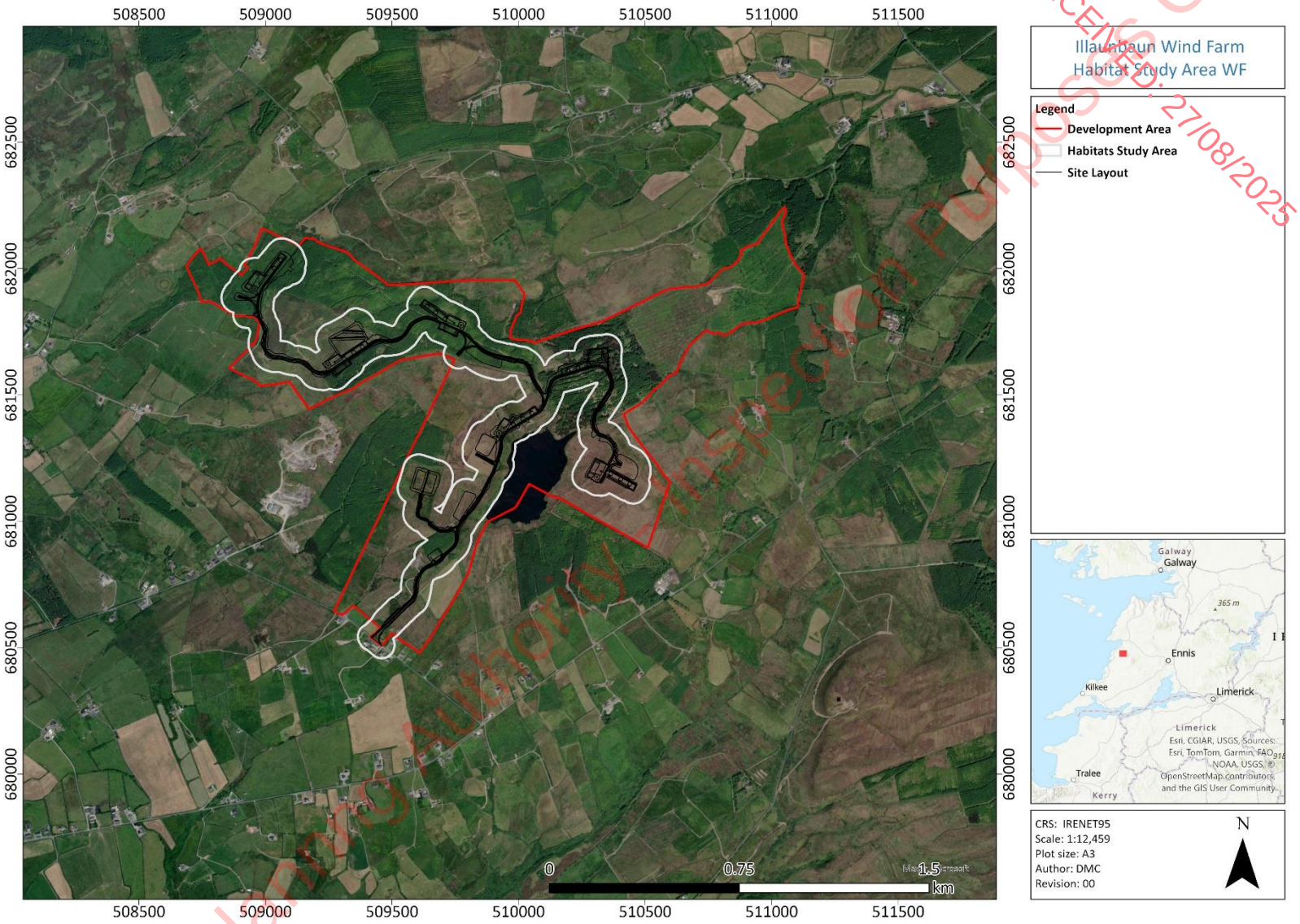

Figure 1.1: Habitat Survey Area of Proposed Developments' wind farm element.

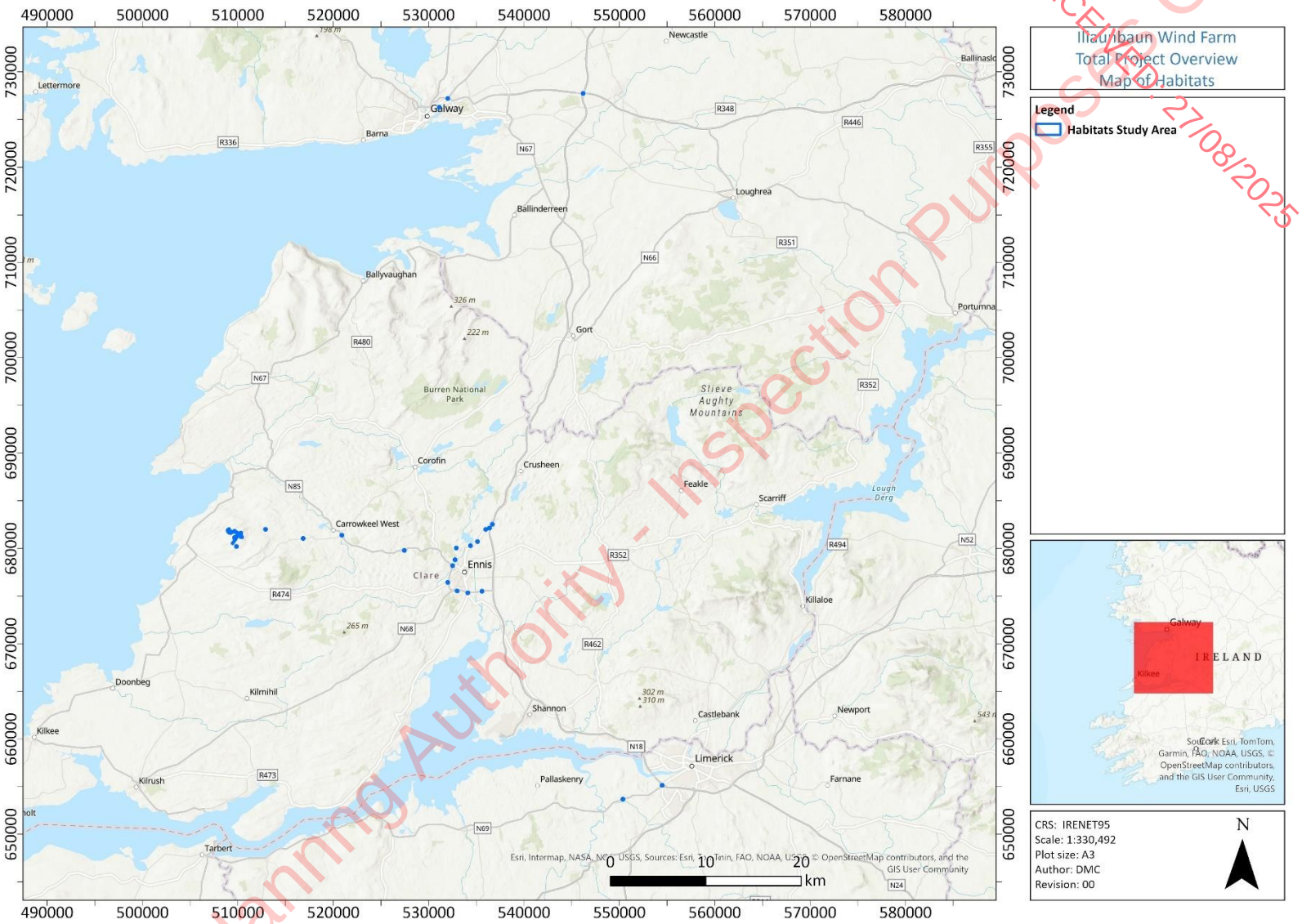

Figure 1.2: Habitat Survey Areas for the Proposed Developments' TDR Otpions Nodes.

1.6 Scoping of Important Ecological Features

Habitats of varying ecological importance was expected to be present on site and within the receiving environment of the Proposed Development. Following the desk and field study efforts, ecological value was assigned based on the habitats present on site with consideration of their conservation and/or protected status. Reasoning and conclusions are provided in **Section 5** with a summary table of IEFs scoped in for assessment provided in **Section 5.1.3**. Details on determining ecological value at the varying levels (International, national, county, local (High) or local (Low)) as set by NRA (2009b) and in consideration of the more recent CIEEM guidance for Ecological Impact Assessment (EcIA) is provided in **Table 1.1** (CIEEM, 2024).

Table 1.1: Determination 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.* • *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.* • *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 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. • 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.

Resource Evaluation	NRA Criteria
	• 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 list.
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

A review was conducted of the National Park and Wildlife Service (NPWS) Protected Species Database as provided during consultations with NPWS and the National Biodiversity Data Centre (NBDC) website for R08 and R18 10km Irish grid squares, in which the Proposed Development is located. Aerial photography assisted habitat delineation and interpretation. Plant identification and nomenclature followed Parnell & Curtis (2012) and Stace (2010).

The following online resources were reviewed as part of the desk study:

- The Status of EU Protected Habitats and Species in Ireland[1];
- The Flora (Protection) Order 2022 Map Viewer[2] (referred to for presence of sensitive receptor habitats and plant species within the ZoI of the Proposed Development[3]); and
- Waterbodies present within the Study Area and the surrounding area (checked for connectivity and proximity to project elements[4]).
- NBDC Map viewer[5]

2.2 Field Study

The survey area was selected based on professional judgement and as per industry best practice (CIEEM, 2024) with all habitats within the likely ZoI (50m) of the Proposed Development also surveyed and mapped according to industry best practice (Fossitt, 2000; Smith *et al*., 2011; Perrin *et al*., 2014). All habitats within a 50m buffer of work locations were surveyed and classified to level 3 Fossitt code (Fossitt, 2000), (**Figure 2.1, Figure 2.2**).

Aerial photography informed habitat delineation and interpretation, whilst plant identification and nomenclature followed Parnell & Curtis (2012) and Stace (2010). The predominant plant species for each habitat type were recorded to accurately determine habitats present within the Study Area. These surveys also included a search for any Invasive Alien Plant Species (IAPS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015, as amended). The surveys were carried out in good weather with no constraints.

During habitat surveys of the site, particular attention was paid to searching suitable habitat for rare or protected botanical species, to determine whether they were present within, or close to, the Proposed Development.

Mosaic habitats were mapped with the habitat ordered based on the dominant habitat within the mosaic (i.e. Wet Grassland/Wet Heath (GS4/HH3) vs Wet Heath/Wet Grassland (HH3/GS4)).

[1] https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=1 *[Accessed July 2025]*
[2] https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=a41ef4e10227499d8de17a8abe42bd1e&fbclid=IwAR0EtAk-5n9WsUHyh6fIVA8HJhiqba3UiMjE0zKNTnbfe17oUJnrxu9UhLE *[Accessed July 2025]*
[3] https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=1 *[Accessed July 2025]*
[4] https://gis.epa.ie/EPAMaps/ *[Accessed July 2025]*
[5] Maps - Biodiversity Maps *[Accessed July 2025]*

Habitat walkovers conducted across the wind farm element of the Proposed Development were undertaken in July 2022, August and October 2023 and May 2024.

Two options were considered for the TDR route. “Option one” for the TDR involves arrival in Fermoy, Limerick, commuting via the N69, the N18 and the M18 before heading west on the N85, bypassing Ennis town and heading west to the wind farm site (**Figure A.5**, **Figure A.6**). “Option two” for the TDR involves arrival in Galway pier, commuting via the M18 to Ennis before continuing west to the wind farm site (**Figure A.5, Figure A.7**). Option two had two version. Option 2a involved an alternative path and was surveyed also (**Figure A.5, Figure A.8**). Both routes were surveyed to the same level as the Proposed Development at all nodes (where potential works may be required as part of the turbine delivery works relating to the construction phase of the Proposed Development).

2.3 Constraints and Limitations

There are a number of limitations inherent to field-based surveying, in particular for habitat 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 habitats.

3 RESULTS

3.1 Desk Study for the Development

Aerial photography (Google Maps) was used to inform habitat delineation and interpretation before field surveys commenced (**Figure 2.1**).

A known habitat area of ex-situ old oak woodland (91A0) is located less than 3km North-North-West of the Proposed Development[1]. A general 10km grid record of other Annex I habitats also overlaps the Proposed Development, representing mediterranean salt meadows, Atlantic salt meadows, salicornia mud and blanket bog habitats (active)*). None of these habitats are identified at the desk study stage as present either adjacent to or within the Proposed Development boundary.

There are no records of protected flora from the last 50 years within the 10km grid squares overlapping the Proposed Development[2] .

Multiple invasive species were recorded within the two grid squares documented on the NBDC dataset (NBDC, 2025). Accounts of the invasive species present within the two grid square areas provided in **Table 3.1**.

The following invasive species were recorded within at least one of the two grid squares.

Invasive Flora: Japanese knotweed (*Fallopia japonica*), *Rhododendron ponticum*, Himalayan knotweed (*Persicaria wallichii*), Spanish bluebell (*Hyacinthoides hispanica*), wireweed (*Sargassum muticum*), three-cornered garlic (*Allium triquetrum*), giant knotweed (*Fallopia sachalinensis*) and Brazilian giant-rhubarb (*Gunnera manicata*).

Invasive Fauna: Fallow deer (*Dama dama*), raccoon (*Procyon lotor*), *Feral* greylag goose (*Anser anser*) and zebra mussel (*Dreissena (Dreissena) polymorpha*)

Several waterbodies are present within the wider hydrological catchment with some having connectivity to project elements. Watercourses with connectivity are presented in sections **4.2.10, 4.2.11** and **4.2.47** (**Figure 4.1**).

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

Grid Square	Species name	Record count	Date of last record	Designation
R08	Raccoon (*Procyon lotor*)	1	10/10/2018	Invasive Species: Invasive Species >> High Impact Invasive Species || EU Regulation No. 1143/2014
R08	Wireweed (*Sargassum muticum*)	1	28/03/2022	Invasive Species: Invasive Species >> High Impact Invasive Species || Regulation S.I. 477 (Ireland)
R08	Three-cornered garlic (*Allium triquetrum*)	1	02/04/2022	Invasive Species: Invasive Species >> Medium Impact Invasive Species || Regulation S.I. 477 (Ireland)
R08	Greylag goose (*Anser anser*)	1	31/12/2001	Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) || Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Grid Square	Species name	Record count	Date of last record	Designation
R18	Raccoon (*Procyon lotor*)	1	18/09/2018	Invasive Species: Invasive Species >> High Impact Invasive Species || EU Regulation No. 1143/2014
R18	Giant knotweed (*Fallopia sachalinensis*)	1	20/08/2009	Invasive Species: Invasive Species >> High Impact Invasive Species || Regulation S.I. 477 (Ireland)
R18	Japanese knotweed (*Fallopia japonica*)	19	02/08/2022	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
R18	*Rhododendron ponticum*	1	30/06/2001	Invasive Species: Invasive Species >> High Impact Invasive Species || Regulation S.I. 477 (Ireland)
R18	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
R18	Brazilian giant-rhubarb (*Gunnera manicata*)	1	17/05/2013	Invasive Species: Invasive Species >> Medium Impact Invasive Species || Regulation S.I. 477 (Ireland)
R18	Himalayan knotweed (*Persicaria wallichii*)	4	04/08/2017	Invasive Species: Invasive Species >> Medium Impact Invasive Species || Regulation S.I. 477 (Ireland)
R18	Three-cornered garlic (*Allium triquetrum*)	1	21/04/2023	Invasive Species: Invasive Species >> Medium Impact Invasive Species || Regulation S.I. 477 (Ireland)

3.2 Field Study

To reflect the spatial extent and differing infrastructure components, habitat data has been separated for the wind farm and each TDR route the Proposed Development.

3.2.1 Project site habitats

A total of 38 habitat types (including 20 types of habitat mosaic), comprising a total area of 61.18 ha and a total extent 7,028m of linear habitats, occur within the Proposed Development. All habitats present within the survey area and the area occupied by each habitat type are presented in **Table 3.2** and **Table 3.3**. Mapped results of habitats are provided in **Annex A; Figures A.1 - A.4**. The dominant habitats present are conifer plantation and wet grassland which make up 41.33% and 12.84% of the total area within the survey area, respectively. Other common habitats included wet grassland/wet heath, buildings and artificial surfaces. Within the larger surrounding area is Lough Keagh with a small extent of this habitat present within the 50m buffer of the Proposed Development. The remaining habitats involve blends of linear extents and habitat areas, such as agricultural grassland (Improved), treelines, hedgerows, drainage ditches and earth banks. A small artificial lake is also present and is located less than 5m from the Proposed Development boundary.

Table 3.2: ***Wind farm Proposed Development linear habitat lengths.***

Linear Habitats	
Fossitt Code	**Length (m)**
Stone walls and other stonework (BL1)	134
Earth banks (BL2)	4,141
Earth banks/Stone walls and other stonework (BL2/BL1)	435
Earth banks/Treeline (BL2/WL2)	30
Drainage ditches (FW4)	1,260
Hedgerows (WL1)	700
Hedgerows/Earth banks (WL1/BL2)	246
Treeline (WL2)	82

Table 3.3: ***Wind farm Proposed Development habitat areas.***

Habitat Areas	
Fossitt Code	**Area (ha)**
Buildings and artificial surfaces (BL3)	1.03
Buildings and artificial surfaces/Amenity grassland (improved) (BL3/GA2)	0.53
Exposed sand, gravel or till (ED1)	0.02
Spoil and bare ground (ED2)	0.15
Recolonising bare ground (ED3)	0.11
Recolonising bare ground/Wet grassland (ED3/GS4)	0.04
Active quarries and mines (ED4)	0.14
Active quarries and mines/Recolonising bare ground (ED4/ED3)	0.23
Active quarries and mines/Other artificial lakes and ponds (ED4/FL8)	0.08
Dystrophic lakes (FL1)	0.40
Other artificial lakes and ponds (FL8)	0.07
Improved agricultural grassland/Wet grassland (GA1/GS4)	0.004
Marsh (GM1)	0.10
Wet grassland (GS4)	8.63
Wet grassland/Wet Heath (GS4/HH3)	2.92
Wet heath (HH3)	7.77
Wet heath/Recolonising bare ground (HH3/ED3)	0.12
Wet heath/Wet grassland (HH3/GS4)	0.87
Wet heath/Wet grassland/Scrub (HH3/GS4/WS1)	0.34
Wet heath/Upland blanket bog (HH3/PB2)	1.78
Wet heath/Conifer plantation (HH3/WD4)	1.59
Wet heath/Scrub (HH3/WS1)	1.04
Upland blanket bog (PB2)	7.00
Upland blanket bog/Wet heath (PB2/HH3)	2.53
Cutover bog/Wet heath (PB4/HH3)	0.04
Conifer plantation (WD4)	27.77

Conifer plantation/Wet heath (WD4/HH3)	0.82
Scrub (WS1)	0.86
Scrub/Wet grassland (WS1/GS4)	0.16
Scrub/Wet heath (WS1/HH3)	0.08

3.2.2 Turbine Delivery Route Habitats

The Option One TDR (**Figure A.6**) comprises of 13 habitat types (including one habitat mosaic) represented by a habitat area of 5.19Ha and linear habitat extent of 81m in total. The entirety of the TDR runs along currently existing roads. As such, the majority of the habitats present are linear in nature or comprise of road infrastructure and smaller habitat plots along road verges .

The only linear habitats present along the Option One TDR were stone walls and other stonework. The dominant 'area' habitats include buildings and artificial surfaces, and amenity grassland (Improved), representing 46.24% and 26.54% of the total habitat area of the Option One TDR, respectively. The remaining abundant habitats (1.41Ha) include spoil and bare ground, recolonising bare ground, improved agricultural grassland, dry meadows and grassy verges, dry meadows and grassy verges/scrub, broadleaved woodland (Mixed), mixed broadleaved/conifer woodland, scattered trees and parkland, oak-ash-hazel woodland, and scrub. See **Figure A.5** for the total TDR overview and **Table 3.6** and **Table 3.7** for detailed calculations of habitats within the Option One TDR Study Area.

The Option Two (**Figure A.7**) comprises of a total of 13 habitat types (Including two types of habitat mosaic), represented by a habitat area of 11.73Ha and linear habitat extent of 2,560m in total. The entirety of the TDR runs along existing roads. As such, the majority of habitats present are linear in nature or comprise of road infrastructure and smaller habitat plots along road verges.

The dominant linear habitats present along the Option Two TDR were stone walls and other stonework, and treelines, which make up 27.70% and 26.72% of the total linear features within the Option Two Study Area, respectively. The remaining linear habitats included stone walls, other stonework/treelines, earth banks, hedgerows and hedgerows/treelines.

The dominant 'area' habitats include buildings and artificial surfaces, amenity grassland (Improved) and improved agricultural grassland which make up 41%, 15.3% and 14.47% of the total Option Two TDR, respectively. The remaining abundant habitats (3.44Ha) include spoil and bare ground, depositing/lowland rivers, dry meadows and grassy verges, dry meadows and grassy verges/scrub, wet grassland, broadleaved woodland (Mixed), scattered trees and parkland, oak-ash-hazel woodland, scrub and immature woodland. See **Table 3.6** and **Table 3.7** for detailed calculations of habitats within the Option Two TDR Study Area.

Full maps of habitats present are provided in **Annex A: Figures A.9** to **A.29**.

Table 3.4: ***TDR Linear Habitat – Option one.***

Linear Habitat Fossitt Code	**Length (m)**
Stone walls and other stonework (BL1)	81

Table 3.5: ***TDR Habitat Area – Option one.***

Habitat Areas	
Fossitt Code	**Area (ha)**
Building and artificial surfaces (BL3)	2.40
Spoil and bare ground (ED2)	0.02
Recolonising bare ground (ED3)	0.12
Improved agricultural grassland (GA1)	0.01
Amenity grassland (Improved) (GA2)	1.38
Dry meadows and grassy verges (GS2)	0.38
Dry meadows and grassy verges/Scrub (GS2/WS1)	0.07
Broadleaved woodland (Mixed) (WD1)	0.22
Mixed broadleaved/conifer woodland (WD2)	0.03
Scattered trees and parkland (WD5)	0.12
Oak-ash-hazel woodland (WN2)	0.07
Scrub (WS1)	0.37
Total	**5.19**

Table 3.6: ***TDR Linear Habitat – Option two.***

Linear Habitat	
Fossitt Code	**Length (m)**
Stone walls and other stonework (BL1)	709
Stone walls and other stonework/Treelines (BL1/WL2)	18
Earth banks (BL2)	425
Hedgerow (WL1)	632
Hedgerow/Treeline (WL1/WL2)	92
Treeline (WL2)	684
Total	**2,560**

Table 3.7: ***TDR Habitat Area – Option two.***

Habitat Areas	
Fossitt Code	**Area (ha)**
Building and artificial surfaces (BL3)	4.80
Spoil and bare ground (ED2)	0.12
Depositing/lowland rivers (FW2)	0.25
Improved agricultural grassland (GA1)	1.70
Amenity grassland (Improved) (GA2)	1.79
Dry meadows and grassy verges (GS2)	0.02
Dry meadows and grassy verges/Scrub (GS2/WS1)	0.14
Wet grassland (GS4)	1.10
Broadleaved woodland (Mixed) (WD1)	0.06
Scattered trees and parkland (WD5)	0.47
Oak-ash-hazel woodland (WN2)	0.25
Scrub (WS1)	0.87
Immature Woodland (WS2)	0.17
Total	**11.73**

4 DESCRIPTION OF HABITAT BASELINE

4.1 Introduction

Baseline conditions represent a summary of the existing environment within the 'Proposed Development' boundary and the immediate surrounding area before construction of the Proposed Development.

4.2 Description Ecological Features

4.2.1 Buildings and artificial surfaces (BL3)

The primary extent of this habitat is within 50m of the Proposed Development, along the pre-existing roads that provide access to the coniferous forestry. The remainder is mainly domiciles and buildings located along the access routes. The total area of this habitat within the 50m buffer of the Proposed Development is 1.03Ha (**Figure A.1 – Figure A.4**).

This habitat is one of the dominant types present along the Option One and Option Two TDRs which entirely run along pre-existing public and private roads. This habitat includes the bridges and culverts that run over the watercourse crossing at node 50. This habitat makes up 40% of the Option Two TDR and 46% of the Option One TDR, with the majority of it being comprised of the roads within the buffer area (**Figure A.9-Figure A.29**).

4.2.2 Buildings and artificial surfaces/Amenity grassland (Improved) (BL3/GA2)

The sole extent of this habitat mosaic present within the 50m buffer of the wind farm is located adjacent to the pre-existing roads that provide access to the forestry plantation near the Proposed Development. It comprises entirely of a private property domicile and garden-type grassland, totalling 0.53Ha in area (**Annex A**).

4.2.3 Exposed sand, gravel or till (ED1)

This area is located within the wind farm element of the Proposed Development, adjacent to the South-East access road to some residential properties. Bare ground used for storage of stone works appears to be its primary use. The total area of ED1 within the 50m buffer of the Proposed Development is 0.02Ha (**Figure A.1**).

4.2.4 Spoil and bare ground (ED2)

This area is made up of an access road to agricultural and forestry land. The road is not fully tarmacked and does not represent a BL3 habitat. The total area of this habitat within the 50m buffer of the Proposed Development is 0.15Ha (**Figure A.1**).

The total area of this habitat on the Option Two TDR is 0.118 ha (See **Figure A.16, Figure A.19** and **Figure A.20**).

The total area of this habitat on the Option One TDR is 0.02 ha (**Figure A.13**)

4.2.5 Recolonising bare ground (ED3)

The total area of this habitat within the 50m buffer of the Proposed Development is 0.11Ha (**Figure A.1**).

The total area of this habitat on the Option One TDR is 0.12 ha (**Figure A.9).**

This habitat is not present within the extent of the Option Two TDR.

4.2.6 Recolonising bare ground/Wet grassland (ED3/GS4)

The total area of this habitat within the 50m buffer of the Proposed Development is 0.04Ha (**Figure A.1**). This habitat is located within the south-west portion of the wind farm element of the Proposed Development, near the access track and fencing.

4.2.7 Active quarries and mines (ED4)

This habitat is located within the buffer of the pre-existing roads and the proposed additional access road representing part of the Proposed Development. The total area of this habitat within the 50m buffer of the Proposed Development is 0.14Ha (**Figure A.1**). This habitat is located near Lough Keagh.

4.2.8 Active quarries and mines/Recolonising bare ground (ED4/ED3)

This habitat is located within the buffer of the pre-existing roads and the proposed additional access road representing part of the Proposed Development. The total area of this habitat within the 50m buffer of the Proposed Development is 0.23Ha (**Figure A.1**).

4.2.9 Active quarries and mines/Other artificial lakes and ponds (ED4/FL8)

This habitat is located within the buffer of the pre-existing roads and the proposed additional access road representing part of the Proposed Development. The total area of this habitat within the 50m buffer of the Proposed Development is 0.04Ha (**Figure A.1**).

4.2.10 Dystrophic lakes (FL1)

The total area of this habitat within the 50m buffer of the Proposed Development is 0.40Ha (**Figure A.1**). This habitat is located near Lough Keagh.

4.2.11 Other artificial lakes and ponds (FL8)

This habitat is comprised of a singular small area located adjacent to the access road to the forestry area South-West of Lough Keagh. The total area of this habitat within the 50m buffer of the Proposed Development is 0.07Ha (**Figure A.1**).

4.2.12 Improved agricultural grassland/Wet grassland (GA1/GS4)

This habitat is located within the buffer of the pre-existing roads and the proposed additional access road representing part of the Proposed Development. The total area of this habitat within the 50m buffer of the Proposed Development is 0.004Ha (**Figure A.1**).

This habitat is not present along the TDR routes (**Figure A.9** - **Figure A.29**).

4.2.13 Marsh (GM1)

The total area of this habitat within the 50m buffer of the Proposed Development is 0.10Ha (**Figure A.1**). This habitat is located near Lough Keagh.

4.2.14 Wet grassland (GS4)

This habitat is presence on site adjacent to the pre-existing access roads. The total area within the Proposed Development is 8.63Ha (**Figure A.1**).

This habitat is the third most abundant habitat along the Option Two TDR, accounting for 1.10Ha of the habitats present within the 50m buffer to the Proposed Development. This habitat is spread in patches throughout the grid connection (**Figure A.19, Figure A.20 and Figure A.24**).

4.2.15 Wet grassland/Wet heath (GS4/HH3)

This habitat mosaic is located within a small patch off the access road South-East of T6 and another a larger area surrounding T3. The largest areas of this habitat are located within the area of T3 and T6. This type of mosaic is regularly found near lake and riparian habitats where suitable waterlogged soil is present with wet heath being present along with typical wet grassland plant species. The extent of this habitat within the Proposed Development 50m buffer is 2.92Ha (**Figure A.1**).

4.2.16 Wet Heath (HH3)

This habitat mosaic is present mainly along access and site road areas. This type of habitat is common along verges where wet grassland meets roads and other bare soil type habitats. The total area within 50m of the Proposed Development is 7.77Ha (**Figure A.1**).

4.2.17 Wet Heath/Recolonising bare ground (HH3/ED3)

This habitat is located in the middle of the Proposed Development, near Lough Keagh. The total area of this habitat is 0.12Ha (**Figure A.1**).

4.2.18 Wet Heath/Wet grassland (HH3/GS4)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat type is 0.87Ha (**Figure A.1**).

4.2.19 Wet heath/Wet grassland/Scrub (HH3/GS4/WS1)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 0.34Ha (**Figure A.1**).

4.2.20 Wet heath/Upland blanket bog (HH3/PB2)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 1.78Ha (**Figure A.1**).

4.2.21 Wet heath/conifer plantation (HH3/WD4)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 1.59Ha (**Figure A.1**).

4.2.22 Wet heath/Scrub (HH3/WS1)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 1.04Ha (**Figure A.1**).

4.2.23 Upland blanket bog (PB2)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 7.00Ha (**Figure A.1**).

4.2.24 Upland blanket bog/Wet heath (PB2/HH3)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 2.53Ha (**Figure A.1**).

4.2.25 Cutover Bog/Wet heath (PB4/HH3)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 0.04Ha (**Figure A.1**).

4.2.26 Conifer plantation (WD4)

This habitat comprises of commercial forestry (usually non-native) and is located across a large area of the Proposed Development and the immediate surrounding area. The total area within 50m of the Proposed Development is 27.77Ha (**Figure A.1**).

4.2.27 Conifer plantation/Wet heath (WD4/HH3)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 0.82Ha (**Figure A.1**).

4.2.28 Scrub (WS1)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 0.86Ha (**Figure A.1**).

This habitat is one of the dominant types present along the Option One and Two TDR's which entirely run along pre-existing public and private roads. This habitat makes up 7.4% of the Option Two and 7.15% of the Option One TDR (**Figure A.9 - Figure A.29**).

4.2.29 Scrub/Wet grassland (WS1/GS4)

This habitat is located on the wind farm element of the Proposed Development. The total area of this habitat is 0.16Ha (**Figure A.1**).

4.2.30 Scrub/wet heath (WS1/HH3)

This habitat is located within the wind farm element of the Proposed Development. The total area of this habitat is 0.08Ha (**Figure A.1**).

4.2.31 Stone walls and other stonework (BL1)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 131m (**Figure A.1**).

This habitat is located on the Option One and the Option Two TDRs, with the extents of these linear habitats being 709m and 81m respectively (**Figure A.9 - Figure A.29**)

4.2.32 Stone walls and other stonework/Treelines

This habitat is located within the Option Two TDR. The total extent of this habitat is 18m (**Figure A.9 - Figure A.29**)

4.2.33 Earth banks (BL2)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 1,441m (**Figure A.1**).

This habitat is also located within the Option Two TDR. The total extent of this habitat along the TDR is 425m (**Figure A.9 - Figure A.29**)

4.2.34 Earth banks/Stone walls and other stonework (BL2/BL1)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 435m (**Figure A.1**).

4.2.35 Earth banks/Treeline (BL2/WL2)

This habitat is located within the wind farm element of the Proposed Development. The area of this habitat is a total of 30m (**Figure A.1**).

4.2.36 Drainage ditches (FW4)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 1,260m (**Figure A.1**).

4.2.37 Hedgerows (WL1)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 700m (**Figure A.1**).

This habitat is also located within the Option Two TDR. The total extent of this habitat is 632m (**Figure A.9 - Figure A.29**)

4.2.38 Hedgerows/Earth banks (WL1/BL2)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 246m (**Figure A.1**).

4.2.39 Treeline (WL2)

This habitat is located within the wind farm element of the Proposed Development. The total extent of this habitat is 82m (**Figure A.1**). This habitat is also located on the Option Two TDR. The total extent of this habitat is 684m (**Figure A.9 - Figure A.29**).

4.2.40 Dry meadows and grassy verges (GS2)

This habitat is located within the Option One and Option Two TDRs, with total extents of 0.019 ha and 0.38 ha respectively (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.41 Dry meadows and grassy verges/Scrub (GS2/WS1)

This habitat is located on the Option Two and Option One TDRs, with total areas of 0.139 ha and 0.07 ha respectively (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.42 (Mixed) broadleaved woodland (WD1)

This habitat is located within the option one and option two TDR, with total areas of 0.139 ha and 0.07 ha respectively (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.43 Scattered Trees and Parkland (WD5)

This habitat is located within the Option Two and Option One TDRs. The area of this habitat is 0.467 ha and 0.12 ha (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.44 Oak-ash-hazel woodland (WN2)

This habitat is located within the Option Two and Option One TDRs, with total areas of areas of 0.249 ha and 0.07 ha respectively (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.45 Immature Woodland (WS2)

This habitat is located within the Option Two TDR. The total area of this habitat is 0.167 ha (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.46 Amenity grassland (Improved) (GA2)

This habitat is located within the Option One and Option Two TDRs, with total areas of 1.697 ha and 1.38 ha respectively (**Figure A.9 - Figure A.29**). This habitat is not located on the wind farm element of the Proposed Development.

4.2.47 Depositing/lowland rivers (FW2)

This habitat is located on the Option Two TDR. The area of this habitat is 0.118 ha (Node 50: **Figure A.28**). This river is primarily a single watercourse, the River Fergus, [IE_SH_27F010600] that sources

from Ballyallia Lough. This habitat is located within the footprint of node 50 of the TDR Option Two route.

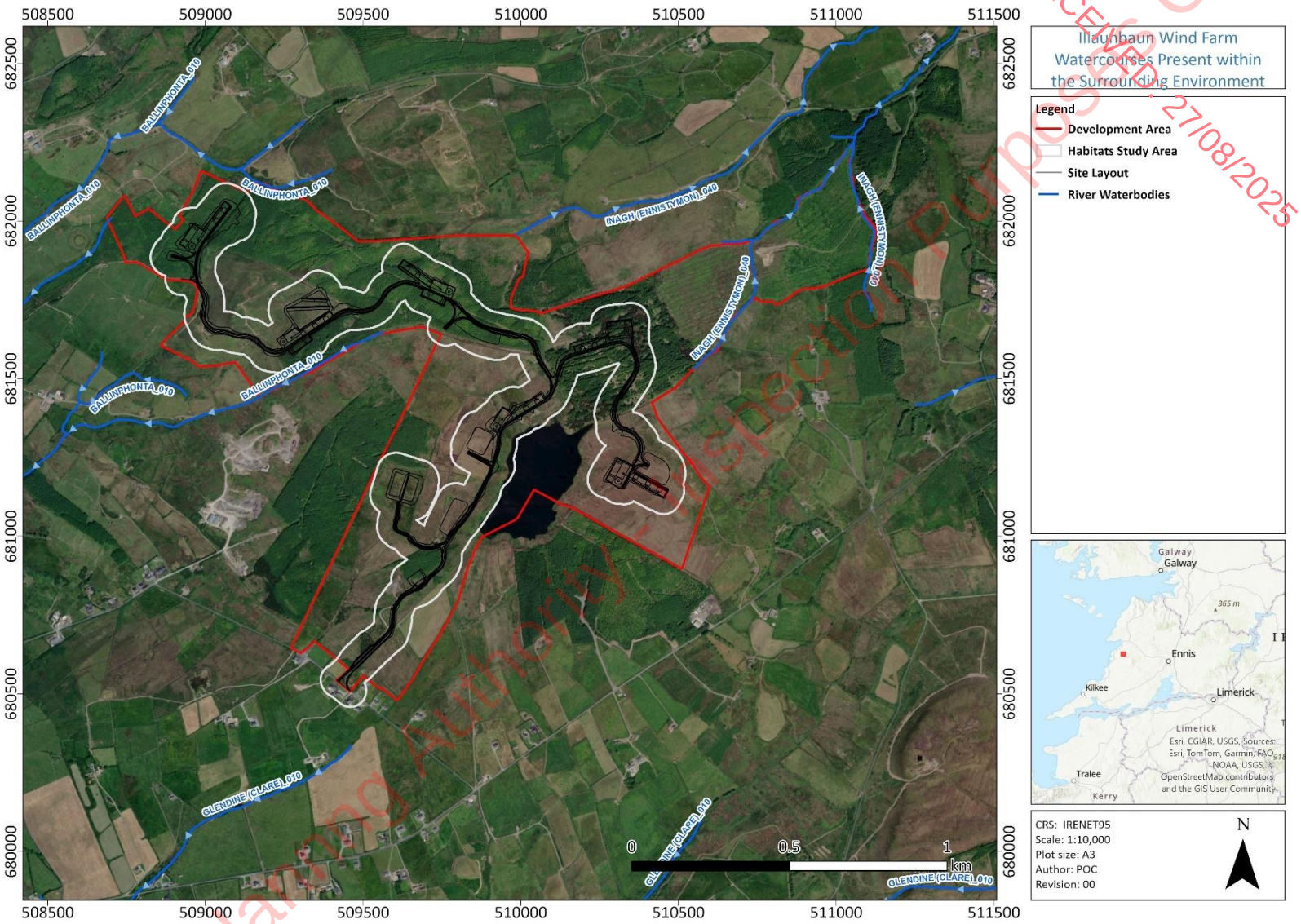

Figure 4.1: Watercourses present within the surrounding environment.

4.3 Evaluation of Habitats of Ecological Importance

4.3.1 Potential for Annex I

No potential Annex I habitats were observed within the Proposed Development or TDR Study Areas. There is hydrological connectivity to European sites (Inagh River Estuary SAC). However, the habitats present within the EU site are intertidal and coastal types and are unlikely to be present so far upstream where the Proposed Development is located. The route as part of node 50 of the TDR route (Option 2) crosses a river that has connection (directly adjacent) to three European sites (Lower River Shannon SAC, Lough Ballyallia SPA and Ballyallia Lake SAC) (Figure A.27). See Designated Sites appendix for details on EU and national sites with connectivity to the Proposed Development through hydrological features (**Appendix A08-01**).

One Annex I habitat is present 3km North-Northwest of the Proposed Development and is of County importance but has no connectivity to the Proposed Development. Old oak woodland (91A0) is not a groundwater dependant habitat type. As such, this habitat has no likely interaction with the habitats present within the Proposed Development 50m buffer and Study Area.

4.3.2 Invasive species

A number of invasive species were recorded during the desk study consultations that pose risk to harm habitats

Invasive Flora:

- Japanese knotweed;
- *Rhododendron ponticum*;
- Himalayan knotweed;
- Spanish bluebell;
- Wireweed;
- Three-cornered garlic;
- Giant knotweed; and
- Brazilian giant-rhubarb.

Invasive Fauna:

- Fallow deer;
- Raccoon;
- Greylag goose; and
- Zebra mussel.

None of these species were recorded within the Study Area of the Proposed Development or along the grid connection during field study walkover surveys. Due to the inconspicuous nature of some of these species at certain life stages (e.g. knotweed, rhododendron and zebra mussel), best practice for

wind farm development acknowledges absence of evidence is not evidence of absence. Standard monitoring and biosecurity measures will therefore be implemented during the Proposed Development construction, operational and decommissioning phases.

4.3.3 Habitats of ecological importance

Terrestrial habitats in general, are sensitive to direct land take, pollution, and environmental changes resulting from modification such as increased drainage. Groundwater dependent habitats such as bog and peatland may be sensitive to changes in groundwater regimes or changes in ground water quality. The diversity of habitats is particularly sensitive to encroachment from invasive species which may out-compete local native species. Habitats are also sensitive to human activities such as burning and recreational use.

Habitats of importance within the Study Area of the Proposed Development' boundary, primarily included the lake waterbody and river waterbody habitats.

FL1 Dystrophic lake habitat is comprised of one large lake (Lough Keagh) with potential to support birds, invertebrates, amphibians, otters and other species. eDNA results indicated this lake being of use to fish and amphibian species (**Appendix A08-06**). Based on the size of the lake and it's use for various species, this lake is considered of Ecological Importance (**County Level**) and is partially within the 50m buffer of the Proposed Development.

FL8 Artificial lake comprises of a single small lake present South-East of the burrow pit for the Proposed Development. A single sighting of smooth newt was observed near this feature and is likely supporting amphibious and invertebrate fauna. As such, this lake is considered of Ecological Importance (Local (High)) and is partially within the 50m buffer of the Proposed Development.

As such, both of these lake habitats are sensitive IEF receptors of **County Importance** for fauna and flora species within the receiving environment.

Depositing lowland river is present adjacent to the TDR element of the Proposed Development. This habitat feature is also present on one occasion along the TDR option 2 route at node 50 (**Figure A.27**). These river waterbodies flow South-West toward the coast after crossing through the grid connection. These features have the potential to host otter and riparian birds, invertebrates and amphibians. This waterbody in question is part of the Lower River Shannon SAC, the Ballyallia Lake SAC and Ballyallia Lough SPA. As such, this waterbody is likely host to receptors listed as QI's or SCI's for these European sites. Therefore, this habitat is considered to be of **International Importance** under the precautionary principle.

The above three habitats are scoped in as Important Ecological Features (IEFs) for the Proposed Development and considered further within the Biodiversity Chapter of the main EIA.

No other habitats recorded exceeded County Importance based on the habitat survey efforts. Habitats present within the ecological baseline are outlined in **Table 5.1** along with the scoping determination of these habitats as IEFs. Linear habitats provide foraging for birds/bats; habitat for amphibians/reptiles and aquatic mammals (e.g., otter).

The remainder of habitats considered as IEFs were marsh, wet grassland and peatland mosaic habitats which are present within the red line boundary of the wind farm and adjacent to areas related to the TDR works due to their potential to support a variety of bird and invertebrate species.

The linear habitats present within the Proposed Development are mostly treelines, hedgerows and earth banks. Such habitats are useful for the foraging species and as such are considered to be of local ecological importance (**Table 5.1**).

A number of habitats along adjacent to the TDR routes have the potential to be of **Local (High Value) Importance.** However, these habitats while potentially of **Local (High) importance**, lie outside the footprint of works or expected impact zones and are therefore not considered IEFs (**Table 5.1**; **Figure A.5-A.28**).

Table 4.1: Assessment of habitat importance and identification of Important Ecological Features.

Habitat type (Fossitt, 2000)	Evaluation rationale	Importance	IEF In/Out
Depositing/lowland rivers FW2	Waterbody part of boundary for multiple sites within the Natura 2000 network.	**International Importance**	**In**
Dystrophic lake FL1	Based on value to birds, mammals, amphibians and invertebrates	**County Importance**	**In**
Artificial lake FL8	Based on value to birds, mammals, amphibians and invertebrates	**County Importance**	**In**
Active quarries and mines ED4	Based on value to birds, mammals, amphibians and invertebrates	**Local Importance (High Value)**	**In**
Active quarries and mines/Recolonising bare ground ED4/ED3	Based on value to birds, mammals, amphibians and invertebrates	**Local Importance (High Value)**	**In**
Active quarries and mines/Other artificial lakes and ponds ED4/FL8	Based on value to birds, mammals, amphibians and invertebrates	**Local Importance (High Value)**	**In**
Other artificial lakes and ponds FL8	Based on value to birds, mammals, amphibians and invertebrates	**Local Importance (High Value)**	**In**
Marsh GM1	Based on value to birds, mammals, amphibians and invertebrates	**Local Importance (High Value)**	**In**
Wet Grassland GS4	Importance to local diversity	**Local Importance (High Value)**	**In**
Wet grassland/Wet Heath GS4/HH3	Importance to local diversity	**Local Importance (High Value)**	**In**
Wet Heath HH3	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**
Wet heath/Wet grassland HH3/GS4	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**
Wet heath/Upland blanket bog HH3/PB2	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**
Upland blanket bog PB2	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**

Habitat type (Fossitt, 2000)	Evaluation rationale	Importance	IEF In/Out
Upland blanket bog/Wet heath PB2/HH3	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**
Cutover Bog/Wet heath PB4/HH3	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**In**
Stone walls and other stonework BL1	Based on importance to birds/mammals	Local Importance (Low Value)	**Out**
Stone walls and other stonework/Treelines BL1/WL2	Importance to local diversity	**Local Importance (High Value)**	**Out**
Earth banks BL2	Importance to local diversity	Local Importance (Low Value)	**Out**
Earth banks/Stone walls and other stonework BL2/BL1	Importance to local diversity	Local Importance (Low Value)	**Out**
Earth banks/Treeline BL2/WL2	Importance to local diversity	Local Importance (Low Value)	**Out**
Building and artificial surfaces BL3	Importance to local diversity	Local Importance (Low Value)	**Out**
Buildings and artificial surfaces/Amenity grassland (improved) BL3/GA2	Based on possible importance of certain buildings to bats	Local Importance (Low Value)	**Out**
Exposed sand, gravel or till ED1	Importance to local diversity	Local Importance (Low Value)	**Out**
Spoil and bare ground ED2	Importance to local diversity	Local Importance (Low Value)	**Out**
Recolonising bare ground ED3	Importance to local diversity	Local Importance (Low Value)	**Out**
Recolonising bare ground/Wet grassland ED3/GS4	Importance to local diversity	Local Importance (Low Value)	**Out**
Drainage ditches FW4	Based on importance to birds/mammals	Local Importance (Low Value)	**Out**
Improved agricultural grassland GA1	Importance to local diversity	Local Importance (Low Value)	**Out**
Improved agricultural grassland/Wet grassland GA1/GS4	Importance to local diversity	Local Importance (Low Value)	**Out**
Amenity grassland (Improved) GA2	Importance to local diversity	Local Importance (Low Value)	**Out**

Habitat type (Fossitt, 2000)	Evaluation rationale	Importance	IEF In/Out
Dry meadows and grassy verges GS2	Importance to local diversity	Local Importance (Low Value)	Out
Dry meadows and grassy verges/Scrub GS2/WS1	Importance to local diversity	**Local Importance (High Value)**	Out
Wet heath/Recolonising bare ground HH3/ED3	Based on level of value to birds/mammals/amphibians	Local Importance (Low Value)	Out
Wet heath/Wet grassland/Scrub HH3/GS4/WS1	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out
Wet heath/conifer plantation HH3/WD4	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out
Wet heath/Scrub HH3/WS1	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out
(Mixed) broadleaved woodland WD1	Importance to local diversity	**Local Importance (High Value)**	Out
Mixed Broadleaved/conifer woodland WD2	Importance to local diversity	**Local Importance (High Value)**	Out
Conifer plantation WD4	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out
Conifer plantation/Wet heath WD4/HH3	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out
Scattered trees and parkland WD5	Importance to local diversity	Local Importance (Low Value)	Out
Hedgerows WL1	Importance to local diversity	**Local Importance (High Value)**	In
Hedgerows/Earth banks WL1/BL2	Importance to local diversity	**Local Importance (High Value)**	Out
Hedgerow/Treeline WL1/WL2	Importance to local diversity	**Local Importance (High Value)**	Out
Treeline WL2	Importance to local diversity	**Local Importance (High Value)**	In
Oak-ash-hazel woodland WN2	Importance to local diversity	**Local Importance (High Value)**	Out
Scrub WS1	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	Out

Habitat type (Fossitt, 2000)	Evaluation rationale	Importance	IEF In/Out
Scrub/Wet grassland WS1/GS4	Based on level of value to birds/mammals/amphibians	**Local Importance (High Value)**	**Out**
Scrub/Wet heath WS1/HH3	Based on importance to birds/mammals	Local Importance (Low Value)	**Out**
Immature Woodland WS2	Importance to local diversity	**Local Importance (High Value)**	**Out**

Based on the contemporary survey and desk study data, this report considers the above scoping of IEFs to represent the ecological baseline present within the receiving environment of the Proposed Development based on the most recent scientific data.

The 'future baseline' (i.e., the baseline we would expect without the development scenario) describes the botanical and landscape type features as they would be in the opening year/first year of operation, in the absence of the Proposed Development and would be expected to remain in the 'Do Nothing Scenario'. They 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. Combined with changes in land management, increased urbanisation and increased biotic pressures, climate change may lead to a decrease in the national, regional and local populations and distributions of flora species and habitats of value to biodiversity. However, such changes are unlikely to be material during the intervening period between the time when the field surveys were undertaken to inform this assessment and the first year of operation of the Proposed Development.

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ANNEX A

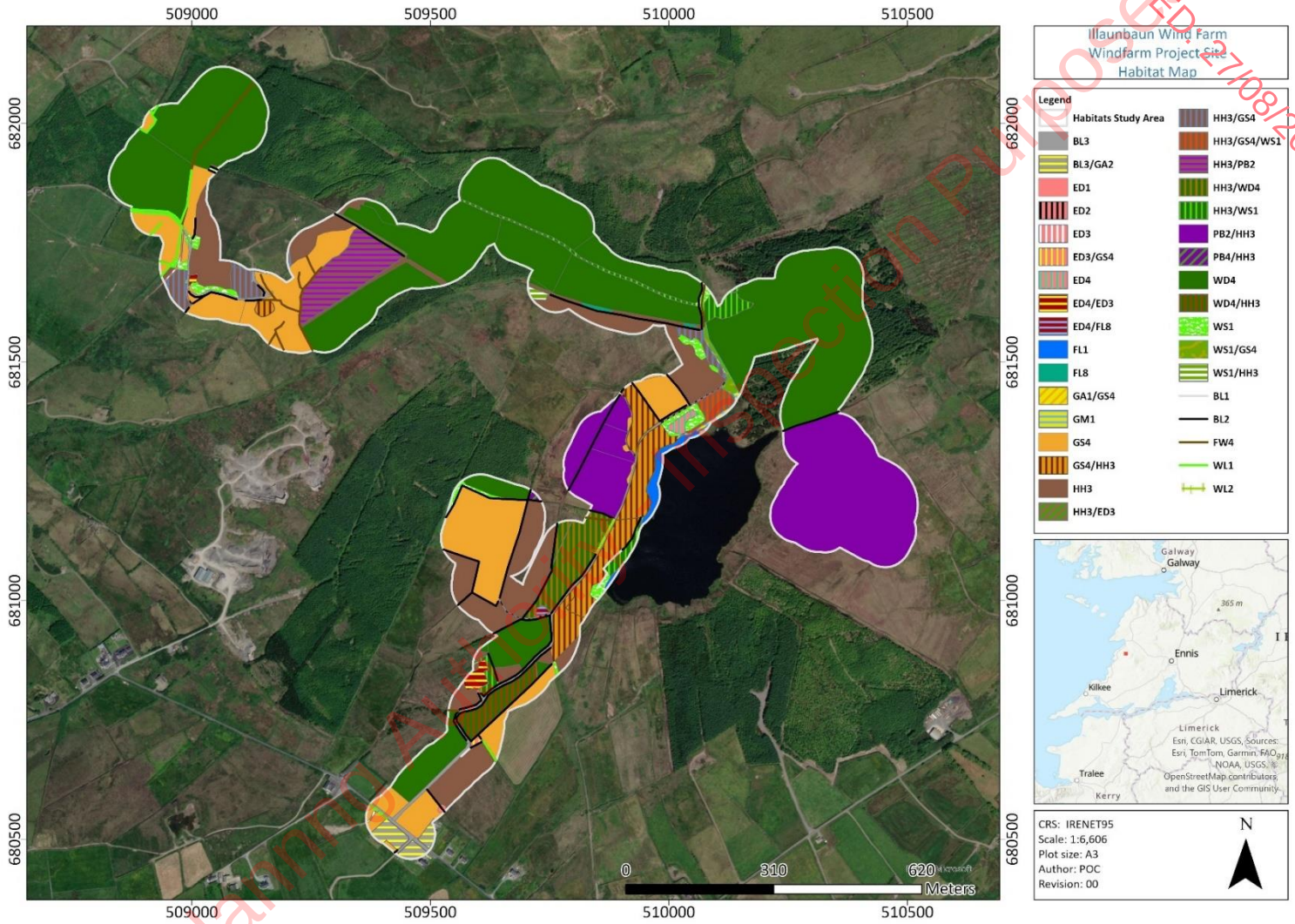

Figure A.1: Illaunbaun Wind Farm overview map of habitats.

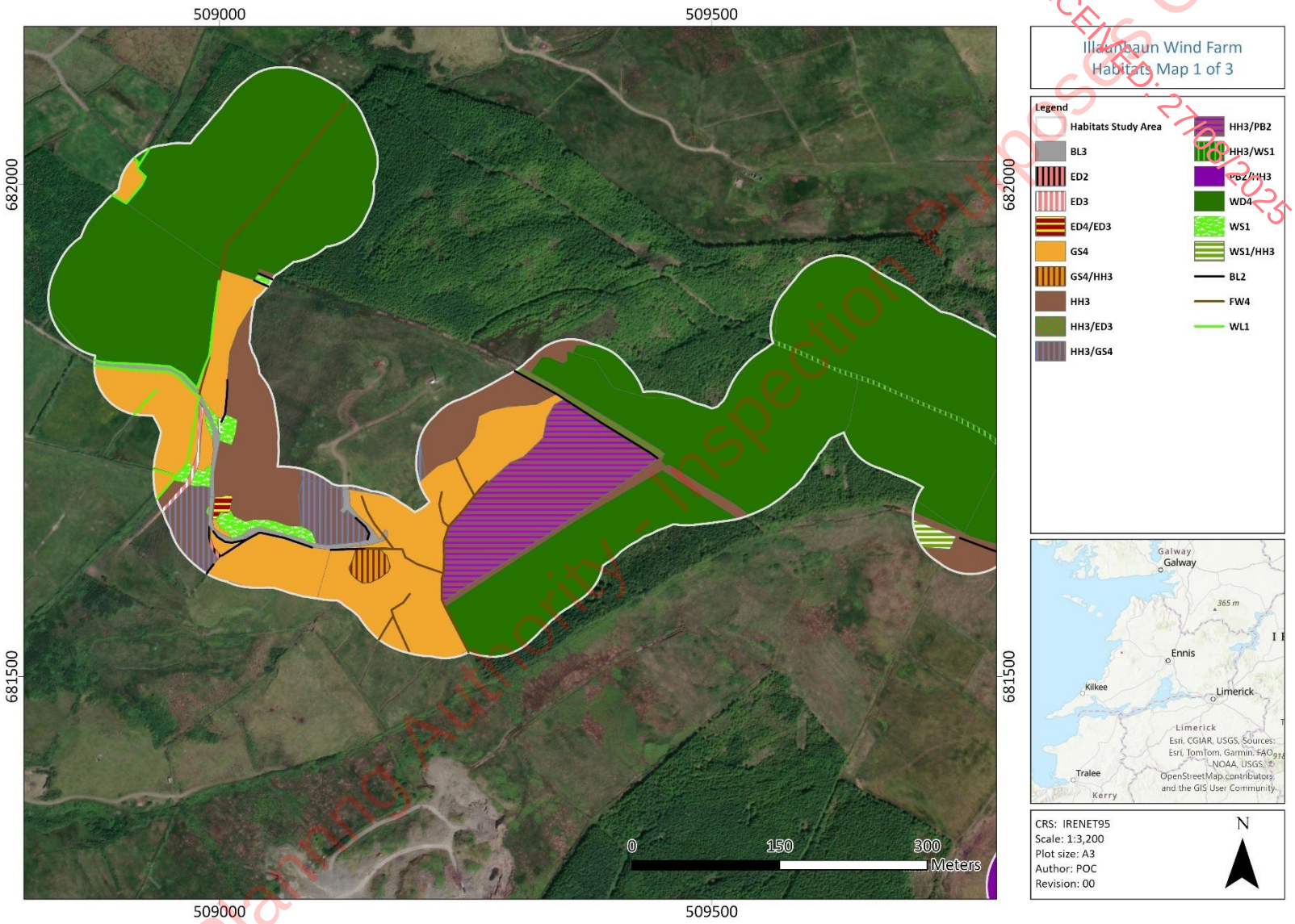

Figure A.2: Illaunbaun Wind Farm habitat map (1).

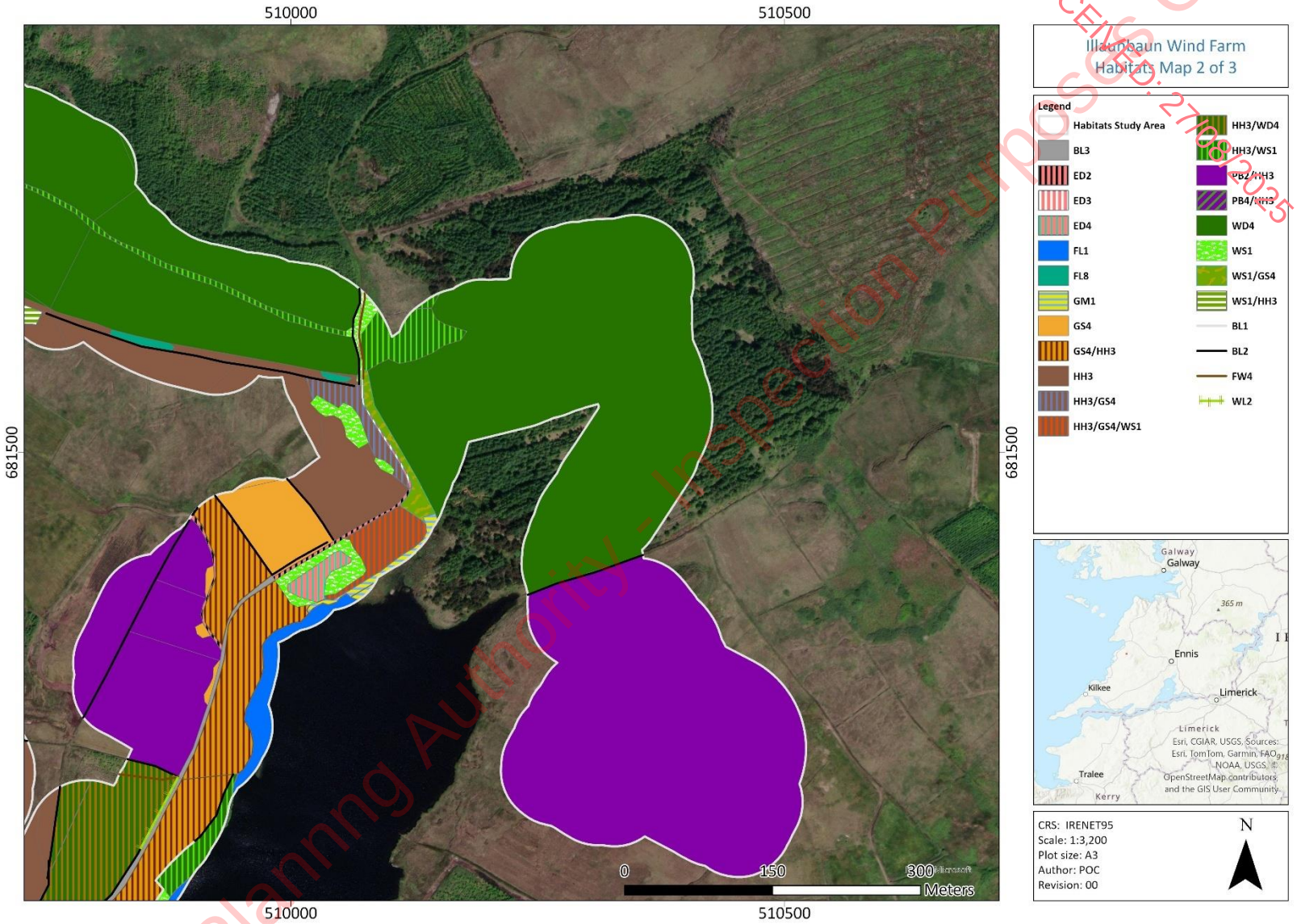

Figure A.3: Illaunbaun Wind Farm habitat map (2).

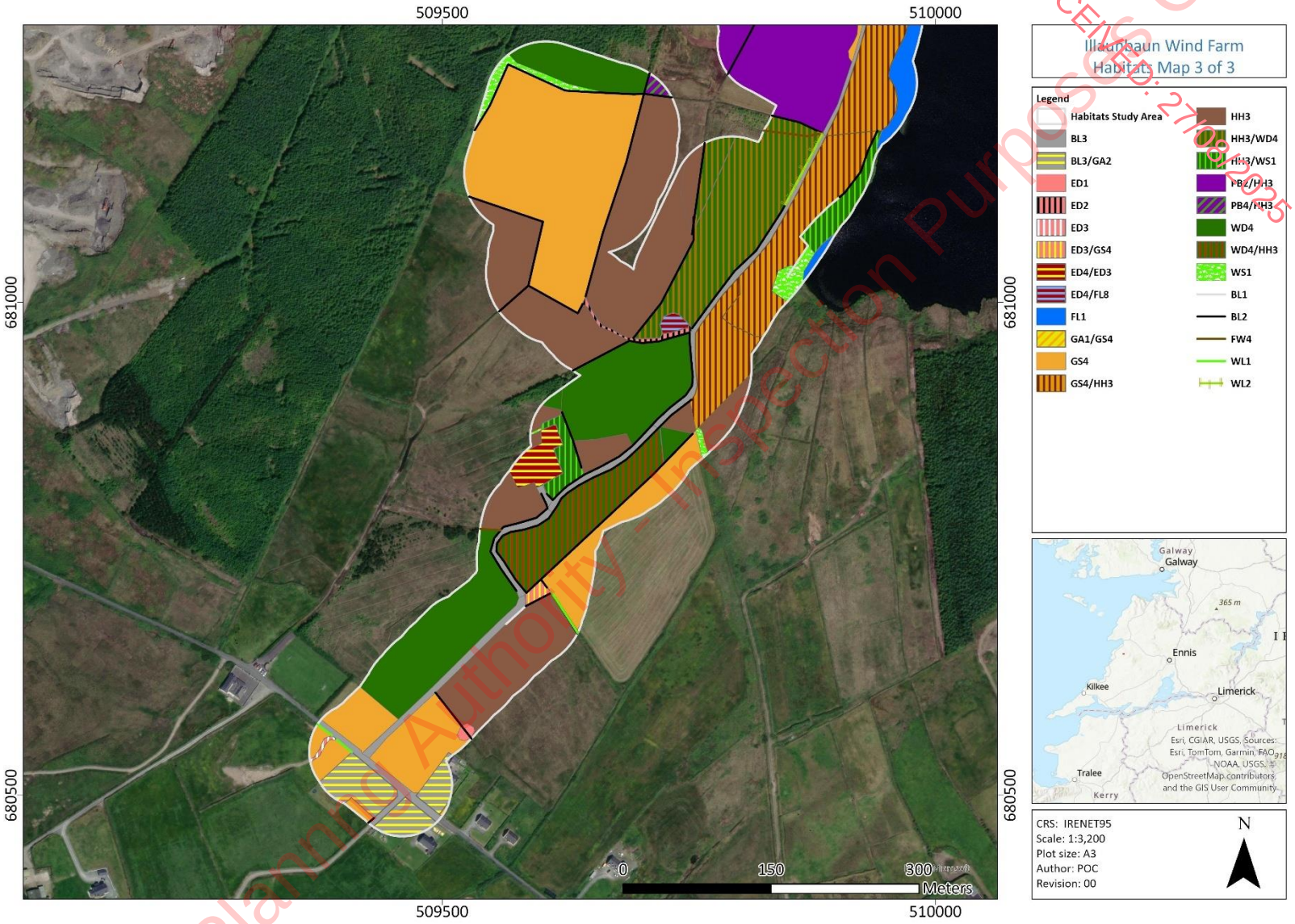

Figure A.4: Illaunbaun Wind Farm habitat map (3).

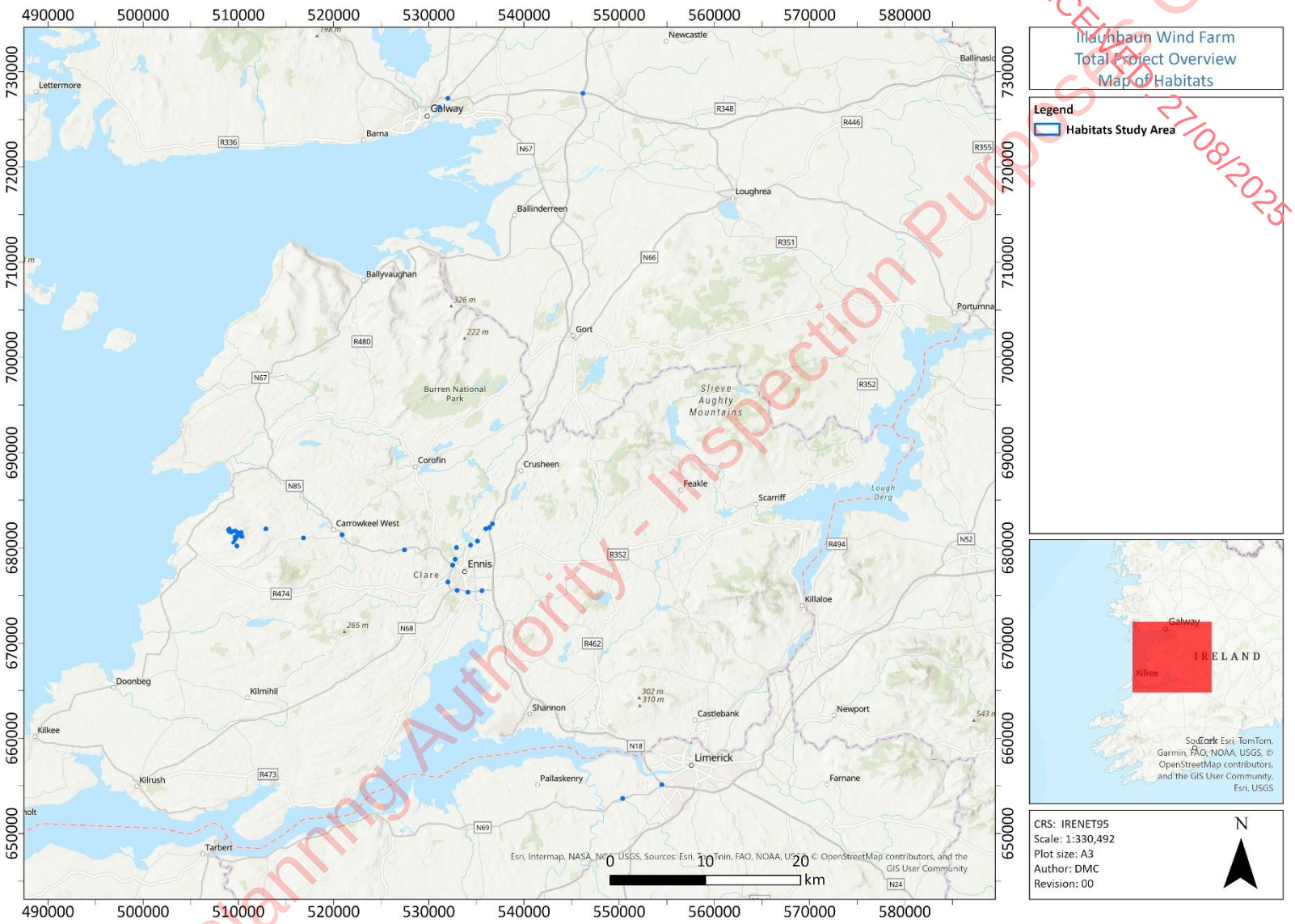

Figure A.5: Illaunbaun Wind Farm TDR nodes habitat Study Area.

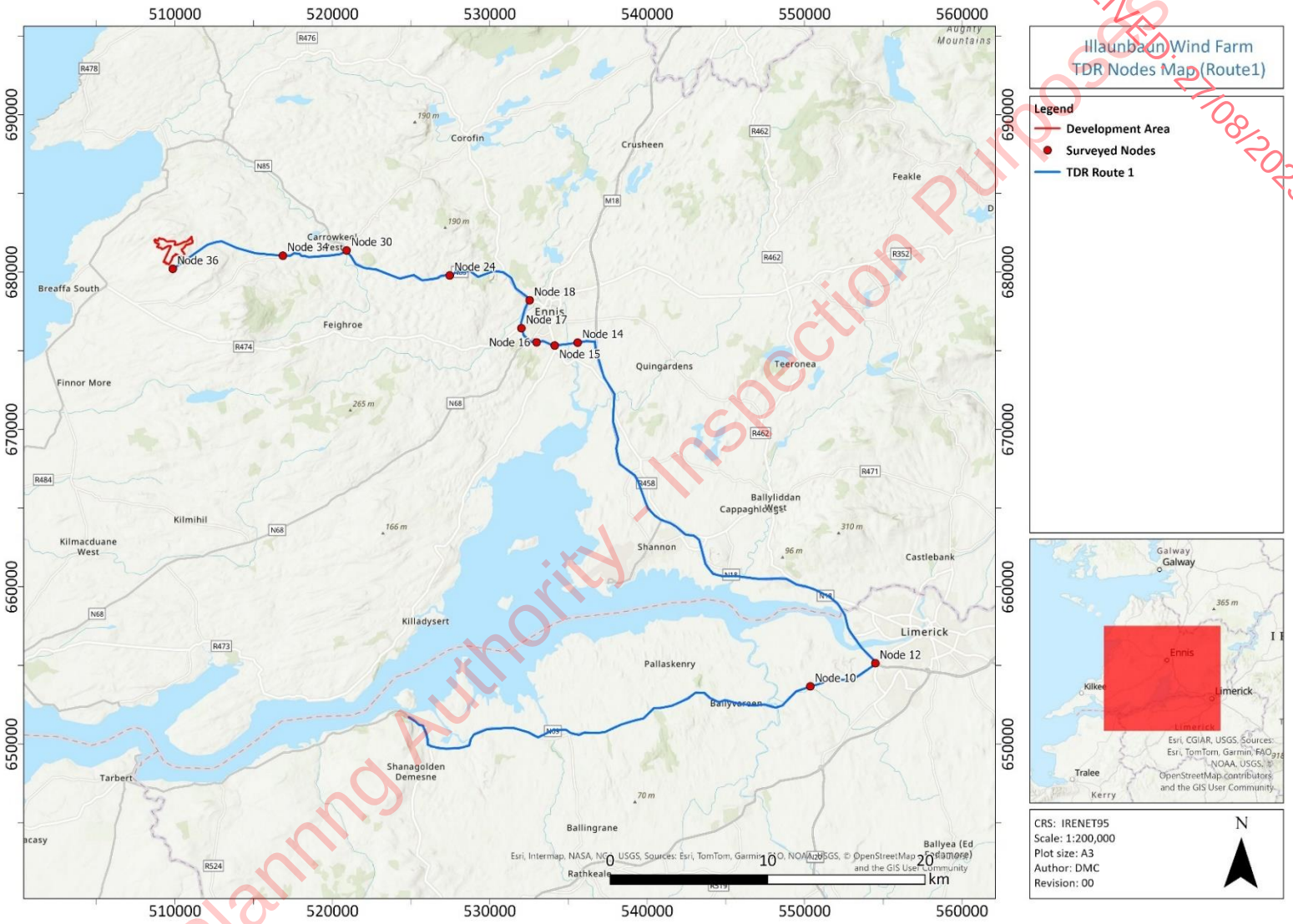

Figure A.6: Illaunbaun Wind Farm TDR Option One nodes surveyed.

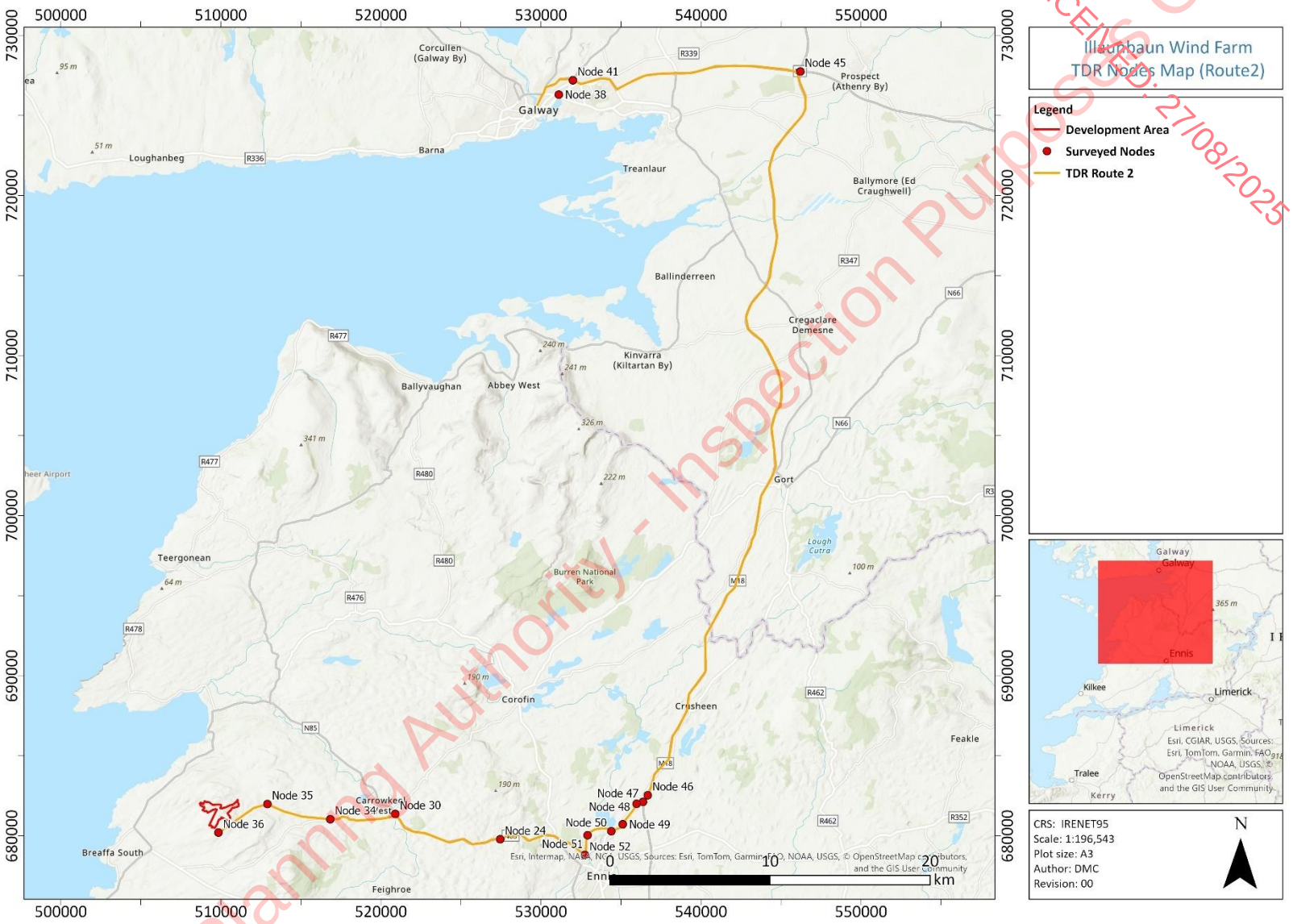

Figure A.7: Illaunbaun Wind Farm TDR Option Two nodes surveyed.

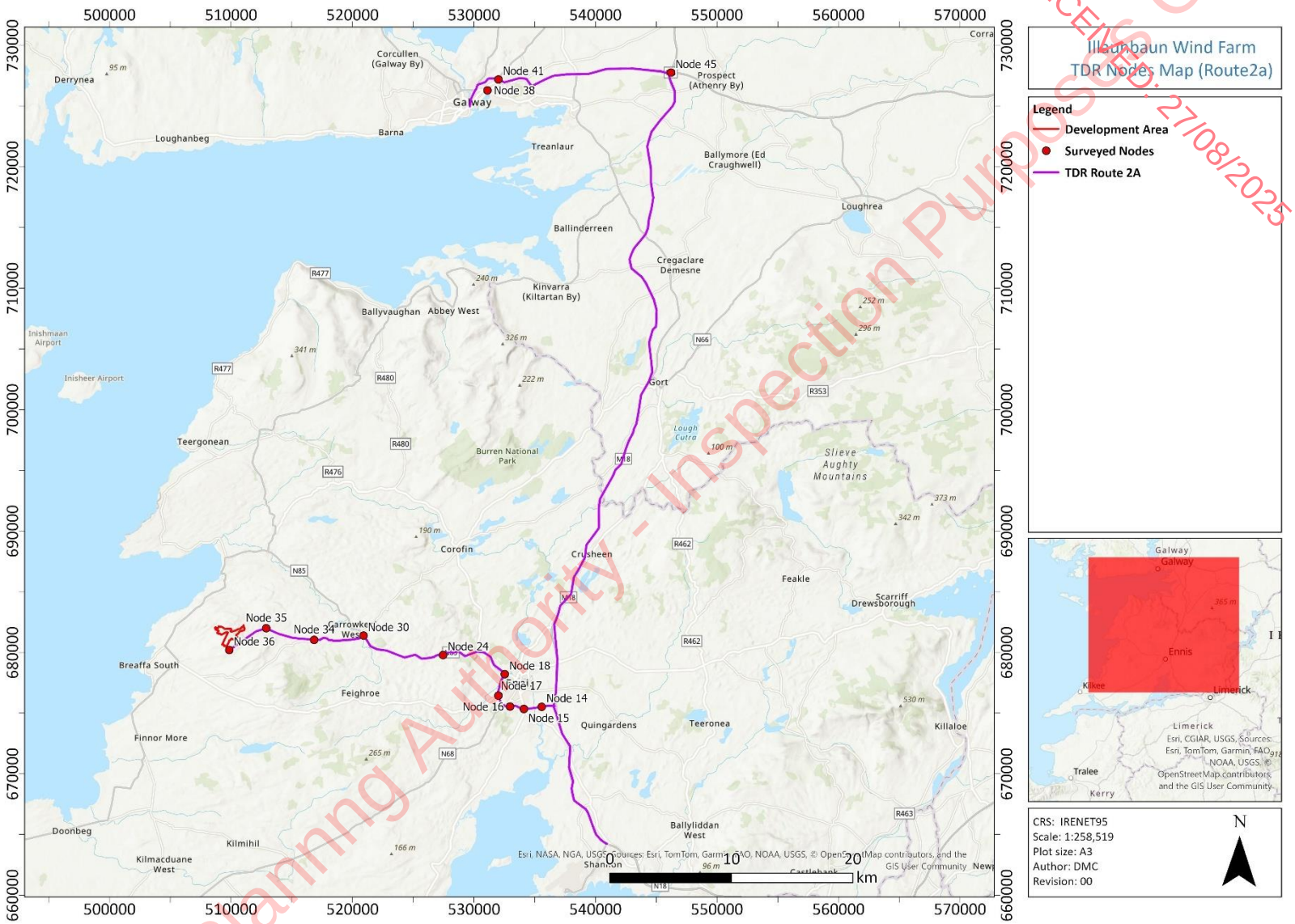

Figure A.8: Illaunbaun Wind Farm TDR Option Two nodes surveyed.

Figure A.9: Illaunbaun Wind Farm TDR Option One map Node 10.

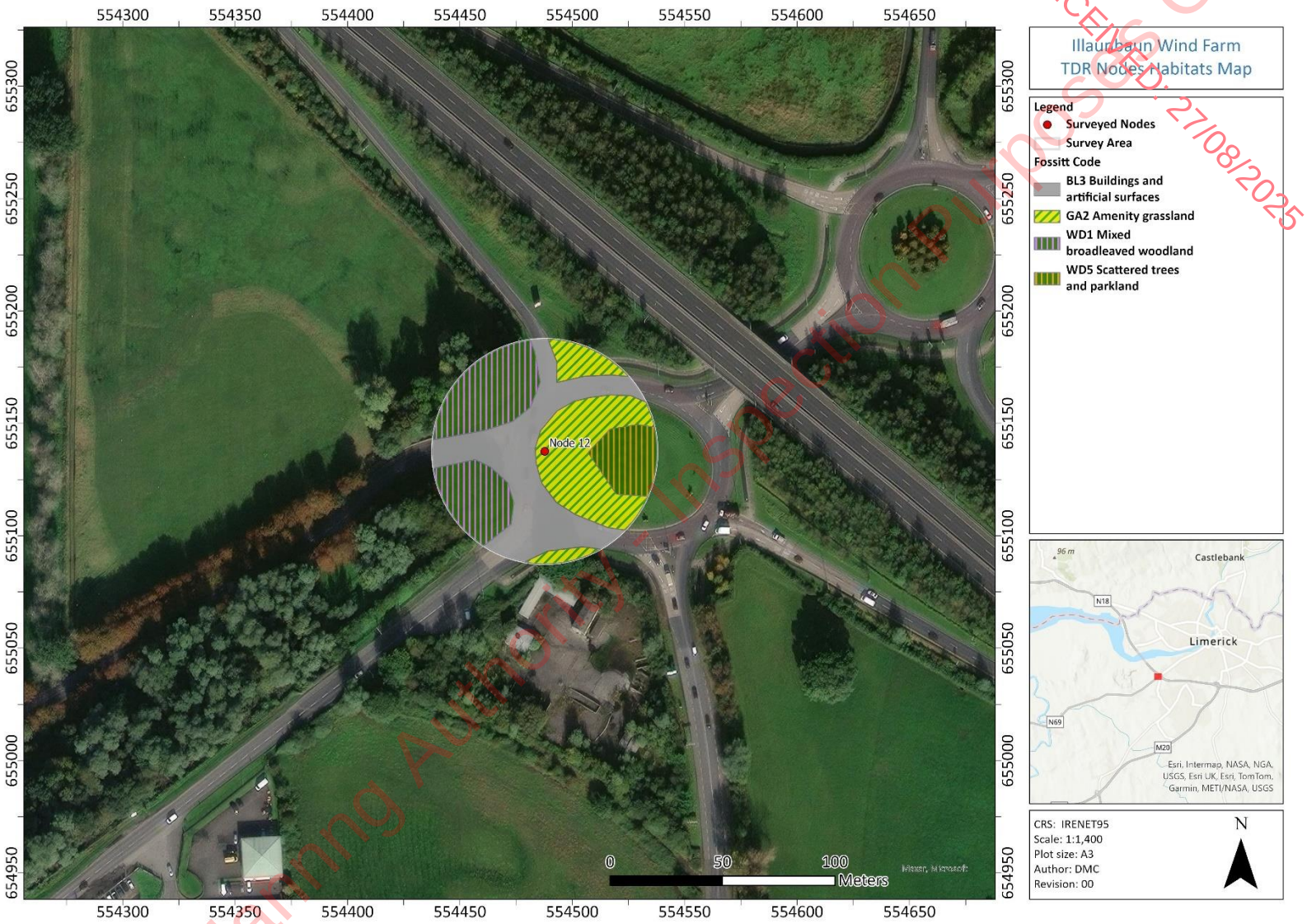

Figure A.10: Illaunbaun Wind Farm TDR Option One map Node 12.

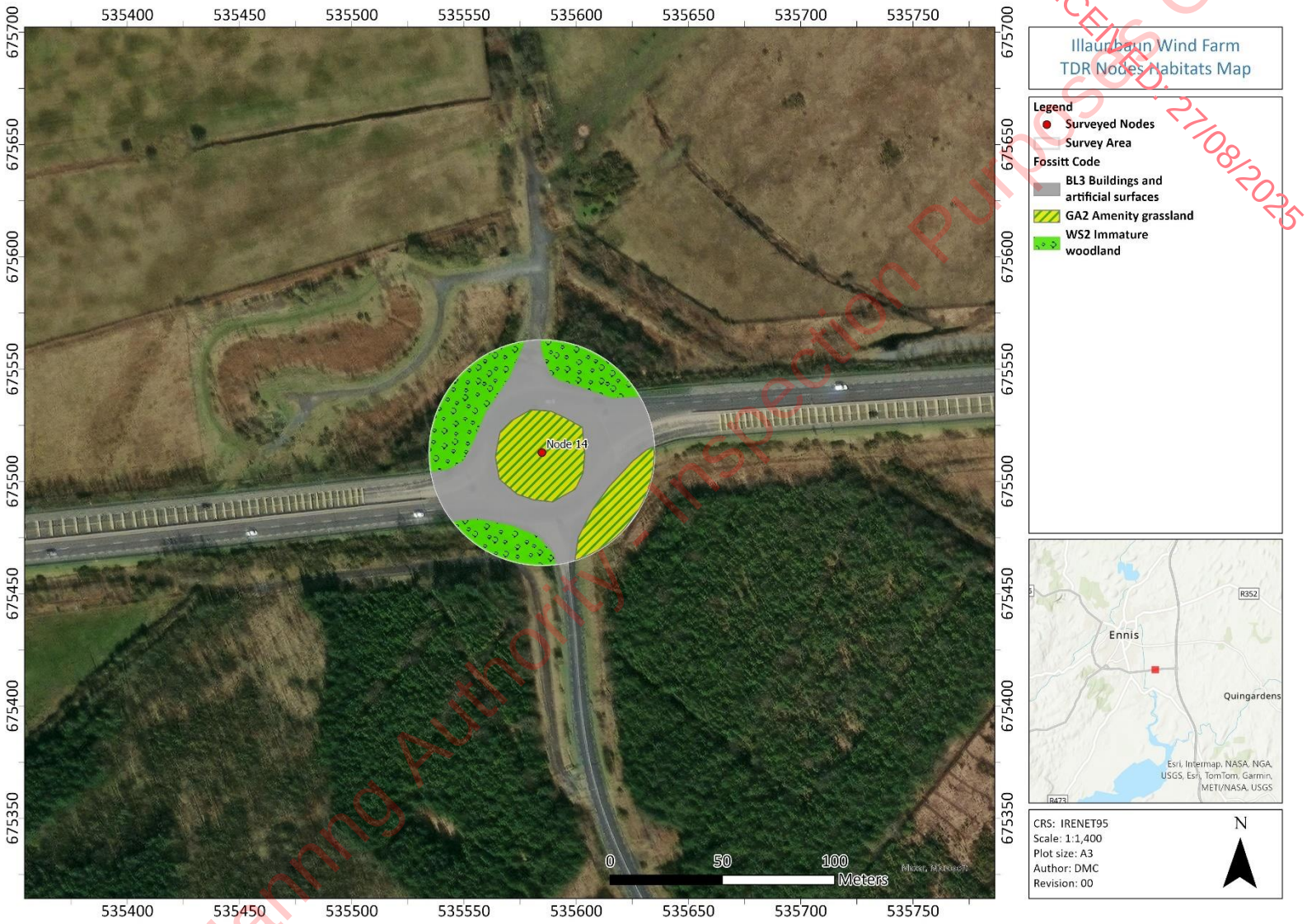

Figure A.11: Illaunbaun Wind Farm TDR Option One map Node 14.

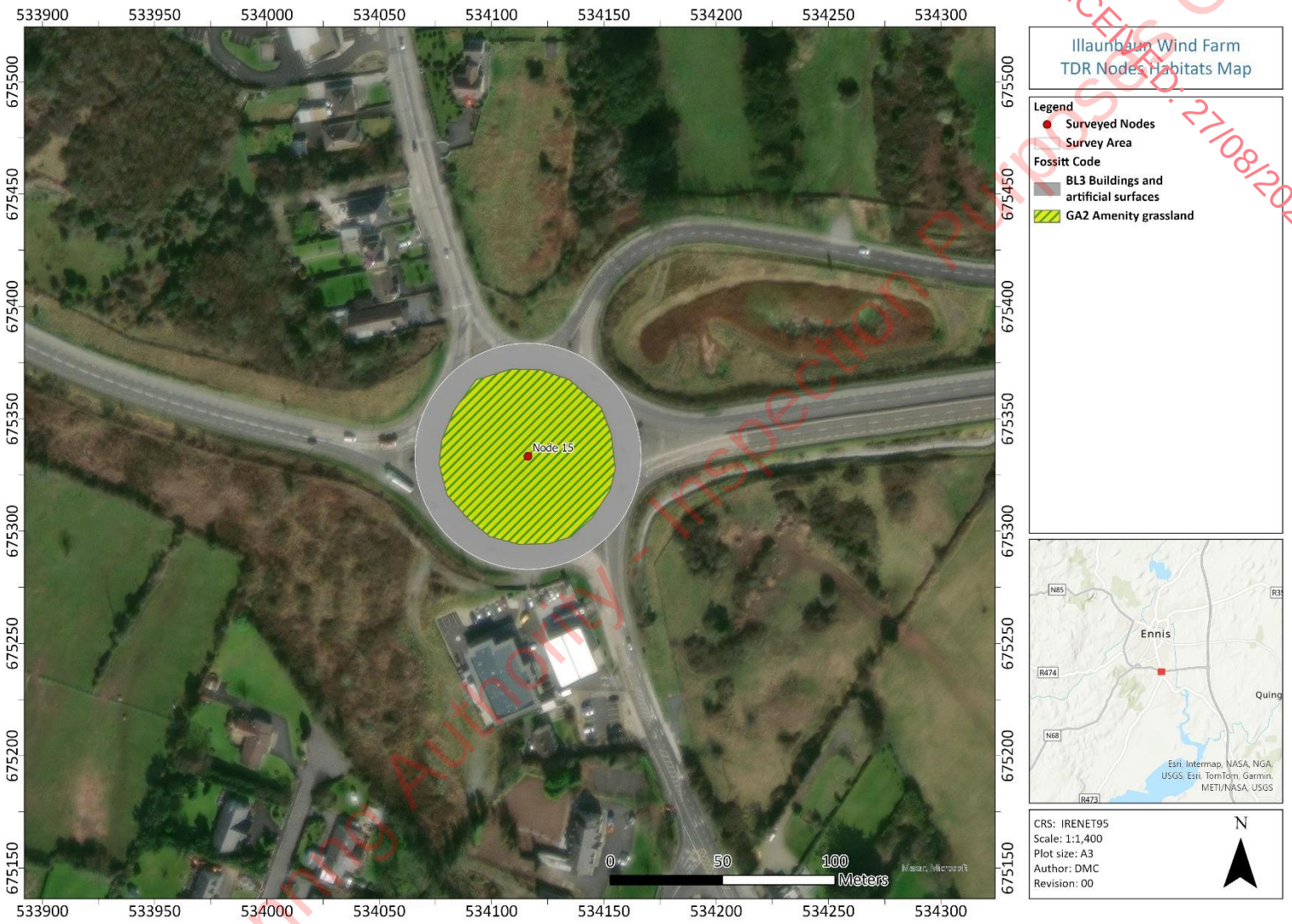

Figure A.12: Illaunbaun Wind Farm TDR Option One map Node 15.

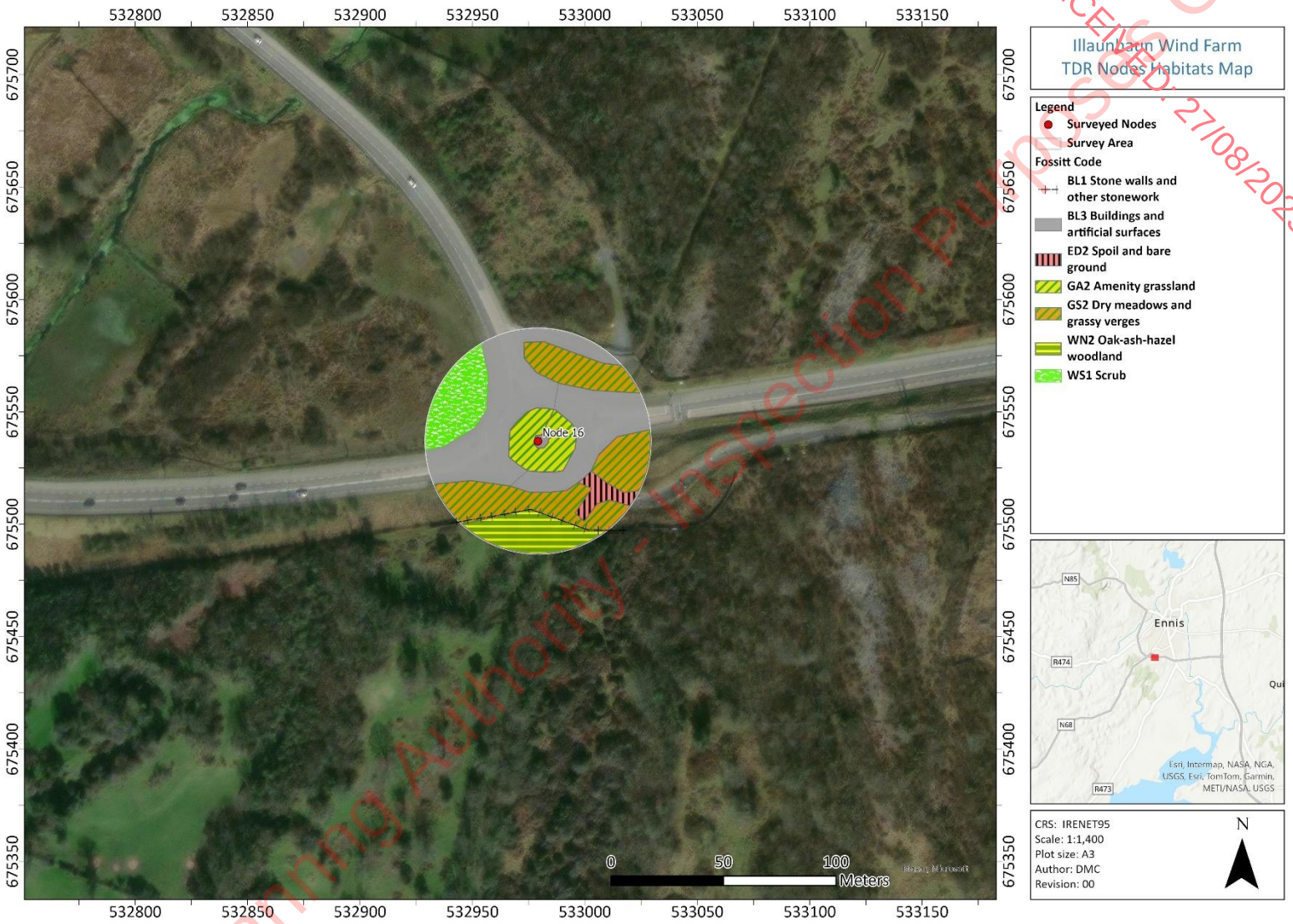

Figure A.13: Illaunbaun Wind Farm TDR Option One map Node 16.

Figure A.14: Illaunbaun Wind Farm TDR Option One map Node 17.

Figure A.15: Illaunbaun Wind Farm TDR Option One map Node 18.

Figure A.16: Illaunbaun Wind Farm TDR Option Two map Node 24.

Figure A.17: Illaunbaun Wind Farm TDR Option Two map Node 30.

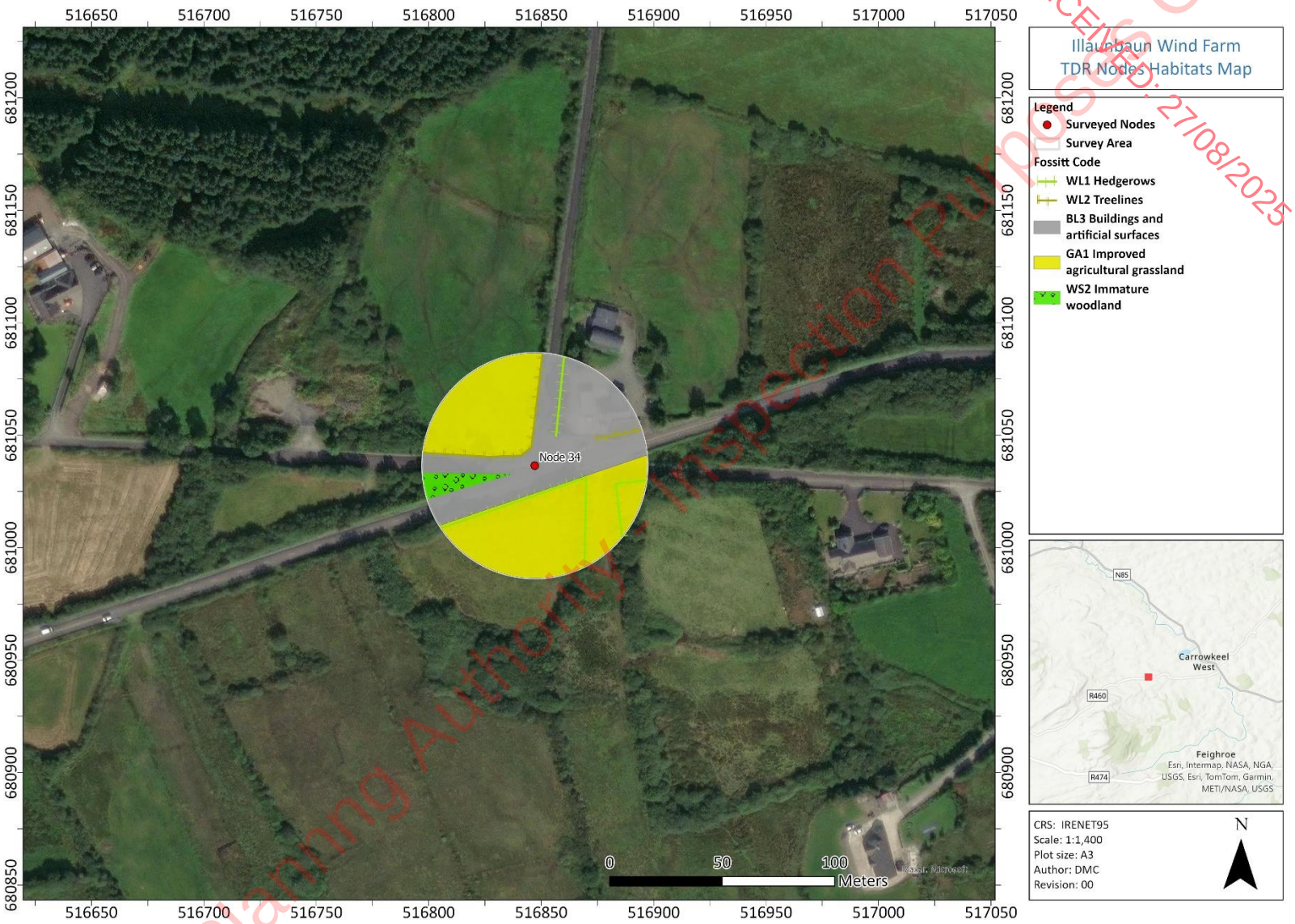

Figure A.18: Illaunbaun Wind Farm TDR Option Two map Node 34.

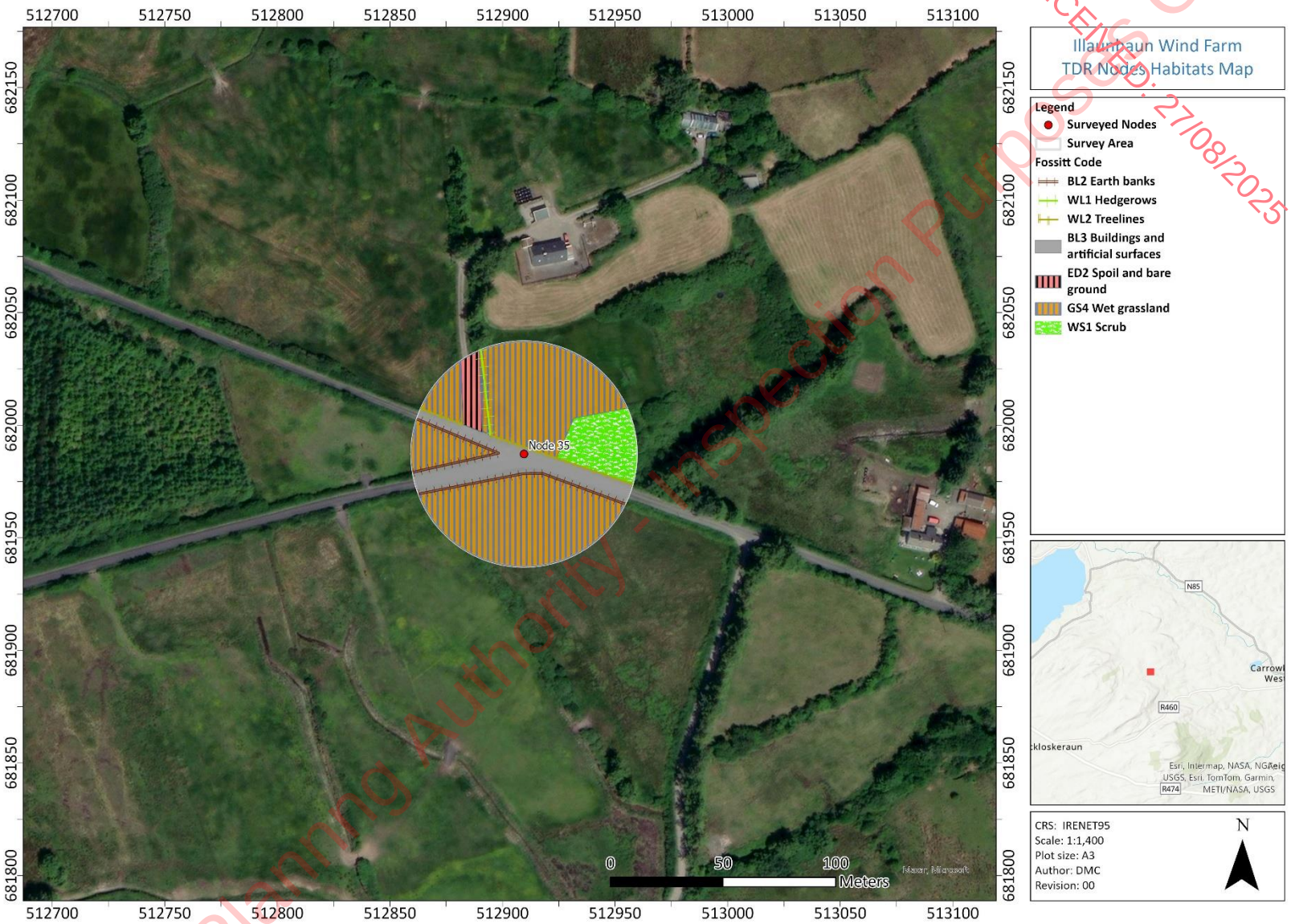

Figure A.19: Illaunbaun Wind Farm TDR Option Two map Node 35.

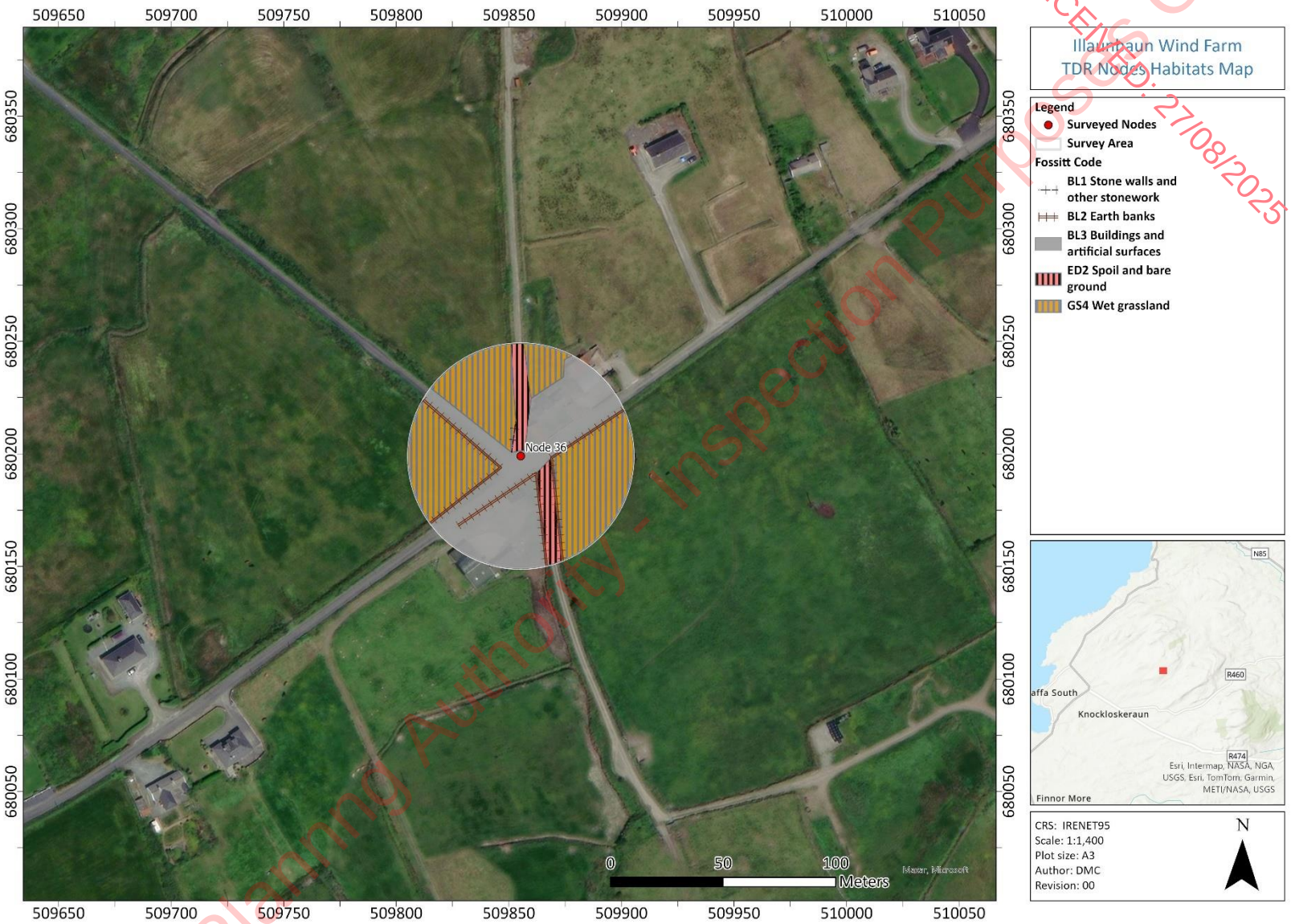

Figure A.20: Illaunbaun Wind Farm TDR Option Two map Node 36.

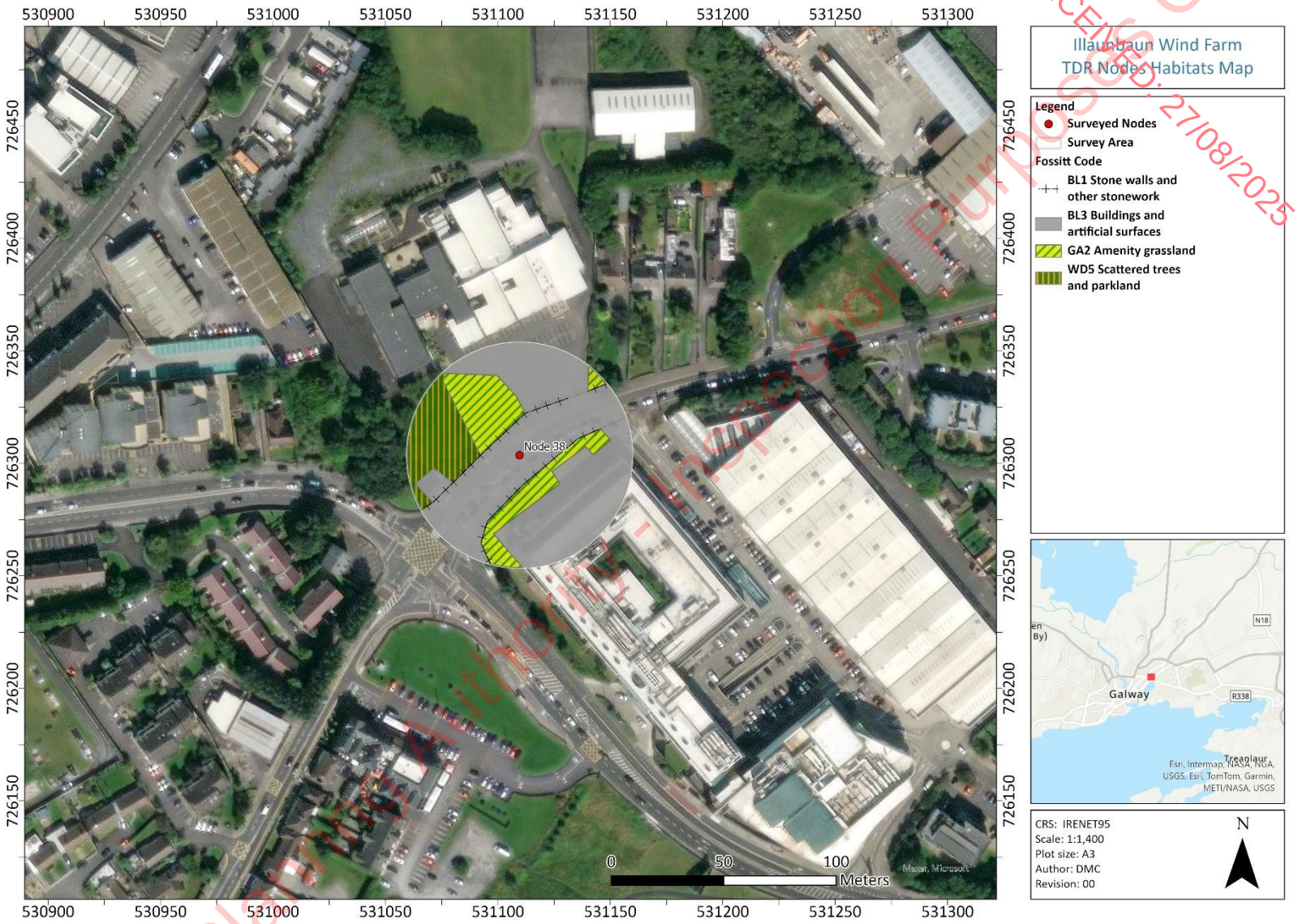

Figure A.21: Illaunbaun Wind Farm TDR Option Two map Node 38.

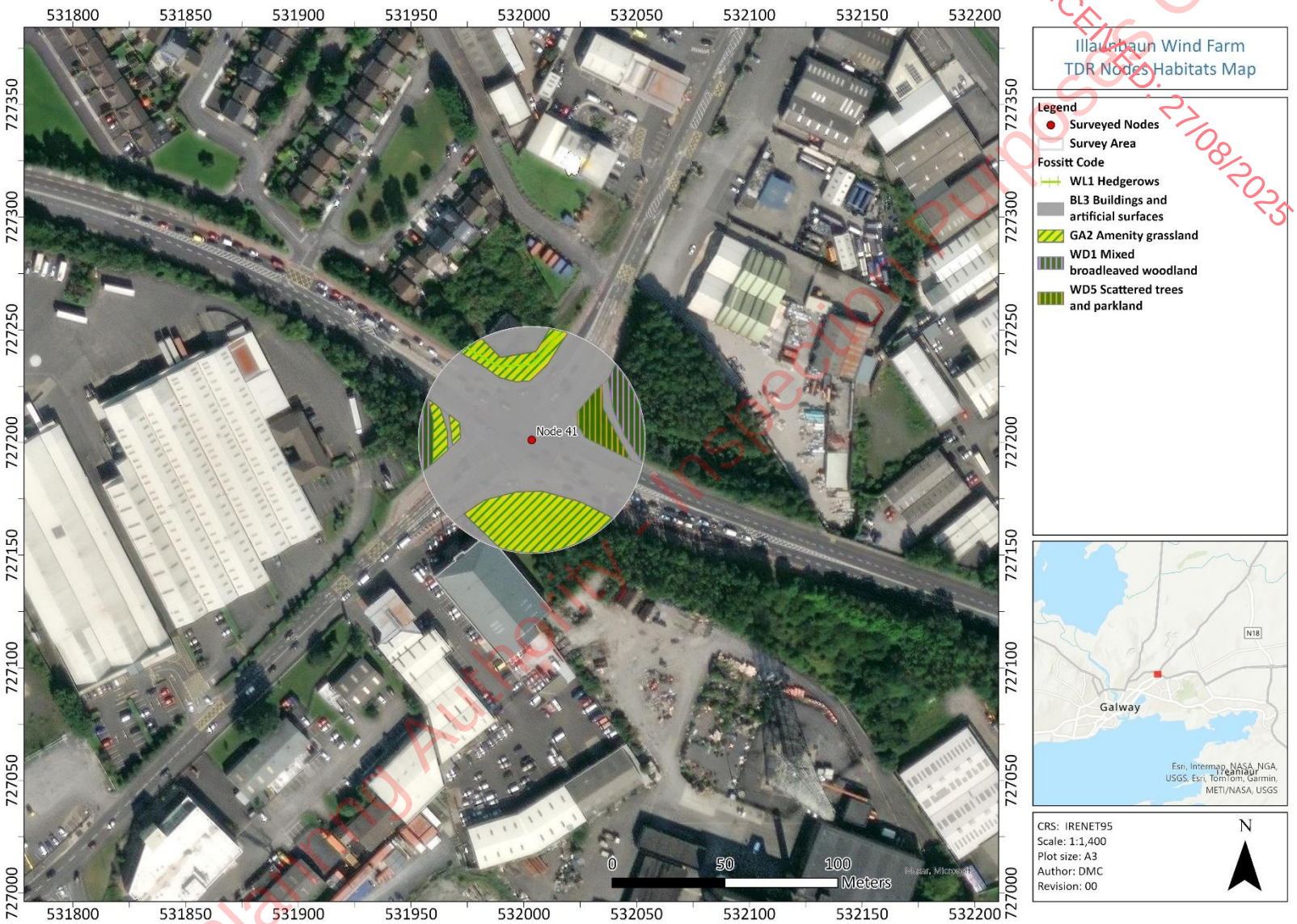

Figure A.22: Illaunbaun Wind Farm TDR Option Two map Node 41.

Figure A.23: Illaunbaun Wind Farm TDR Option Two map Node 45.

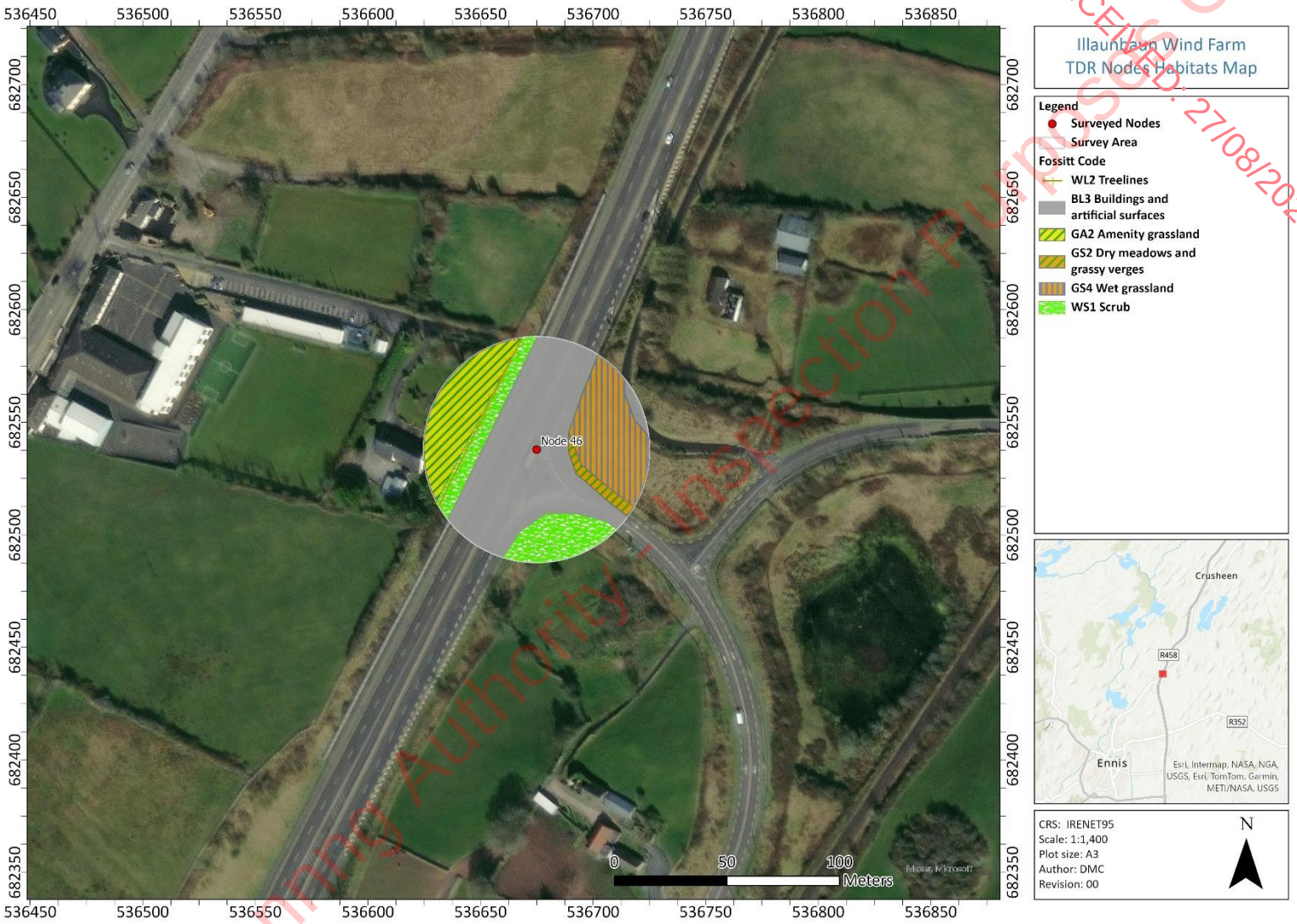

Figure A.24: Illaunbaun Wind Farm TDR Option Two map Node 46.

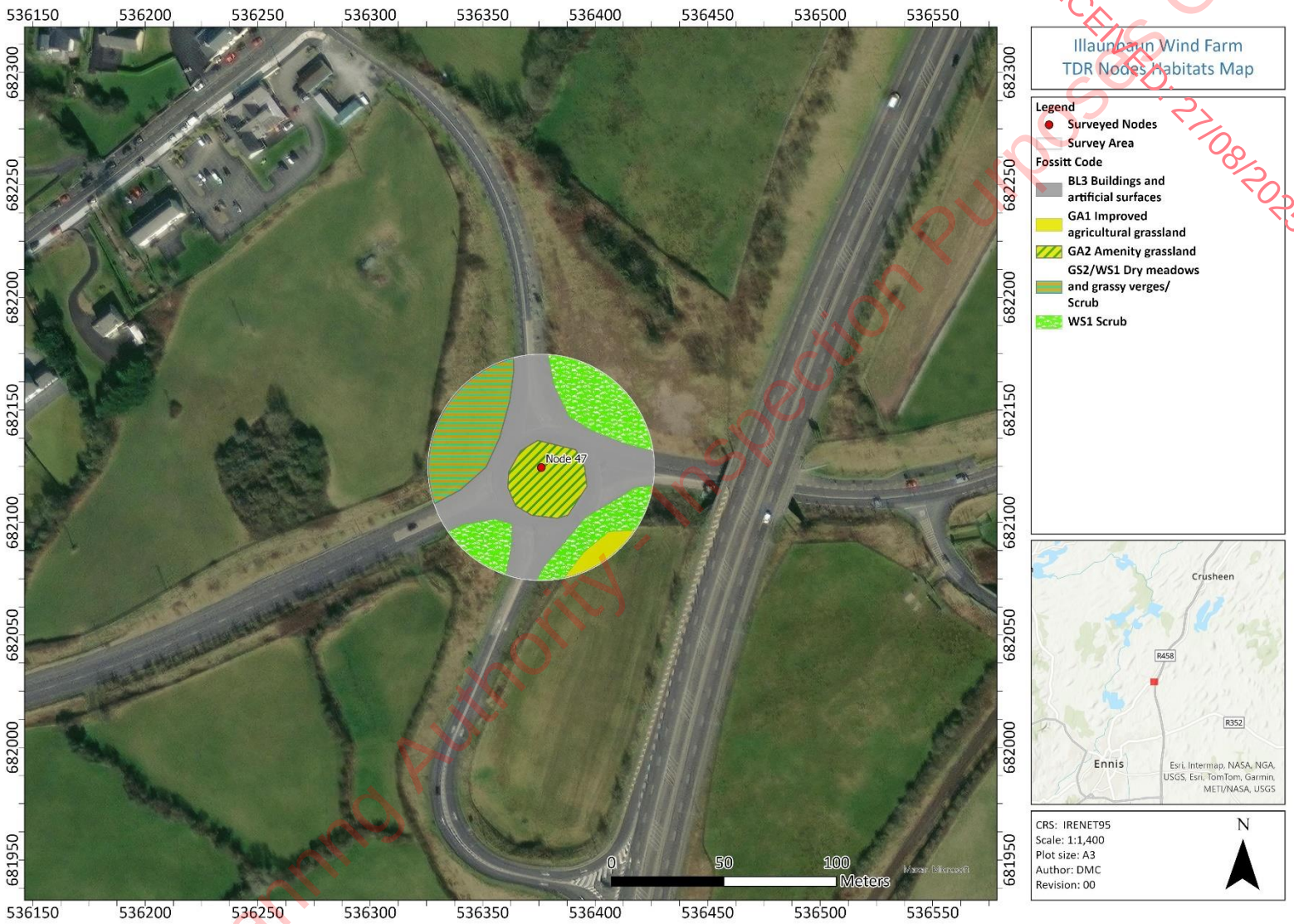

Figure A.25: Illaunbaun Wind Farm TDR Option Two map Node 47.

Figure A.26: Illaunbaun Wind Farm TDR Option Two map Node 48.

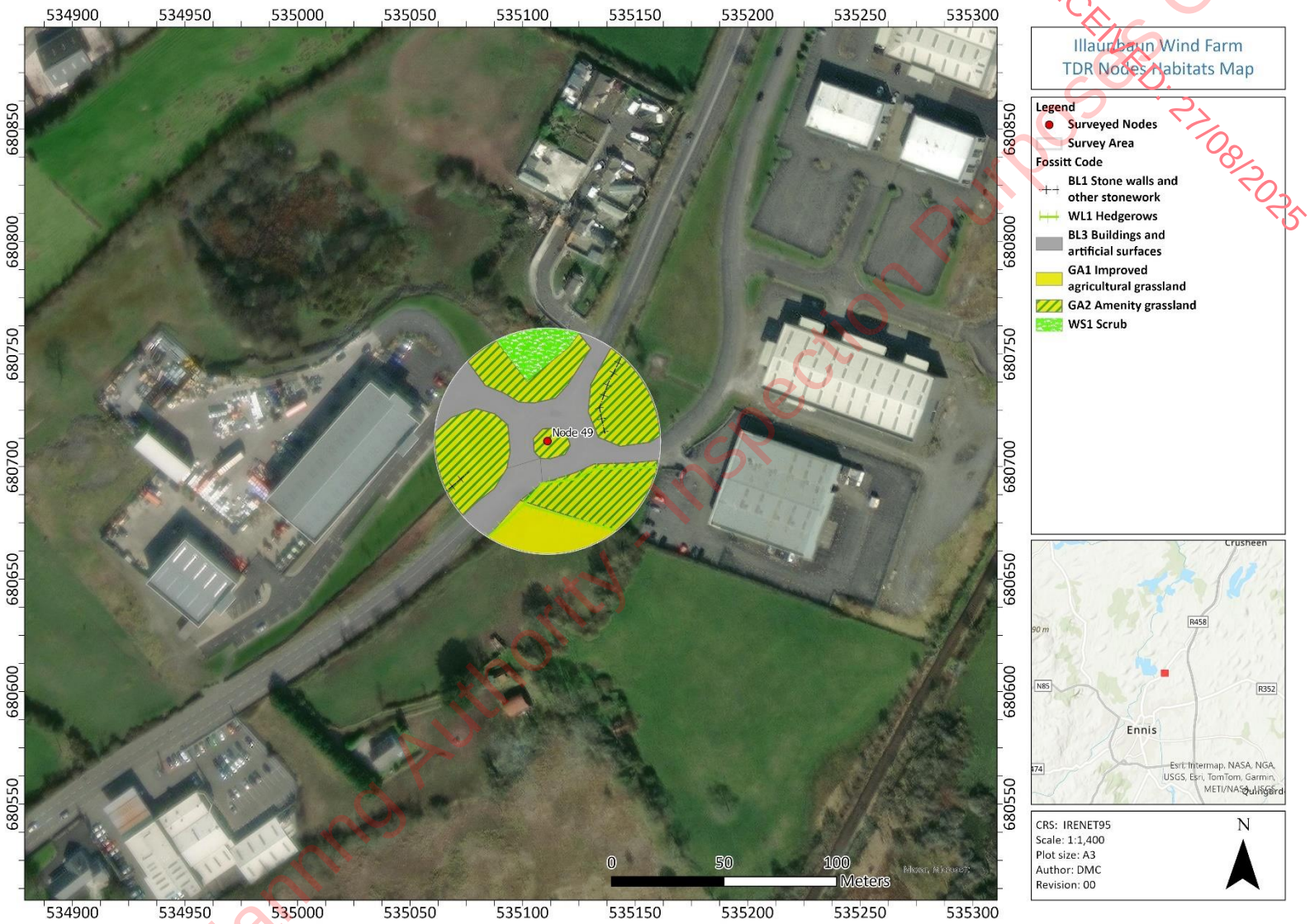

Figure A.27: Illaunbaun Wind Farm TDR Option Two map Node 49.

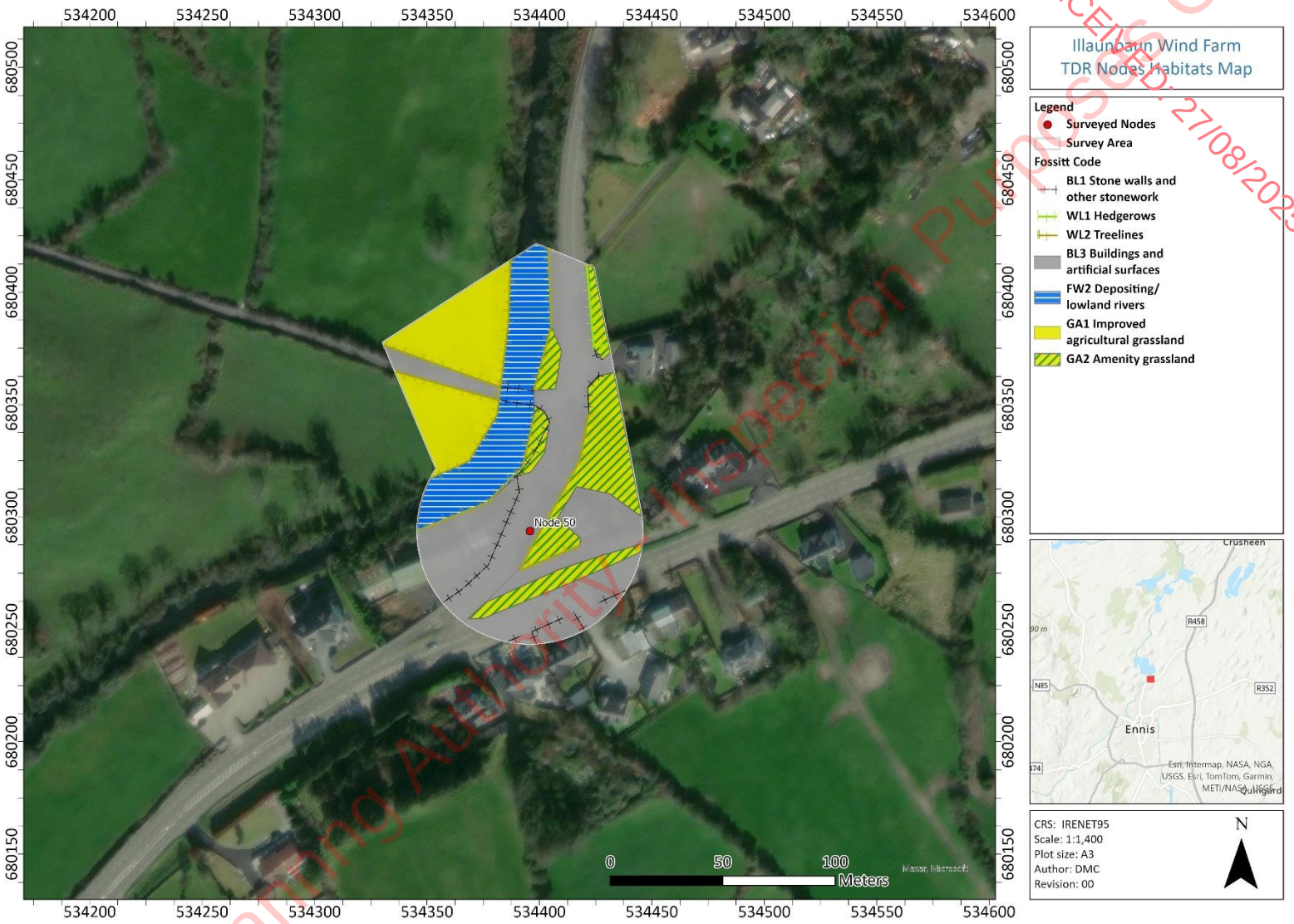

Figure A.28: Illaunbaun Wind Farm TDR Option Two map Node 50.

Figure A.29: Illaunbaun Wind Farm TDR Option Two map Node 51.