8. LAND, SOILS AND GEOLOGY

8.1 INTRODUCTION

This chapter of the EIAR assesses the effects of the proposed project on the land, soil and geological environment. The proposed project includes the construction of 13 wind turbines and ancillary works, installation of the 33 kV private grid connection cable, a 110 kV Substation, 110 kV grid connection and temporary nodes on the Turbine Delivery Route (TDR). Refer to Chapter 2 of the EIAR for full details of the proposed project.

Details of the existing conditions of the proposed project area are presented, assessment of likely significant effects, and mitigation measures are proposed where required. Residual and cumulative effects are also assessed.

8.1.1 Statement of Authority

This chapter has been completed and finalised by Mr. John Dillon (BSc, MSc, MCIWM, PGeo), TOBIN. John has 18 years of experience in geological assessment for EIS/EIA. John also has experience in the assessment and supervision of renewable energy projects including Curragh wind farm, Castlebanny wind farm, Lisheen Phase III wind farm, Derryadd wind farm, Ummeras wind farm, Cloon – Lanesboro 110 kV uprate, North South 400 kV interconnector, Moneypoint substation, Clonymeath Solar Farm and Laois Kilkenny 400/110 kV substation.

Peter McSherry (BSc., PGCert) is a hydrogeologist with over 5 years hydrogeological experience in groundwater resources, contaminated land, ground investigation and various infrastructure developments. Peter also has over 5 years' experience in environmental management with a particular focus on wastewater treatment, energy management and regulatory compliance. Peter has a master's in Hydrogeology. Peter has authored several hydrogeology reports for various infrastructure and renewable energy projects, including Lissinagroagh wind farm and Ballincor wind farm. Peter undertook the supervision of the site investigation and assisted in the assessment of the effect and mitigation for this project.

Site investigations were co-ordinated and reviewed by Ronan Killeen from Irish Drilling Limited. Further details related to relevant inputs of the various contributors and competent experts of the Project Team are provided Chapter 1, Introduction. John Connaughton PGeo (Senior Geophysicist) from Minerex Geophysics Ltd. (MGX) carried out a geophysical survey consisting of 2DResistivity (ERT) and Seismic Refraction (p-wave).

8.1.2 Limitations Encountered in Compiling Information

No overarching assumptions or limitations have been identified that apply to the assessment for land, soils and geology. Where routine assumptions have been made while undertaking the assessment, these are noted in the following sections. No difficulties in terms of site access were encountered during the preparation of this assessment.

8.2 SCOPING AND CONSULTATION

The EIA Scoping and consultation activities were carried out as set out in Chapter 1, Section 1.9 and includes a summary of the consultees and responses received (or not received).

Based on a review of the consultation responses no significant issues were identified in relation to Land, Soils and Geology for the proposed project. A brief summary of scoping responses relating to Land Soils and Geology is provided in Table 8-1 (excluding those that did not respond). All scoping responses are provided in Appendix 1-3. All issues raised in the scoping process relating to Land, Soils and Geology have been complied with.

Table 8-1: Consultees and Response Record relating to Land Soils and Geology

Consultee	Summary of Comments Received	How the comments were addressed
Mayo County Council	A meeting was held with Mayo County Council. At the meeting, the discussion highlighted the need to consider multiple quarry sources within the EIAR rather than relying solely on a single supplier. For further information see Section 1.9.2 of Chapter 1.	Section 8.5 considers multiple quarries as potential sources of material.
Geological Survey of Ireland (GSI)	1. GSI recommend using their various data sets when conducting the EIAR, SEA, planning and scoping processes for developments, plans and policies. 2. Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out.	1. All GSI datasets were consulted as part of this assessment as detailed in Section 8.3 and 8.5. 2. This is noted and the developer has committed to passing on all site investigation data after planning approval is received.
Office of Public Works (OPW)	Responded with comments primarily related to hydrology and hydrogeology, so they are considered in Chapter 9. See Section 1.9.4 of Chapter 1 for further information.	Comments addressed in Chapter 9.
An Coimisiún Pleanála	The first pre-application consultation meeting was held with An Coimisiún Pleanála on 26 May 2026, with subsequent meetings held on 27 July and 31 August 2026. Land, Soils and Geology was briefly discussed in the first and third meetings, but formed a more substantial part of the second meeting. The main issues raised in these meetings were: 1. An Coimisiún Pleanála advised that consideration should be given to the potential presence of karst features, and that an appropriate protocol should be followed where karst features are encountered. 2. The findings of the site investigations were discussed, with the Commission recommending that conceptual models be included to provide additional support for the site investigation findings.	1. The potential for occurrence of karst features is considered throughout chapters 8 and 9. In particular, Section 8.4.1.8 and Appendix 8-1 considers the likelihood of karst for the proposed project. SI data is included in Appendix 2-5. A karst protocol is also included in Appendix 8-1 to be used for the proposed project. 2. All the desk study data, site walkover data and site investigation data was used to produce a site Conceptual site model, as provided in Chapter 9.

	Further information is provided in Section 1.9.1 of Chapter 1.	

No response was received from Galway County Council, An Taisce, Department of Environment, Climate and Communications, the EPA, Teagasc, The International Association of Hydrologists (IAH) Irish Group. Further information on scoping responses are provided in Section 1.9 of Chapter 1.

8.3 Assessment Methodology

The baseline environment of the proposed wind farm site (including the proposed grid connection route (GCR) and nodes of the proposed turbine delivery route (TDR)) was thoroughly investigated through extensive desk studies and field inspections. The methodology for this chapter involved a combination of desk-based research, walkovers, non-intrusive investigations, such as geophysical surveys and intrusive investigations, such as trial pits, boreholes and gouge augers.

The study area for the land, soils and geology assessment is presented as Figure 8-1, and has been defined on the basis of a 2 km radius from the proposed wind farm site, as suggested in the Institute of Geologists Ireland (IGI) 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (IGI 2013). The study area for the nodes along the proposed TDR and proposed GCR uses a 200 m buffer, based on the limited works and excavations required.

The assessment in this chapter has considered the mitigation that has been embedded into the design to avoid or reduce adverse environmental effects. Embedded mitigation is integral to the project design and therefore the assessment of effects assumes all embedded design measures are in place. Relevant embedded mitigation for this topic is detailed in Section 8.5.1.

8.3.1 Relevant Legislation and Guidance

This chapter has been prepared in compliance with the requirements of the following legislation:

- Planning and Development Act 2000, as amended
- Planning and Development Regulations 2001, as amended;
- Waste Management Act 1996, as amended;
- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (EIA Directive).
- The EU Soil Strategy for 2030 (European Commission, 2021);
- Institute of Environmental Management and Assessment (IEMA) (2022) IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment.

Geological specific guidance published by the IGI and Transport Infrastructure Ireland (TII) was used when preparing this chapter. The nomenclature set out in the EPA EIAR guidelines (2022) was used to describe significance of effect. The chapter was prepared in compliance with the following guidelines:

- Environmental Impact Assessment (EIA) Directive - European Union Directive (2011/92/EU) on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU;
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA EIAR Guidelines, 2022);
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008b);
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI 2013);
- Department of the Environment, Heritage and Local Government (DoEHLG), Wind Energy Development Guidelines (2006);
- Review of Wind Energy Development Guidelines "Preferred Draft Approach" (Department of Housing, Planning, Community and Local Government, 2019); and
- Scottish Natural Heritage (2013) Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms Commissioned Report No. 591/ SNH, Stirling.

This assessment of the proposed project has been carried out in compliance with the relevant European and National legislation and other statutory policies and guidance.

8.3.2 Desk Study

A desk study of the study area – see Figure 8-1, was undertaken to collate and review background information of the receiving environment. The sources of information obtained are listed below:

- Geological Survey Ireland (GSI) datasets, including bedrock geology, quaternary geology, and extractive industry data – data includes GSI karst database and tracing information[1];
- Environmental Protection Agency (EPA) datasets on soils, subsoils, and land cover[2];
- National Parks and Wildlife Service (NPWS) data on designated conservation sites[3];
- GeoHive platform for mapping, topographic, and base imagery data[4];
- Lidar data and other publicly available digital elevation models (DEMs) to support interpretation of topography and geomorphology;[5]

8.3.3 Field Surveys

A total of five walkovers were undertaken of the proposed wind farm site to review the ground conditions and assess the topography and geomorphology. These were carried out in May 2025, November 2025, February 2026, April 2026 and July 2026.

A site investigation (SI) was carried out in November 2025 to determine the subsurface conditions at the proposed wind farm site. All works were completed using Irish Drilling Limited (IDL) data and logging was conducted by an IDL engineering geologist.

[1] Geological Survey Ireland (GSI). Available at: https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx [Accessed September 2026]
[2] Environmental Protection Agency (EPA) Maps and Data. Available at: https://gis.epa.ie/EPAMaps/ [Accessed September 2026]
[3] National Parks and Wildlife Service (NPWS) Map Viewer. Available at: https://www.npws.ie/maps-and-data [Accessed September 2026]
[4] GeoHive Public Mapping Platform. Ordnance Survey Ireland. Available at: https://www.geohive.ie/ [Accessed September 2026]
[5] Lidar and Digital Elevation Models from Bluesky, Geological Survey Ireland and Ordnance Survey Ireland via GeoHive. Available at: https://www.geohive.ie/ [Accessed September 2026]

The SI report and subsequent data for the proposed project can be located in Appendix 2-5 following the text of this report. The SI work undertaken included:

- Nine rotary core boreholes to 10.5 mbgl (metres below ground level);
- Three monitoring well installations;
- Fifteen machine-dug trial pits;
- Completion of fifteen Geophysical Surveys;
- GPS (Global Positioning System) coordinates survey of all completed SI locations;
- Groundwater monitoring; and
- Geotechnical & Environmental Laboratory testing.

Nine rotary core boreholes were drilled to depths of up to 10.5 mbgl to establish overburden conditions, rockhead and to establish the nature and integrity of the underlying rock. Drilling with wireline drilling techniques was used to recover soil and rock core samples. A 50 mm groundwater monitoring standpipe was installed in three (3) boreholes (BH-01, BH-05 and BH-07). Samples were collected for analytical analysis. Standard penetration tests (SPTs) were conducted at standard intervals using a split spoon sampler, in accordance with BS EN 22476-3:2005+A1:2011.

Fifteen trial pits were excavated to depths of between 0.6 mbgl and 2.9 mbgl, using a 13-ton tracked excavator with an 800 mm bucket. Bulk disturbed soil samples were recovered at standard intervals and at strata changes, then returned to the laboratory and presented for analytical testing. Water ingress and pit wall stability were recorded.

Minerex Geophysics Ltd. (MGX) carried out a geophysical survey for the ground investigation for the proposed wind farm. The geophysics survey consisted of 2D-Resistivity (ERT) and Seismic Refraction (p-wave) surveying. This survey utilized two complementary geophysical methods to improve the geological interpretation. The methodology consists of using 2D-Resistivity and seismic refraction surveying in one direction at the 13 turbine locations, 2 potential borrow pits and substation site. Each 2D-Resistivity line was 93 m long while each seismic refraction line was 94 m in length.

During 2D-Resistivity surveying, data is acquired in the form of linear arrays using a suite of metal electrodes. A current is induced into the ground via a pair of electrodes whilst a potential difference is measured across a second pair of electrodes. This allows for the recording of the apparent resistivity in a two-dimensional arrangement below the line. Seismic Refraction aims to identify the depth to horizontal or near horizontal layers where the compaction or strength or rock quality changes.

All field work was conducted in compliance with best practice standards and relevant guidance, with oversight from qualified geologists and engineers. The site investigation's locations are shown on Figure 8-9.

8.3.4 Assessment Methodology

The approach to assessment proposed in the IGI guidelines (2013) and EPA EIAR Guidelines (2022) is adopted for the evaluation of likely significant effects on the receiving environment.

Following on from the identification of the baseline environment, the available data is utilised to identify and categorise likely significant effects on the land, soils and geological environment as a result of the proposed project. These assessments are undertaken by:

- Undertaking materials calculations in terms of volumetric soil, subsoil excavation and reuse associated with the proposed project design;
- Assessing ground stability risks, in particular peat stability (if present);
- Assessing the combined data acquired and evaluating any likely significant effects on the soils, geology and ground stability; and
- Assessment of likely significant effects and considering measures that would mitigate or reduce those effects.

The importance/sensitivity of the land, soils and geological receptors was assessed on completion of the desk study and baseline characterisation. Using Appendix C of the NRA 2008, as guidance, the land, soils and geological sensitivity criteria is set out in Table 8-2.

Table 8-2: Estimation of the Importance of Land, Soils and Geology Attributes

Sensitivity	Criteria	Typical Example
Very High	Attribute has a high quality, significance or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and / or soft organic soil underlying route is significant on a national or regional scale.	Geological feature rare on a regional or national scale (NHA). Large existing quarry or pit. Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale. Degree or extent of soil contamination is significant on a local scale. Volume of peat and / or soft organic soil underlying site is significant on a local scale.	Contaminated soil on site with previous heavy industrial usage (i.e., fuel farm). Large recent landfill site for mixed wastes. Geological feature of high value on a local scale (County Geological Site). Well drained and / or high fertility soils. Moderately sized existing quarry or pit. Marginally economic extractable mineral resource
Medium	Attribute has a medium quality, significance or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and / or soft organic soil underlying site is moderate on a local scale.	Contaminated soil on site with previous light industrial usage. Small recent landfill site for mixed wastes. Moderately drained and / or moderate fertility soils. Small existing quarry or pit. Sub-economic extractable mineral resource
Low	Attribute has a low quality, significance or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and / or soft organic soil underlying site is small on a local scale.	Large historical and / or recent site for construction and demolition wastes. Small historical and / or recent site for construction and demolition wastes. Poorly drained and / or low fertility soils.

		Uneconomically extractable mineral resource.

8.3.4.1 Overview of Assessment Process

The likely significance of effects of the proposed project on the land, soils and geology has been assessed in accordance with the EPA EIAR guidelines (2022). These guidelines are detailed in Chapter 1 of this EIAR.

Magnitude of Effects

The magnitude of any effect evaluates the likely scale of the predicted change to the baseline conditions, resulting from the predicted effect and considers the duration of the effect i.e., temporary or permanent. The criteria for determining magnitude of impact for the purpose of the land, soils and geology assessment are provided in Table 8-3. In accordance with EPA EIAR Guidelines (2022), this report adopts the term 'effect' to describe changes arising from the proposed project, rather than the term 'impact' which is utilised in NRA guidance.

Table 8-3: Criteria to Determine the Magnitude of Effect and Examples.

Magnitude[6]	Criteria	Typical Examples[7]
High Adverse	Results in loss of attribute	Loss of high proportion of future quarry or pit reserves. Irreversible loss of high proportion of local high fertility soils. Removal of entirety of geological heritage feature. Requirement to excavate / remediate entire waste site. Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Medium Adverse	Results in impact on integrity of attribute or loss of part of attribute	Loss of moderate proportion of future quarry or pit reserves. Removal of part of geological heritage feature. Irreversible loss of moderate proportion of local high fertility soils. Requirement to excavate / remediate significant proportion of waste site. Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Low Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Loss of small proportion of future quarry or pit reserves. Removal of small part of geological heritage feature.

[6] EPA (2022) guidance

[7] Adapted from Box 5.1 from the NRAs Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes

Magnitude[6]	Criteria	Typical Examples[7]
		Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils. Requirement to excavate / remediate small proportion of waste site. Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	No measurable changes in attributes
Low Beneficial	Results in minor improvement of attribute quality	Minor enhancement of geological heritage feature Remediation of a small, contaminated site (<1ha)
Medium Beneficial	Results in moderate improvement of attribute quality	Moderate enhancement of geological heritage feature Remediation of a medium, contaminated site (<2.5ha)
High Beneficial	Results in major improvement of attribute quality	Major enhancement of geological heritage feature Remediation of a large, contaminated site (>2.5 ha)

Likely significant effects may have an adverse, neutral or beneficial effect on the land, soils and geology.

Significance of Effect

An Impact Assessment Matrix (IAM) is used to determine the significance of an effect. In basic terms, the potential significance of an effect is a function of the sensitivity of the receptor and the magnitude of the effects as shown in Table 8-4.

The matrix provides levels of effect significance ranging from Imperceptible to Profound, as defined in the Environmental Protection Agency 2022 EIAR Guidelines. For the purposes of this assessment, effects rated as being "Significant-Moderate" or above are considered to be significant in EIA terms. Effects rated as being "Moderate" are subject to professional judgement in terms of significance, with a rationale provided for this in the main assessment. Effects identified as less than moderate significance are not considered to be significant in EIA terms.

Table 8-4: Impact assessment matrix for determination of significance of effect

Sensitivity of Receptor	Magnitude of Effect			
	High Adverse/ Beneficial	**Medium Adverse/ Beneficial**	**Low Adverse/ Beneficial**	**Negligible**
Very High	Profound	Profound/Significant	Significant/Moderate	Not Significant
High	Profound/ Significant	Significant/ Moderate	Slight/Not Significant	Imperceptible
Medium	Significant	Moderate	Slight	Imperceptible
Low	Moderate/Slight	Slight/Not Significant	Not Significant	Imperceptible

8.4 RECEIVING ENVIRONMENT

The receiving environment is described in terms of geomorphology (landscape and topography), superficial and solid geology. The study area is outlined in Figure 8-1.

8.4.1 Desk Study

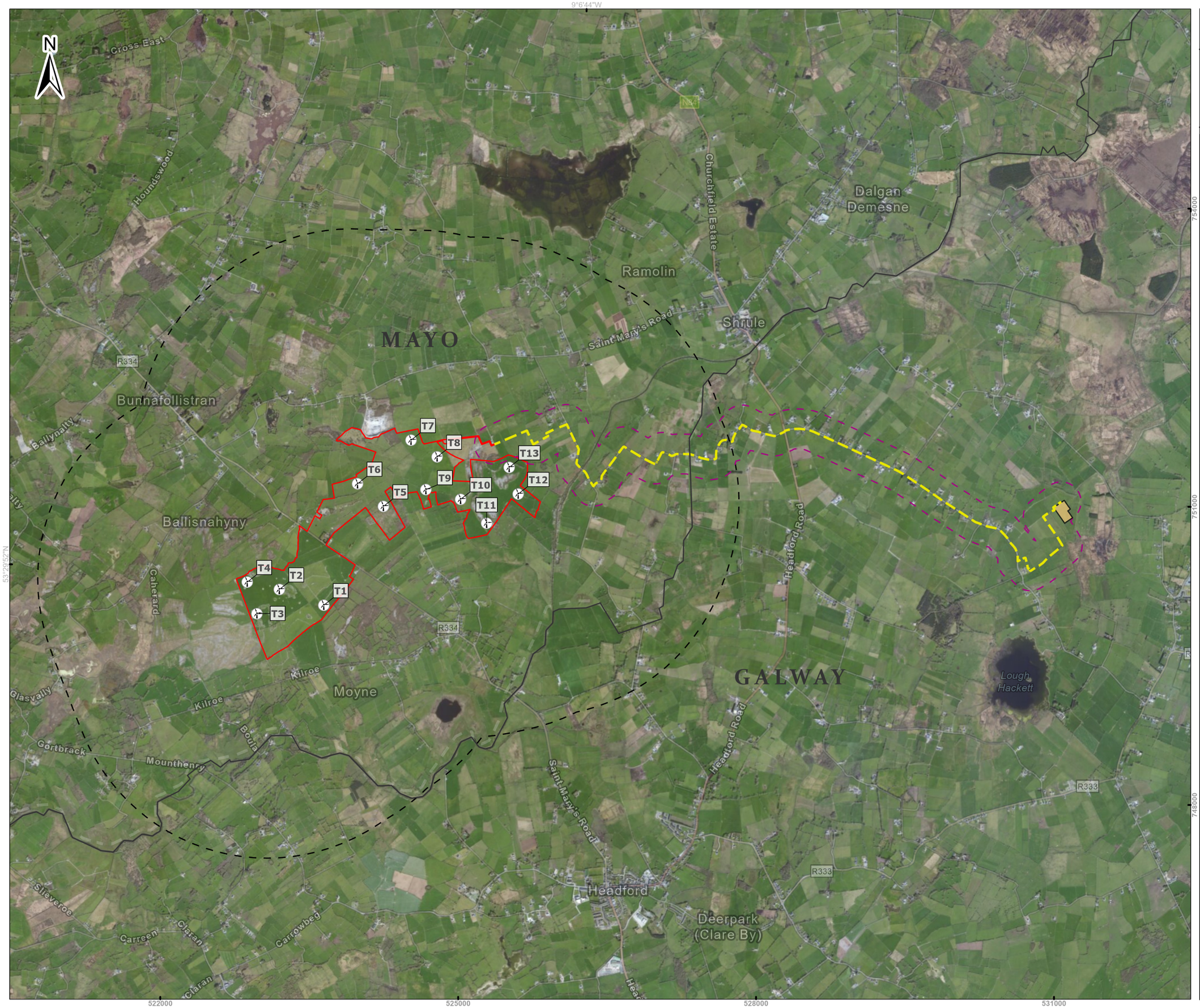
8.4.1.1 Geological Heritage

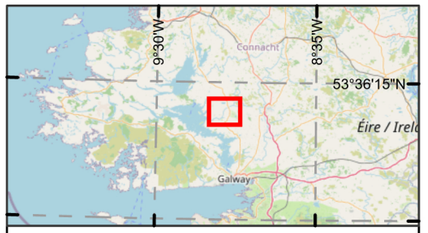
Geological Survey Ireland (GSI) provides scientific assessments and interpretative advice on geological and geomorphological sites. It is responsible for identifying significant sites suitable for conservation as Geological Heritage Sites.

No Geological Heritage Sites have been identified within the proposed wind farm site boundary.

Approximately 2.9 km west of T4, Lough Corrib is classified as a Geological Heritage Site. Lough Corrib is designated for its lakeshore karst assemblages. Lough Corrib is considered from a hydrological/hydrogeological viewpoint in Chapter 9. Knockmaa is located approximately 6.6 km southeast of the proposed T12 turbine and 4.5 km southeast of the proposed 110 kV substation and is described as a large area of landscape with glacial deposits which have slightly modified a much older landscape.

The site is located in the Joyce country Geopark. The geopark incorporates a large area (165,000 hectares) and over 20 geological heritage sites across two counties including: Lough Corrib, Lough Mask, Lough Carra, Killary Fjord and Twelve Bens and extends to Headford in the east. Around 60% of the geopark lies in a Gaeltacht area. The geopark is intended to promote sustainability, tourism and economic development in a bottom-up way, supporting the 20 communities involved.





Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer
- Proposed Grid Connection Route
- Turbine Locations
- 110kV Substation

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Rev	Date	Description	By	Chkd.
A	02/10/2026	First issue	K.K	J.S

Client: ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-1:
Study area for the Proposed Wind Farm Site and GCR

Scale @ A3: 1:35,000

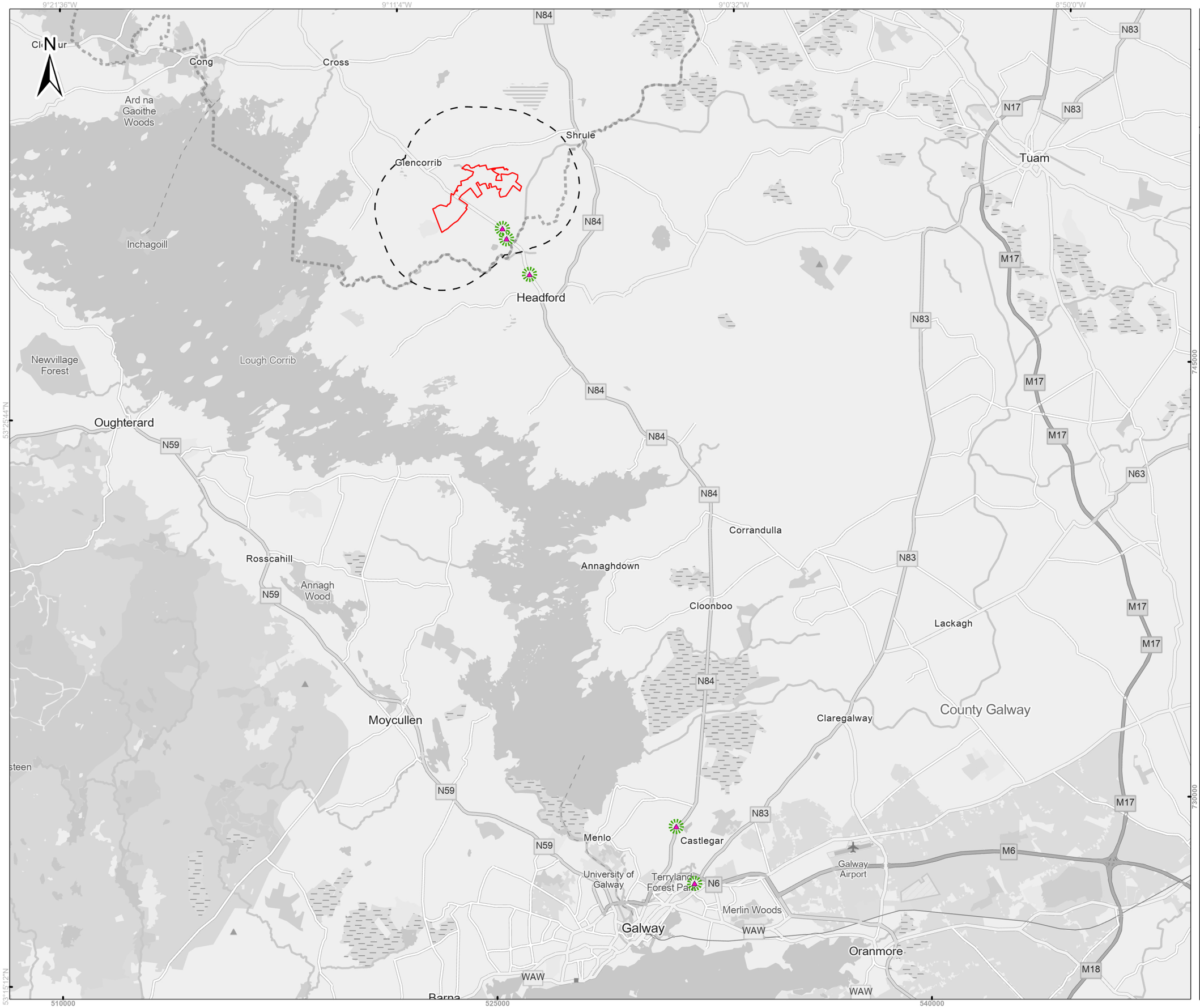
Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

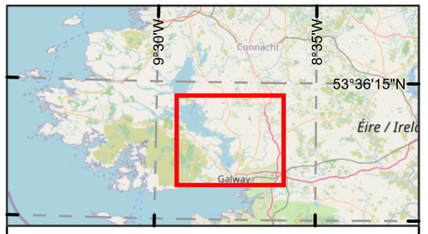
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Map Ref: 11981-006-AE-S.BO-TOB-A

Draft: A





Legend

- Proposed wind farm site Boundary
- Wind farm site study area
- TDR 200m Buffer
- TDR works areas
- Proposed Grid Connection Route

0 3 6
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	02/10/2026	First issue	K.K	J.S

Client:

ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-2:
Study Area for the Proposed TDR

Scale @ A3: 1:120,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

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Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

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Map Ref: 11981-007-AE-TDR-TOB-A

Draft: A

Proposed GCR and nodes on the proposed TDR

No Geological Heritage Site is located within the 200 m study area of the proposed GCR and TDR nodes.

8.4.1.2 Geomorphology

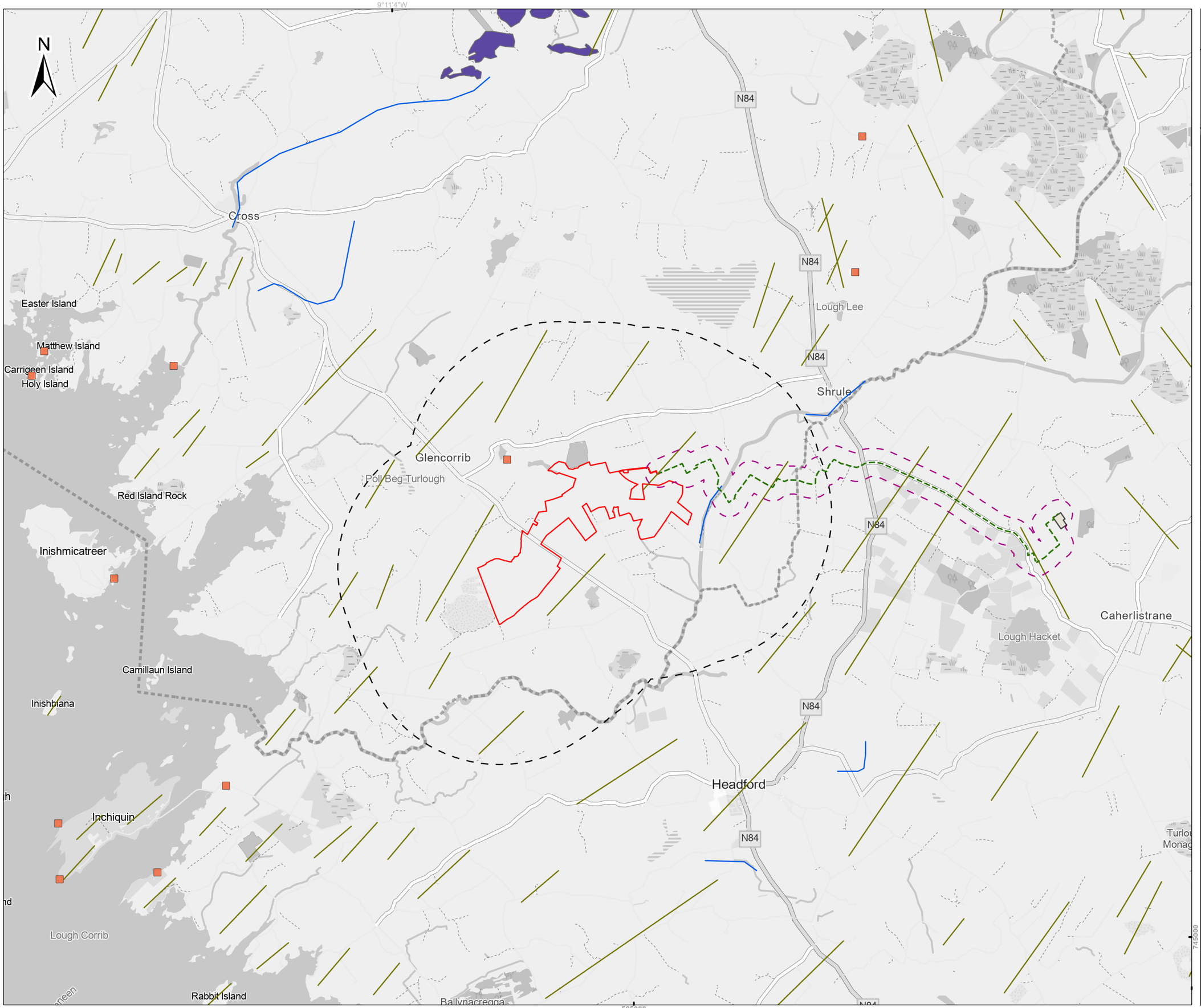
The proposed wind farm site is characterised by shallow glacial deposits (tills) overlying grey bioclastic limestones. Areas of shallow rock exposure are noted on site and create some local variations in the landscape. Areas of rock outcrop were avoided as part of the proposed wind farm design.

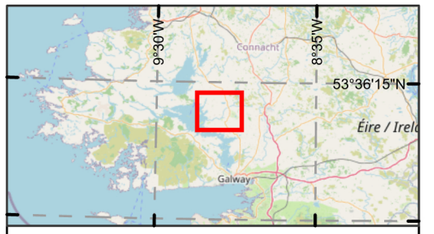
The site topography is undulating, with ground elevations ranging between approximately 30 m and 50 m above Ordnance Datum (aOD). Levels are lowest, at around 30 m, along the southern boundary, rising gradually towards the central portion of the site, where the highest elevations of approximately 50 m are recorded. From the centre, the ground falls again northward to about 30 m before gently rising once more towards the northern boundary, reaching heights of approximately 50 m. This results in a rolling terrain characterised by alternating low-lying and elevated areas.

The Black River is located to the south of the proposed wind farm between 10 and 20 m OD. The historical channelisation of the Black River altered the natural drainage and it is surface water, rather than groundwater that is now the controlling factor in present day flooding. The Black River and many of the tributaries were additional drained under the Corrib-Headford arterial drainage scheme.

Figure 8-3 illustrates the topography within the proposed wind farm site area. One meltwater landform was observed to the northeast, approximately 400 m east of T12. One subglacial lineation is mapped 200 m to the northwest of T13. These geological features are associated with glacial processes from the last ice age, shaped by the movement and melting of glacial ice. The meltwater landform likely represents channels or deposits formed by glacial meltwater, while the subglacial lineations indicate the direction of ice flow and underlying bedrock interactions. The proposed wind farm site is mapped as hill to rolling lowland bedrock.

To the southwest of the proposed wind farm site lies the Cloughmoyne Special Area of Conservation (SAC), which is of considerable conservation significance for its good quality limestone pavement, a rare and threatened habitat, and for the presence of two rare plant species. This is further discussed in Chapter 6 (Biodiversity).





Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer
- 110kV Substation
- Proposed Grid Connection Route

Geomorphology

- Subglacial Lineation Straiae
- Subglacial Lineation Large
- Meltwater Landforms
- Deglacial Landforms

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	02/10/2026	First issue	K.K	J.S

Client: ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-3:
Geomorphology of the wind farm and GCR

Scale @ A3: 1:50,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

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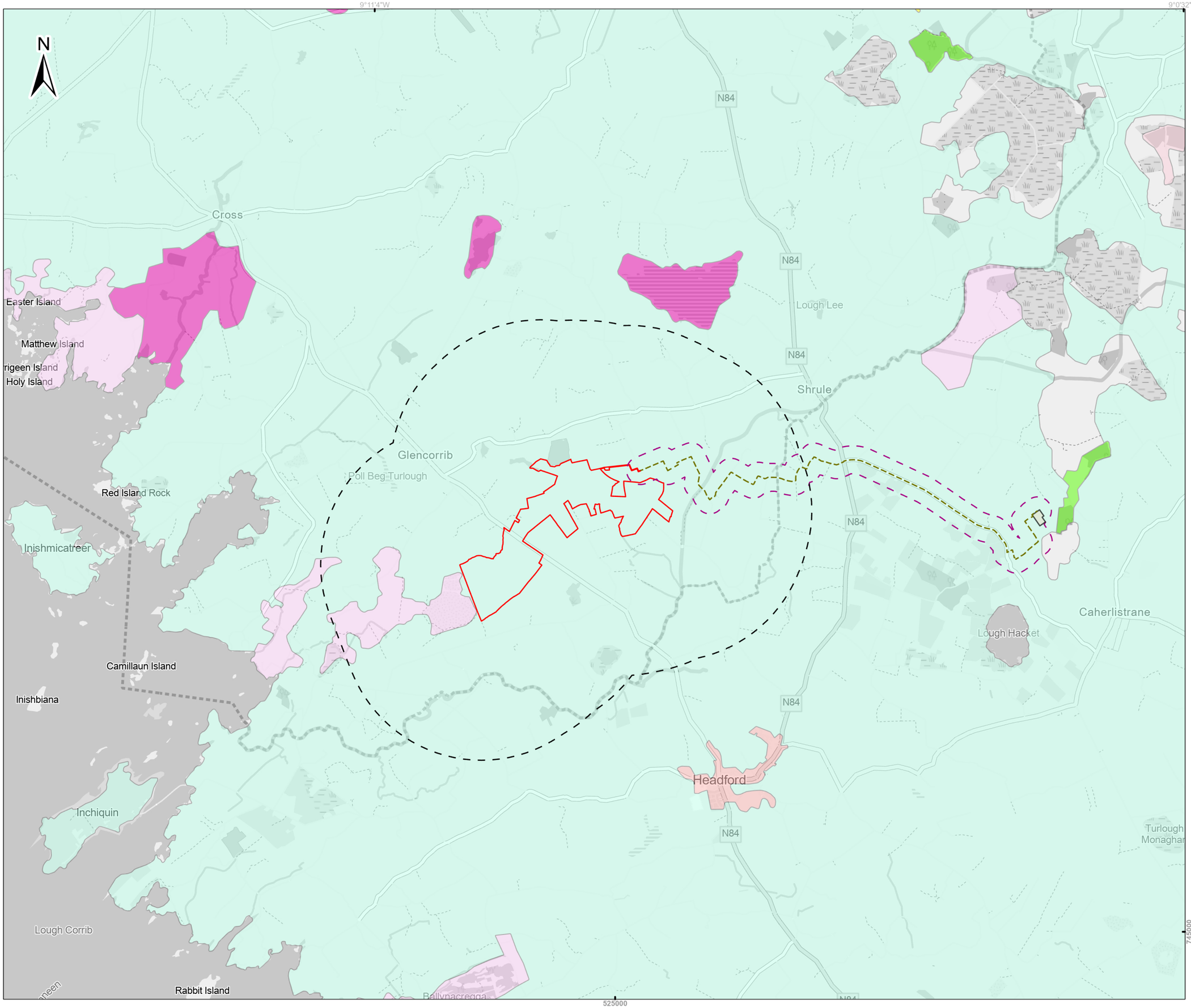
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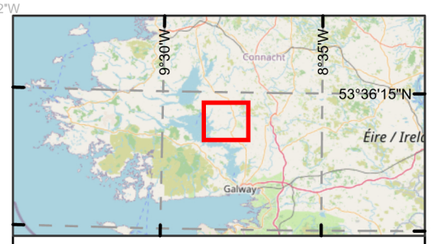
Proposed GCR & nodes on the proposed TDR

The proposed GCR traverses an area mapped as drumlin terrain. A drumlin is a streamlined, elongated hill formed by glacial activity on unconsolidated till. The geomorphology of the TDR comprises terrain shown on the GSI's physiographic mapping as bedrock streamlined plain, raised bog, drumlins and hill to rolling lowland rounded streamlined bedrock.

8.4.1.3 Land use

The proposed wind farm site spans 222 hectares (ha) and is entirely composed of pastures (see Figure 8-4) within privately owned lands. The proposed wind farm site is directly surrounded by mapped pastures and land principally occupied by agriculture, with significant areas of natural vegetation to the southeast of the proposed wind farm site boundary. No peat was mapped within the proposed wind farm site. Shallow peaty soil is present on part of the proposed 110 kV substation site. The study area also consists of pastures and land principally occupied by agriculture.





Legend

- Proposed wind farm site boundary
- Wind farm site study area
- Proposed Grid Connection Route
- 110kV Substation
- GCR 200m Buffer

Corine Land Cover 2018

- Broad-leaved forest
- Coniferous forest
- Discontinuous urban fabric
- Inland marshes
- Land principally occupied by agriculture, with significant areas of natural vegetation
- Pastures
- Transitional woodland-shrub

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	02/10/2026	First issue	K.K	J.S

Client: ROOAUNALAGHTA Green Energy

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Figure 8-4:
Land use categories mapped within the proposed project study area.

Scale @ A3: 1:50,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

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Proposed GCR and nodes on the proposed TDR

The GCR follows existing road infrastructure and traverses areas predominantly comprising of land primarily used for agricultural purposes and pastures. The TDR nodes require only very minimal works within the road corridor including one location where a small corner of a footpath need to be temporarily modified and hedge trimming / tree pruning and temporary demounting of signage at other locations along the route as described in Section 2.6.13 of Chapter 2.

8.4.1.4 Soils and Subsoils

According to the Teagasc/EPA Soils Data maps (www.gsi.ie), the proposed project area is predominantly characterised by shallow well-drained mineral soil and deep well drained mineral soil, derived from mainly basic parent materials (see Figure 8-5). The proposed wind farm site is comprised of three distinct soil types, which include:

- BminDW; a deep well-drained mineral soil derived from mainly basic parent materials
- BminSW; shallow well drained mineral soil derived from mainly basic parent materials
- BminPD; a poorly drained mineral soil derived from mainly basic parent material is noted at the north of the site

General information on the Quaternary geology was obtained from the GSI online maps and database, which provide subsoil data from the Teagasc/EPA soil and subsoil mapping project. Subsoils, which form the layer immediately beneath the surface soil or topsoil, consist mainly of bedrock at surface, with a central strip of glacial till, covering a central portion of the proposed wind farm site (see Figure 8-6).

Based on the desk study, no peat was identified on the proposed wind farm site, and this finding was confirmed by site investigation data which follows the text of this chapter in Appendix 2-5.

9°11'4"W

N

N84

Cross

Easter Island

Matthew Island

Carrigeen Island

Holy Island

Lough Lee

Shrule

Glencorrib

Poll Beg Turlough

Red Island Rock

Inishmicatreer

Camillaun Island

Inishbiana

Inchiquin

Lough Corrib

Rabbit Island

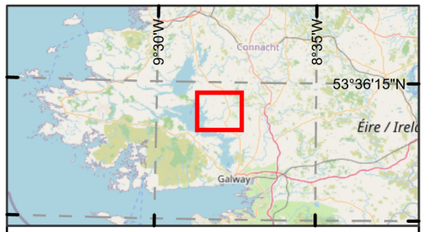
Headford

Caherlistrane

Lough Hacket

525000

7415000



Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer

Infrastructure

- Proposed Grid Connection Route
- 110kV Substation

Soils

- AeoUND - Aeolian Undifferentiated
- AlluvMIN - Mineral alluvium
- AlluvMRL - Marl type soils
- AlluvUND - Alluvium undifferentiated
- AminDW - Acid Brown Earths / Brown Podzolics
- AminPD - Surface water Gleys / Ground water Gleys Acidic
- AminPDPT - Peaty Gleys Acidic
- AminSP - Surface water Gleys / Ground water Gleys Shallow
- AminSPPT - Peaty Gleys Shallow
- AminSRPT - Podzols Peaty
- AminSW - Lithosols / Regosols
- BktPt - Blanket peat
- BminDW - Grey Brown Podzolics / Brown Earths Basic
- BminPD - Surface water Gleys / Ground water Gleys Basic
- BminPDPT - Peaty Gleys Basic Parent Materials Basic
- BminSP - Surface water Gleys / Ground water Gleys Shallow
- BminSPPT - Peaty Gleys Shallow
- BminSRPT - Lithosols Peats
- BminSW - Renzinas / Lithosols
- Cut - Raised Bog cutaway/ cutover
- FenPT - Fen peat
- Lac
- Made
- MarSands
- MarSed
- RsPt - Raised bog
- Scree
- Reed Swamp / Marsh
- Water

0 1 2
Kilometers

Spatial Reference
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Title:

Figure 8-5:
Soil categories in the study area

Scale @ A3: 1:50,000

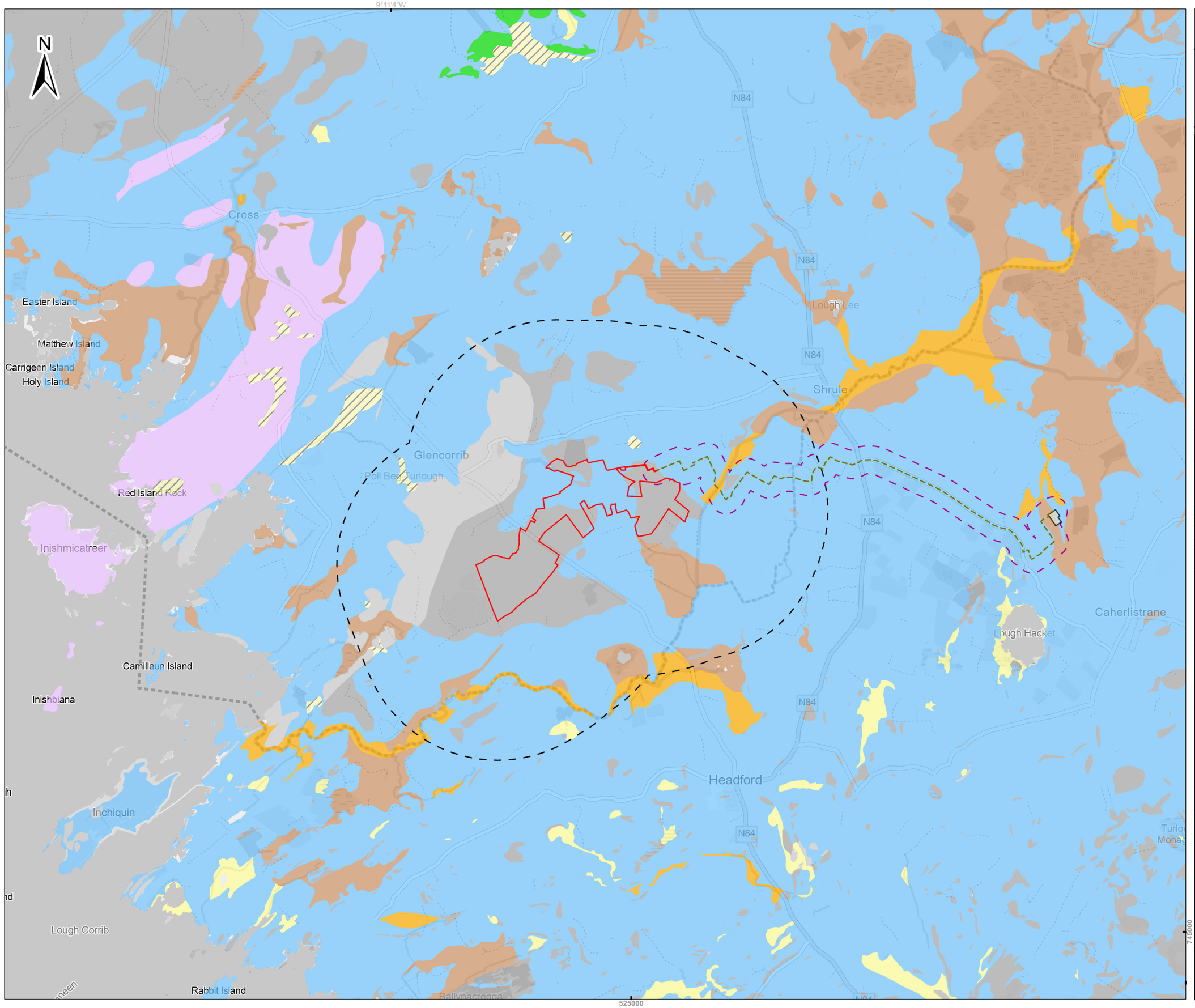
Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

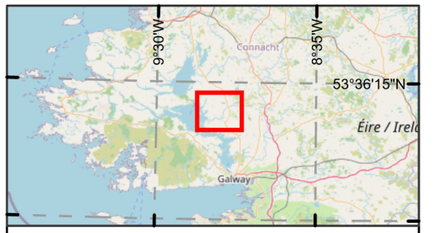
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Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer

Infrastructure

- Proposed Grid Connection Route
- 110kV Offsite Substation

Subsoils

- A, Alluvium
- BktPt, Blanket Peat
- Cut, Cut over raised peat
- FenPt, Fen Peat
- GLs, Gravels derived from Limestones
- KaRck, Kartsified bedrock outcrop or subcrop
- L, Lacustrine sediments
- Mrl, Lake marl
- Rck, Bedrock outcrop or subcrop
- TLPSsS, Till derived from Lower Palaeozoic sandstones and shales
- TLs, Till derived from limestones
- Water

0 1 2
Kilometers

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Figure 8-6:
Subsoil categories in the study area

Scale @ A3: 1:50,000

Prepared by: K.Kale
Checked by: J.Staunton
Date: October 2026

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Proposed GCR and nodes on the proposed TDR

The GCR generally follows existing road infrastructure and traverses soils classified as BminSW and BminDW. These represent well drained, mainly basic, mineral soils, typically derived from glacial till and commonly found in agricultural settings. A small portion of the GCR traverses soils classified as mineral alluvium (AlluvMIN), near the Black (Shrule)_010 river waterbody. Areas of peaty soils are mapped at the proposed 110 kV substation site.

The TDR nodes comprise of limited works located in the road corridor. No peat is present at the various nodes.

8.4.1.5 Bedrock Geology

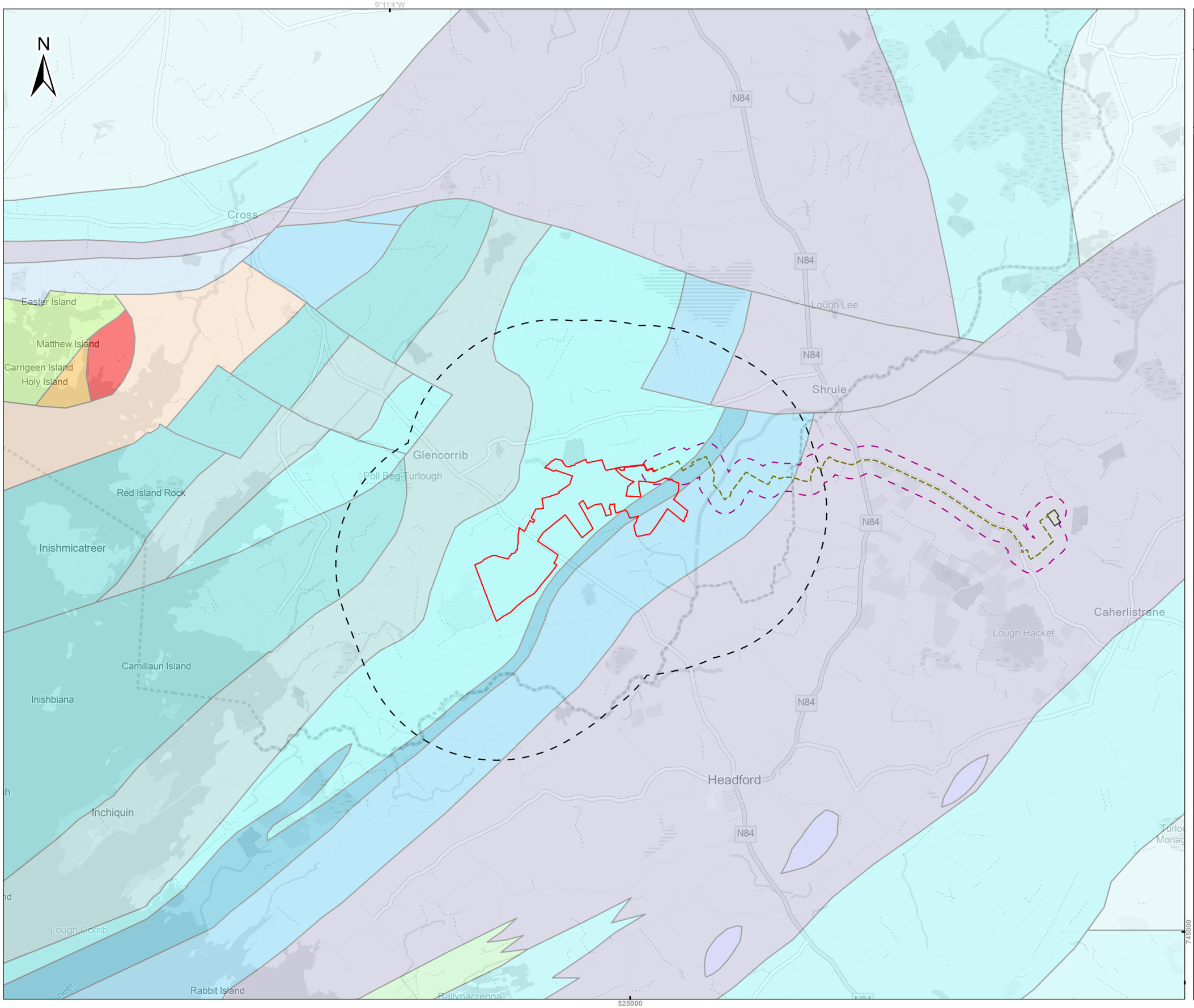
The bedrock geology information was sourced from the Geology of South Mayo Sheet No. 11 (1:100,000) and accompanying booklet, published by GSI.

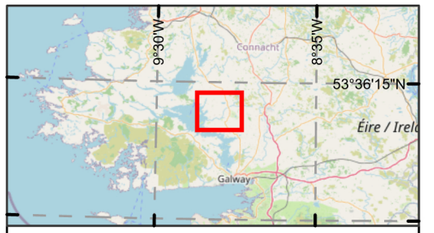
The proposed wind farm site is primarily underlain by the Oakport Limestone Formation, consisting of grey bioclastic limestone (Table 8-5). Towards the northeast portion of the proposed wind farm site, lies a formation of northeast-southwest trending dark, fine limestone and calcareous shale of the Oldchapel Limestone Formation along with a formation of northeast-southwest trending Illaunagappul Formation, consisting of limestone with thin shale partings (see Figure 8-7).

There are no mapped faults within the proposed wind farm site. The nearest fault is mapped approximately 1.2 km north of T13. This fault is predominantly oriented in an east-west direction. Exposures within the disused quarry confirms the presence of shallow competent limestone consistent with project site investigation findings.

Table 8-5: Bedrock formations underlying the proposed wind farm site

Formation	Location	Lithology
Oakport Limestone Formation	Dominant lithology throughout the site.	Dark crinoidal calcarenites and shales – site investigation information indicates Very strong locally strong thinly bedded grey bioclastic fine and coarse grained LIMESTONE.
Old Chapel Limestone Formation	Dominant lithology towards the northeast of the site.	It comprises bioclastic calcarenites with a relative abundance of macrofauna of brachiopods and corals. Chert nodules occur throughout but are more common in the middle of the formation
Illaunagappul Formation	Dominant lithology at the northeast corner of the site.	The formation consists of dark grey to black, fine-grained calcarenites (packstones with peloids).





Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer

Infrastructure

- Proposed Grid Connection Route
- 110kV Substation

Bedrock Geology

- Ardnasillagh Formation
- Aughnanure Oolite Formation
- Burren Formation
- Cong Canal Formation
- Cong Limestone Formation
- Coranellistrum Formation
- Illaunagappul Formation
- Knockmaa Formation
- Oakport Limestone Formation
- Oldchapel Limestone Formation
- Owenriff Member
- Waterfall Member
- Tonweeroe Formation
- Visean Limestones (undifferentiated
- Oughterard Granite
- Mudbank limestone
- Ben Levy Grit Formation
- Silurian (undifferentiated)

0 1 2
Kilometers

Spatial Reference
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Title:
Figure 8-7:
Bedrock geology of the study area

Scale @ A3: 1:50,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

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Proposed GCR and nodes on the proposed TDR

The GCR traverses a bedrock formation, which does not underlie the proposed wind farm site, the Ardnasillagh Formation, which is characterised by dark cherty limestone and thin shale. The bedrock formations listed in Table 8-5, are mapped at the start of the GCR, towards the proposed wind farm site.

Limited works are required to complete the TDR nodes (modification to a small area of footpath, vegetation trimming and temporary signage demounting) and therefore will not encounter bedrock.

8.4.1.6 Mineral/Aggregate Resources

The GSI online Aggregate Potential Mapping Database shows that the proposed wind farm site is located within an area mapped as being typically of high/very high potential for crushed rock aggregate. T11 and T13 are both located near a bedrock outcrop.

There is one active quarry mapped within 2 km of the proposed wind farm site. The Carrowoughteragh quarry is known locally as Lydon's quarry and is located approximately 200 m to the north of the proposed borrow pit (BP) 1 location. A number of active quarries are located approximately 10 km away including McGrath Quarry, Cong and Mortimers quarry in Belcare, Tuam.

Proposed GCR and nodes on the proposed TDR

The GCR traverses areas classified as generally having low to very high aggregate potential, according to available geological resource mapping.

The nodes for the TDR traverse areas classified as having low to high aggregate potential, according to available geological resource mapping.

8.4.1.7 Potential Contamination Sources

A review of the EPA website for both existing and historic licensed and illegal waste activities was carried out to identify any potential contamination sources present to identify any potential contaminating activities within the study area boundary. The desk study indicated that no waste licence facilities, illegal waste activities, and licensed Integrated Pollution Prevention Control (IPPC) sites were present within a 2 km radius of the proposed wind farm site. An inert C&D recovery facility is located at the Carrowoughteragh quarry to the north of the proposed wind farm site.

The proposed wind farm site is a greenfield area consisting of pastures. There is no evidence of land contamination.

There are no IE/IPC licenced sites within the proposed project study area.

8.4.1.8 Geohazards

Geohazards are geological and geomorphological conditions or processes that pose risks to human activity, infrastructure, and the environment. They include hazards such as landslides, subsidence, and karst features. For the purposes of this assessment, the focus is on geohazards related to karst and slope/peat stability, which are particularly relevant given the local geological context, while other potential geohazards (e.g. seismicity, coastal erosion) are not

considered significant due to the site's inland location, low seismicity of the region, and absence of coastal terrain.

Karst Features

The development of karstic landscapes occurs most frequently in very pure, well-fractured limestone, such as the Carboniferous limestone in Ireland, but can form in any carbonate rock susceptible to dissolution. Over 50% of Ireland is underlain by limestones which are subject to varying degrees of karstification.

The proposed wind farm site is underlain predominantly by grey/dark grey bedded limestone bedrock which has the potential to develop karst features through dissolution along joints, fractures and bedding planes. Karst features can include enclosed depressions (dolines), swallow holes, sinking streams, springs and subsurface solution features. Such features are relevant to development both because they can represent localised areas of ground instability and because some karst features can provide preferential pathways for the movement of groundwater and potential contaminants.

The proposed wind farm site does not contain any GSI mapped karst features (see Figure 8-8). According to the GSI karst database[8], the nearest mapped karst feature (sinking stream) is located approximately 325 m southeast of T12 (outside the boundary of the proposed wind farm site). GSI notes that this database is not exhaustive and that unmapped karst features may occur. Accordingly, the assessment of karst features at the proposed wind farm site has not relied solely on the GSI mapped karst dataset. The assessment has included review of historical and recent aerial photography, LiDAR and digital terrain data, targeted site walkovers, intrusive ground investigations (boreholes and trial pits) and geophysical investigation comprising Electrical Resistivity Tomography and seismic refraction. The site investigation was targeted at proposed infrastructure locations and confirmed generally shallow limestone bedrock, with localised weathered or partially karstified limestone. No open cavities or significant subsurface voids were encountered by the intrusive investigations or identified by the geophysical investigations at the proposed infrastructure locations.

A number of possible turloughs are identified in the surrounding area. Ballisnahyny Lake East, Ballisnahyny Lake West and Poolbeg lakes are located to the 0.4 to 1km north west and Rostaff Lake pNHA is located 1.5 km to the south of the proposed wind farm site. Rostaff lake is a permanent lake and does not dry out. Rostaff lake is therefore not a true turlough. The importance of Rostaff Turlough is primarily ornithological with nationally important numbers of Greenland white-fronted geese and shoveler (See Chapter 6). Ballisnahyny A and B to the west of the R334 were not classified as turloughs based on the O'Neill, F.H. & Martin, J.R. (2015)[9].

Four unmapped karst-like features were mapped using aerial photograph, lidar data and site walkovers in the wind farm study area. These karst features comprised two dolines (enclosed depressions) near T1, (57 m to the southeast and 120 m north of T1), one 700 m south of T3 and

[8] https://gsi.geodata.gov.ie/portal/apps/webappviewer/

[9] O'Neill, F.H. & Martin, J.R. (2015). Summary of findings from the Survey of Potential Turloughs 2015. Unpublished Report for National Parks & Wildlife Service. Volume I: Main Report.

another approximately 200 m to the west of the offsite proposed 110 kV substation. The karst features are further discussed with additional information provided in Appendix 8-1 Karst Protocol. While two doline like features are encountered near T1, rock quality is very good, with Rock Quality Designation (RQD) values generally 85-93% and total core recovery (TCR) ~100% - See Appendix 2-5.

No karst features were mapped by GSI within the boundary of the proposed GCR or nodes on the proposed TDR, nor were any found during site surveys.

Peat and Slope Stability

The GSI database provides information on locations, types, and frequencies of landslide events.

Following a review of the GSI Landslides Database, there are no landslide events recorded within the proposed project study area.

The GSI's landslide susceptibility mapping was used to assist in the identification of areas which are subject to landslides and is measured from low to high. The majority of the wind farm site has been identified to be generally low in landslide susceptibility. Towards the northeast of the proposed wind farm site the mapped landslide susceptibility increases from low to moderately low.

No evidence of peat has been identified within the proposed wind farm site, at the TDR nodes or along almost all of the GCR. Several areas of cut-over peat are mapped within the wider study area. One area is mapped approximately 200 m south of T11, and another area is mapped on part of the proposed 110 kV substation. Trial pit geotechnical logs note peaty topsoils were identified (TP14) at the proposed 110 kV substation footprint, with peat present to the south of the 110 kV substation at TP15.

9°11'4"W

N

N84

Cross

Easter Island

Matthew Island

Carrigeen Island

Holy Island

Lough Lee

Shrule

Glencorrib

Poll Bog

Turlough

Red Island Rock

Inishmicatreer

Camillaun Island

Inishbiana

Inchiquin

Lough Corrib

Rabbit Island

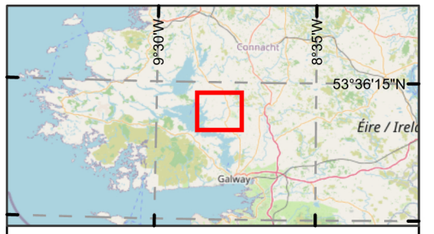
Headford

Caherlistrane

Lough Hacket

525000

745000



Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer

Infrastructure

- Proposed Grid Connection Route
- 110kV Substation

Landslide Susceptibility

- Low
- Low (inferred)
- Moderately Low
- Moderately High
- Water

KARST

- CAVE
- ENCLOSED DEPRESSION
- SPRING
- SWALLOW HOLE
- TURLOUGH

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
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Client: ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-8:
Geohazard proximity to the proposed project study area

Scale @ A3: 1:50,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

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8.4.2 Field Surveys

8.4.2.1 Site Investigation

Five site walkovers were also conducted in May 2025, November 2025, February 2026, April 2026 and July 2026 to assess the overall ground conditions at the proposed wind farm site. A karst walkover assessment is a desk-study verification exercise carried out to identify surface evidence of karstification, assess potential geohazards, and refine the conceptual ground model and inform intrusive investigations or design.

The Site Investigation (SI) methodology is described in Section 8.3. The Site Investigation results are summarised in Table 8-6, and the investigation locations are shown in Figure 8-8. The site investigation targeted proposed infrastructure areas to identify soil/bedrock conditions and assess if any karst is present.

No peat material was encountered during the site walkovers or during site investigation works on the wind farm site. A thin layer of peaty topsoils (up to 0.4 m thick), was observed at TP-14, at the proposed 110 kV substation. The land at the proposed 110 kV substation site is flat, drained and in intensive agricultural production. Additional peat probing in July 2026 at the proposed 110 kV substation building encountered 0.3m of peaty topsoil. Generally, the soils encountered during the site investigation works were as expected for this region, and predominantly consisted of topsoil overlying glacial tills, overlying bedrock.

The pits were excavated to depths ranging from 0.60m to 2.90m below ground level. Topsoil consisting predominantly of firm brown gravelly silt with frequent cobbles to firm brown silt to soft brown peaty silt (TP-14 & TP-15) was encountered in the trial pits at depths ranging from 0.15 m to 0.5 m depth. The glacial till like soils in general consisted of gravelly silt to sandy gravel to coarse sand and gravel to gravelly sandy silt with occasional to frequent cobbles and boulders. All trial pits were dry during excavations. Depth to bedrock is approximately 2m on average across the site.

Intact bedrock was encountered in the rotary core boreholes at depths ranging from 1.10 mbgl to 4.9 mbgl. The bedrock is generally described as very strong, locally strong, thinly bedded, grey, slightly bioclastic, fine- and coarse-grained Limestone with subvertical and horizontal white calcitic veinlets.

For detailed descriptions of the ground conditions encountered please refer to the geotechnical logs which are included with this report in Appendix 2-5.

Additionally, the investigations assessed soil composition, bedrock depth, groundwater conditions, and potential subsurface instability. Table 8-6 summarises the SI data findings.

Soil samples were collected during the SI works, with samples submitted for geotechnical analysis including moisture content, Atterberg testing, particle size distribution and point load testing. These tests provided essential data on soil properties, ensuring compliance with engineering standards for the proposed project. The laboratory testing results can be located in Appendix 2-5.

The geophysical surveys carried out at the proposed wind farm site consisted of 2D-Resistivity (ERT) and Seismic Refraction (p-wave). There was a strong correlation between both geophysical survey methods, and a combined interpretation has been made using both methods. The data was modelled with 3 layers based on the 2D-Resistivity and seismic velocities. Layer 1

is interpreted as soft or loose soil and the thickness of this layer across the site is up to 2 m. Limited areas of karstified/weathered limestone were found at a number of the geophysical survey locations.

Results indicate that most turbine locations are underlain by competent limestone at shallow depths of approximately 1-2 m below ground. Areas of partial karstified or weathered limestone were identified at T2, T6 - T10 and the proposed 110 kV substation.

The geophysical survey and intrusive investigation indicate that the area around BH8 has good potential as a borrow pit. BH08 encountered glacial till, underlain by weathered limestone and then strong to very strong limestone bedrock from about 4 m depth. The geophysical survey confirms a consistent subsurface profile comprising a thin soil layer, weathered limestone and underlying good quality limestone, with no evidence of karstification. Rock quality is generally high, with strong point-load strengths and good rock quality designation values, suggesting the limestone would be suitable for producing rock fill, engineered fill and crushed aggregate for wind farm construction.

Three boreholes were finished as groundwater monitoring wells. BH-01 was completed with a PVC slotted screen from 2.3 m to 6.3 m below ground level. BH-05 was completed with a PVC slotted screen from 3.5 m to 6.4 m below ground level and BH-07 was completed with a similar slotted screen from 7.0 m to 10.2 m below ground level. BH-05 was partially blocked and therefore a datalogger could not be installed. Water levels in BH-05 were recorded in November 2025 and July 2026. Damage was caused to BH-01 in July 2026 and the logger was removed.

Based on the borehole data the subsoils comprise silty to gravelly till derived from limestones. As detailed in Table 8-6 the proposed wind farm site is underlain by weathered limestone bedrock and strong to very strong thinly bedded grey bioclastic fine-grained and coarse-grained LIMESTONE. Weathered zones are typically confined to the top 2-3 m. No record of cavities was encountered during the drilling – see Appendix 2-5.

Geological mapping and data from GSI suggest that the underlying bedrock is of similar composition to that at our borehole locations. The overlying soil cover is shallow, and its removal is expected to have minimal environmental impact. Overall, the bedrock is deemed a viable source of suitable aggregate for on-site construction needs.

Table 8-6: Ground Investigation Results Summary

Proposed Turbine (Trial Pit No./Borehole No.)	Depth (m)	Ground Profile	Comments
Borrow Pit – (BH-08)	0.0 – 4.0	SILT and GRAVEL	Sandy SILT topsoil overlying limestone GRAVEL with cobbles.
	4.0– 6.5	LIMESTONE	Very strong locally strong thinly bedded grey slightly bioclastic fine- and coarse-grained LIMESTONE.

Proposed Turbine (Trial Pit No./Borehole No.)	Depth (m)	Ground Profile	Comments
Off-site Sub-Station – (TP-14 & TP-15)	0.0 – 0.2	TOPSOIL	Grass over soft brown peaty SILT.
	0.2 – 0.4	Peaty Topsoil	Soft black, slightly sandy slightly gravelly PEAT.
	0.4 – 1.6	GRAVELLY SILT	Soft grey, brown slightly sandy slightly gravelly SILT with occasional cobbles.
	1.6 – 1.9	SILTY SAND & GRAVEL	Grey silty sandy angular to subangular fine to coarse GRAVEL with frequent cobbles.
T1 (TP-01 & BH01)	0.0 – 2.1	OVERBURDEN	Sandy SILT topsoil overlying limestone GRAVEL with cobbles.
	2.1– 6.3	LIMESTONE	Very strong locally strong thinly bedded grey slightly bioclastic fine- and coarse-grained LIMESTONE with vertical and subvertical white calcitic veinlets.
T2 (TP-02)	0.0 – 0.4	TOPSOIL	Grass over firm brown SILT.
	0.4 – 1.5	GRAVELLY SILT	Soft grey, brown slightly sandy gravelly SILT with occasional cobbles. Gravel is angular to subangular fine to coarse. Cobbles are angular to subangular
T3 (TP-03)	0.0- 0.2	TOPSOIL	Grass over firm brown SILT.
	0.2 – 1.9	SANDY GRAVEL	Greyish brown silty very sandy subrounded to subangular fine to coarse GRAVEL with occasional cobbles and occasional boulders

Proposed Turbine (Trial Pit No./Borehole No.)	Depth (m)	Ground Profile	Comments
	1.9 – 2.3	GRAVEL	Grey silty subrounded to subangular fine to coarse GRAVEL with occasional cobbles and occasional boulders. Cobbles are subangular to rounded
T4 (TP-04 & BH-02)	0.0 – 1.1	OVERBURDEN	Sandy SILT to weathered LIMESTONE
	1.1 – 6.2	LIMESTONE	Very strong locally strong thinly bedded grey slightly bioclastic fine- and coarse-grained LIMESTONE.
T5 (TP-05)	0.0– 0.45	TOPSOIL	Grass over firm brown gravelly SILT with frequent cobbles.
	0.45 – 0.8	GRAVEL	Grey, brown silty very sandy angular to subangular fine to coarse GRAVEL with frequent cobbles and occasional boulders
	0.8 – 1.4	BOULDERS	Large limestone BOULDERS
T6 (TP-06)	0.0 – 0.35	TOPSOIL	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to subrounded fine to coarse
	0.35-2.35	SANDY SILT	Firm grey slightly gravelly sandy SILT with frequent cobbles. Gravel is angular to subangular fine to coarse. Cobbles are subrounded
T7(TP-07 & BH-06)	0.0 – 3.1	OVERBURDEN	Subangular fine to coarse assorted grey limestone GRAVEL overlying weathered LIMESTONE

Proposed Turbine (Trial Pit No./Borehole No.)	Depth (m)	Ground Profile	Comments
	3.1 – 6.4	LIMESTONE	Very strong locally strong thinly bedded grey bioclastic fine and medium grained LIMESTONE.
T8 (TP-09)	0.0 – 0.5	TOPSOIL	TOPSOIL: Grass over firm brown gravelly SILT with frequent cobbles. Gravel is angular to subangular fine to coarse.
	0.5 – 1.7	SILTY SAND	Grey silty coarse SAND and angular to subangular fine to coarse GRAVEL with frequent cobbles and frequent boulders.
T9 (TP-08 & BH-03)	0.0 – 4.9	OVERBURDEN	Subangular fine to coarse assorted grey limestone GRAVEL overlying weathered LIMESTONE from 2.9 m
	4.9– 7.8	LIMESTONE	Very strong locally strong thinly bedded grey bioclastic fine- and coarse-grained LIMESTONE.
T10 (TP-010 & BH-04)	0.0 – 4.1	GRAVEL	Subangular fine to coarse assorted dark grey and grey limestone GRAVEL with cobbles and a little orangish brown slightly sandy clay. Sand is fine. Cobbles are of assorted grey limestone
	4.1 – 5.0	WEATHERED ROCK	Very strong locally strong thinly bedded light grey coarse-grained limestone recovered as boulder sized clasts with minor surficial orangish brown iron stain.
	5.0 – 6.3	WEATHERED ROCK	Weathered rock. Very strong grey coarse-grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with some greenish orangish brown speckled white silty fine and medium sand.

Proposed Turbine (Trial Pit No./Borehole No.)	Depth (m)	Ground Profile	Comments
	6.3 – 7.3	WEATHERED ROCK	Very strong locally strong thinly bedded light grey coarse-grained limestone recovered as boulder sized clasts with minor surficial orangish brown iron stain.
T11 (TP-11)	0.0 – 0.3	TOPSOIL	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is angular to subangular fine to coarse.
	0.3 – 0.7	GRAVEL	Grey slightly silty sandy subangular to subrounded fine to coarse GRAVEL with frequent cobbles.
T12 (TP-12)	0.0 – 0.35	TOPSOIL	Grass over firm brown SILT with frequent cobbles and frequent boulders. Cobbles are subangular to subrounded of limestone
	0.35 – 0.8	GRAVELLY SILT	Firm brown slightly sandy gravelly SILT with frequent cobbles and occasional boulders. Cobbles are angular. Boulders are angular of limestone.
T13 (TP-13 & BH-05)	0.0 – 2.7	OVERBURDEN	Sandy SILT overlying Limestone GRAVEL
	2.7 – 6.4	LIMESTONE	Very strong locally strong thinly bedded grey bioclastic fine- and coarse-grained LIMESTONE

9°11'4"W

N

N84

Cregg Plantation

Black River

Togher River

Shrule

Black River

Shrulegreve

Glencorrib

Poll Beg Turlough

BH7

BH13

BH8

BH10

BH4

BH2

Moyne Cemetery

Black River

N84

Knockbroone National School

Lough Hacket

Caherlis

Donaghpatrick Cemetery

Headford GAA

Headford

Caislean Laighean Deerpark Woods

Scoil Naomh Fursa

525000



Legend

- Proposed wind farm site boundary
- Wind farm site study area
- GCR 200m Buffer

Infrastructure

- 110kV Substation
- Proposed Grid Connection Route

Site Investigation

- Borehole : Substation
- TP: Proposed Wind Farm
- TP : Substation

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Rev	Date	Description	By	Chkd.
A	02/10/2026	First issue	K.K	J.S

Client: ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-9:
SI Locations at proposed wind farm site

Scale @ A3:	1:35,000	
Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

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Map Ref: 11981-014-SID-S.BO-TOB-A

Draft: A

8.4.2.2 Laboratory Test Results

Representative soil and rock samples recovered from boreholes and trial pits were submitted for laboratory analysis according to schedules prepared by Irish Drilling Limited. Bulk disturbed soil samples underwent a range of tests, including moisture content (15 samples), Atterberg limits (5 samples) and particle size distribution (9 samples). Rock core samples were tested for point load strength (15 samples). The majority of these analyses were conducted at the IDL Laboratory, Loughrea, County Galway, with specialist tests performed on a subcontract basis by designated laboratories as required. Table 8-7 summarises the soil classification laboratory analysis (where multiple entries for individual trial pits represent samples collected at different depths). The complete suite of laboratory test results, including all soil and rock analysis data referenced above, is provided in full in Appendix 2-5 for comprehensive review and reference.

Table 8-7: Ground Investigation Laboratory Classification Results Summary.

Trial pit ID	Sample depth range(m)		Moisture content (%)	Passing 425µm (%)
TP-01	1.3	1.5	7.9	21.0
TP-02	0.4	0.6	10.0	51.0
TP-03	1.3	1.5	9.7	16
TP-04	0.3	0.5	15	
TP-05	0.6	0.8	10	27
TP-06	1.6	1.8	8.8	57
TP-07	0.6	0.8	8.9	33
TP-08	2.6	2.8	5.9	31
TP-09	1.5	1.7	7.4	30
TP-10	0.5	0.7	11	
TP-10	2.4	2.6	7.9	32
TP-12	0.4	0.6	16	
TP-14	0.5	0.7	46	82
TP-15	0.7	0.9	31	80
TP-15	1.7	1.9	8.8	27

8.4.3 Receptor Sensitivity

Section 8.3.4 presents the sensitivity criteria of the receiving land, soils and geology environment in terms of the proposed project and identifies receptors which will be carried forward into the assessment. As detailed in Section 8.3, potentially sensitive receptors include the land use, soils, aggregate reserves, geological heritage sites, and geohazards.

The sensitivity of the existing subsoils and geology were assessed as not economically important and do not have other geological or geomorphological attributes that are of significance on a national scale. The soils present within the proposed wind farm site are classified as being of low to medium sensitivity on a local scale.

There is no peat present within the proposed wind farm site boundary. The proposed design has avoided areas of limestone pavement. No karst features were identified in the proposed footprint. Although karst features occur locally within the study area, no features were identified within proposed infrastructure footprints and intrusive/geophysical investigations did not identify significant cavities or voids. The geological hazards are therefore of low-medium sensitivity. No contamination was identified across the proposed wind farm site, and it is therefore considered as low sensitivity. The primary risks to soils arise from potential hydrocarbon spillage and leakages.

The bedrock is mapped as having high aggregate potential, however there are no active extractive operations, permitted reserves or identified strategic mineral resources within the proposed wind farm footprint. Accordingly, the receptor sensitivity is considered low. The borrow pit is not being developed to develop a mineral resource but rather to provide a sustainable on-site source of construction aggregate. Only the required volume of aggregate for the construction will be used.

There are no geological heritage sites or active quarries/aggregate sites identified within the proposed wind farm site. The geological heritage is therefore of low sensitivity. Based on the review of the existing environment there are no peat stability issues on the proposed wind farm site, the GCR or the proposed 110 kV substation site. Karst features occur locally within the study area, however no identified karst feature occurs within the proposed infrastructure footprint and no significant cavities or voids were identified by the intrusive or geophysical investigations.

8.5 Assessment of Effects

The effects of the proposed project on Land, Soils and Geology are discussed and assessed in the following sections. The 'do-nothing/future baseline' scenario is reviewed, and likely significant effects are assessed for three stages of the proposed project life cycle (i.e., construction, operation, and decommissioning) in addition to the cumulative scenario.

The proposed nodes on the TDR works are limited to minor hedgerow removal, temporary street furniture removal and the hardcore strengthening on a roundabout. Given the limited scale and extent of these works, the absence of significant earthworks, structures or alterations to the wider road network, the potential for significant effects on land, soils and geology is considered negligible. Accordingly, a detailed assessment of these receptors has been screened out.

8.5.1 Embedded Mitigation

Through the development of the proposed project, measures have been adopted as part of the evolution of the design to avoid or reduce adverse effects on the environment. These measures are referred to as 'embedded mitigation' and are effectively built into the impact assessment. Embedded mitigation relevant to land, soils and geology is set out below. These measures are inherent to the project and include the following:

- Hazardous substances (fuel, oils, chemicals) will be stored in bunded areas (110% capacity) with impermeable bases;
- Hydrocarbon interceptors will be installed at construction compounds and proposed 110 kV substation;
- Trenchless techniques will be used at major watercourse and infrastructure crossings to minimise disturbance;
- Topsoil & subsoil will be stored separately (max. 3 m height), protected from contamination, and handled in dry conditions;
- Borrow pit used for onsite aggregate, reducing external imports; and,
- Extensive site investigation work has been undertaken at the preliminary design stage to apply risk avoidance by design i.e. karst features.
- All mapped dolines and identified karst features have been avoided by infrastructure siting.

The contractor's compound will incorporate a bund for the storage of small items of plant and oil filled equipment, such as hand portable generators, pumps, etc. The storage of small volumes of oils or chemicals, in barrels, Intermediate bulk containers (IBCs), etc, will be confined to a covered bunded area. Where barrels or other containers are required at work locations these will be stored in enclosed bunded cabinets, and drip trays will be used where distribution of the material is required.

The main storage areas for oil filled equipment, vehicles, plant, etc, will be on an impermeable surface and the discharge of surface water from these areas will be via oil interceptors. An oil spill response plan will be developed for the construction works and appropriate containment equipment will be available at work locations in the event of a spillage. Oil spill response will form part of the induction and training of site personnel.

A physical barrier will be implemented between the excavations and the potentially unstable material at unstable conditions, in the form of a granular berm or sheet piles. The long-term stability of the area around the wind turbine foundations will be achieved by filling the area back up to existing ground level following installation of the foundation.

8.5.2 Future Baseline Scenario

In order to inform the assessment of the future baseline, a review was undertaken of the current local and national policies (Mayo County Council – County development plan 2022-2028, Galway County Council – County development plan 2022-2028, Common Agricultural Policy and the National Development Plan 2021-2030. The National Development Plan 2021-2030 and the Forestry Programme 2023-2027 outline the policy and investment needed to increase forestry cover. Investment is being provided to support the objectives of the National Biodiversity Action Plan 2023-2030, including measures to combat the spread of invasive alien species, implement Local Biodiversity Action Plans and invest in Agri-environment schemes, such as Agri-Climate Rural Environment Scheme (ACRES) under Ireland's CAP Strategic Plan.

Existing agricultural areas would continue to operate as agricultural land use with an increase in agricultural output and continual drainage depending on local circumstances.

Agricultural management would also be expected to continue as per current practices in the short to medium term. No significant effects are predicted to the land, soils and geology conditions based on a future baseline scenario.

No significant effects to the existing land, soils and geology conditions are predicted along both GCR and on the nodes on the proposed TDR based on a future baseline scenario. Agricultural activity and forestry management (along the proposed GCR and on the nodes on the proposed TDR) will be maintained in accordance with current management in the short to medium term. No significant effects on land, soils or geology are predicted, resulting in a neutral effect (not significant).

8.5.3 Likely Significant Effects - Construction

The direct and indirect likely significant effects of the construction activities on land, soils and geology are assessed further in the following sections. This section presents an assessment in the absence of any mitigation measures, with the exception of embedded mitigation that has been incorporated into the design (e.g. avoiding sensitive karst features through the siting of the proposed project during the scoping and initial assessment). Measures have been proposed in Section 8.6 to reduce or mitigate any likely significant effects, and the residual effects after the application of mitigation measures are reported in Section 8.7. Standard best practice measures outlined in the CEMP (Appendix 2-2) and SuDS Manual[10] are not classified as project-specific embedded mitigation. Best practice measures, including those outlined in the CEMP, are not detailed in section 8.6. Any further residual effects are addressed in Section 8.7.

8.5.3.1 Effects on Geological Heritage Sites

While the site is located within the Joyce Country Geopark, there are no geological heritage sites within the proposed project study area. No Geological Heritage Sites are located within the

[10] CIRIA SuDS Manual (C753) ISBN: 978-0-86017-759-3

proposed development footprint or immediate study area, although Lough Corrib CGS occurs approximately 2.9 km west of the site. No direct or indirect effects were identified on Geological Heritage Sites including Lough Corrib CGS.

Proposed GCR/110 kV substation

There are no geological heritage areas on the proposed GCR/110 kV substation. No potential direct or indirect effects were identified on Geological Heritage Sites along the Proposed GCR/110 kV substation as a result of the proposed project.

8.5.3.2 Effects on Land Use

The proposed wind farm site is primarily covered by agricultural lands, with a network of existing tracks supporting current farming activities. The main effect of the proposed project on land use will be the loss of agricultural land.

The proposed project will result in some areas having a both a permanent and temporary (relating to temporary infrastructure) loss in land use, with 13.7 hectares (<7% of the proposed wind farm site) utilised during the construction phase. The permanent footprint including the 110 kV substation is approximately 13 ha. The land uses within the proposed wind farm site and 110 kV substation are not economically significant and lack notable geological or geomorphological features. Therefore, the importance and sensitivity of the land use are considered low and the magnitude of impact is low. Consequently, the effect of the proposed project on land use change is deemed not significant, adverse, certain, and both temporary and permanent (for different areas).

No proposed works are located within the limestone pavement which is a qualifying interest at Cloughmoyne SAC (located to the southwest of the proposed wind farm site) and therefore no direct disturbance effects will occur there (see chapter 6 and chapter 9 for further discussion relating to designated sites). Due to the distance from the proposed infrastructure to the Cloughmoyne SAC, there are no likely significant effects on the limestone pavement relating to vibration – See Chapter 12.

No indirect effects on land use are anticipated as a result of the proposed project.

Proposed GCR/110 kV substation

The proposed GCR is predominantly in the existing road corridor and where the proposed GCR does leave the public road corridor, it maximises the use of existing farm tracks. The GCR land use is mainly local roads with a small section of off-road agricultural land. The land use for the proposed GCR is therefore classified as a low sensitivity receptor as they are predominantly within the road network and off-road agricultural land. The land in the proposed GCR is localised, not economically important and does not have other geological or geomorphological attributes that are of significance. Hence, the importance/sensitivity of the land use is considered to be low. The magnitude of impact is low due to lack of land use change. Therefore, given the low sensitivity and the low magnitude rating, the effect on land use due to the construction of the GCR is considered not significant, adverse, certain, and permanent.

8.5.3.3 Effects on Potential for contamination

No contaminated sites were identified in the study area for the proposed project. The soils and subsoils comprise low-sensitivity receptors, consisting of mineral soils (e.g., shallow, well drained mineral soils overlying limestone bedrock) or geological designations. The sensitivity of

the soils and subsoils is low, and the magnitude of impact is negligible. Pre-mitigation effects are therefore considered to be imperceptible (not significant).

Construction machinery and equipment contain various vehicle fluids/oils and fuels (hydrocarbons) which have the potential to contaminate the site through leaks and/or spills. The components of the proposed project (including turbines, access tracks, onsite control room, 110 kV substation , wind monitoring LiDAR, borrow pit and construction compound) will be excavated and moved using excavators, wheeled dumpers, HGVs and bulldozers. Fuel will be required to supply the required machinery and will be stored at the construction compounds. Potential leaks or spills from construction activities within the proposed wind farm site have the potential to pollute the soils and geology environment. Due to the presence of shallow bedrock and greenfield soils the sensitivity of soils and subsoils to machinery and equipment related contamination is medium. The magnitude of effect from hydrocarbon leaks/spills is low due to the design/control measures and limited quantities on site. Pre-mitigation effects are therefore considered to be slight, localised and short term, not significant on the potential for contamination of soils and subsoils within the proposed wind farm site.

The potential for soil contamination is minor on a local scale on the GCR. The sensitivity of soils and subsoils to machinery and equipment related contamination is low and the magnitude of impact is low. A spill of fuel or oil would therefore potentially present a slight/not significant, direct, short-term, adverse effect on soil and subsoils.

8.5.3.4 Effects on Mineral/Aggregate Resources

The main effect of the proposed project with regard to mineral/aggregate resources is the removal of topsoil and excavation of the borrow pit. Soils at the proposed wind farm site are generally shallow (<3.0 m).

One borrow pit area was identified within the proposed wind farm site, located to the southwest of T7. The access tracks will be constructed using borrow pit material as subbase and unbound crushed aggregates. Table 2-2 in Chapter 2, outlines the granular fill volumes which will be sourced from the onsite borrow pit. Using the average borrow pit depth of 5 m bgl, the available volume of potential useable material is approximately 26,800 m^3 (accounting for overburden, an entrance and based on the area of the proposed borrow pit being approximately 1.1 ha).

This location was selected based on geological mapping and site investigations confirming the presence of shallow bedrock, making it suitable for material extraction and due to the proximity to an existing off-site quarry. Due to the use of existing access tracks and design optimisation, limited material is required to construct the proposed wind farm. Only one borrow pit is required. The borrow pit selection was also based on the avoidance of potential ecological/ornithological receptors. Restoration of the borrow pit is outlined in Chapter 2 of this EIAR.

Excavated (non-peat) soils will be either reused on site alongside the proposed tracks on site or used to reinstate the borrow pit. Any soil placed adjacent to the proposed access tracks will be restricted to use for drainage and contouring immediately adjacent to both sides of the proposed tracks (rather than stockpiling). Although not anticipated, any peat encountered during the site works will be placed in the borrow pit area.

The ground conditions generally consist of till-like soils overlying limestone bedrock (Oakport Limestone Formation). It is proposed to utilise a borrow pit for the proposed project. The

aggregate potential of the bedrock underlying the proposed borrow pit is classified as very high, which is an indication of the suitability of bedrock material.

The potential extraction of mineral/aggregate resources is limited and localised and therefore of low sensitivity. There is no loss of mineral resources. The sensitivity of the mineral/aggregate resources receptor is low, and the magnitude is low adverse, resulting in a not significant, adverse, certain, permanent effect from onsite material relocation.

Proposed GCR /110 kV substation

There are no effects anticipated on mineral/aggregate resources along the proposed GCR. There will be some movement of soils, subsoils and stone required for the construction of the proposed GCR and nodes along the proposed TDR. The potential extraction of mineral/aggregate resources is very limited and localised and therefore low sensitivity. The sensitivity of the mineral/aggregate resources receptor is low and the magnitude of effect from soil relocation is negligible. Pre-mitigation effects on mineral and aggregate resources along the proposed GCR are therefore considered to be imperceptible.

8.5.3.5 Effects on Soil Compaction and Erosion

The sensitivity of the underlying soils to soil compaction and erosion from the construction works is considered as low on a local scale due to the absence of peat onsite. Compaction and/or erosion of soils can occur on construction sites. Excavated material will arise from all infrastructure elements of the proposed wind farm (turbine bases, access tracks, hardstanding etc.). Table 8-8 provides a summary of the anticipated excavation volumes necessary for infrastructure.

Table 8-8: Anticipated Material Volume Summary

Construction Component	Surface Area (m2)	Required Stone Material (m^3)	Borrow Pit Material (m^3)	Import Material (m^3)
Internal site access tracks & Passing bays	39680	15871	11903	3968
On-site Control Building/ Lidar Unit	1870	855	641	214
Temporary Construction Compounds/ Temporary Quarry Track	8921	3713	2785	928
Turbine Hardstands	31200	16380	11466	4914
Grid connection and internal cabling		11114	0	11114
Proposed 110 kV Substation	8800	5544	0	5544
Total Stone		53477	26795	26682

Access tracks are required to accommodate the construction works and provide access to turbine locations for the life cycle of the proposed project. The access tracks will be constructed using borrow pit material as subbase and unbound crushed aggregates. Table 2-2 in Chapter 2,

outlines the granular fill volumes which will be sourced from the onsite borrow pit. An estimation of approximately 26,700 m^3 imported stone volume will be required.

Required drainage will be incorporated into the access tracks to maintain the performance of the pavement during wet weather. All access tracks will be constructed as founded tracks. Founded tracks are excavated down to and constructed up from a competent geological stratum. The access tracks will be constructed to an average height of 0.3 m above existing ground level.

Some access track surfacing material will be imported from locally approved commercial quarries. The importing of material from external quarries will place additional pressure on transport routes, as discussed in Chapter 17 (unless it is transported via the proposed temporary access track that directly links to the adjacent quarry).

Deeper excavations to competent material may be required to construct the turbine foundations. Based on the ground investigation, the proposed foundations will be gravity foundations with a potential requirement for localised micropiling at T2, T6, T7 and T10 (See Table 2-4 in Chapter 2 for summary). For gravity type turbine foundations, unsuitable material will be excavated and replaced by structural fill and excavated material will be placed in the deposition areas i.e. the borrow pit.

The magnitude is considered low as excavations are localised, and soils will be reinstated following construction, no peat deposits are present, slopes are generally shallow and extensive areas of undisturbed ground will remain unaffected. Due to the absence of peat on site per SI works, the soils and subsoils receptor has low sensitivity related to soil compaction and erosion and the magnitude of impact from construction activities is low adverse. The effects on soils as a result of soil compaction and erosion are considered to be not significant, certain, permanent and adverse.

Proposed GCR/110 kV substation

The potential sensitivity of soil compaction and erosion is low and on a local scale for the GCR/110 kV substation. There are limited off road areas along the proposed GCR and nodes along the proposed TDR, related to minor earthworks. No significant peat soils are located on the GCR or 110 kV substation. Therefore, the sensitivity for soil compaction and erosion is low and the magnitude of impact is low. Pre-mitigation effects on soil compaction and erosion along the proposed GCR are not significant, short term and reversible.

8.5.3.6 Effects on Geohazards - Peat and Soil Stability

The project layout has been refined through an iterative design process informed by walkover surveys, LiDAR review, karst assessment, geophysical investigations and intrusive site investigations. Due to the absence of peat and limited karst features (potential dolines) in the proposed wind farm site and project study area, the geohazards receptor has low to medium sensitivity. The magnitude of effects from construction and operational activities is low, involving standard excavations and foundations on stable mineral soils/glacial till with no slope instability risks. Limited areas of karstified or weathered limestone were identified during the site investigation. Based on borehole data for these locations, strong to very strong limestone with high rock quality designation values and core recovery. The site investigations therefore indicate that karstification is limited and localised and does not present a significant geotechnical constraint to the proposed development.

No open voids were encountered and none were identified in the boreholes or geophysics. Turbines foundation proposed are gravity foundations, however targeted micropile supports will be adopted at selected turbine locations following confirmatory Site investigation prior to construction. While the underlying limestone formations are recognised as being weathered/potentially karstified, the investigations encountered strong to very strong limestone and did not identify any major karst features such as open conduits or significant subsurface voids within the footprint of the proposed infrastructure. The geophysical survey identified some zones of weathered and karstified limestone however, these features were interpreted as localised weathering of the bedrock rather than extensive or highly developed karst systems. Importantly, the geophysical interpretations were validated by the intrusive investigation results, which were reported to correlate well with the geophysics data.

Effects on geohazards are therefore slight/not significant, long-term, adverse, direct and indirect, with very low probability.

Proposed GCR/110 kV substation

No significant peat or karst is identified on the proposed GCR and 110 kV substation. Shallow peaty (podzolic) topsoil was identified at the proposed 110 kV substation site, generally confined to approximately 0.3-0.4 m thickness. The area is flat, drained agricultural land with no evidence of deep peat deposits, peat instability or elevated peat slide risk. The area is classified as low risk by the GSI mapping. There are no direct or indirect likely significant effects on areas of peat or karst.

8.5.4 Likely Significant Effects – Operational Phase

8.5.4.1 Effects on Geological Heritage Sites

There are no geological heritage sites in the proposed wind farm site and study area boundary. There are no direct or indirect potential effects on Geological Heritage Sites.

Proposed GCR/110 kV substation

There are no Geological Heritage Sites along the proposed GCR. There are no direct or indirect potential effects identified on Geological Heritage Sites.

8.5.4.2 Effects on Land Use

During the operational phase, no further land use changes occur beyond the permanent infrastructure footprints established during construction. No significant land use changes will occur during the operational phase. The land surrounding operational infrastructure remains agriculturally viable with minimal restrictions. The sensitivity of the land use receptor is therefore low, and the magnitude of effects is negligible (no additional change or loss). Pre-mitigation effects on land use at the proposed wind farm site are imperceptible (not significant).

Proposed GCR/110 kV substation

For the proposed GCR which is almost entirely located within public road corridors or else on private farms, there will be no significant change of land use (i.e. they will still be used for transport), although the land will also be used for electricity transmission. There will be permanent change of land use from agriculture to electricity transmission at the 110 kV substation. The land use has a low value on a local scale, and the sensitivity is considered low. Due to the limited proportion along the GCR where a change of land use will occur and the

magnitude is considered low; it is anticipated that there will be no significant effect on land use associated with the proposed GCR during the operational phase.

8.5.4.3 Effects on Potential for Contamination

No contaminated sites were identified in the study area of the proposed project.

The sensitivity of the soils and subsoils receptor is low, comprising mineral soils/glacial till with no prior contamination per SI observations. The magnitude of effects from operation activities is negligible. Pre-mitigation potential effects on the soils and subsoils contamination receptor are therefore considered to be imperceptible.

Potential for contamination

Any hydrocarbon or oil spills related to the operation and maintenance of the proposed wind farm (access tracks, 110 kV substation, turbines, etc.) have the potential to adversely affect the ground directly. The bunded transformers in the 110 kV substation and in each turbine are oil cooled. There is potential for spills and leaks of oils from this equipment resulting in contamination of soils and subsoils.

Occasionally, machinery will access the proposed wind farm site for maintenance of access tracks, 110 kV substations and turbines. The presence of machinery on the proposed wind farm site has the potential to result in minor accidental leaks or spills of fuels/ oils contaminating the soils and subsoils.

The sensitivity of the soils and subsoils receptor is medium (shallow bedrock generally <3.0 m bgl per SI, greenfield status). The magnitude of impact is negligible due to design standards (bunding) and limited maintenance frequency. Pre-mitigation effects are therefore imperceptible/not significant.

No significant works are required on the proposed GCR nodes for the operational phase. Minor excavation of soils, subsoils and bedrock may be required where a grid fault is detected however based on the reliability of modern cables and length of cable, faults are not anticipated over the lifetime of the proposed project. These works will result in temporary disturbance of road surfaces and cable trenches/joint bays. Machinery will access the proposed fault however there are no significant potential effects. Any surplus excavated material associated with the trench and access tracks will be removed off-site to a licenced facility. In addition, the cables do not contain hydrocarbons. The sensitivity of the soils/subsoil's contamination receptor is low. The magnitude of effects is low (unlikely, highly localised events). Effects relating to contamination along the GCR/110 kV substation are therefore not significant, unlikely, short-term, and adverse.

8.5.4.4 Effects on Mineral/Aggregate Resources

The operational phase of the proposed project will not require movements of large amounts of stone materials. Therefore, it is not anticipated to cause a significant effect on any existing mineral or aggregate resources. In relation to indirect effects, small volumes of additional unbound crushed aggregate material may be required during the operational phase where access tracks have settled on the subsoil and to resurface unbound tracks. Aggregates required will only be sourced from quarries which are listed on the register maintained by the local authority. This will place occasional demand on local stone resources. It is expected that only small quantities of unbound crushed aggregates may be needed.

There is no proposed extraction during the operational phase. The sensitivity of the mineral/aggregate resources receptor is low, and the magnitude of effects is negligible. The potential effects on mineral and aggregate resources at the proposed wind farm site are therefore considered to be imperceptible and long-term.

Proposed GCR/110 kV substation

There are no anticipated operational phase effects associated with mineral/aggregate resources for the proposed GCR/110 kV substation.

8.5.4.5 Effects on Soil Compaction and Erosion

During the operational phase, the soils and subsoils receptor maintains low sensitivity, consistent with construction-phase assessments (mineral soils/glacial till, no peat). The magnitude of impact from soil compaction and erosion is negligible, limited to occasional light vehicle movements on established tracks with no heavy machinery or excavations. Potential effects are therefore not significant, certain, permanent, and adverse.

Proposed GCR/110 kV substation

There are no potential significant effects on the soils and subsoils as a result of soil compaction/erosion during the operational phase.

8.5.4.6 Effects on Geohazards

There is no peat identified on the proposed wind farm site based on the desk study review and SI data. There are no significant operational phase effects associated with geohazards (peat/soil stability). Although the proposed wind farm site is underlain by locally karstified limestone no evidence of extensive subsurface void networks, active collapse features, or significant geotechnical instability has been identified through the site investigations undertaken to inform the design process. Turbine locations have also been selected having regard to identified ground conditions and will be subject to detailed geotechnical assessment and foundation design.

The sensitivity of the geohazards receptor is low and the magnitude of effects is negligible (no peat, stable mineral soils/glacial till). Potential effects are therefore imperceptible (not significant), long-term, and adverse.

Proposed GCR/110 kV substation

There are no anticipated operational phase effects associated with geohazards for the Proposed GCR/110 kV substation.

8.5.5 Likely Significant Effects– Decommissioning

The likely significant effects associated with decommissioning will be similar to those associated with construction but of reduced magnitude because of limited excavation, and wet concrete handling will not be required. Below ground infrastructure including turbine foundations will remain in place during the decommissioning phase and would be allowed to revegetate or reseed as appropriate. The proposed access tracks will remain in situ for agricultural access.

In most cases, and certainly for granular-based tracks (but also concrete and asphalt) these materials are inert and stable over the long-term, so will not pose a contamination risk if left in

situ. The proposed 110 kV substation will be retained as a permanent structure and will not be decommissioned.

The road improvements along the GCR will be left in situ, while the Proposed GCR/110 kV substation will not be decommissioned.

8.5.5.1 Effects on Geological Heritage Sites

There are no Geological Heritage Sites within the proposed wind farm study area. No direct or indirect effects were identified on Geological Heritage Site features.

8.5.5.2 Effects on Land Use

The proposed wind farm site is predominantly covered in agricultural lands. There will be a change in land use associated with the proposed wind farm. All hardstand areas will be covered in a layer of soil to allow natural re-vegetation following the decommissioning phase. The sensitivity of the land use receptor is low, based on the absence of designated habitats and heritage sites. Permanent land use change affects approximately 13 ha for infrastructure (110 kV substation, turbine bases, tracks), with hardstand areas designed for soil cover and natural re-vegetation post-decommissioning, minimising long-term sterilisation. The magnitude of effects from land use change is therefore low adverse (small proportion of site, continued agricultural viability around infrastructure). The overall effect is therefore not significant, long-term, certain, with no indirect effects anticipated.

Proposed GCR/110 kV substation

There are no proposed works on the GCR during the decommissioning phase and therefore no likely significant effect.

8.5.5.3 Effects on Potential for contamination

An evaluation was undertaken to determine the presence and extent of existing or potentially contaminated land in the proposed project study area. No contaminated sites were identified at the proposed wind farm site. The sensitivity of the soils and subsoils receptor is low, comprising mineral soils/glacial till with no prior contamination per site investigation works. The magnitude of effects from decommissioning activities on existing contamination is negligible (no sources present). Pre-mitigation effects are therefore imperceptible, with no indirect effects anticipated.

Decommissioning machinery/equipment (containing vehicle fluids, oils, fuels) poses potential for leaks/spills, with fuel stored temporarily at the construction compound. The soils and subsoils receptor sensitivity remains low. The magnitude of effects is low (short-term activity, small volumes). Pre-mitigation effects on potential land contamination are therefore slight, localised, short-term, and not significant.

Proposed GCR/110 kV substation

There are no proposed works on the GCR during the decommissioning phase.

8.5.5.4 Effects on Mineral/Aggregate Resources

There are no likely significant effects on mineral/aggregate resource during the decommissioning phase.

8.5.5.5 Effects on Soil Compaction and Erosion

The soils and subsoils receptor has low sensitivity to compaction and erosion on a local scale, comprising stable mineral soils/glacial till (no peat per SI works). Access tracks remain in place post-construction but see only light, infrequent traffic, limiting further compaction/erosion risk. The magnitude of effects is low (permanent but localised to tracks). Effects on soil compaction and erosion are therefore not significant, certain, permanent, and adverse.

Proposed GCR/110 kV substation

The potential sensitivity of soil compaction and erosion is small on a local scale. There are limited off roads areas along the proposed GCR. The sensitivity of soils and subsoils to compaction and erosion is low and the magnitude of effects is low. Pre-mitigation effects on soil compaction and erosion along the proposed GCR are not significant, short term and reversible.

8.5.5.6 Effects on Geohazards

Existing foundations and access tracks will remain in place following decommissioning. Effects are considered imperceptible/not significant, long term, adverse, direct and indirect, and very low probability.

Proposed GCR/110 kV substation

There are no proposed works on the Proposed GCR/110 kV substation during the decommissioning phase.

8.6 MITIGATION MEASURES

Mitigation measures for the construction, operation and decommissioning of the proposed project, in order to avoid or reduce identified significant potential effects are described in the following sections. Standard design or embedded measures are included in Section 8.5.1. A Construction Environment Management Plan (CEMP) has been developed and can be viewed in Appendix 2-2. Standard best practice measures set out in the CEMP and SuDS Manual will ensure that only minimal additional mitigation is required, as almost all relevant measures are already addressed through embedded mitigation and design standards. Embedded mitigation measures have been incorporated into the design of the proposed wind farm and are therefore considered an inherent part of the project rather than additional, stand-alone mitigation.

8.6.1 Mitigation Measures - Construction Phase

8.6.1.1 Mitigation - Geological Heritage Sites

No Geological Heritage Sites exist within the extent of the proposed project, and there are no direct or indirect potential significant effects. Therefore, no mitigation is required.

8.6.1.2 Mitigation - Land-Use

Based on the pre-mitigation level of effect (Not significant effect), additional mitigation is not required. The following mitigation measures however will be implemented.

Vegetation clearance will be kept to a minimum. The proposed construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Construction vehicles will be restricted to designated areas and access tracks in order to avoid impacting adjacent habitats and to ensure that soil compaction is restricted to these areas.

All disturbed ground outside of the permanent footprint will be fully reinstated following the completion of the works. Biodiversity enhancement measures will be undertaken to improve ecological habitats as detailed in Chapter 6.

8.6.1.3 Mitigation - Potential for contamination

Given the pre-mitigation effects are not significant, no additional project-specific mitigation is required beyond standard best practices. All listed measures including concrete/cement management (designated washout bins, offsite batching plant disposal, waste to permitted facilities), bunded storage for plant/oils/IBCs with drip trays, impermeable surfaces with oil interceptors, and spill response planning/training are fully incorporated within the Construction Environmental Management Plan (CEMP) and SuDS Manual, which the contractor will implement as standard procedure.

Any identified soil contamination will be remedied and soil stored in designated area pending removal from the site. Contaminated soils will be removed in accordance with the Waste Management Act 1996 as amended.

Imported stone will be sourced from appropriately regulated quarries and inspected prior to use to minimise the risk of introducing or spreading invasive species. For further discussion on invasive species, see Chapter 6.

All wastes generated on site will be segregated and appropriate materials are re-used on site. Residual materials will be collected by licensed waste hauliers for appropriate sorting, recycling and disposal.

8.6.1.4 Mitigation - Mineral/Aggregate Resources

Based on the predicted level of effect, additional mitigation is not required. No significant effects were identified in Section 8.5.3 and therefore no additional mitigation measures are required.

8.6.1.5 Mitigation - Soil compaction and erosion

Based on the pre-mitigation level of effect (not significant effect), minor additional mitigation is required. The following measures will be implemented.

Landscaping areas will be sealed and levelled using the back of an excavator bucket to minimise the potential for erosion. The upper vegetative layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface, to prevent erosion. No additional soil will be imported to the site.

Overburden and rock will be reused on site to reinstate the borrow pit and other excavations. The borrow pit deposition area provides an opportunity for landscaping and restoration to match the natural surroundings. On completion, the borrow pit deposition area surface will be stabilised by using site sourced material, free from invasive species. The soil will be stabilised with the establishment of natural vegetation.

A key project goal is to incorporate sustainability into the design and construction of the proposed project where practical. Where mineral soils are encountered in the excavation and construction of site access tracks, bases, etc, this material will be stockpiled for assessment and subsequent re-use. Where mineral soil is not directly suitable for construction it will be used for reinstatement works and will be geo-engineered as necessary.

As part of the proposed works a borrow pit is proposed to provide materials suitable for construction, the purpose of which is to minimise the need to import aggregates from elsewhere, reducing the project's environmental footprint. It is not intended that the borrow pit be fully reinstated, although it is proposed that the borrow pit will be partially reinstated using suitable excess materials. Approximately 2.5m of soil will be used to reinstate, regrade and landscape the borrow pit.

The construction traffic will utilise the permanent access track network for access and egress, and this access will be constructed in advance of other ground works in a sequential manner.

A CEMP was developed as part of the planning application – See Appendix 2-2. This plan documents how spoil will be managed on site for re-use of materials, the design for on-site re-use and disposal options, and a scheme for the tracking and recording of soil movements. These measures will prevent the erosion of soil in the short and long term. Soils, overburden, and rock will be reused on site to reinstate any excavations where appropriate.

Access tracks and the construction compound will be constructed first to allow for access within the proposed wind farm site.

Construction of internal electricity transmission cables will present similar, but lower-level risks, to the construction risks outlined above, and the same mitigation measures will be

adopted as above. Surplus material from the onsite access tracks will be reused on site in the borrow pit or on access track upgrades.

Proposed GCR/110 kV substation

Based on the pre-mitigation level of effect (not significant effect), minor additional mitigation is required. The following measures will be implemented.

The majority of the proposed GCR cabling will be laid in the public road. Construction method statements and templates will be implemented to ensure that the proposed GCR infrastructure is installed in accordance with the correct requirements, materials, and specifications of ESBN and EirGrid. The ducts will be installed, and the trenches will be reinstated in accordance with ESBN/EirGrid, private third-party landowners and County Council specifications. Once all are satisfied, then the cables are pulled through the installed ducts in approximately 500 m to 700 m sections.

Excavated mineral material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2 m in height. Stockpiles will be located a minimum of 50 m from surface water features, and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECoW).

For concrete and asphalt/bitmac road sections, it is proposed to carry out immediate permanent reinstatement in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with the local authority. Surplus excavated bitmac material will be brought to a recycling facility for processing in accordance with the circular economy approach.

For offroad, i.e. access tracks/grass sections, the cable section will be laid within an existing access track, where possible. Silt fences will be utilised along the offroad sections. Short sections (<50m) will be excavated and reinstated on a phased basis with suitable excavated material to ground level and finish in a gravel track as per the EirGrid/ESBN specification. By limiting the excavated sections, the potential for compaction or erosion is limited.

8.6.1.6 Mitigation - Geohazards

A karst protocol will be employed during construction and involves a series of steps and methodologies in karst areas. An example of the karst feature inspection protocol is documented by Madden & O'Hara (2016)[11]. Ground stabilisation measures that will be employed include compaction, grouting/stabilisation supervision, geotextile or utilising raft foundations where required. Where weathered limestone or karst is encountered at formation level, the feature will be mapped in detail. Each feature and associated mitigation measure will be documented and included in the safety file for the Proposed Project. The stabilisation measures will be approved by a geotechnical engineer. Where discrete voids or highly fractured rock are encountered, grouting will be used to infill cavities and improve the strength and continuity of the rock mass beneath foundations. Where infilling or grouting is required, works will be supervised by a suitably qualified hydrogeologist to ensure there is no effect on groundwater. The use of micropiles if required is not expected to result in significant effects on groundwater due to their small diameter, limited footprint and the low volumes of excavation

[11] Madden and Hara (2016) The treatment of karst features encountered during road construction in County Galway

required. Installation involves drilling narrow boreholes (typically 100-200 mm diameter) and grouting within the cased borehole, resulting in only minor and highly localised disturbance to the underlying bedrock and any groundwater.

No peat or karst were identified on the proposed footprint. Based on the predicted level of effect, additional mitigation is not required.

Proposed GCR/110 kV substation

Based on the predicted level of effect, additional mitigation is not required for the GCR.

8.6.2 Mitigation Measures – Operational Phase

Operational activities at the proposed wind farm site will focus on the maintenance of wind turbines and associated infrastructure. Oil containing components of the wind turbines will be periodically refurbished and replaced.

8.6.2.1 Mitigation - Geological Heritage Sites

No Geological Heritage Sites exist within the proposed project study area; therefore, no mitigation is required.

8.6.2.2 Mitigation - Land Use

Based on the predicted level of effect, additional mitigation is not required.

8.6.2.3 Mitigation - Contamination

Fuel and oil storage and handling requirements will be as detailed for construction, with permanent fuel and oil storage located within permanent covered bunds. Regular ecological inspections will be conducted to ensure no invasive species are present – See Chapter 6.

Welfare facilities will be provided at the 110 kV substation location. These welfare facilities will produce foul effluent, and these effluents will be stored in a holding tank prior to removal to an approved treatment facility. These wastewater treatment systems and bunds shall be subject to inspection and maintained as required, with effluent removed by a licenced contractor as required.

8.6.2.4 Mitigation - Mineral/Aggregate Resources

Based on the predicted level of effect, additional mitigation is not required. No significant direct or indirect effects were identified in Section 8.5.3 and therefore no additional mitigation measures are required.

8.6.2.5 Mitigation - Soil Compaction and Erosion

Based on the predicted level of effect, additional mitigation is not required. No significant direct or indirect effects were identified in Section 8.5.3 and therefore no additional mitigation measures are required.

8.6.2.6 Mitigation - Geohazards

No significant effects were identified in Section 8.5.3 and therefore no additional mitigation measures are required. Monitoring will consist of regular inspection of drains to prevent blockages and inspections of specific areas after significant rainfall events, as per the CEMP.

8.6.3 Mitigation Measures - Decommissioning

No significant effects were identified for the decommissioning phase.

A fuel management plan to avoid contamination by fuel leakage during decommissioning works will be implemented as per the construction phase mitigation measures.

The risks arising from the decommissioning of the proposed project would be less than those for construction. Mitigation measures for decommissioning would conform to those given for construction (section 8.6.1) and would be anticipated to be fully protective of the environment.

Proposed GCR/110 kV substation

There are no works proposed in relation to decommissioning phase works for the Proposed GCR/110 kV substation.

8.7 Residual Effects

The replacement of natural soil, subsoils, and rock with gravels and concrete for the construction of the infrastructure (temporary and permanent) will result in a change in ground conditions within the proposed wind farm site. Despite the permanent nature of these changes, the residual effect remains **not significant** due to low receptor sensitivity (mineral soils/glacial till of low agricultural/geological value) combined with embedded mitigation and CEMP best practices, as summarised in Tables 8-9 to 8-11.

Residual effects on excavations are **not significant, short-term, adverse**, and localised to construction phase activities. Operational/decommissioning effects remain imperceptible following standard CEMP protocols.

All other effects on land, soils, and geology will be addressed through good site practice as outlined in the CEMP and the minor additional measures required (beyond embedded mitigation).

Table 8-9: Summary of post-mitigation effects on the receiving environment during the construction phase

Environmental Attribute	Residual Effects– Construction	Significance
Geological heritage sites	None as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Adverse, certain, direct and long term.	Not Significant
Contaminated sites/Potential for contamination	Slight/not significant, direct, short-term, adverse	Not Significant
Mineral/Aggregate Resources	Adverse, certain, permanent	Not Significant
Soil Compaction and erosion	The potential effect on land soils and geology is adverse, certain and permanent	Not Significant
Geohazards/Peat and Soil Stability	No peat or significant karst features. Effects are long term, adverse, not significant, direct and indirect, very low probability.	Not Significant

Table 8-10: Summary of post-mitigation effects on the receiving environment during the operational phase

Environmental Attribute	Residual Effect – Operational	Significance
Geological heritage sites	None as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Imperceptible, certain, direct and long term.	Not Significant
Contaminated sites/Potential for contamination	Imperceptible, certain, direct and long term.	Not Significant
Mineral/Aggregate Resources	Imperceptible, certain, direct and long term.	Not Significant
Soil Compaction and erosion	Not significant, certain, permanent and adverse.	Not Significant
Geohazards/Peat and Soil Stability	Long term, imperceptible and adverse and of very low probability.	Not Significant

Table 8-11: Summary of post-mitigation effects on the receiving environment during the decommissioning phase

Environmental Attribute	Residual Effect –Decommissioning	Significance
Geological heritage sites	None as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Imperceptible, certain, direct and long term.	Not Significant
Contaminated sites/Potential for contamination	Slight, localised, short-term	Not Significant
Mineral/Aggregate Resources	Imperceptible, certain, direct and long term.	Not Significant
Soil Compaction and erosion	Imperceptible, certain, direct and long term.	Not Significant
Geohazards/Peat and Soil Stability	Long term, adverse, imperceptible, very low probability.	Not Significant

8.8 CUMULATIVE EFFECTS

The potential for cumulative effects of the proposed project with other existing and proposed developments in the region has been undertaken. A list of proposed developments reviewed as part of this section are listed in Chapter 1 of this EIAR.

Information on the relevant projects within 20 km of the proposed project is described in Chapter 1. A 5 km radius was selected for the cumulative assessment of land, soils, and geology effects as it represents a conservative Zone of Influence (ZOI) beyond which cumulative interactions are not credible for this topic. As listed in Chapter 1, there are a number of relevant large project applications, mostly for renewable energy projects, within 20 km of the proposed wind farm site. The footprint of the proposed wind farm site does not overlap with other wind farms and no other existing or proposed renewable energy projects, are located within 5 km of the proposed wind farm site, as illustrated in Figure 8-10. Therefore, the potential for significant cumulative effects is limited. There is no likely significant issues in terms of supply with a number of local quarries providing imported aggregate within 10 km of the site.

The information was sourced from a search of the local authorities planning register (Galway County Council and Mayo County Council, October 2026), An Coimisiún Pleanala map search,

the EIA portal (EIA, October 2026), planning applications (My Plan, October 2026), EIAR documents and planning drawings which facilitated the identification of past and future projects, their activities and their potential environmental effects.

All projects listed in Appendix 1-5 of this EIAR were reviewed as part of the cumulative effects assessment. Key projects with the potential for cumulative effects are described further below.

8.8.1.1 Existing Projects

Renewable Energy Project within 5 km buffer of proposed wind farm site

The footprint of the proposed wind farm site does not overlap with other wind farms and no other existing or proposed renewable energy projects, are located within 5 km of the proposed wind farm site, as illustrated in Figure 8-10. There are no existing wind farms within 5 km of the proposed wind farm.

A list of the Renewable Energy Project within 20 km buffer of proposed wind farm site is shown on Figure 8-10 and listed as follows:

- Uggool Wind Farm Ref. 086149 – The development is located ~17 km to the south of the proposed wind farm site.
- Seecon Wind Farm Ref. 308614 – The development is located ~18 km to the south of the proposed wind farm site.
- Ardderro Wind Farm Ref. 303086 – The development is located ~17 km to the south of the proposed wind farm site.
- Cloonasgragh Turbine Ref. 306685 **-** The development is located ~20 km to the east of the proposed wind farm site.
- Knockranny Wind Farm ACP Ref. 243094 - The development is located ~11 km to the southeast of the proposed wind farm site.
  Laurclavagh Wind Farm ACP Ref. 243094 - The development is located ~11 km to the southeast of the proposed wind farm site.

8.8.1.2 Proposed Projects

Shancloon Wind Farm Ref. 323699 – The development is located ~6.5 km to the northeast of the proposed wind farm site.

RWE (Ltd.) applied for planning for the construction of a wind farm at Shancloon, County Galway located approximately 6.5 km east of the proposed wind farm. The Site includes wind turbines, internal access tracks, watercourse crossings, hard standings, a permanent meteorological mast, on-site substation, internal electrical and communications cabling, temporary construction compounds, drainage infrastructure and all associated works related to the construction of the wind farm. Although the project has recently been refused permission by An Coimisiún Pleanála, the decision is still subject to potential judicial review and therefore has been included in this assessment.

No spatial overlap occurs with the proposed project and Shancloon Wind Farm. While the application is currently under review, the EIAR detailed mitigation measures which would be implemented during all phases of the development should it be granted.

There is potential for the construction of both the Shancloon and proposed project to coincide. Crushed rock aggregate resources at Mortimer Quarry Ltd and McGraths Limestone Cong are proposed for the construction phase. All quarries will operate within their existing planning

permissions and therefore there is no overall cumulative effects. It is proposed to use the local resources i.e. onsite borrow pit and Lydon's quarry in the first instance for the Rooaunalaghta wind farm therefore there will be an 'imperceptible' cumulative effect during the construction phase. No operational or decommissioning phase effects will occur.

With the implementation of mitigation measures residual effects are considered not significant. Similarly, the proposed project considered in this assessment concludes no residual effects. Therefore, no significant cumulative effects on Land, Soils and Geology are expected to occur with the proposed project.

Other Developments

A number of small scale residential and rural developments are proposed in areas within the 5 km buffer area. The remaining applications relate principally to residential, commercial and agricultural use types. Remaining applications present no likely cumulative land, soils, and geology impacts as they generally involve shallow, stable excavations distant from the wind farm, with no interaction pathways for peat stability, karst, or geological heritage receptors. A full list of planning applications within the wider area of the proposed project is provided in Chapter 4 and Appendices 4-1 and 4-2 of this EIAR.

9°31'20"W 9°0'48"W 8°30'16"W

53°30'24"N

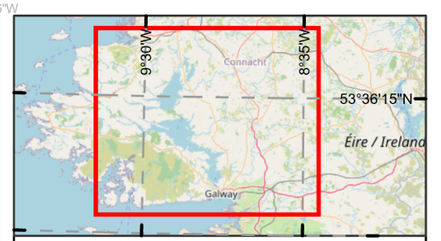
N

Westport
Lough Lannagh
Knock
Ballyhaunis
Lough Carra
Sheeffrey Woods
Ballinrobe
Lough Mask
Lough Nafooey
Derroura Forest
Lough Corrib
Oughterard
Headford
Tuam
Moycullen
County Galway
Athenry
Galway
Oranmore
Barna
Rahasane Turlough Special Conservation Area
Woodlaw Woods
Mountb

Mace Upper Windfarm
Magheramore/Cregganbrack Windfarm
Cunlaghfadda Windfarm
Ballykinava/Cuilmore Windfarm
Shancloon Windfarm
Laurclavagh Windfarm
Cloonascragh Turbine
Seecon Windfarm
Uggool Windfarm
Knockranny Windfarm
Ardderro Windfarm
Finnaun Windfarm

N5 N59 N60 N84 N83 N17 N63 M17 M6 M18 N67 N65 N6

510000 540000 730000 760000



Legend

- Proposed wind farm site boundary
- Wind farm site study area
- 20km Buffer
- 30km Buffer
- 110kV Substation
- 110kV Shancloon Substation

Windfarms within 30km

- Ardderro Windfarm
- Ballykinava/Cuilmore Windfarm
- Cloonascragh Turbine
- Finnaun Windfarm
- Knockranny Windfarm
- Mace Upper Windfarm
- Magheramore/Cregganbrack Windfarm
- Seecon Windfarm
- Shancloon Windfarm
- Uggool Windfarm
- Laurclavagh Windfarm

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Rev	Date	Description	By	Chkd.
A	02/10/2026	First issue	K.K	J.S

Client: ROOAUNALAGHTA Green Energy

Project:

Rooaunalaghta Green Energy Project

Title:

Figure 8-10:
Existing and Proposed
Energy Developments within 5 km
of Proposed Wind Farm Site

Scale @ A3: 1:250,000

Prepared by:	Checked by:	Date:
K.Kale	J.Staunton	October 2026

TOBIN

Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

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Map Ref: 11981-015-WTG-WF..30KM-S.BO-TOB-A

Draft: A

8.9 CONCLUSION

The proposed project is located in an area predominantly mapped as pasture and underlain by glacial / mineral soils that in turn overlie limestone bedrock. No active quarries occur on the proposed wind farm site and the proposed project will not affect any strategic mineral resources. While the site is located in the extensive Joyce Country Geopark, there are no geological heritage sites within the proposed project study area. No peat is mapped within the proposed wind farm site, and no peat was encountered during the site investigation works at the proposed wind farm site, though some shallow peaty soil was encountered at the proposed 110 kV substation.

The principal risk associated with land, soil and geology at the proposed wind farm site is the management of soils. It is expected that these risks will be fully mitigated through the implementation of the identified minor mitigation measures and use of standard best practices.

Hence, there are **no likely significant effects** for the proposed project and it will not give rise to any significant residual or cumulative effects with regard to land, soils and geology.

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