APPENDIX 8-1

PEAT STABILITY RISK ASSESSMENT

GDG
GAVIN & DOHERTY
GEOSOLUTIONS

Peat Stability Risk Assessment

Client	**MKO**
Document Ref.	22098-R01-02
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DISCLAIMER

REVISION SUMMARY

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00	26/06/2025	All	First issue
01	22/08/2025	1, 2.4, 3.1, 4.1, 4.2, Appendices	Update to address Client comments and updated Site Boundary
02	12/09/2025	Appendices	Update to Appendix maps for updated site boundary

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EXECUTIVE SUMMARY

Gavin and Doherty Geosolutions (GDG) was commissioned in June 2022 by MKO to undertake a Peat Stability Risk Assessment (PSRA) for the proposed Cooloo Wind Farm in County Galway. Based on the desk study and available ground investigation information, the Proposed Wind Farm site (the Site) is underlain by peat of varying thickness. The Proposed Wind Farm site layout is presented in Appendix A. In accordance with the Draft Revised Wind Energy Development Guidelines compiled by the Department of Housing, Planning and Local Government (2019), where peat is present on a proposed wind farm development, a peat stability assessment is required as part of the environmental impact assessment.

This report outlines a quantitative peat stability risk assessment rating in line with the Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (PLHRAG, Scottish Government, 2017) for the proposed permanent development footprint.

The PSRA concludes that the Proposed Wind Farm site has an acceptable margin of safety and low risk of peat failure and is suitable for the proposed renewable energy development.

Consultation with published Geological Survey Ireland (GSI) maps and observations from site investigations indicate that the Proposed Wind Farm site consists of cut-over raised peat or glacial till. Peat is mapped across the Proposed Wind Farm site, aside from small areas at the far eastern, southern and western site boundaries. The peat thickness encountered by intrusive investigations across the site varies from 0m (in areas where peat is absent) to a maximum of 7.1m, with an average of 1.3m, and a median of 0.4m recorded. Areas of the Site containing little to no peat, underlain by cohesive or granular glacial tills, include T01, T04, T6-T8, the substation, the construction compound and the southern and central site access tracks. Much of the remaining proposed infrastructure, including T2-T3, T6-T7 hardstands and T9, the battery energy storage system (BESS) compound and the majority of the northern access tracks, are in areas of cut-over peat, where turbary peat harvesting has removed significant depths of peat.

A desk study, site walkovers, ground investigation campaigns, stability analyses and a risk assessment were carried out to assess the risks posed by peat failures within the Proposed Wind Farm site. The risks were assessed following the principles in Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Executive, 2017).

The stability analysis aims to determine the Factor of Safety (FoS) of the peat slopes. The FoS provides a direct measure of the degree of stability of a peat slope. A FoS of less than 1.0 indicates that a slope is unstable; a target FoS for slopes is 1.3 or greater.

A risk assessment was carried out considering the FoS value calculated in the stability analysis and other factors that could influence peat stability, considering how damaging a peat slide would be to this site's environment.

A PSRA has been performed for all Proposed Wind Farm infrastructure elements (including turbines, hardstands, access tracks, temporary construction compound and meteorological mast) as well as

the substation/BESS compound, with the resulting peat stability risk identified as negligible at all locations. Mitigation measures have been proposed in Section 6.

The Proposed Wind Farm elements (turbines, access roads and construction compounds) of the Proposed Project were found to have acceptable safety factors and risk levels against peat instability. One small area, referred to as a Peat Stockpile Restriction Area (see Appendix L), has been highlighted and should not be used to place peat or spoil. Thirty-two small areas across the Proposed Wind Farm site have been identified as Safety Buffer Zones and should not be used to place peat or spoil. The proposed permanent development footprint avoids these areas, aside from a few areas discussed in greater detail in Section 4.6.

1 INTRODUCTION

1.1 BACKGROUND

Gavin and Doherty Geosolutions (GDG) was commissioned in June 2022 by MKO to undertake a PSRA for the proposed Cooloo Wind Farm in County Galway. Based on the desk study and available ground investigation information, the Proposed Wind Farm site is underlain by peat. In accordance with the Draft Revised Wind Energy Development Guidelines compiled by the Department of Housing, Planning and Local Government (2019), where peat is present on a proposed wind farm development, a peat stability assessment is required as part of the environmental impact assessment. The Proposed Wind Farm site layout is presented in Appendix A.

1.2 STATEMENT OF AUTHORITY

GDG has been involved in many PSRA projects in both Ireland and the UK at various stages of development, i.e. preliminary feasibility, planning, design and construction. In addition to this, the GDG team, made up of engineering geologists, geomorphologists, geotechnical engineers and environmental scientists, has developed expertise in landslide hazard mapping, including leading a recent national landslide hazard mapping pilot study, which included extensive landslide runout and hazard mapping and calculation in Irish blanket peat.

GDG brings together state-of-the-art research and direct industry experience and offers a bespoke engineering service, delivering the most progressive, reliable, and efficient designs across a wide variety of projects and technical areas, including providing forensic engineering and expert witness services to the Insurance and Legal sectors. Our clients include large civil engineering contractors, renewable energy developers, semi-state bodies and engineering and environmental consulting firms.

The members of the GDG team involved in this assessment include:

- **Tim O'Shea.** Tim holds an honours degree in Civil and Environmental Engineering from University College Cork and is a Chartered member of Engineers Ireland. He has over 20 years postgraduate experience in Civil Engineering. Tim is experienced in onshore wind right through the development and delivery cycle from consenting through to construction. He has worked on the EIA for several wind farms on upland peat sites. He has also managed the detailed design of a number of wind farms with significant peat risk.
- **Lucy Colleran.** Lucy is a Senior Geotechnical Engineer with a BSc. Geology degree from the University of St Andrews and is a Chartered Geologist with the Geological Society of London, specialising in Engineering Geology. Lucy has 7 years post-graduate experience within the civil engineering industry including design on soft ground for major road construction, geotechnical risk assessments for substations and access tracks in remote areas of the Scottish Highlands and managing ground investigation design and interpretation for complex superficial and bedrock geological settings.
- **Chris Engleman- Project Manager.** Chris is a Professional Geologist with a Master's degree in Geological Sciences from the University of Leeds. He is chartered with the Institute of Geologists Ireland (IGI) and the European Federation of Geologists. He has five years of industry experience in the onshore renewables sector and the field of geological mapping,

with a particular focus on Quaternary geology. He has predominantly worked on projects related to peat stability, including Peat Stability Risk Assessments, as well as management, ground investigation, rock and soil logging, GIS mapping, and geotechnical design. Chris has worked on several renewable energy projects, particularly wind and solar, for over two years. Chris is the primary author of this report and the GDG project manager. Chris carried out peat probing, site walkovers, and supervised site investigation works at the Proposed Wind Farm site in 2024.

- **Sowmya Reddy Gudipati**. Sowmya is a graduate engineer at GDG. She has two years of post-graduate experience working in the environmental, civil engineering, and renewables sectors. Sowmya has worked on multiple onshore wind and solar farm projects in the UK and Ireland. Sowmya carried out peat probing at the Proposed Wind Farm site in 2024 and contributed maps to this report.
- **Patrick Kelly.** Patrick is an experienced geologist with an Exploration Geology MSc from the Camborne School of Mines. He has 5 years of experience in engineering geology, exploration and mining, working across Ireland, the UK and Australia. He has worked in underground, brownfield and greenfield sites in both mining and engineering settings, supervising engineering projects such as wind farm ground investigation, foundation design, flood relief ground investigation, ground stabilisation, and various ground monitoring works, and supervising surface and underground drilling programs. Patrick carried out trial pit logging at the Proposed Wind Farm site in 2025 and contributed sections to this report.

1.3 PROPOSED PROJECT

The Proposed Project will comprise the construction of 9 no. wind turbines with an overall blade tip height of 180 metres and all associated works, a 110kV substation, battery energy storage system (BESS) and associated works and an underground 110kV cable connection to Cloon 110kV substation. The full description of the Proposed Project is detailed in Chapter 4 of the EIAR.

The development description for the current planning application, as it appears in the public notices is as follows:

The development will consist of the provision of the following:

i. *9 no. wind turbines with the following parameters:*
   - *Total turbine tip height of 180 metres;*
   - *A rotor blade diameter of 150 to 162 metres;*
   - *A hub height of 99 to 105 metres;*

ii. *Permanent turbine foundations, hard-standing and assembly areas;*
iii. *Underground electrical (33kV) and communications cabling;*
iv. *1 no. temporary construction compound (including site offices and welfare facilities);*
v. *A meteorological mast with a height of 100 metres, security fencing and associated foundation and hard-standing area;*
vi. *1 no. new site entrance on the R332 in the townland Lisavally;*
vii. *1 no. new access and egress point off the L6056 Local Road in the townland of Dangan Eighter;*
viii. *1 no. new access and egress point on to an existing access track in the townland of Dangan Eighter;*
ix. *2 no. new access and egress points off the L6301 Local Road in the townland of Cooloo and Lecarrow;*

x. *Upgrade of existing site tracks/roads and provision of new site access roads, clear span crossings, junctions and hard-standing areas;*
xi. *A new temporary access road from N63 national road and to R332 Regional Road in the townland of Slievegorm to facilitate the delivery of turbine components and other abnormal sized loads;*
xii. *Demolition of an existing derelict house and adjacent outbuilding in the townland of Cooloo;*
xiii. *Peat and Spoil Management Areas;*
xiv. *Tree felling and hedgerow removal;*
xv. *Biodiversity Management and Enhancement measures;*
xvi. *Site Drainage;*
xvii. *Operational Stage site signage; and*
xviii. *All ancillary apparatus and site development works above and below ground, including soft and hard landscaping.*

The application is seeking a ten-year planning permission. Current and future wind turbine generator technology will ensure that the wind turbine model, chosen for the Proposed Project, will have an operational lifespan greater than the 35-year operational life that is being sought as part of the planning application.

Refer to Chapter 4 of the EIAR for a detailed description of the Proposed Project.

This report examines the conditions at the Proposed Wind Farm site, located within the EIAR Site Boundary as defined in Chapter 1 of the EIAR, and does not analyse the transport delivery route. The transport delivery route has not been included in this report as no peat stability risk is expected along the route. Works on the transport delivery route are not expected to be carried out in peat material and will not require excavating or placing significant amounts of material. This report does not include an assessment of the Proposed Grid Connection, as this passes through public roads, and very little/no excavation of peat is anticipated. The Proposed Grid Connection is considered separately, in Technical Appendix 8-3 (Grid Connection Ground Conditions Assessment).

References to the '*Proposed Wind Farm site'* in this report refers to the core of the development as defined in Chapter 4 of the EIAR. Methodologies for the construction of turbines and infrastructure elements and management of peat are considered in detail in EIAR Appendix 4-2 (Peat and Spoil Management Plan). Piled foundations will be used as an alternative to gravity base foundations where the ground conditions require it. References to individual road sections are made with reference to Figure A-1 in Appendix A.

1.4 OVERVIEW OF PEAT LANDSLIDES

1.4.1 PEAT LANDSLIDE TYPES

The literature typically refers to two general groups of peat landslides: peat slides and bog bursts. The term 'peat slide' is generally used to describe slab-like shallow translational failures (Hutchinson, 1988) with a shear failure mechanism operating within a discrete shear plane at the peat-substrate interface, below this interface, or, more rarely, within the peat body (Warburton et al., 2004). Peat landslides are commonly recorded in Ireland, Scotland, Wales and England. The term 'bog burst' has been used to describe particularly fluid failures involving rupture of the peat blanket surface or

margin due to subsurface creep or swelling, with liquefied basal material expelled through surface tears, followed by settlement of the overlying mass (Hemingway and Sledge, 1941-46; Bowes, 1960). Bog bursts are reported almost exclusively in the Republic of Ireland and Northern Ireland.

There is a significant degree of overlap in failure mechanisms and characteristics between these two broad groups. As a result of this, a formal, systematic classification scheme for peat landslides was developed by Dykes and Warburton (2007). This classification scheme is based on a comprehensive database of examples collated from the literature and field studies. The classes of peat landslide reflect:

- The type of peat deposit (raised bog, blanket bog, or fen bog);
- Location of the failure shear surface or zone (within the peat, at the peat-substrate interface, or below);
- Indicative failure volumes;
- Estimated velocity; and
- Residual morphology (or features) left after occurrence.

Descriptions of the failure mode, characteristic slope range and peat thickness of each type are provided in Table 1-1.

Table 1-1: Peat landslide types (after Dykes and Warburton, 2007).

Peat landslide type	Definition	Typical slope range	Typical peat thickness
Bog burst	Failure of a raised bog (i.e. bog peat) involving the break-out and evacuation of (semi-) liquid basal peat.	2 – 5˚	2 – 5m
Bog flow	Failure of a blanket bog involving the break-out and evacuation of semi-liquid, highly humified basal peat from a clearly defined source area	2 – 5˚	2 – 5m
Bog slide	Failure of a blanket bog involving sliding of intact peat on a shearing surface within the basal peat.	5 – 8˚	1 – 3m

Peat landslide type	Definition	Typical slope range	Typical peat thickness
Peat slide	Failure of a blanket bog involving sliding of intact peat on a shearing surface at the interface between the peat and the mineral substrate material or immediately adjacent to the underlying substrate.	5 – 8˚ (inferred)	1 – 3m (inferred)
Peaty debris slide	Shallow translational failure of a hillslope with a mantle of blanket peat in which failure occurs by shearing wholly within the mineral substrate and at a depth below the interface with the base of the peat, such that the peat is only a secondary influence on the failure.	4.5 – 32˚	< 1.5m
Peat flow	Failure of any other type of peat deposit (fen, transitional mire, basin bog) by any mechanism, including flow failure in any type of peat caused by head-loading.	Any of the above	Any of the above

1.4.2 CONTROLS OF PEAT INSTABILITY

The spatial and temporal occurrence of landslides, including peat landslides, is controlled by *conditioning* and *triggering factors*. The conditioning factors explain the spatial distribution of landslides and are related to the inherent properties of the terrain, such as soil type, slope angle, curvature (convex/concave) of the slopes, and drainage.

The triggering factors explain the frequency of landslides. They can be distinguished between fast and slow triggers:

- Fast triggers:
    - Intense rainfall (the most frequent trigger);

  - Snowmelt (very frequent trigger; Warburton, 2022);
  - Rapid ground accelerations (e.g. from blasting rock);
  - Undercutting of peat by natural processes (e.g. fluvial) or man-made; or
  - Loading the peat.

- Slow triggers:
  - Low intensity but constant rainfall;
  - Afforestation / Deforestation (wildfires, pollution-induced vegetation change); or
  - Weathering (physical, chemical, biological).

Slow triggers can start landslides by themselves and can also act as *preparatory factors* for fast triggers by lowering their threshold to start landslides.

Water reaching a slope can produce the following processes:

- Lubrication. It reduces friction along rock or soil discontinuities (joints or stratification) (Wu, 2003). In clay soils, lubrication is due to water that produces a repulsion or separation between the clay particles.
- Softening. It mainly affects the physical properties of filler materials in fractures and fault planes in rocks.
- Pore pressure. Water in soil pores exerts pressure on soil particles, changing the effective pressure and the shear strength. The negative impact of pore pressure changes is particularly evident in partially saturated or unsaturated soils, where the increase in moisture content causes the development of a wetting front that converts beneficial negative suction stresses within the capillary structure of the soil to a fully saturated positive pore pressure. When soil is saturated, capillary stresses and adhesion between particles diminish, and, as a result, soil shear strength decreases.
- Confined water pressures. The confined underground water acts as an uplifting pressure on the impermeable layers, decreasing the shear strength and producing hydrostatic pressures on the layers where permeability changes. These lifting stresses can cause material deformation or failure, and pore pressure decreases soil resistance.
- Fatigue failure due to fluctuations in the water table. Some landslides occur in episodes of rain with lower intensity than previous ones. This phenomenon is explained by Santos et al. (1997) as a case of soil fatigue due to cyclical pore pressures. In temperate climates, seasonal temperature variations can lead to slight variations in the water table. These changes are much more significant in tropical climates (Xue & Gavin, 2008).
- Washing away of cement material. The groundwater flow can remove the soluble cement (e.g. calcium carbonate) from the soil and, thus, decreases the cohesion and the friction angle. This process is usually progressive.
- Density increase. The presence of water in soil pores increases the bulk density and weight of the materials in the slope. Therefore, shear stress increases, and the slope safety factor decreases.
- Internal hydraulic forces. The movement of groundwater currents creates hydrodynamic pressure on the ground in the direction of flow. This force acts as a destabilizing element on the groundmass and can appreciably decrease the safety factor of the slope. The

hydrodynamic or seepage/flow force can also cause the movement of the particles and the destruction of the soil mass (piping).

- Collapse. Collapsible soils (alluvial soils deposited very rapidly and wind soils or loess) are very sensitive to changes in humidity. When water content increases, their volume decreases, and the microstructure collapses.
- Desiccation cracks. Changes in humidity can cause cracking, and these cracks can determine the extension and location of the surface of failure and have a significant effect on the safety factor or possibility of sliding.
- Piping in clays. Some clayey soils disperse and lose their cohesion when saturated. The result can be the total collapse of the soil structure and the activation of landslides.
- Chemical weathering: Processes of ion exchange, dissolution, hydration, hydrolysis, corrosion, oxidation, reduction, and precipitation (Wu, 2003).
- Erosion. The detachment, dragging, and deposition of soil particles by water flows modifies the relief and the stresses on slopes and can produce the activation of a landslide, especially when erosion undercuts slopes.

1.4.3 PRE-FAILURE INDICATORS

The presence of conditioning factors and low-pace triggers before failure is often indicated by ground conditions, features, and morphologies that can be identified remotely or during fieldwork by the geomorphologist or through basic monitoring techniques.

According to the updated guidelines provided by the Scottish Executive (2017), the following critical features are indicative of the susceptibility or proneness to failure in peat environments:

- Presence of historical and recent failure scars and debris;
- Presence of features indicative of tension (e.g. cracks);
- Presence of features indicative of compression (e.g. ridges, thrusts, extrusion features);
- Evidence of peat creep (typically associated with tension and compression features);
- Presence of subsurface drainage networks or water bodies;
- Presence of seeps and springs;
- Presence of artificial drains or cuts down to the substrate;
- Presence of drying and cracking features;
- The concentration of surface drainage networks;
- Presence of soft clay with organic staining at the peat and (weathered) bedrock interface; and
- Presence of iron pans or similar hardened layers in the upper part of the mineral substrate.

Other evidence of peat instability unrelated to landslides has been considered, namely, quaking peat in horizontal areas with very low bearing capacity.

1.5 PEAT CLASSIFICATION

In respect of developments on peatlands, the Scottish Government (2017) provides guidance as to the definition of peat in their Peat Survey Guidance document '*The Joint Nature Conservation Committee (JNCC) Report 445, Towards an Assessment of the State of UK Peatlands'*. In this document, the following definitions are used:

- Peaty (or organo-mineral) soil: a soil with a surface organic layer less than 0.5m deep;
- Peat: a soil with a surface organic layer greater than 0.5m deep, which has an organic matter content of more than 60%;
- Deep peat: a peat soil with a surface organic layer greater than 1.0m deep.

For this report, peat is considered concerning the two principal types:

- Acrotelm: This upper layer comprises poorly decomposed plant material and living vegetation. It is relatively dry with some tensile strength, affording it limited structural properties. For the classification of peat in this report, the Acrotelm layer will be inclusive of 'peaty soil'.
- Catotelm: This lower layer is formed by highly decomposed humified peat decaying at a rate of several orders of magnitude slower than the acrotelm. The slow peat formation as this catotelm layer grows represents an important sink for atmospheric CO^2. The structural integrity of this layer is particularly vulnerable to excavation and handling as it tends to disrupt completely on excavation. For classification of peat in this report, the Catotelm layer will be inclusive of 'peat' and 'deep peat' soils.

1.6 PEAT STABILITY RISK ASSESSMENT WORKFLOW

GDG has carried out the PSRA for the Proposed Wind Farm following the principles set out in the Scottish Government Energy Consents Unit Peat *Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments* (2nd Edition, BPG, Scottish Government, 2017). The Best Practice Guide (BPG) has been used in this report as it provides best practice methods to identify, mitigate, and manage peat slide hazards and associated risks concerning consent applications for electricity generation projects on peatlands.

Figure 1-1 shows a workflow diagram showing the general methodology for the PSRA. The methodology can be summarised into the following steps:

1. Completion of the desk study, including assessment of:
    - Geology and Quaternary sediments (subsoils);
    - Soils;
    - Moisture;
    - Hydrogeology;
    - Multi-temporal aerial / Satellite imagery;
    - Topography;

- Landslide inventories and landslide susceptibility;
- Hydrology;
- Artificial Drainage;
- Land cover and land use; and
- Rainfall

2. Relevant academic literature and publications. Undertaking a walkover and fieldwork to:
   - Carry out geo-investigations, including peat probing and hand shear vane testing;
   - Record geological and geomorphological features, including exposures of the soil profile and evidence of peat instability; and
   - Record hydrologic and vegetation features.
3. Risk assessment, including:
   - Interpolation of the peat probe values and generation of the peat depth map;
   - Creation of the FoS maps using a deterministic approach (Bromhead, 1986) for drained and undrained conditions;
   - Qualitative hazard assessment by combining the FoS with observations of the peat condition identified both on aerial imagery and during fieldwork.
   - Qualitative consequences assessment;
   - Calculation of the peat landslide risk by multiplying hazards and consequences;
   - Classification of the risk values into four classes:
     - Negligible;
     - Low;
     - Medium; and
     - High.
4. Proposal of actions required for mitigation of any identified peat stability risks.

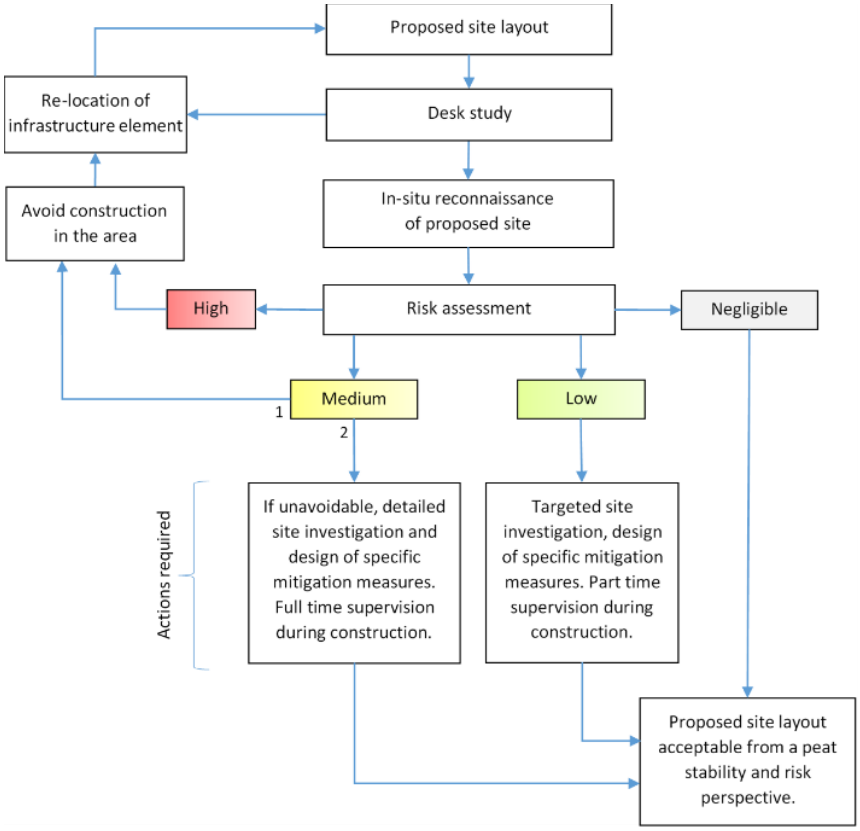

Figure 1-1: Workflow of the PSRA methodology for the acceptability of the proposed site layout (Scottish Executive, 2017).

2 DESK STUDY

For a preliminary site suitability analysis and background knowledge of local peat stability and ground conditions, the following aspects have been considered:

1. Geology and Quaternary sediments (subsoils);
2. Soils;
3. Moisture;
4. Hydrogeology;
5. Multi-temporal aerial / Satellite imagery;
6. Topography;
7. Landslide inventories and landslide susceptibility;
8. Hydrology;
9. Artificial Drainage;
10. Land cover and land use;
11. Rainfall;
12. Special areas of Conservation and Special Protection Areas; and
13. Relevant academic literature and publications.

2.1 BEDROCK GEOLOGY

According to the Geological Survey Ireland (GSI) bedrock geological map of Ireland at 1:100,000 scale (GSI, 2025) (Figure B- 2 in Appendix B), the bedrock underlying the Proposed Wind Farm site consists of limestone of the Burren Formation, undifferentiated Viséan limestones and the Croghan Limestone formation. The northern part of the Proposed Wind Farm site, approximately 100m northeast of T7, is mapped as consisting of the Croghan Formation, while the remainder of the Proposed Wind Farm site is mapped as Undifferentiated Viséan Limestones, aside from a small band of Burren Formation rocks, mapped at T7, and running south east from this location, to approximately 150m north of T9. All turbine locations except for T7 are mapped as being underlain by Undifferentiated Viséan Limestones.

The Burren and Croghan formations are typified by pale grey argillaceous and bioclastic packstones and wackestones. These formations also contain intervals of dark cherty limestones and shales, often associated with oolitic grainstones. Little information is available regarding the Undifferentiated Viséan Limestones; however they are anticipated to consist of pure, bedded limestone. A summary of the expected lithologies is shown in Table 2-1.

One rotary core borehole (GSI-17-003) from the GSI borehole database was drilled within the Proposed Wind Farm site, approximately 390m east of T7 (Figure B-2 in Appendix B). According to the available borehole log, the borehole encountered bedrock at 5 m BGL and was drilled to a final depth of 122 m BGL. A dark grey-argillaceous limestone and calcareous mudstone from the Croghan formation was encountered from 5.0 to 105 m BGL. A very fine-grained argillaceous limestone of the Ballymore formation was encountered from 105 to 122m BGL.

Table 2-1: Summary of bedrock lithologies (descriptions as per Pracht et al., 2015 and GSI).

Bedrock Formation	System	Series	Stage	Brief Description
Burren Formation	Carboniferous	Dinantian	Viséan	Medium- and coarse-grained light and dark grey well-bedded and massive limestone, rare clay bands; frequent coral colonies and brachiopod bands; rare massive fine-grained limestone intervals with cavities; some partial dolomitization.
Croghan Formation	Carboniferous	Dinantian	Viséan	Mostly fine-to-medium-grained, dark grey, well-bedded argillaceous limestone.
Undifferentiated Viséan Limestone	Carboniferous	Dinantian	Viséan	Undifferentiated Limestones of Viséan age.

As limestones dominate the underlying geology of the Proposed Wind Farm site, karstic features may be present and pose additional risks. Karst risk is discussed in detail in Technical Appendix 8-2 of the EIAR (Geotechnical Karst Risk Assessment).

2.2 QUATERNARY SEDIMENTS

The map of GSI Quaternary sediments (mapped at a 1:50,000) scale shown in Figure B-2 in Appendix B (GSI, 2025) shows that the Proposed Wind Farm site is underlain by either cut-over raised peat or glacial till. Cut-over raised peat consists of discrete, raised, dome-shaped masses of peat with part of their peat volume removed by anthropogenic peat harvesting methods. Parts of the Proposed Wind Farm site area consist of uncut raised peat bog, surrounded by cut-over peat. These raised bog areas are located north of T5, between T7 and T9, and north of T2.

Alluvium deposits are not mapped within the Proposed Wind Farm site; however, some form of alluvium is expected to be present adjacent to the minor watercourses that cross the Proposed Wind Farm site.

Pockets of till derived from limestones are mapped throughout the Proposed Wind Farm site, largely corresponding with small ridge features mapped by the GSI as drumlins. Glacial till consists typically of over-consolidated sediments directly deposited by glacial activity and can vary between clays, sands, and gravels. T1, T3, T4, T6, T8, the construction compound, and parts of the substation are located in areas mapped by the GSI as till derived from limestone. A small area of gravels derived from limestone, associated with an esker, is mapped approximately 300m north of T7, outside of the EIAR boundary.

2.3 SOIL COMPOSITION

The Irish soil map at a 1:250,000 scale is shown in Figure C-1 in Appendix C (EPA, Teagasc, & Cranfield University, 2018). The Proposed Wind Farm site is covered mainly by:

- Peat (soil association 1xx)
- River Alluvium (soil association 05Riv)
- Mullabane Soil: Coarse loamy drift with limestones (soil association 1100q)
- Baggotstown Soil: Coarse loamy over calcareous gravels (Soil Association 1150a)

Small areas outside the Proposed Wind Farm site consist of:

- Elton Soil: Fine loamy drift with limestones (Soil association 1000a)

It is noted that the presence or absence of peat cover in the regional scale maps (Figure B-2 and Figure C-1) must not be taken as exact. The depth and extent of peat deposits may vary over short distances as a function of local underlying geology, past and ongoing geomorphological activity, and management history. Therefore, these maps have been complemented by peat probes and field observations described in Section 3.

2.4 MOISTURE

The *Normalized Difference Moisture Index Colorized* GIS service or the United States Geological Survey (USGS) has been used to estimate levels of moisture in the soil across the Proposed Wind Farm site. This service is based on the analysis of multispectral Landsat 8[1] OLI images between August 2022 and August 2025. Using data processing, the raw digital number (DN) values for each Landsat band are transformed to scaled (0 - 10000) apparent reflectance values, and then, the Normalised Difference Moisture Index (NDMI) is obtained using Equation 2.4-1 (Gao, 1996):

$$NDMI = (Band\ 5^{2} – Band\ 6^{3}) / (Band\ 5 + Band\ 6) \quad \textbf{Equation 2.4-1}$$

Figure D-1 in Appendix D illustrates the levels of estimated soil moisture across the Proposed Wind Farm site as calculated by the above method. Wetlands and other vegetated areas with high levels of moisture appear as dark blue. Regions of lower moisture values are represented as light blue and green. The map indicates that the Proposed Wind Farm site as a whole displays a high moisture content.

[1] Landsat 8 includes 8-band multispectral scenes at 30-meter resolution which are typically used for mapping and change detection of agriculture, soils, moisture, vegetation health, water-land features and boundary studies.

1 Landsat 8 includes 8-band multispectral scenes at 30-meter resolution which are typically used for mapping and change detection of agriculture, soils, moisture, vegetation health, water-land features and boundary studies.

[2] Near Infrared (NIR)

[3] Short Wave Infrared 1 (SWIR1)

2.5 HYDROGEOLOGY

2.5.1 BEDROCK AQUIFERS

According to the GSI Bedrock Aquifer map (2025), shown in Figure E-1 in Appendix E, the entirety of the Proposed Wind Farm site is underlain by a Regionally Important Aquifer – Karstified (conduit). This corresponds to the GSI aquifer category "Rkc". This aquifer is classed as capable of supporting large public water supplies sufficient to support a large town.

2.5.2 SUBSOIL PERMEABILITY

The GSI Subsoil Permeability map, shown in Figure E-2 in Appendix E, indicates that the Proposed Wind Farm site varies between areas of low and moderate permeability. T2, T5, T7 and T9 are mapped in areas of moderate permeability (corresponding with areas mapped as peat), while the remaining turbines are mapped in areas of low permeability (corresponding with areas mapped as till). A small area marked by the GSI as "not mapped" is close to T1, and along the southern access, as far as the construction compound. This indicates that insufficient data is available for the GSI to assign a subsoil permeability rating, or that bedrock is close to or at the surface.

2.6 MULTITEMPORAY AERIAL/SATELLITE IMAGERY

The aerial / satellite imagery used for this report is the ESRI orthophoto (OTF) and the Google Earth multitemporal imagery (2009 onwards). This imagery has been used to:

- Identify the presence of existing failure scars and the extent of debris runout;
- Identify pre-conditioning factors for failure (where visible at the resolution of the imagery);
- Identify evidence of other pre-development ground conditions of relevance to ground works but not exclusively associated with landslides, including vegetation cover, drainage regime and dominant drainage pathways; and
- Identify evidence for land management practices that can influence ground conditions (e.g., burning, artificial drainage, peat cutting, forestry). Figure 2-1 and Figure 2-2 illustrate examples of retraction from 1996 to 2025 due to peat harvesting northern sections of the site, particularly by T7 and T05, respectively. The limit boundary of peat harvesting for 2009 shown in yellow, 2018 shown in blue, and 2020 shown in red.

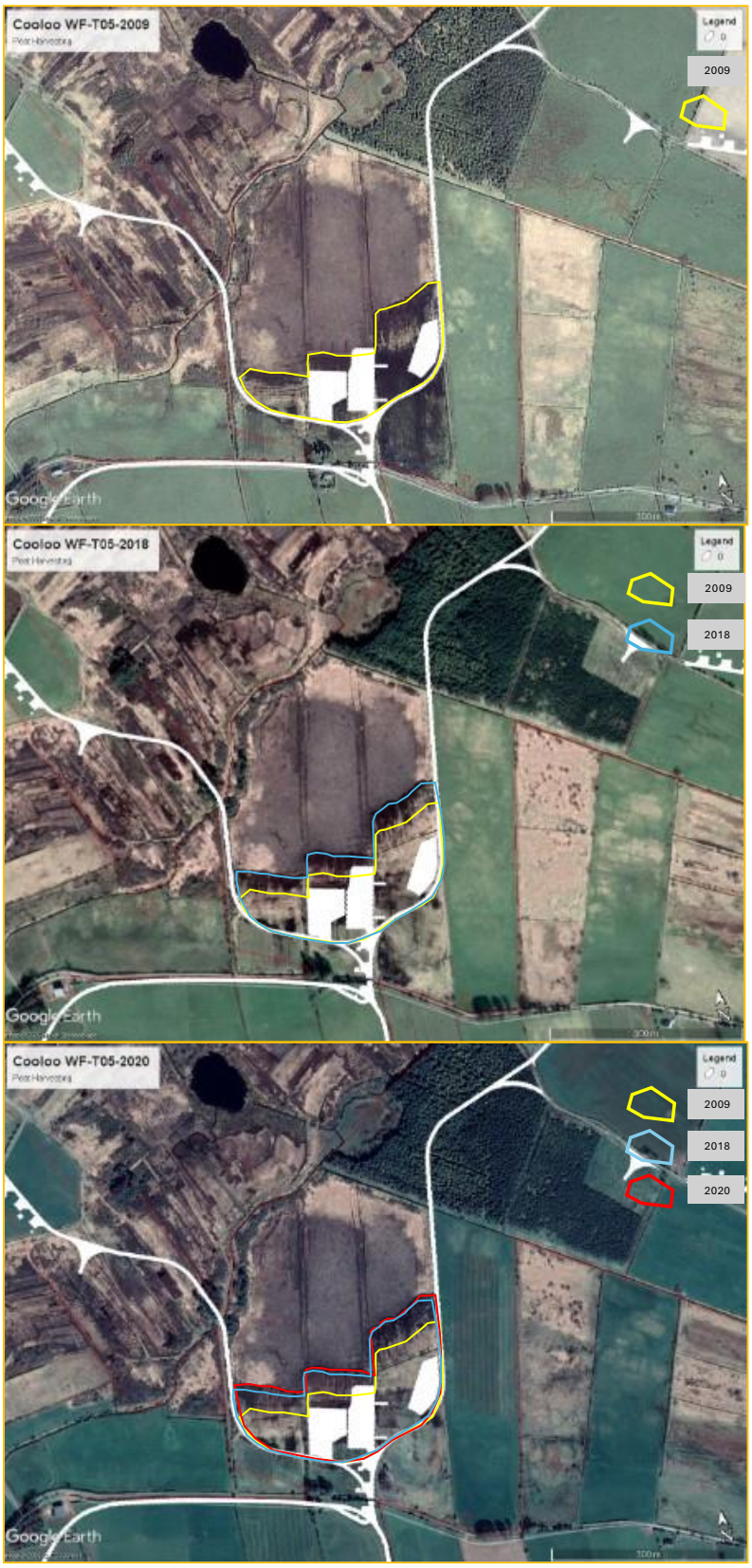

Figure 2-1: Raised peat at T05 receding due to turbary peat extraction between 2009-2020 (Google Earth, 2009-2020)

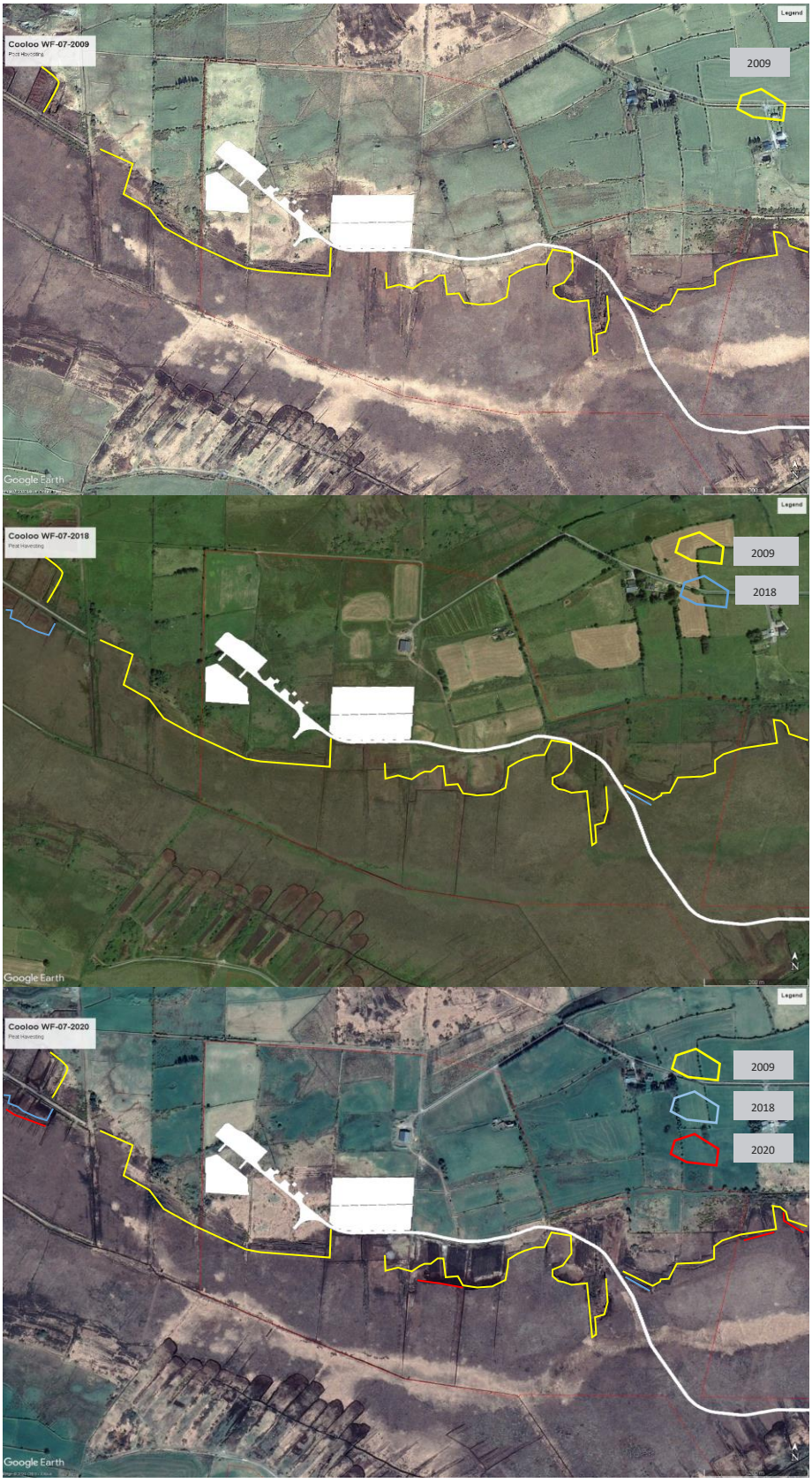

Figure 2-2: Raised peat at T07 receding due to turbary peat extraction between 2009-2020 (Google Earth, 2009-2020)

2.7 TOPOGRAPHY

A Digital Terrain Model derived from Bluesky (2022) LIDAR data was used for the topographical analysis and is shown in Figure F-1 in Appendix F.

The topography of the site varies between low undulating ridges and flat areas of raised bog, and the geomorphology is dominated by low ribbed moraines and low NW-SE oriented ridges mapped by the GSI as drumlins running across the site. The peat bogs on site occupy generally flat depressions between the drumlins, with raised peat bog areas forming topographic highs relative to areas of cutover peat. The topography of the Proposed Wind Farm site can be described as flat to undulating raised bog plain. The elevation varies between 63 mOD to 86 mOD (metres above ordnance datum). The highest point in the Proposed Wind Farm site is located approximately 40m SE of T04. Slope angles across the site range from 0-16° (Figure F-2 in Appendix F); however, most of the Proposed Wind Farm site has a slope angle of <2°. Higher slope angles >5° are found only in isolated areas alongside drainage ditches, peat cuts, and alongside the margins of low ridge features, identified as drumlins, e.g. 150m SE of T9 and 160m South of T5. No peat is identified at the drumlin locations close to T9 or T5.

2.8 SLOPE INSTABILITY MAPPING

The GSI landslide inventory (GSI, 2022a), the multi-temporal aerial / satellite imagery, the DEM, the landslide susceptibility map (GSI, 2016), and the rainfall information of Met Éireann data 1981-2010 have been used for this part of the desk study.

Figure G-1 in Appendix G illustrates the landslide susceptibility (GSI, 2016) across the Site. This map was obtained by using an empirical probabilistic method at a regional scale and should provide input into site-specific scale engineering studies. The entirety of the Proposed Wind Farm site is mapped as having low susceptibility due to the low slope angles encountered. Field visits by the geotechnical team noted no visual signs of slope instability at the time of the visits (2022-2025).

Figure G-2 in Appendix G depicts the spatial relationship between records of previous landslide events (GSI, 2022a, 2022b) and rainfall across Ireland from the Met Éireann (2018) average annual rainfall dataset. The study area is in a region of moderately high rainfall and relatively flat topography. According to the GSI landslide inventory (GSI, 2022), the closest landslide is located around 12 km north of the closest turbine (T01) and around 11.8km from the Proposed Wind Farm site boundary, in Dunmore, Co. Galway. The exact area of the peat slide was not recorded, but it is recorded to have occurred in 1873 and “moved quickly first and continued slowly for 11 days” (Praeger, 1893). This landslide resulted in the peat "burying three farmhouses and covering about 300 acres of pasture and arable land, 6 feet deep". No other significant information is available, but this location appears to be a relatively flat, deep raised peat bog, and therefore, the failure mechanism was likely a margin rupture (Warburton et al. 2004) triggered bog burst event caused by the extraction of peat from the raised bog due to steep cuttings (7-9m high), removing toe support for the high raised bog.

An additional historic landslide is recorded 11.8km SW of the Proposed Wind Farm site boundary, at Kilmore, Co. Galway. This landslide is noted as having occurred in cut-over raised peat in 1909, but no other details are available from the GSI database.

2.9 HYDROLOGY;

According to the Ordnance Survey Ireland (OSi) shapefiles of rivers, lakes, and catchments/basins (Figure H-1 in Appendix H), the Proposed Wind Farm site is located within the watershed of two catchments: Grange (Galway - 010) and Abbert (030). T9 is located 80m from a minor watercourse labelled as *Dangan Eighter,* which flows northeast through the northern part of the Proposed Wind Farm site. This watercourse forms part of the Grange catchment, which flows eventually to the Clare River, and eventually the Corrib. Two watercourse crossings are proposed across the *Dangan Eighter, between T5 and T6, and between T7 and T9*. An additional watercourse crossing is proposed across an unnamed minor tributary of the Dangan Eighter between T5 and T9. Two additional minor watercourses (*Lecarrow* and *Forty Acre)* are identified in the southern portion of the Proposed Wind Farm site. Both watercourses flow southwards, forming part of the Abbert catchment, and eventually joining the Clare and Corrib River catchments. T1 is located 85m from the *Lecarrow,* and one watercourse crossing is proposed between T1 and T2. An additional watercourse crossing of the *Forty Acre* is proposed close to the southern Proposed Wind Farm site entrance.

The remaining project elements (e.g., turbines, substation, etc.) are located more than 50m from any watercourse. Two small lakes, mapped as the Derrynacrick Loughs by the OSI, or located between T6 and T9, with one lake located outside of the Proposed Wind Farm site, and one lake just within the Proposed Wind Farm site.

2.10 ARTIFICIAL DRAINAGE

Areas of raised and cut-over peat across the Proposed Wind Farm site have been extensively drained due to the installation of artificial drainage channels. These channels radiate out from the centre of the raised bogs (e.g. north of T5) and are typically oriented perpendicular to the extant turbary peat extraction faces. Due to the low slope angles observed across the site, the orientation of the artificial drainage network is considered to have a low impact on peat stability.

2.11 LAND COVER AND LAND USE

According to the Corine Land cover map shown in Figure I- 1 in Appendix I, the surrounding landscape of the proposed site comprises mixed forest, peat bog, pastures and mixed agriculture. Land use within the site is mixed, with peat cutting and agricultural land dominating.

2.12 RAINFALL

The Proposed Wind Farm site is in the west of Ireland, where the average meteoric rain days, according to Met Éireann, is 240 to 260 days per year (Coonan et al., 2024), with winter and autumn being the wettest periods of the year. The long-term rainfall averages for Ireland 1991-2020, published by Met Éireann in 2024 (Coonan et al., 2024), provide an average annual rainfall per 1km grid square across the entirety of the Republic of Ireland. The average annual rainfall for the

Proposed Wind Farm site was recorded at 1175mm. The same report lists the average annual rainfall across Ireland as ranging between 750 and 1,250mm. This suggests that the Proposed Wind Farm site experiences rainfall in line with, and slightly higher than, national averages. A map showing the average rainfall and the nearest Met Éireann rain gauge can be seen in Figure J-1 in Appendix J.

2.13 SPECIAL AREAS OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREAS (SPA)

The Proposed Wind Farm site is not located within an SAC or SPA. The Lough Corrib SAC is located approximately 90m to the north of the Proposed Wind Farm site. The watercourses which drain the site eventually drain downstream to the Corrib River, which is contained within the Lough Corrib SAC. The location of the nearest SACs can be seen in Figure J-2 in Appendix J.

2.14 LITERATURE REVIEW

While no directly relevant studies of peat landslides in the immediate vicinity of the Proposed Wind Farm site are available, this PSRA has considered the findings of the recently published report into the causes of the 2020 Meenbog, Shass Mountain and Mt. Eagle peat landslides (GSI and Fehiliy Timoney, 2024). Of particular relevance is the 2020 Meenbog landslide, which occurred during the construction phase of the Meenbog Wind Farm in Co. Donegal. Review of the published literature indicates that the conditioning factors at Meenbog (upland, afforested blanket bog with convex slope breaks and a consistent slope, increasing from 2-6° immediately downslope of the failure zone) are largely absent from the Proposed Wind Farm site. Post failure investigations by GSI and Fehiliy Timoney indicate undrained shear strength values in the saturated blanket peat at the Meenbog failure location range between 2-9kPa, with an average of just under 5kPa recorded, indicating a large body of extremely weak peat. This value is lower than any recorded value at the Proposed Wind Farm (Section 3.1), and in line with the value adopted for the FoS analysis (5kPa, Section 4.3).

The PSRA has also considered the findings of forensic investigations into the 2003 Derrybrien landslide, at the Derrybrien Wind Farm in Co. Galway (approximately 40km South of the Proposed Wind Farm site). Based on the findings of the investigations into Derrybrien failure (Lindsay and Bragg, 2004), undrained loading during construction was found to be the critical failure mechanism, with undrained shear strength values as low as 2.8kPa recorded (3.8kPa recorded at the failure sites). The findings of this investigation have been incorporated into the methodology for assessing the peat factor of safety, as outlined in Section 4.3. The shear strength values observed at Derrybrien are lower than any recorded value at the Proposed Wind Farm (Section 3.1). Review of the published literature indicates that the conditioning factors at Derrybrien (upland, afforested blanket bog with convex slope breaks and a consistent slope, ranging from 3-5°) are largely absent from the Proposed Wind Farm site. It must also be stressed that unrestricted loading of the peat during construction has been identified at the key trigger at Derrybrien, and is to be avoided at the Proposed Wind Farm site – please see the mitigation measures outlined in Section 6.

3 SITE RECONNAISSANCE

GDG and MKO conducted preliminary ground investigation (GI) and site reconnaissance in the form of peat probes (PP), hand shear vanes (HSV), boreholes (BH) and trial pits (TP) between 2021 and 2025. Site reconnaissance included site walkovers by a chartered geologist to record geomorphological features concerning the Proposed Wind Farm site, peat depths, and peat strength. The walkover inspections and peat probe campaign were carried out across the Proposed Wind Farm and in some areas outside of the EIAR boundary, to assess peat stability risk across the local area immediately adjacent to the Proposed Wind Farm. An indication of the Proposed Wind Farm site conditions is shown in Figure 3-1 to Figure 3-4. Access was limited to some areas, limiting the number of peat probes taken in areas of extremely dense forestry (such as the area between T5 and T8). Maps showing the distribution of GI locations can be seen in Figures K-1 to K-3 in Appendix K.

Six GI campaigns were carried out on the Proposed Wind Farm site:

1) MKO (October 2021-July 2022): 60no. peat probes
2) GDG (August 2022): 35no. peat probes and 12no. trial pits.
3) Petersen Drilling Services Ltd. (August 2022): 2no. Rotary Core Boreholes (open hole well boreholes)
4) GDG (August 2024): 160no. peat probes.
5) GDG (November 2024): 51no. peat probes and 5no. hand shear vanes.
6) GDG (February 2025): 15no. trial pits with hand shear vanes, and associated lab testing.

In summary, intrusive ground investigations were carried out at 344 locations. The GI locations considered the following criteria:

- Spatial distribution of the proposed infrastructure;
- Distance between probe points to avoid interpolation of peat depths across large distances;
- Changes in slope angle, as peat depths are likely to be shallower on steeper slopes;
- Changes in vegetation, which can reflect changes in peat condition;
- Changes in hydrological conditions; and
- Changes in land use.

No evidence of any previous landslides or peat instability indicators, as described in Section 1.4.3, were identified during the walkovers.

A raster map was created in GIS software, presenting the interpolated peat depth across a site from the peat probe points using the Inverse Distance Weighted (IDW) method. This interpolated raster of peat depth is represented in Figures K-4 to K-6 in Appendix K.

Table K- 1 to Table K- 12 in Appendix K present the observations made at the proposed infrastructure. The trial pit logs can be seen in Appendix K.1.

Figure 3-1: View from T5 hardstand towards prominent drumlin/bedrock ridge, showing cut-over peat in foreground.

Figure 3-2: Peat and subsoil transition exposed in open drain - east of Substation location

Figure 3-3: Raised peat adjacent to T05 hardstand

Figure 3-4: Raised peat close to the access track to T06

3.1 GROUND INVESTIGATION SUMMARY

Review of the published geological information, site observations, and the results of the ground investigation campaigns indicate that the ground conditions at the consists of a generally flat to undulating topography, with prominent ridges of glacial material (Drumlins) separating large, flat-lying raised peat bogs, which have been subject to turbary peat harvesting. Trial pit locations (Appendix K.1) suggest that the peat is typically underlain by granular or cohesive glacial material, with trial pits encountering soft to firm gravelly CLAY/SILT, sandy GRAVELS, and sandy SILT (marl-like

silt) underlying the peat. In addition, Petersen Drilling Services Ltd. carried out two boreholes for the purpose of the hydrological assessment (Chapter 9 of the EIAR). These boreholes encountered a similar mix of cohesive and granular glacial tills and encountered limestone bedrock at 4.9m BGL and 2.6m BGL, respectively.

The peat thickness encountered by intrusive investigations across the Proposed Wind Farm site varies from 0m (in areas where peat is absent) to a maximum of 7.1m, with an average of 1.3m, and a median of 0.4m recorded. Areas of the Proposed Wind Farm site containing little to no peat, underlain by cohesive or granular glacial tills, include T01, T04, T6-T8, the substation, the construction compound and the southern and central Proposed Wind Farm site access tracks. Much of the remaining proposed infrastructure, including T2-T3, T6-T7 hardstands and T9, the BESS compound and the majority of the northern access tracks, are in areas of cut-over peat, where turbary peat harvesting has removed significant quantities of peat, reducing peat thicknesses.

The frequency of different peat thicknesses is shown in Figure 3-5. In total, 64% of recorded peat depths were under 1m, and 74% were under 2m.

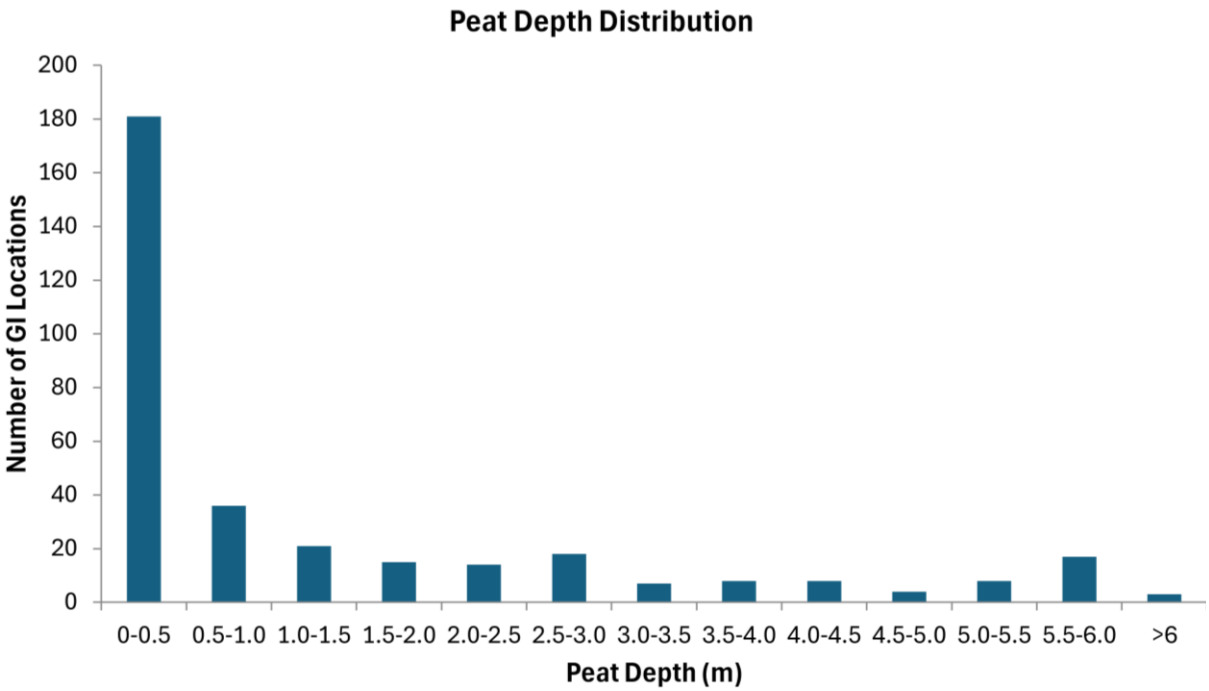

Figure 3-5: Histogram of peat depth results across the Proposed Wind Farm site. Bins include the upper bound (e.g., 0.5–1.0 includes values ≤ 1.0).

Laterally extensive regions of >3m in depth were encountered in raised bog settings, particularly to the north of T5 (approx. 30m), to the southeast of T7 (approx. 120m from the hardstand), to the west of T9 (approx. 200m) and the north of T2 (approx. 100m). These areas of deep peat are restricted to discrete raised bogs, which all major infrastructure positioning has avoided, aside from the proposed floated track between T7 and T9, which passes across one area of raised bog, with recorded peat depths of up to 6.8m.

A summary of the average peat depths encountered at each turbine is presented in Table 3-1.

Table 3-1: Peat depth encountered at each turbine location.

Turbine Location	Peat Depth (m)
T01	0
T02	0.5
T03	0.9
T04	0
T05	1.6
T06	0
T07	0
T08	0
T09	2.3

HSV tests were completed in peat at six locations (including trial pits). A summary of the recorded values is provided in Table 3-2. The lowest undrained shear strength value recorded in the peat was 12 kPa, recorded at 1m BGL at HSV-TP15. Based on this available HSV data, a conservative value of 5 kPa has been selected as the undrained shear strength value used in the peat stability calculations, as outlined in Section 4.3.

Table 3-2: Summary of hand shear vane test results

Location ID	Measured c_u (kPa)		Location
	0.5m BGL	1m BGL	
HSV01	23	20	T9
HSV02	25	26	East of Substation
HSV-TP03	-	20	T2

Location ID	Measured c_u (kPa)		Location
	0.5m BGL	**1m BGL**	
HSV-TP06	-	20	T5
HSV-TP07	-	42	T9
HSV-TP15	-	12	PRA2

3.2 OVERVIEW OF PEAT CONDITIONS

The walkover indicated that the peat was being cut in several areas and had drained significantly, with the observed peat classified as the catotelm at all infrastructure locations. The surface condition of the peat is varied, with some areas having bare peat at the surface where cutting is active, as shown in Figure 3-1 to Figure 3-4, and some areas of uncut peat capped by heather, with visible acrotelm. A large variation in the level of decomposition and humification was observed throughout the peat body, with trial pits recording Von Post (Hobbs, 1986) humification values between H1 (none) and H5 (moderate - Figure 3-6). However, this generally appeared to increase with depth. Peat material identified at the Proposed Wind Farm site during the trial pitting (Appendix K.1) is logged as fibrous to amorphous. Trial pits were not carried out in areas of >3m peat thickness, so there are likely to be areas of catotelmic peat which have not been logged.

Figure 3-6: Moderately humified peat (H5) in TP07, overlying soft clay.

4 PEAT STABILITY ASSESSMENT

The peat stability assessment is one of the inputs required for the peat hazard assessment and risk calculation. This section presents:

- A review of the general approaches to assess peat stability;
- The concept of the FoS;
- The methodology adopted for this report and the parameters required; and
- The resulting FoS delineates safety buffers and peat stockpile restricted areas.

4.1 MAIN APPROACHES TO ASSESS PEAT STABILITY

The main approaches for assessing peat stability for renewable energy developments include the following:

1) Qualitative geomorphological judgement; and
2) Quantitative assessment:
    a) Empirical probabilistic approach.
    b) Physically based deterministic approach (FoS).

Approach 1 is subjective and thus not adopted for this study. Approach 2a is objective and quantitative, but is more appropriate for land planning and decision-making studies at a regional scale. Additionally, the method does not provide an engineering indication of physical stability as Approach 2b does. In this report, the peat stability assessment is carried out by using Approach 2b: deterministic (FoS) approach (Bromhead, 1986).

4.2 THE FACTOR OF SAFETY CONCEPT

The FoS is a measure of the stability of a slope. For any slope, the degree of stability depends on the balance between the landslide driving forces (weight of the slope) and its inherent shear strength, illustrated in Figure 4-1.

Figure 4-1: Balance of forces in a slope (Scottish Executive, 2017).

Therefore, the FoS provides a direct measure of the degree of stability of a slope by the ratio of the shear resistance along a potential surface of failure and the landslide driving forces acting on such a surface. Multiple potential surfaces of failure are possible, but the FoS assigned to a slope is that of the surface of failure with the lowest value of FoS.

- FoS < 1 indicates a slope is unstable and prone to failure.
- FoS = 1 indicates a slope is theoretically stable but not safe.
- FoS ≥ 1.3 indicates the acceptable safety threshold. The previous code of practice for earthworks, BS 6031:1981 (BSI, 1981), provided advice on the design of earthworks slopes. It stated that for a first-time failure with a good standard of site investigation, the design FoS should be greater than 1.3. This way, the slope is stable and safe.

As a general guide, the FoS limits for peat slopes assumed in this report are summarised in Table 4-1.

Table 4-1: FoS limits assumed in this report.

FoS limits	Slope stability
FoS < 1	Unstable
1 ≤ FoS <1.3	Stable but not robust
FoS ≥ 1.3	Stable and safe

Eurocode 7 (EC7) (I.S. EN 1997 1.2005+AC.2009) is now the reference document and basis for design of geotechnical engineering works. The design philosophy used in EC7 applies partial factors to soil parameters, actions and resistances. Unlike the traditional FoS approach, EC7 does not provide a direct measure of stability, as global factors of safety are not used.

Therefore, to provide a direct measure of the peat stability across the Proposed Wind Farm site, the previous FoS method has been used for this assessment rather than EC7 partial factors. This is in line with current best practice for this type of development (Scottish BPG; Scottish Government, 2017).

4.3 METHODOLOGY ADOPTED AND PARAMETERS

The stability of a peat slope depends on several factors working in combination, namely the slope angle, the shear strength of the peat, the depth of the peat, the pore water pressure and the loading conditions. An adverse combination of these factors could potentially result in peat failure. An adverse value of one of the factors mentioned above alone is unlikely to result in peat failure. The infinite slope model (Skempton and DeLory, 1957) combines these factors to determine a FoS for peat sliding in the study area. This model is based on a translational slide, which is a reasonable representation of the dominant mode of movement for peat failures.

To determine the stability of the peat slopes in the study area, undrained (short-term stability) and drained (long-term stability) analyses have been carried out.

4.3.1 UNDRAINED CONDITIONS

The undrained loading condition applies in the short term during the Proposed Wind Farm works and until works-induced pore water pressures dissipate.

Undrained shear strength values (c_u) for peat are used for the total stress analysis. Based on the findings of the Derrybrien failure (Lindsay and Bragg, 2004), undrained loading during construction was found to be the critical failure mechanism.

Among the shear strength values obtained by GDG by using the hand shear vane (HSV) tests in the Proposed Wind Farm site, the lowest registered value for a completed test was 12 kPa (Table 3-2).

Based on the available HSV results and GDG's experience in the assessment of similar blanket peats and values reviewed in the literature, a conservative value of 5 kPa has been adopted for the undrained shear strength (c_u) across the entire Proposed Wind Farm site. The HSV testing was carried out in the summer and is not considered to be representative of undrained winter conditions. This has been considered when selecting the design c_u value. The formula used to determine the FoS for the undrained condition in the peat (Bromhead, 1986) is as follows:

$$F = \frac{c_u}{\gamma z sin\alpha cos\alpha}$$ Equation 4.3-1

Where,

F = FoS;
c_u = Undrained strength (5 kPa in the Proposed Wind Farm);
γ = Bulk unit weight of the material (assumed 10 kN/m^3);
z = Depth to failure plane assumed as the depth of peat (this is the interpolated raster of peat depth); and
α = Slope angle (in each pixel of 5 m. This is obtained from the 5m DEM provided by MKO).

4.3.2 DRAINED CONDITIONS

The drained loading condition applies in the long term. The condition examines the effect of the change in groundwater level as a result of rainfall on the existing stability of the natural peat slopes.

A drained analysis requires effective cohesion (c') and effective friction angle (ø') values for the calculations. These values can be difficult to obtain because of the disturbance experienced when

sampling peat and the difficulties in interpreting test results due to the excessive strain induced within the peat. A review of published information on peat was undertaken to determine suitable drained strength values. Table 4-2 shows a summary of the drained parameters used in published literature. Based on GDG's experience in the assessment of similar blanket peats and the values reviewed in the literature, it was considered appropriately conservative to use design values below the averages, namely c' = 4 kPa and ø' = 25°.

Table 4-2: Effective cohesion and friction angle values from the literature

Reference	Cohesion, c' (kPa)	Friction Angle, ø'
Hanrahan et al. (1967)	5 to 7	36 to 43
Rowe and Mylleville (1996)	2.5	28
Landva (1980)	2 to 4	27.1 to 32.5
Landva (1980)	5 to 6	-
Carling (1986)	6.5	0
Farrell and Hebib (1998)	0	38
Farrell and Hebib (1998)	0.61	31
Rowe, Maclean and Soderman (1984)	3	27
McGreever and Farrell (1988)	6	38
McGreever and Farrell (1988)	6	31
Hungr and Evans (1985)	3.3	-
Madison et al. (1996)	10	23
Dykes and Kirk (2006)	3.2	30.4
Dykes and Kirk (2006)	4	28.8
Warburton et al (2003)	5	23.9
Warburton et al (2003)	8.74	21
Entec (2008)	3.8	36.8

Reference	Cohesion, c' (kPa)	Friction Angle, ø'
Komatsu et al (2011)	8	34
Zhang and O'Kelly (2014)	0	28.9 to 30.3

The formula used to determine the FoS for the drained condition in the peat (Bromhead, 1986) is as follows:

$$F = \frac{c' + (\gamma z - \gamma_w h_w)\cos^2 \alpha \tan \phi'}{\gamma z \sin \alpha \cos \alpha}$$ Equation 4.3-2

Where,
F = FoS;
c' = Effective cohesion (4 kPa);
γ = Bulk unit weight of the material (10 kN/m^3);
z = Depth to failure plane assumed as the depth of peat (this is the interpolated peat depth);
γ_w = Unit weight of water (9.81 kN/m^3);
h_w = Height of the water table above the failure plane (= z, i.e. surface level);
α = Slope angle (in each pixel. This is obtained from the 5m DEM provided by MKO);
ϕ' = Effective friction angle (25°).

Several general assumptions were made as part of the analysis:

3) Peat depths are based on the maximum peat depths recorded in each probe from the walkover surveys.
4) The slope angles derived from the DEM (Bluesky, 2022), as outlined in Section 0, accurately represent slope angles within the Proposed Wind Farm.
5) The surface of failure is assumed to be parallel to the ground surface.
6) The peat stability is calculated in pixels of 5m across the fringe, containing information on peat depth and the proposed infrastructure.

Two surcharging conditions are considered for the stability analysis:

- No surcharging load; and
- Surcharging load of 10 kPa (equivalent to the placement of 1m of stockpiled excavated peat).

4.4 FOS RESULTS

The factors of safety obtained for the two different conditions (undrained and drained) and for the two surcharge scenarios (no surcharge and 1 m of peat surcharge (10kPa) are presented in both table format and map format.

Table L- 1 and Table L- 2 in Appendix L shows the FoS calculation process at the proposed turbine locations, hardstands, construction compound, substation/BESS compound and met mast, for undrained and drained conditions, respectively. The FoS calculation for the rest of the sites, i.e. the access tracks (more than 5000 pixels of 5 m), has been carried out semi-automatically in GIS by implementing Equation 4.3-1 and Equation 4.3-2 in the GIS raster calculator.

4.4.1 FOS FOR UNDRAINED CONDITIONS

The spatial distribution of the FoS values calculated for undrained conditions (no surcharge) is shown in Figures L-1 to L-3 in Appendix L. Almost all of the pixels are shown to be stable and safe (FoS > 1.3, green), but there are some small areas alongside the access track (approx. 5m away from access track) between T5 and T6 which show FoS values between 1 and 1.3 (yellow: stable but not safe). A small number of pixels alongside the access track between T5 and T6 have FoS values <1 (red: not stable) but are 5m away from the access track. Large areas of the Proposed Wind Farm site (e.g. at T1, T4 and T8) do not have FoS scores. This is because no peat is present in these locations; therefore no value could be calculated.

These risk areas are caused by localised factors, which have been examined in more detail in Section 4.5. Where required, additional mitigation, including exclusion zones and peat storage restriction areas have been scheduled, which the designer and contractor must adhere to at the construction stage.

4.4.2 FOS FOR UNDRAINED CONDITION AND SURCHARGE OF 10 KPA

Figures L-4 to L-6 in Appendix L depict the spatial distribution of the FoS values calculated for undrained conditions and with a 10 kPa surcharge. The 10 kPa simulated the placement of 1m of peat material on the ground surface. In terms of the FoS results, the undrained condition with the 10 kPa surcharge is the critical stability scenario. Almost all the pixels are shown to be stable and safe (FoS > 1.3, green), but there is one section within the access track between T5 and T6 which shows FoS values between 1 and 1.3 (yellow: stable but not safe). A small number of pixels within the access track between T5 and T6 have FoS values <1 (red: not stable). Areas in the undrained scenario (e.g. T1, T4 and T8) which did not have FoS values without surcharge are assigned values in this scenario, as the placement of 1m of peat is simulated.

These risk areas are caused by localised factors, which have been examined in more detail in Section 4.5. Where required, additional mitigation including exclusion zones and peat storage restriction areas, have been scheduled which the designer and contractor must adhere to at the construction stage.

4.4.3 FOS FOR DRAINED CONDITIONS

The spatial distribution of the FoS values calculated for drained conditions is shown in Figure L-7 to L-9 in Appendix L. Almost all of the pixels are shown to be stable and safe (FoS > 1.3, green), but there is one section within the access track between T5 and T6 which shows FoS values between 1 and 1.3 (yellow: stable but not safe). One pixel within the access track between T5 and T6 has FoS values <1 (red: not stable). Large areas of the Proposed Wind Farm site (e.g. at T1, T4 and T8) do not have FoS scores. This is because no peat is present in these locations; therefore no value could be calculated.

These risk areas are caused by localised factors which have been examined in more detail in Section 4.5. Where required, additional mitigation including exclusion zones and peat storage restriction

areas have been scheduled, which the designer and contractor must adhere to at the construction stage.

4.4.4 FOS FOR DRAINED CONDITION AND SURCHARGE OF 10 KPA

The spatial distribution of the FoS values calculated for drained conditions is shown in Figure L-10 to L-12 in Appendix L. Almost all the pixels are shown to be stable and safe (FoS > 1.3, green), but there is one section within the access track between T5 and T6 which shows FoS values between 1 and 1.3 (yellow: stable but not safe). There are no pixels within any proposed infrastructure which show FoS values <1 (red: not stable). Areas in the drained scenario (e.g. T1, T4 and T8) which did not have FoS values without surcharge are assigned values in this scenario, as the placement of 1m of peat is simulated.

These risk areas are caused by localised factors which have been examined in more detail in Section 4.5. Where required, additional mitigation including exclusion zones and peat storage restriction areas, have been scheduled which the designer and contractor must adhere to at the construction stage.

4.5 ASSESSMENT AND INTERPRETATION OF FOS RESULTS

In all the modelled FoS scenarios, areas of FoS <1.3 are rare, and are generally localised to peat cut faces of banks or linear features such as ditches or land drains. The Proposed Wind Farm layout avoids all areas of FoS <1.3 in all scenarios, with the exception of one localised section of the access track between T5 and T6 (AL5b). This access track interacts with a very small area of 1< FoS <1.3 at a minor water crossing. This location is discussed in further detail in Table 4-3.

Localised areas of the Proposed Wind Farm site contain flat-lying, deep peat with active peat cutting. Steep peat cuttings of <1m generate low factors of safety but are generally considered low landslide risk. Raised bog environments like this site may be susceptible to bog burst type failures, which can occur at very low slope angles and may not be fully quantified by the FoS calculation, as they are driven by hydrological factors rather than slope-driven. For this reason, the locations were assessed on-site and 'ground-truthed' to identify true hazards. GDG site walkovers identified no evidence of significant bog burst features.

The lack of evidence for historical bog bursts does not preclude the possibility that these may occur. Further inspection will be required during the detailed design and construction stage to inspect for peat instabilities, including bog burst features. This will be carried out by the detailed Designer and the Contractor's team. The design team shall develop their own inspection and testing criteria to satisfy and de-risk the possibility of peat landslides at these locations.

4.6 SAFETY BUFFER ZONES AND PEAT STOCKPILE RESTRICTION AREAS

Areas of restricted stockpiling and construction have been and are presented in Figures M-1 to M-3 in Appendix M.

The restriction areas consist of:

Safety Buffer Zones (SBZs) – areas which **will be restricted for construction.** No development or construction activities will be carried out in these areas, including plant movements, peat or overburden excavation or reinstatement or placement of peat or any overburden materials. 31no. SBZs have been identified across the Proposed Wind Farm site, mostly identified at peat cut faces or along ditches.

Peat Stockpile Restriction (PSR) areas are **not restricted for construction but shall not be used for stockpiling of peat/side casting or overburden materials**. The Proposed Wind Farm footprint may encroach within these areas, but peat placement and reinstatement are not permitted within these buffers. Any material excavated from within the peat restriction areas must be removed immediately and safely reinstated in a designated area elsewhere. One PSR area has been identified.

The development of the SBZs is a semi-automated approach which combines the developed polygon areas of the FoS results, areas of risk identified during the site walkovers and potential risk areas identified from the examination of peat depths and site topography. SBZs are outlined in Appendix M. Areas included in the SBZs include an area of thick, raised peat to the north of T5.

PSR areas are locations where the Proposed Wind Farm site layout encounters an area where a stability risk has been encountered with the addition of a 1m surcharge only, but is otherwise considered stable in its natural state. The risk at these locations can be examined by looking at the geometry of the local slope and the proposed construction methodology, where the hazards will be mitigated with restricted peat and spoil placement and limiting plant operations within the area. Infrastructure for the Proposed Wind Farm interacts with one PSR area, where the access track between T5 and T6 crosses a localised area of 1< FoS <1.3 in the undrained scenario with surcharge.

The stockpile restriction areas are outlined in Appendix M, and the one location where infrastructure encounters a PSR is outlined in Table 4-3.

Table 4-3: SBZs at key locations.

Risk and mitigation	Undrained surcharged FoS analysis
A small section of track (AL5b), south of T6, interacts with an area of FoS <1.3 in the undrained scenario with 10 kPa surcharge. This calculated low FoS is assessed to arise from locally deep peat and high slope angles at the banks of a minor watercourse. It is determined that these do not present a global risk of peat failure, but that the ground must be levelled and stabilised locally prior to construction. The access track in this	

Risk and mitigation	Undrained surcharged FoS analysis
location must be founded, and any peat excavated and replaced to a suitable bearing stratum. The peat at the banks of the watercourse in this area will be reprofiled to a more stable slope angle (typically 1V:3H).	

5 PEAT STABILITY RISK ASSESSMENT

A PSRA has been carried out at each of the proposed infrastructure locations, considering the landslide hazard probability and potential consequences at each location. The peat stability FoS is the most significant factor in generating a risk rating.

5.1 RISK DEFINITION

Risk is the potential or probability of adverse consequences, including economic losses, environmental or social harm, or detriment. Risk is expressed as the product of a hazard (e.g. peat landslide) and its adverse consequences (Lee & Jones, 2004; Corominas et al., 2014) (Equation 5.1-1). Some use approximate synonyms and refer to risk as the product of the likelihood and the impact, or the product of susceptibility and the exposure.

Risk = (Hazard) x (Adverse Consequences) Equation 5.1-1

5.2 GENERAL METHODS FOR RISK ASSESSMENT

There are various levels of risk assessment, ranging between:

- Detailed quantitative risk assessments (QRA) where the objective is to generate more precise measures of the risks (e.g. expressing risk as a specific probability of loss). These require a large amount of quantitative input and time, and
- High-level qualitative assessments where the objective is to develop an approximate estimate of the risks, particularly in relative terms (e.g. low, medium, and high levels of risk).

Qualitative risk assessments are typically used for PSRA reports, given the availability of information and the time frame. To apply Equation 5.1-1, the quantitative information (e.g. FoS) and the qualitative information (e.g. geomorphic observations relevant to peat stability) that determine the hazard and the consequences need to be transformed into subjective ratings. The following sections address the calculation of the two risk components: hazard and consequence.

5.3 EXCLUDED AREAS

As a result of the varied ground conditions across the Proposed Wind Farm site, several proposed infrastructure locations are in areas where peat is absent. This has been confirmed by site observations and ground investigations. Due to the absence of peat at these locations, they have been excluded from the Peat Stability Risk Assessment, as the risk of peat landslides is negligible. A summary of the excluded infrastructure elements is presented in Table 5-1. No peat was recorded at T6 or T7, however due to their close proximity to locations where peat was encountered, these have been considered as part of the assessment. Sections of access track alignment refer to Figure A-1 in Appendix A.

Table 5-1: Areas excluded from Peat Stability Risk Assessment

Location	Recorded Peat Depth (m)	Ground Conditions
T1	0	Glacial Till
T1 Hardstand	0	Glacial Till
T4	0	Glacial Till
T4 Hardstand	0	Glacial Till
T8	0	Glacial Till
T8 Hardstand	0	Glacial Till
Construction Compound	0	Glacial Till
Met Mast	0	Glacial Till
SRA2	0	Glacial Till
SRA3	0	Glacial Till
Access Track AL1	0	Glacial Till
Access Track AL1B	0	Glacial Till
Access Track AL6	0	Glacial Till
Access Track AL8	0	Glacial Till

5.4 HAZARD ASSESSMENT

Landslide hazard is the likelihood or probability of landslide occurrence in each location and a given period. The likelihood or hazard of peat landslides has been determined according to the guidelines for geotechnical risk management given by Clayton (2001), considering the approach of MacCulloch (2005) and using the available data from the desk study, site reconnaissance, and site investigations.

The hazard is calculated from a variety of weighted factors, including the FoS and thirteen secondary factors related to geomorphic observations, topography, hydrology, vegetation, peat workings, existing loads, and slide history (Appendix N). These secondary factors are difficult to quantify in a stability calculation but may contribute to peat instability.

In accordance with the BPG (Scottish Government, 2017), each hazard factor has been reclassified into one of four classes, with rating values ranging from 0 to 3 (Appendix N). A rating of 0 indicates

that the hazard factor is not relevant; ratings 1, 2, and 3 indicate low, moderate, and high correlation to peat slide hazard, respectively.

These factors have been assigned weighting values to reflect their relative importance in peat stability. Both the rating and the weighting values have been assigned according to the expert criteria of the project team and are presented in Appendix N. The hazard score of each factor is the multiplication of its rating value and weight value. These factors and their corresponding weightings are presented in Table 5-2.

The hazard values for a given wind farm element are the sum of the scores of all the hazard factors divided by the maximum hazard value possible to obtain a normalised hazard value ranging from 0 to 1 (see tables in Appendix N). Hazard is grouped into four categories: negligible, low, medium, and high.

Table 5-2: Factors affecting peat stability and hazard.

Hazard factors			Role in peat stability	Weight
FoS			This is the most critical factor, including the slope angle, the peat depth, the peat density, the peat cohesion in the drained and undrained conditions, and the effective friction angle. This is the complete factor. See Section 4 for further details.	10
Secondary factors	Topography	Curvature Plan (across the slope)	This represents the curvature across the slope and the funnelling/dispersion of the runoff.	1
		Curvature Profile (downslope)	This represents the curvature downslope and, therefore, the capacity of water retention and infiltration. Convex slopes are typically more prone to landslides.	
	Hydrology	Distance from watercourse (m)	This tends to affect the likelihood of landslides, especially in sectors where this distance is short.	
		Moisture index (NDMI)	This Landsat-derived factor indicates the water content or moisture of the vegetation, which can be considered as a proxy of the terrain moisture.	
		Evidence of piping	The presence of piping is clear evidence of potential peat instability.	
		The direction of existing drainage ditches	Drainage ditches that are aligned cross-slope can affect the overall stability of a slope face.	

Hazard factors			Role in peat stability	Weight
	Vegetation	Bush	This is an indicator of the type of peat at the site and the hydrological nature of the site.	
		Forestry	The vigour of forestry is another indicator of peat stability, with stunted trees more frequent in unstable sectors.	
	Peat workings	Peat cuts presence	This factor evaluates the effect of various peat workings on the stability of the peat.	
		Peat cuts vs contour lines	Where the peat cuts parallel the contour lines, the potential instability increases.	
	Existing loads	Roads	Side-cast of solid roads and floating roads pose a load to the peat blanket.	
	Slide history	Distance to previous slides (km)	This suggests that landslides at the site are likely if a peat slide has occurred at the site or within a 10-kilometre radius. The weight assigned is double the weight of the other secondary factors	2
		Evidence of peat movement (e.g. tension cracks, compression features).	This factor evaluates the effect of any existing peat movement indicators on-site, such as tension cracks. The weight assigned is double the weight of the other secondary factors.	

5.5 ADVERSE CONSEQUENCES ASSESSMENT

The impacts of peat landslides on the wind farm elements, the surrounding environment, and existing assets may typically generate a variety of adverse consequences. This report qualitatively assessed these consequences following the BPG (Scottish Government, 2017).

Table 5-3 summarises the consequences considered for the PSRA of the development.

Table 5-3: Consequences considered for the PSRA.

Consequence factors	Description	Weight
The volume of potential peat flow (function of distance from the nearest watercourse and peat depth in the area)	This is the second most heavily weighted factor. It is estimated based on the distance from the nearest defined watercourse and the depth of peat in the area. The longer the distance and the deeper the peat depth, the larger the landslide.	3

Consequence factors	Description	Weight
Downslope features	This factor accounts for the type/shape of downslope features that may hamper or favour the propagation downhill of the peat flow.	1
Proximity to the defined valley (m)	This is the distance from the site to the nearest defined river valley. Rivers close to potential landslide sectors are more vulnerable to a landslide event.	
Downhill slope angle	This factor accounts for the runout distance as a matter of slope angle.	
Downstream aquatic environment	Reflects the severity of a peat slide event's impact on the receiving aquatic environment.	
Public roads in the potential peat flow path	Rates the impact of a peat slide striking a public road.	
Overhead lines in the potential peat flow path	Rates the impact of a peat slide striking a service line.	
Buildings in the potential peat flow path	Rates the impact of a peat slide striking a habitable structure.	
Capability to respond (access and resources)	Rates the capability of the site staff to respond to a peat instability event.	

The nine consequence factors considered have been reclassified in the same fashion as the hazard factors were reclassified (Appendix N). A rating of 0 indicates that the consequence factor is not relevant, and a rating of 3 indicates high consequences.

'Volume of potential landslide' has been assigned a weight of 3 to reflect its relative importance in the potential consequences. The rest of the factors have been assigned a weight of 1. Both the rating and the weighting values have been assigned according to the expert criteria of the project team. The score of each consequence factor is the multiplication of its rating value and its weight value (Appendix N).

The consequence value for a given wind farm element is the sum of the nine consequence scores. This total value is then divided by the maximum consequence value possible to obtain a normalised consequence value ranging from 0 to 1 (see tables in Appendix M). Consequences are grouped into four categories: negligible, low, medium, and high.

5.6 RISK CALCULATION

Risk in each Proposed Wind Farm infrastructure element is calculated with Equation 5.1-1, i.e., multiplying the hazard scores and the consequence scores. The risk rating ranges between 0 and 1, and the following levels of risk rating have been distinguished (Table 5-2 and Table 5-3):

> High (0.6 to 1): Avoid project development at these locations. Mitigation is generally not feasible.
>
> Medium (0.4 to 0.6): The project should not proceed unless risk can be avoided or mitigated at these locations without significant environmental impact to reduce risk ranking to low or negligible. Avoid construction in the area if possible. If unavoidable, a detailed site investigation and design of specific mitigation measures. Full-time supervision during construction.
>
> Low (0.2 to 0.4): Project may proceed pending further investigation to refine assessment and mitigate hazard through relocation or re-design at these locations. Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
>
> Negligible (0 to 0.2): The project should proceed with monitoring and mitigating peat landslide hazards at these locations as appropriate. Normal site investigation.

Appendix N gathers the risk calculation process at each infrastructure location, considering the four scenarios of hazard: Undrained; undrained with a surcharge of 1 m; drained; and drained with a surcharge of 1 m. Figure 5-1, Figure 5-2 and Figure 5-3 summarise the risk rating obtained at the turbines, compounds and access track locations. All the turbines and infrastructure elements are located in sectors of negligible risk. Access track locations reference Figure A-1 in Appendix A.

It is stressed that the resulting risk rating does not indicate a probability of a landslide occurring; it simply expresses a rating of the potential risk.

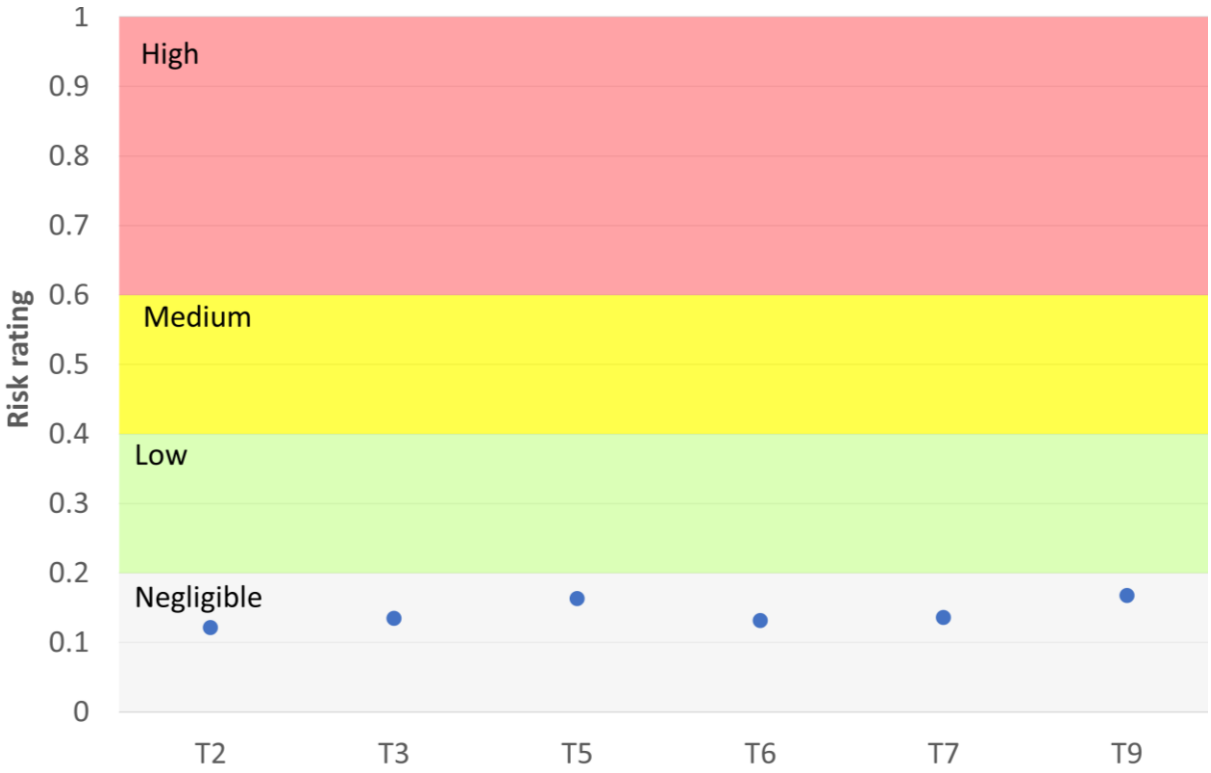

Figure 5-1: Risk ratings at the proposed turbine locations.

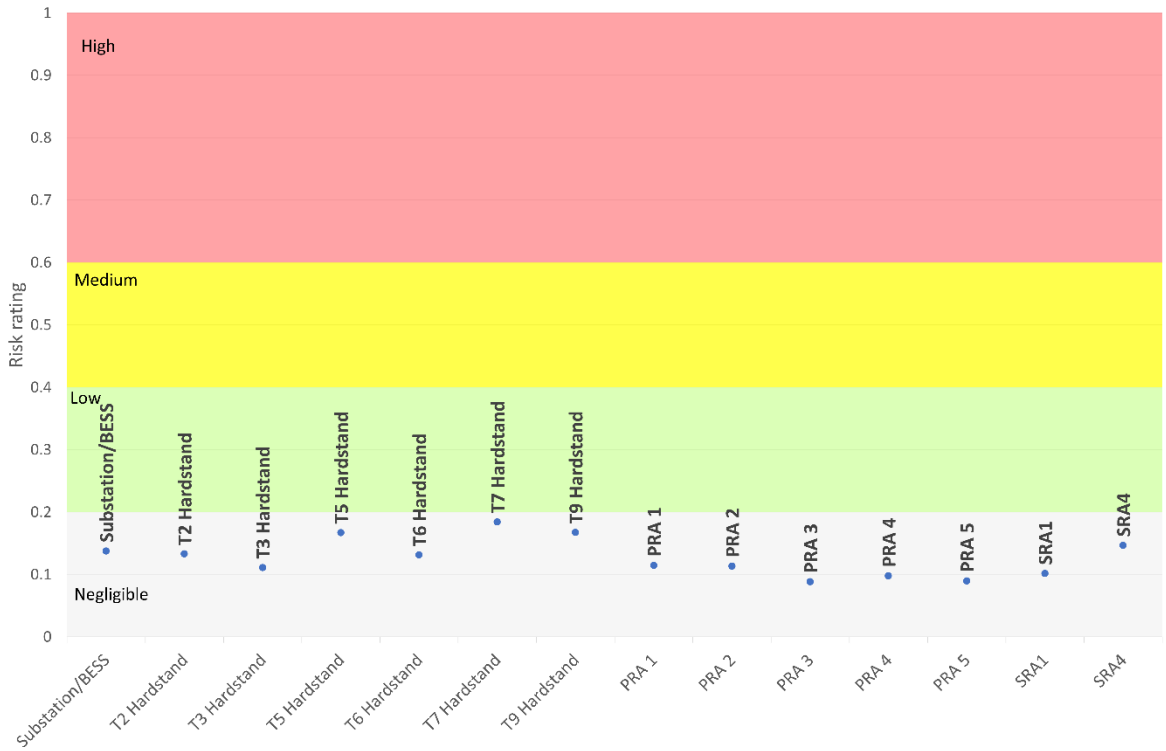

Figure 5-2: Risk ratings at the proposed infrastructure locations.

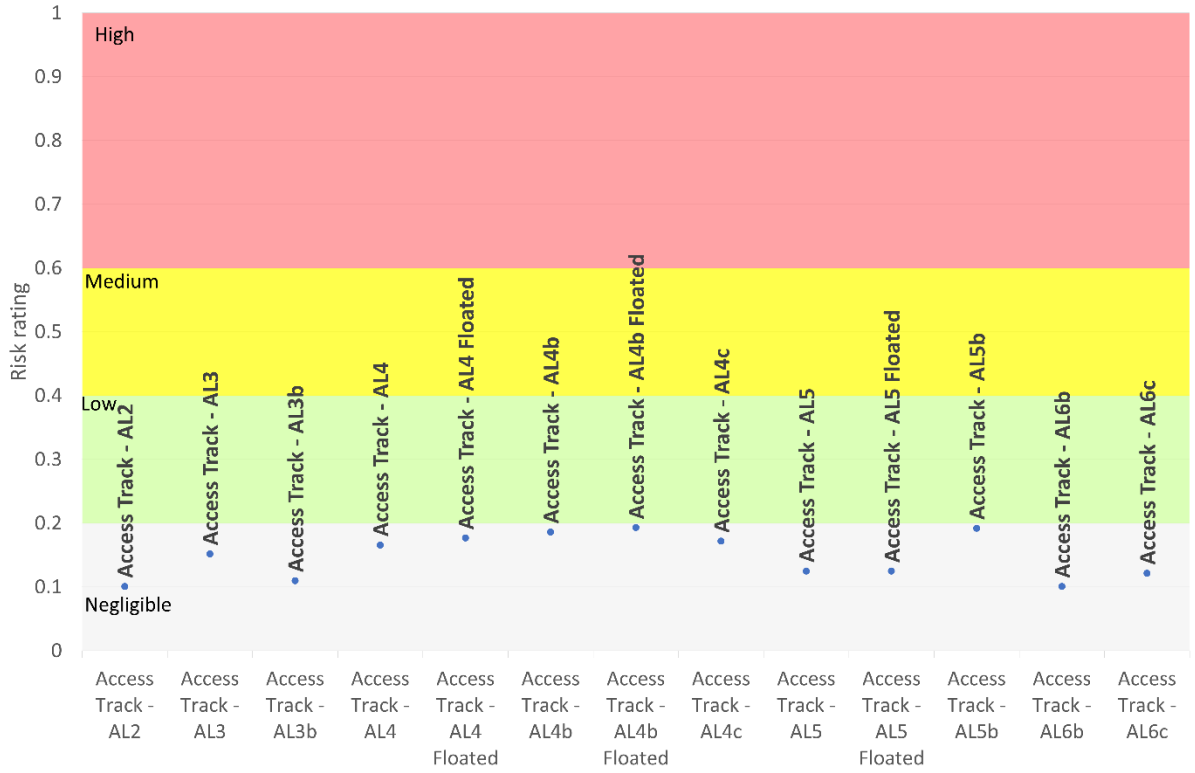

Figure 5-3: Risk ratings at the proposed access track locations.

6 MITIGATION MEASURES

As outlined in Section 5.6, the PSRA has yielded a negligible risk rating for each infrastructure location. The Scottish Government BPG (2017) state the following for areas with negligible risk level: "Project should proceed with monitoring and mitigation of peat landslide hazards at these locations as appropriate."

The risk at all infrastructure elements has been classified as negligible based on the assessment undertaken in Section 5. However, all earthworks will be designed by a competent geotechnical designer, informed by a post-consent detailed GI campaign. This investigation will include intrusive methods, such as further trial pitting and borehole drilling, with a specified suite of in-situ and geotechnical laboratory testing to further assess the engineering characteristics of the infrastructure locations. Possible mitigation measures in relation to peat instability are considered below.

6.1 MITIGATION BY AVOIDANCE

Site infrastructure has been sited to avoid areas of low, medium or high risk where possible, and all main infrastructure locations are assessed as negligible risk. SBZs, which are to be avoided during construction, have been identified and are outlined in Section 4.6. PSRs have also been identified and are outlined in Section 4.6. Stockpiling or placement of peat materials will not be carried out in these areas.

6.2 ENGINEERING MITIGATION MEASURES

Many of the site-specific (e.g. peat depth, slope angle) and site-independent variables (e.g. weather) that contribute to the incidence of natural peat landslides are beyond engineering control without significant damage to the peat itself. However, several engineering measures exist to minimise the risks associated with potential triggers (such as short-term peaks in hydrogeological activity).

6.2.1 CONSTRUCTION MANAGEMENT

Inappropriate storage of excavated peat and overburden, as well as uncontrolled loading of peat material, is considered one of the main causes of peat instability and landslide event triggers during the wind farm construction process. The management and control of these activities are key to de-risking peat stability at the Proposed Wind Farm site. The construction method statements for the project should consider, but not be limited to, the guidance documents referenced in Section 1 and the recommendations and requirements outlined throughout this document.

The general requirements for the management of peat and the mitigation of peat instability at the site are as follows:

- Appointment of experienced and competent contractors and detailed designers;
- The construction works on site will be supervised by experienced and qualified personnel;
- Allocate sufficient time for the project to be constructed safely with all peat stability mitigation measures included in the programme;

- Set up, maintain and report findings from monitoring systems, including sightline monitoring;
- Maintain vigilance and awareness through Tool-Box-Talks (TBTs) on peat stability;
- Prevent undercutting of slopes and unsupported excavations;
- Prevent placement of loads/overburden on marginal ground;
- Manage and maintain a robust drainage system. This will be the responsibility of the appointed contractor and their designer.
- Storage of peat material, including temporary and side casting be carried out in the permitted areas only.
- Acrotelm (upper) peat material may be used as landscaping material where topography allows and the detailed designer has assessed the stability risk;
- Uncontrolled placement of peat or loading of peat material must be avoided;
- Water flows within the drainage systems will be controlled. Velocities of slows must be controlled using check damns within drainage systems and the uncontrolled release of water onto slopes can create a landslide risk and must be avoided;
- All construction requiring cut and fill earthworks required a robust monitoring and inspection programme. The details of this inspection programme will depend on the purpose and methodologies of the works and the ground conditions.
- A risk assessment and method statement (RAMS), which considers the potential causes and mitigations of peat instabilities and landslides is required and must be regularly communicated to all site staff. An observational approach by all site staff to the ground conditions and the risks should be promoted, and any changes in the ground or site conditions should be reported and the risk dynamically assessed.
- The design and construction teams will develop their own inspection and testing criteria to satisfy and de-risk the possibility of peat landslides.

6.2.2 DRAINAGE MEASURES

Installation of targeted drainage measures shall aim to isolate areas of susceptible peat from upslope water supply, rerouting surface (flushes/gullies) and subsurface (pipes) drainage around critical areas. Surface water drainage plans should be implemented to account for modified flows created by construction, which in turn may affect peat stability, pollution and wildlife interests. Particular consideration should be given to the protection of groundwater dependent terrestrial ecosystems (GWDTEs), ensuring that drainage design does not compromise their hydrological regime. Drainage measures need to be carefully planned to minimise any negative impacts.

6.3 MONITORING

The installation of movement monitoring posts is recommended for areas where works are taking place on or adjacent to identified peat depths greater than 2m.

Movement monitoring posts will be installed upslope and downslope of the work areas and will be as outlined:

- Posts will be 1m to 1.5m in length, installed at 5m intervals with no fewer than seven posts in each line of sight (~30m).
- A string line will in attached to the first and last post with all intermediate posts in contact with one side of the string line,
- A numbering system will be designed for the monitoring posts, and a record will be kept of this numbering system.

Movement monitoring posts will be observed at least once a day, with more frequent inspections when adjacent works are ongoing. Should movements be recorded, the frequency of these inspections will be increased. Record will be kept of all monitor post inspections with reference to date, time and any relative movement between posts, if any. Any movement identified in the posts will be recorded with reference to the post numbering system.

The contractor will also develop a routine inspection of all areas surrounding work in peat, not just exclusively on the monitoring posts. These inspections will include an assessment of ground stability and drainage conditions. These inspections should identify any cracking or deformation on the peat surface, excessive settlement on structures, drain blockages or springs, etc.

6.4 ENGINEERING MITIGATION MEASURES TO CONTROL LANDSLIDE IMPACTS

The stability of the peat and overburden is considered to be safe for the construction activities proposed, and should the peat and spoil be managed in line with the details of this document, the risk of a peat failure or landslide is negligible to very low. However, it is important to consider the actions which will be carried out if signs of instability are identified during the outlined monitoring or should a failure occur at the site.

The full methodologies for these activities will be outlined in the Contractor's RAMS and include the methodologies for immediate and long-term response.

6.4.1 MOVEMENT OR INSTABILITY OBSERVED IN MONITORING AREAS

Where excessive movement has been observed in the installed monitoring outlined in Section 6.3 the following measures will be taken:

- All construction activities will be suspended in the area;
- The Contractor's Geotechnical Engineer will carry out an assessment of the peat instability, including drainage. The Contractor's Geotechnical Engineer will compile a report outlining the surveys undertaken, the potential cause of the instability, assessment of any increased risk caused by the instability, and the further measures required to manage this risk;
- An increased monitoring regime will be specified, including an increase in the number of monitoring post lines, a decrease in monitoring post spacing and an increase in the frequency of monitoring post observations;

- Should no further movement be detected, construction activities will be recommenced while maintaining the increased monitoring regime;
- Should further excessive movement be detected, the Contractor's geotechnical engineer will need to be informed, and the design of further reinstatement works will be required, such as excavation of the disturbed material, installation of granular berms or similar.

6.4.2 EMERGENCY RESPONSE TO A LANDSLIDE EVENT

Due to the high factors of safety and negligible risk of peat landslides identified on site, it is not anticipated that peat failure will occur on site. However, in the event of peat failure (e.g. tension cracking, surface rippling, sliding), the following measures will be implemented by the contractor:

- All members of the project team will be alerted immediately or as it is safe to do so;
- All site works will cease with immediate effect, and all available resources will be used for the management and mitigation of the risks posed by the event;
- Localised peat slides that do not present a risk to watercourses will be stabilised where possible by rock infill and granular material. The area will then be assessed by competent engineers, and further stabilisation measures will be implemented where necessary;
- The key initial activity will be to prevent displaced materials from reaching any watercourses or sensitive environments. Given the terrain of the Proposed Wind Farm site, the key risk is the development of a propagation landslide or slip within topographic valleys and watercourses. Where possible, check barrage structures (Section 6.4.2.1) or catch ditches (6.4.2.1) on land or within these topographic valleys and watercourses will be constructed to prevent further run out of the disturbed peat or spoil material.
- The contractor will be responsible for providing suitable contingencies outlined within the construction stage CEMP. The contractor will additionally need to carry out a construction stage PSRA.

6.4.2.1 CHECK BARRAGES

Check barrages are permeable granular structures constructed within the path of a landslide to prevent the further downhill or downstream movement of the disturbed material. Typically, these will be constructed of locally generated stone material, often of large sizing. The large material sizing will allow water to pass through the check barrage material, avoiding a build-up in hydrostatic pressure while containing the debris within the slide. A check barrage is typically a dam structure between 1 and 1.5m high, with slopes between 1(V):1.5(H) or 2(H), and constructed across the full section of topographic valley and/or water course.

The check barrage is an emergency preventative measure only to restrict or reduce the movement of displaced material downslope and away from a watercourse. Further assessment and reinstatement works will likely be required should a landslide occur, and engagement and reporting of the incident will be required by all parties involved in the project. Should the check barrage no longer be required, it may be removed, and the area reinstated.

The use of check barrages is only proposed for use in the unlikely event of a large landslide event. The proposed locations are only indicative, targeting potential topographic channels, but will vary depending on the location and nature of the slide event. The Contractors will need to include an assessment of potential check barrage locations and methods for their construction within the emergency procedures in their associated Method Statement documentation.

6.4.2.2 CATCH DITCHES

Similarly, ditches may also slow or halt runout, although it is preferable that they are cut in non-peat material. Simple earthwork ditches can form a useful, low-cost defence. Paired ditches and barrages have been observed (Tobin, 2003) to slow peat landslide runout at failure sites.

7 GEOTECHNICAL RISK REGISTER

This register lists significant potential peat geotechnical hazards and associated risks concerning the construction and operation of the Proposed Wind Farm site, and recommended mitigations.

Table 7-1: Geotechnical risk register

Ref.	Risk	Contributing factor	Mitigation
1	The collapse of the dried peat berm/ peat slippage	Overestimation of soil strength parameters	The soil parameters are based on the hand shear vane test carried out by GDG at each turbine location. Shear vane testing was carried out at 0.5m intervals through the peat where possible to assess variation within the peat body. The interpreted undrained shear strength values take into account a conservative reduction factor for the influence of the fibres within the peat. The derived values were compared with a literature review of the most common drained and undrained parameters for each type of soil and the descriptions of peat material encountered in trial pits. The GI completed to date is thorough and robust for the purposes of the EIAR; however, it is expected that further testing and assessment of the peat during further ground investigation campaigns will be required before construction. This will allow for a robust understanding of the ground conditions and the detailed design of access roads and structures. An extensive testing protocol shall be developed by the Construction stage contractor and the design team. These tests shall be observed by a suitably qualified engineer and reported to the owner's engineer. It would be expected that an observational approach will be required when constructing on peat due to the limitations associated with testing and verifying its strength, and the contractor is required to frequently inspect the peat material and provide proof of inspection.
2	The collapse of berms/peat slippage	Underestimation of peat depth	Extensive ground investigation, including trial pitting and peat probing, has been carried out across the Proposed Wind Farm site. GI locations have been carried out at locations where access was possible. Access was limited to some areas of the site with restrictions relating to forestry and terrain, limiting coverage. Further GI will be required at these locations during the detailed design and construction stage to assess peat depths. This will be carried out by the detailed designer and the Contractors' team. The design team shall develop their own testing criteria to satisfy and de-risk the possibility of larger peat depth occurring at these locations.

Ref.	Risk	Contributing factor	Mitigation
3	Failure of peat slope due to loading or agitation of the existing instability	Failure to identify existing instability/ peat deformation at the site	Assessment of satellite imagery and topographical data for evidence of past landslide events was carried out as part of the desk study, finding no evidence of past instabilities or landslide events within the site area. The Geological Survey of Ireland (GSI) landslide database was examined, identifying one landslide event approximately 12km from the EIAR boundary. During the site walkovers, the site GDG engineers examined the landscape and the areas surrounding the proposed infrastructure for evidence of instability or past landslide events. No past landslide or instability events were identified. Although there is no evidence of landslides within the Proposed Wind Farm site, this does not necessarily mean that landslides have never occurred at the Proposed Wind Farm site. It is noted that the geomorphological features associated with peat landslides (peat slides and bog bursts) are softened with time through erosion, drying, and re-vegetation, particularly given the forestry and peat harvesting activities that have taken place at the Proposed Wind Farm site. Access was limited to some areas of the Proposed Wind Farm site with restrictions relating to raised peat bogs traversed by large drainage ditches. Further inspection will be required during the detailed design and construction stage to inspect for peat instabilities. This will be carried out by the detailed designer and the Contractors' team. The design team shall develop their own inspection and testing criteria to satisfy and de-risk the possibility of larger peat depths occurring at these locations.
4	The collapse of the peat berm/peat slippage	Failure due to excessive loading of peat	The peat stability FoS analysis exercise examines the peat in the drained and undrained conditions both without and with the addition of a surcharge equating to 1m of peat loading. Areas indicative of a low or moderate FoS result with the 1m peat surcharge within or adjacent to the proposed site infrastructure have been designated as SBZs, as outlined in Section 4.6. Requirements for the safe and sustainable storage of peat and spoil material are outlined in the associated Peat and Spoil Management Plan (PSMP) document (GDG, 2025). The requirements and restrictions for peat and spoil management outlined in this document must be adhered to during the construction stage.
5	Failure of peat slopes	Over/underestimation of existing slope angles.	The peat stability FoS analysis exercise examines the peat slope angle using data drawn from a 2022 Bluesky LiDAR survey with 5m pixel resolution. An updated and more detailed topographic

Ref.	Risk	Contributing factor	Mitigation
			survey will be required before commencing the detailed design stage.
6	Instability of peat slippage	Variations in the groundwater conditions at the site	The groundwater conditions were examined during the walkovers and within the trial pit locations. Areas of saturated surface peat were identified during the walkovers as outlined in Section 3, and these have been considered in the risk assessment and findings of the report. Water strikes, peat water content, and groundwater conditions are noted in the trial pit locations (GDG, 2024/2025). The groundwater conditions and peat moisture content vary seasonally and/or more frequently with the immediate weather conditions. Long-term groundwater level monitoring across the Proposed Wind Farm site should be considered in the further design stage ground investigations and further lab testing of the peat in its in-situ condition will need to be assessed for the construction design. Hydrology of the area shall be maintained as far as possible by implementing and maintaining an appropriate drainage system.
7	Instability due to unmapped subsurface karst features	Voids and subsidence due to karstic weathering of the underlying limestone bedrock.	The existing geological mapping and GI indicate the Proposed Wind Farm sits on limestone bedrock, which may be susceptible to karstic weathering. A Geotechnical Karst Risk Assessment has been completed (GDG, 2025 – Technical Appendix 8-2) that considers this risk separately.

8 CONCLUSION

Following the guidance of the Scottish Executive, a review of the published thematic geographic information (e.g. geology, soils, protected areas) and relevant background literature was undertaken for the Proposed Wind Farm site. Site reconnaissance and site investigations were carried out to validate and enhance the desk study information. Based on the available data, the fieldwork, and GDG's professional judgement, it is concluded that significant peat slides are unlikely on the Proposed Wind Farm site with diligent peat management and careful consideration of the peat conditions at the Proposed Wind Farm site at the design and construction stage.

A deterministic FoS was calculated across the proposed element locations, and from this, a robust peat stability risk assessment (PSRA) was performed. The findings of the peat assessment showed that the Proposed Wind Farm site has an acceptable margin of safety and is suitable for the Proposed Wind Farm, provided appropriate mitigation measures, as outlined in Section 6, are implemented. The peat stability risk for the proposed infrastructure is negligible in all locations. The results of the FoS deterministic calculation and the site walkover allowed for the identification of SBZs outlined in Section 4.6 and shown in Appendix M. These must be adhered to in future stages of the Proposed Project.

To minimise the risk of construction activity causing potential peat instability the Construction Method Statements (CMSs) for the project will implement in full, but not be limited to, the recommendations above.

Construction works shall follow the recommendations of the PSMP (Technical Appendix 4-2). During construction, it is strongly recommended to carry out frequent monitoring works, especially after heavy rainfall events or prolonged rainfall.

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GDG (2025) Grid Connection Ground Conditions Assessment (Technical Appendix 8-3)

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APPENDIX A SITE LOCATION

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AL4b Float AL4c AL4b AL4 Float AL5 AL5_Float AL5b AL5b_Float AL8 AL6c AL4 AL3b AL6b AL6 AL3 AL2 AL1_B AL1

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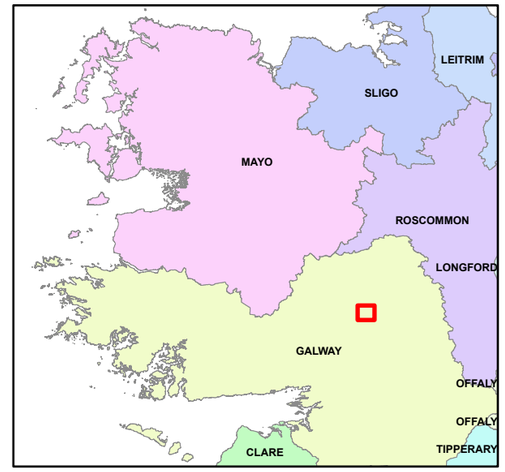
Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads - Floated
- Proposed New Roads - Founded
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure A-1: Proposed Wind Farm Layout

File: 22098-GDG-02-LAY-MP-C-01

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG/ MKO	Checked: AL

APPENDIX B GEOLOGY

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N W E S

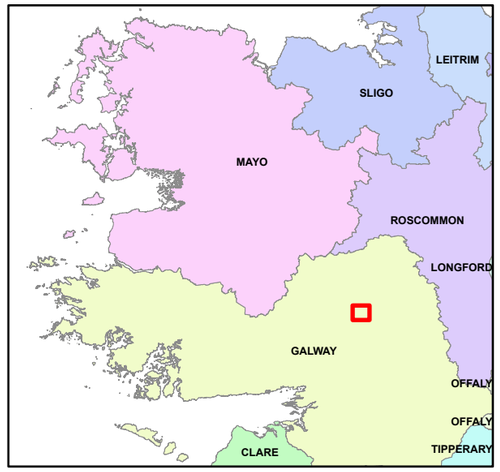
T7 GSI-17-003 T9 T6 Derrynacrick Lough T8 T5 T3 T4 T2 T1

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri

0 0.25 0.5 1 km



Legend

- Proposed Temporary Construction Compound
- Proposed Turbine Layout
- EIAR Site Boundary
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations
- GSI Boreholes

GSI Karst Features

- Enclosed Depression
- Swallow Hole

GSI Bedrock Geology 100k

- Burren Formation
- Croghan Limestone Formation
- Visean Limestones (undifferentiated)
- GSI Bedrock Outcrop

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure B-1: Bedrock Geology and Karst Features

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N W E S

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Derrynacrick Lough

Cooloo National School

L6506 L62312 L62311 L2302 L2301 N63

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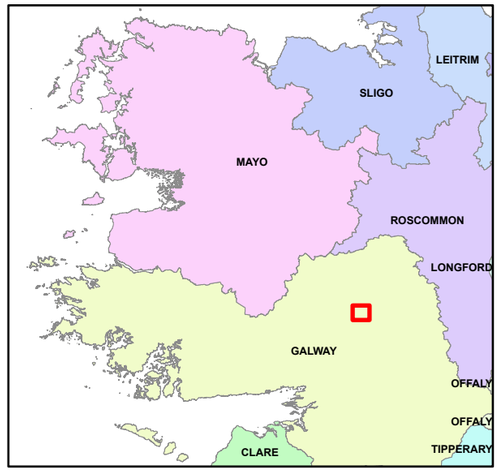

Legend

- Proposed Temporary Construction Compound
- Proposed Turbine Layout
- EIAR Site Boundary
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations

GSI Quaternary Sediments

- A, Alluvium
- BasEsk, Eskers comprised of gravels of basic reaction
- Cut, Cut over raised peat
- GLs, Gravels derived from Limestones
- KaRck, Kartsified bedrock outcrop or subcrop
- L, Lacustrine sediments
- TLs, Till derived from limestones
- Water

Client: MKO	GDG GAVIN & DOHERTY GEOSOLUTIONS	
Project: Cooloo Wind Farm		
Map title: Quaternary Sediments - GSI		
File: 22098-GDG-02-QSE-MP-C-03		
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APPENDIX C SOILS

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Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

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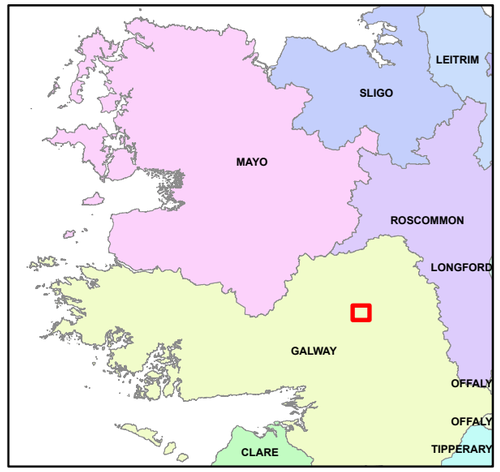
Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

- Proposed Temporary Construction Compound
- Proposed Turbine Layout
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- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations
- River Alluvium (Soil Association 05RIV)
- Elton Soil: Fine loamy drift with limestones (Soil Association 1000a)
- Mullabane Soil: Coarse loamy drift with limestones (Soil Association 1100q)
- Baggotstown Soil: Coarse loamy over calcareous gravels (Soil Association 1150a)
- Peat (Soil Association 1xx)

Client: MKO	GDG GAVIN & DOHERTY GEOSOLUTIONS	
Project: Cooloo Wind Farm		
Figure C-1: Soil Associations		
File: 22098-GDG-02-SOI-MP-C-04		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 05/09/2025	Source: EPA/ Teagasc	Checked: AL

APPENDIX D NDMI

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N W E S

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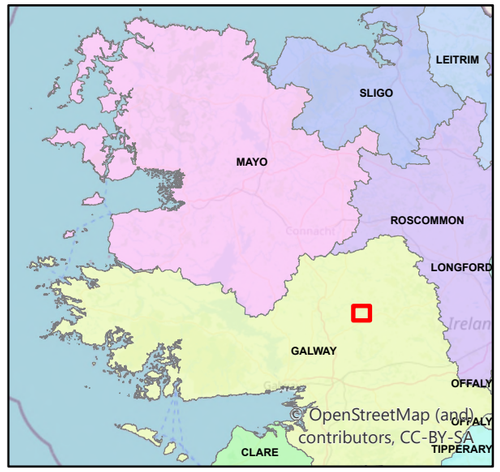
Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound

NDMI

High : 255

Low : 0

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure D-1: NDMI Moisture Index

File: 22098-GDG-02-MOI-MP-C-05

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Date: 05/09/2025	Source: Landsat 8/ USGS	Checked: AL

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N W E S

T7 T9 T6 T8 T5 T4 T3 T2 T1

Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

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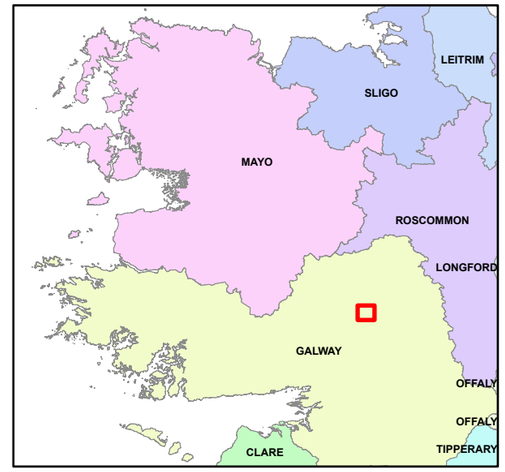

Legend

- Proposed Temporary Construction Compound
- Proposed Turbine Layout
- EIAR Site Boundary
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations

Landslide Susceptibility

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

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure G-1: Landslide Susceptibility

File: 22098-GDG-02-QSE-MP-C-03

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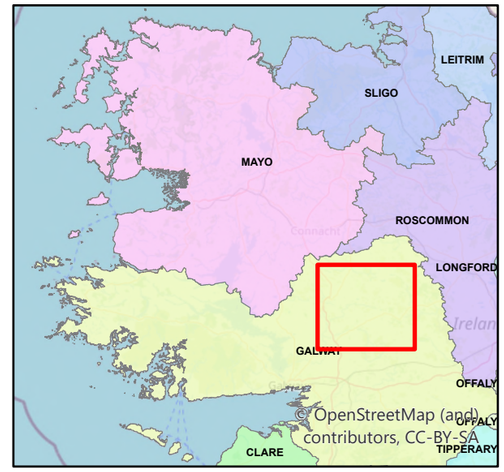

Legend

- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Landslide Events

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure G-2: Landslide Events

File: 22098-GDG-02-LSE-MP-C-11

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG	Checked: AL

APPENDIX E HYDROGEOLOGY

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N W E S

T7 T9 T6 T8 T5 T4 T3 T2 T1

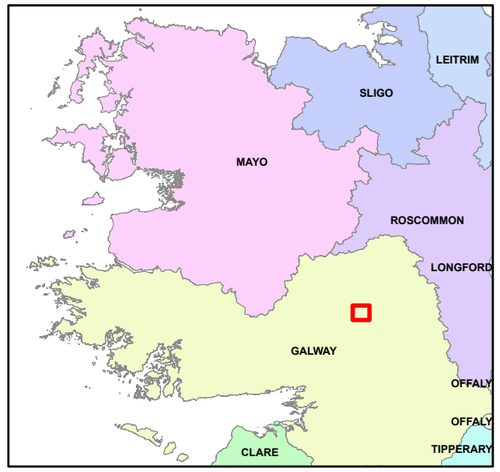
Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

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- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

GSI Bedrock Aquifers

- Rkc - Regionally Important Aquifer - Karstified (conduit)

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure E-1: GSI Bedrock Aquifers

File: 22098-GDG-02-HGE-MP-C-5

Sheet size: A3	CRS: 2157	Authored: CE
Date: 05/09/2025	Source: GSI	Checked: AL

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751,000 750,000 749,000 748,000 747,000

N W E S

T7 T6 T9 T8 T5 T4 T3 T2 T1

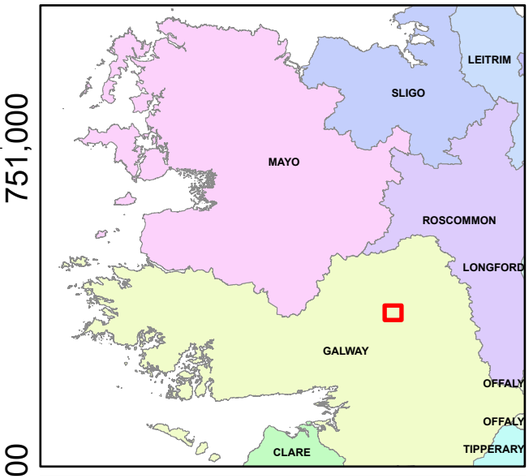
Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63 L230

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

GSI Subsoil Permeability

- High
- Medium
- Low
- Water
- Not mapped

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure E-2: GSI Subsoil Permeability

File: 22098-GDG-02-PER-MP-C-06

Sheet size: A3	CRS: 2157	Authored: CE
Date: 05/09/2025	Source: GSI	Checked: AL

APPENDIX F TOPOGRAPHY

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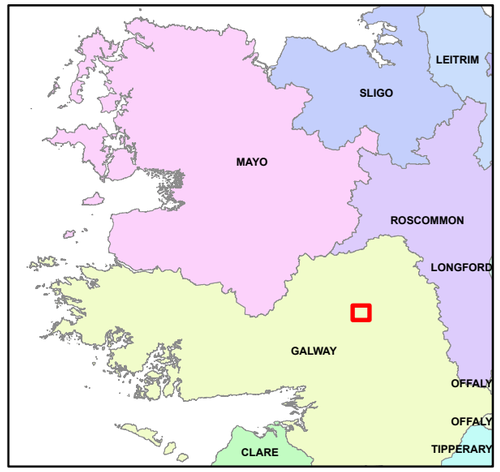
N W E S

T7 T9 T6 T8 T5 T4 T3 T2 T1

Cooloo National School

L2302 L2301 N63 L6506 L62312

0 0.25 0.5 1 km



Legend

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- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Elevation (mAOD)

- 58.93 - 60
- 60.001 - 65
- 65.001 - 70
- 70.001 - 75
- 75.001 - 80
- 80.001 - 85
- 85.001 - 90

Client: MKO	GDG GAVIN & DOHERTY GEOSOLUTIONS	
Project: Cooloo Wind Farm		
Figure F-1: Elevation		
File: 22098-GDG-02-DTM-MP-C-7		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 05/09/2025	Source: Bluesky	Checked: AL

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N W E S

T7 T9 T6 T8 T5 T3 T4 T2 T1

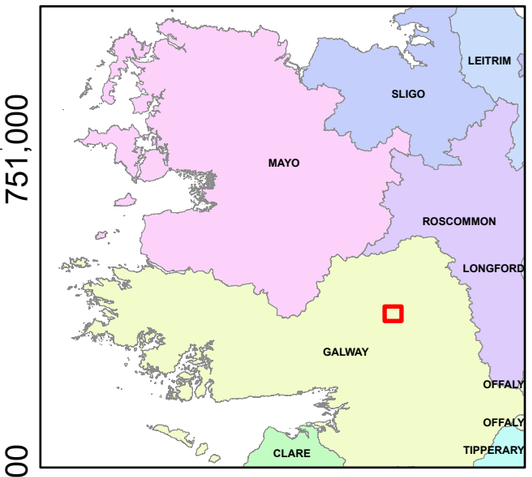
Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Slope Angle (°)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20- 25

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure F-2: Slope Angle

File: 22098-GDG-02-SLO-MP-C-29

Sheet size: A3	CRS: 2157	Authored: CE
Date: 05/09/2025	Source: Bluesky	Checked: AL

APPENDIX G SLOPE INSTABILITY MAPPING

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N W E S

T7 T9 T6 T8 T5 T4 T3 T2 T1

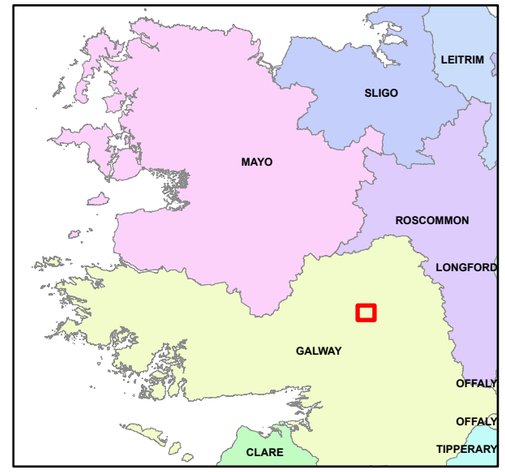
Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

- Proposed Temporary Construction Compound
- Proposed Turbine Layout
- EIAR Site Boundary
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations

Landslide Susceptibility

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

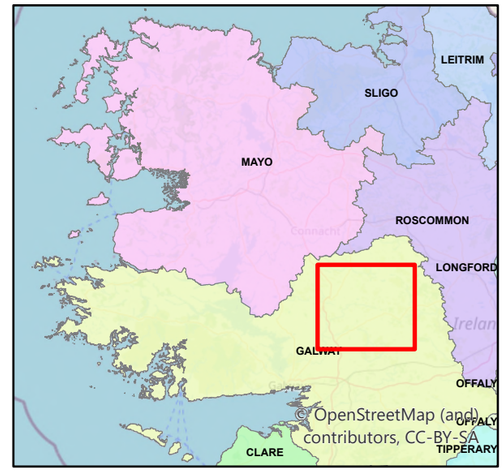
Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure G-1: Landslide Susceptibility

File: 22098-GDG-02-QSE-MP-C-03

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GSI	Checked: AL



Legend

- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Landslide Events

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure G-2: Landslide Events

File: 22098-GDG-02-LSE-MP-C-11

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG	Checked: AL

APPENDIX H HYDROLOGY

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GINNAUN

Grange [Galway]

DERRYNAGRAN 30

GRANGE (GALWAY)_020

GRANGE (GALWAY)_010

DANGAN_EIGHTER

T7 T9 T6 T8 T5 T3 T4 T2 T1

Derrynamuck Lough

ANGLORAGH

FORTY_ACRES

ABBERT_030

LECARROW 30

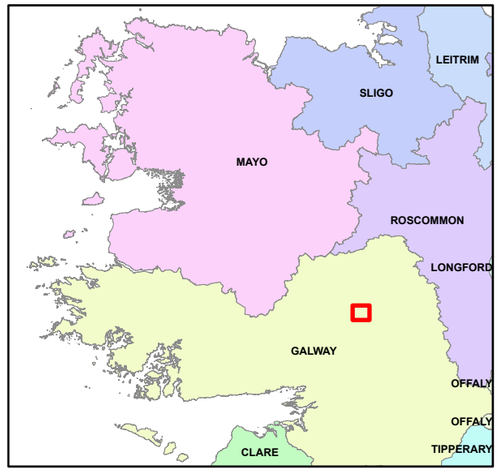
Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

N W E S

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

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- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area
- Rivers
- Lakes
- Abbert (030)
- Grange (Galway - 010)
- Grange (Galway - 020)

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure H-1: Hydrology

File: 22098-GDG-02-HYD-MP-C-14

Sheet size: A3	CRS: 2157	Authored: CE
Date: 06/09/2025	Source: EPA	Checked: AL

APPENDIX I LANDCOVER

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751,000 750,000 749,000 748,000 747,000

N W E S

T7 T6 T9 T8 T5 T4 T3 T2 T1

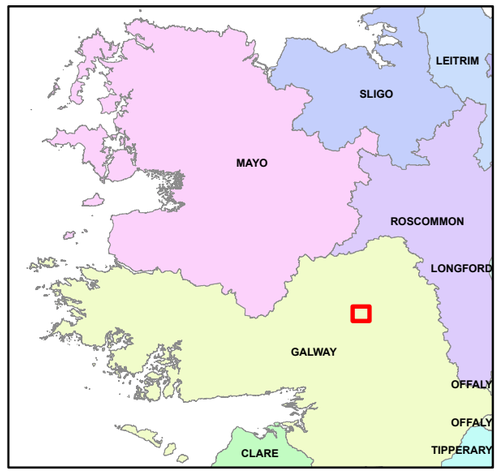
Derrynacrick Lough

Cooloo National School

L6506 L62311 L62312 L2302 L2301 N63

0 0.25 0.5 1 km

Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri



Legend

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- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Land Cover (Corine)

- Land principally occupied by agriculture
- Pastures
- Peat bogs

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure I-1: Corine 2018 Land Cover

File: 22098-GDG-02-LCO-MP-C-15

Sheet size: A3	CRS: 2157	Authored: CE
Date: 06/09/2025	Source: Corine 2018	Checked: AL

APPENDIX J RAINFALL AND SAC

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752,000 751,000 750,000 749,000 748,000 747,000 746,000

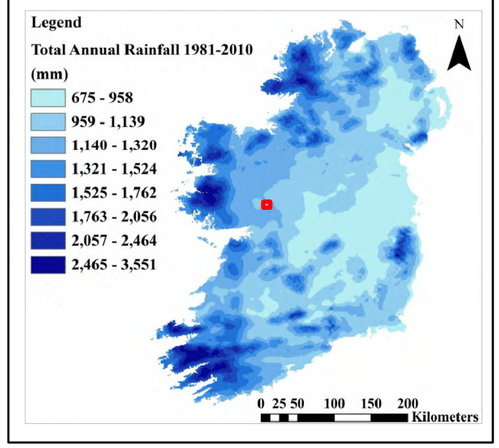
N W E S

T7 T9 T6 T8 T5 T3 T4 T2 T1

BARNADERG G.S.

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

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- Proposed Turbine Hardstands
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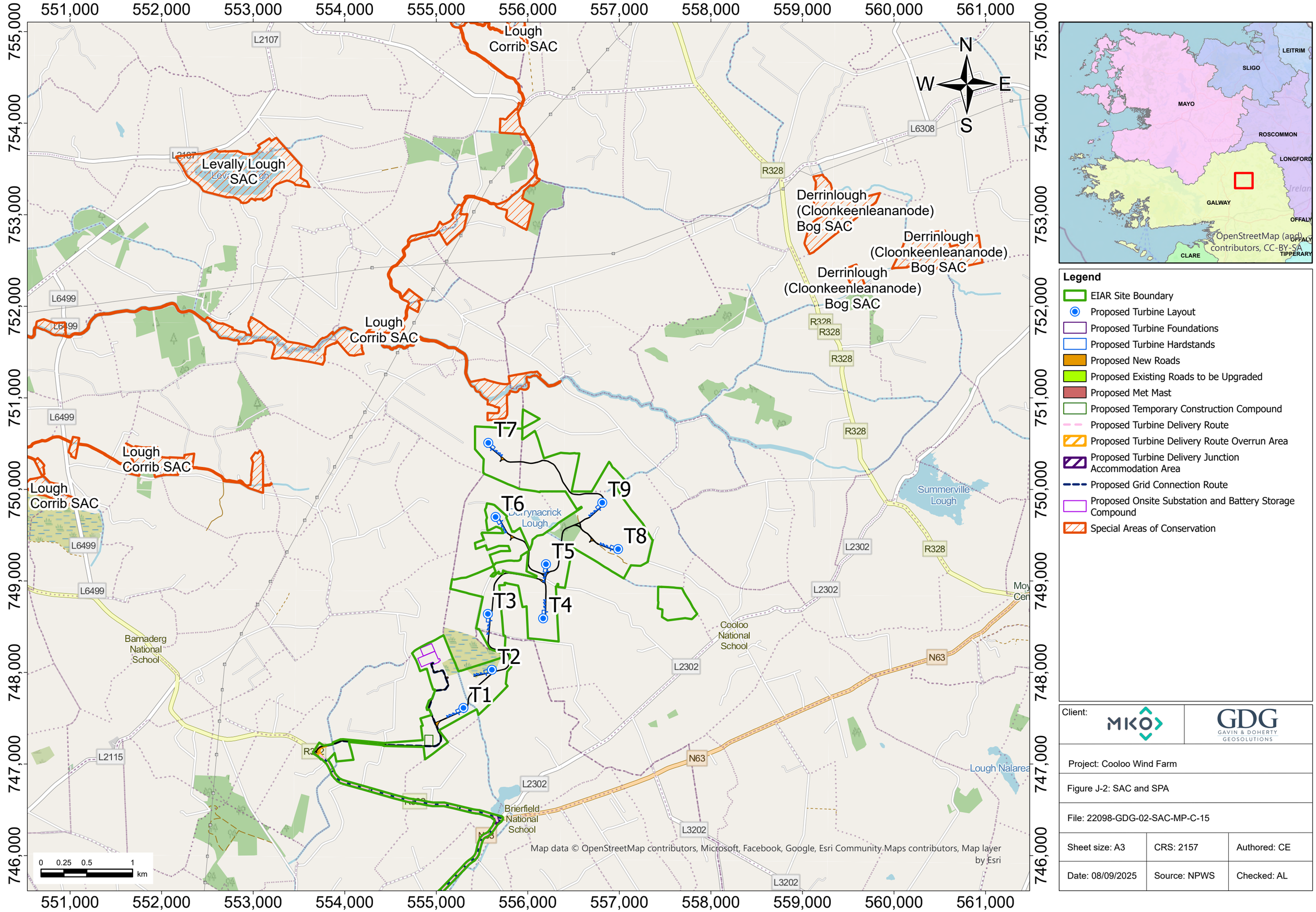
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Met Éireann Rain Gauge

Client: MKO	GDG GAVIN & DOHERTY GEOSOLUTIONS	
Project: Cooloo Wind Farm		
Figure J-1 : National Rainfall including rain gauge location		
File: 22098-GDG-02-RAI-MP-C-14		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 06/09/2025	Source: GDG/ MKO	Checked: AL



Legend

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- Proposed Turbine Hardstands
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- Proposed Met Mast
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- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Special Areas of Conservation

Client: MKO | GDG Gavin & Doherty Geosolutions

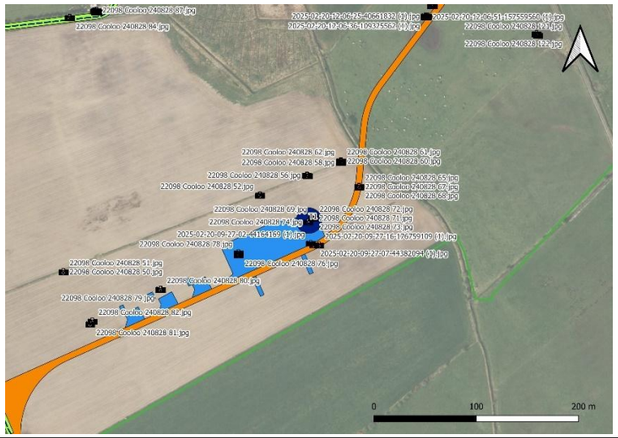
Project: Cooloo Wind Farm

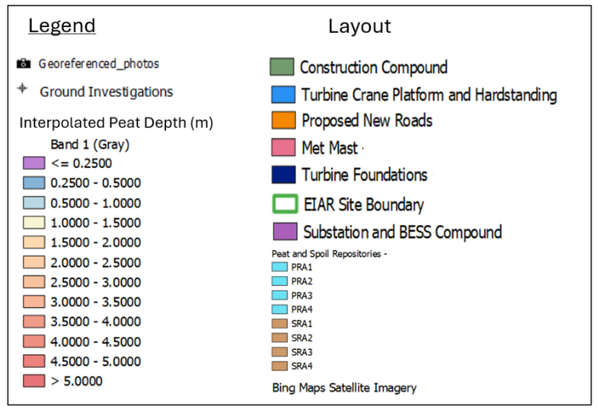
Figure J-2: SAC and SPA

File: 22098-GDG-02-SAC-MP-C-15

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: NPWS	Checked: AL

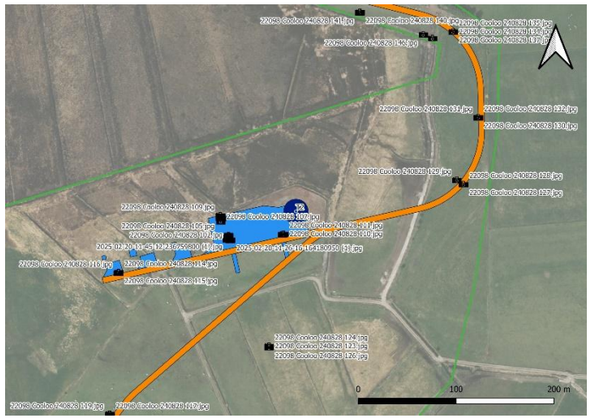
Table K- 1: Site reconnaissance of the Turbine 1 site.

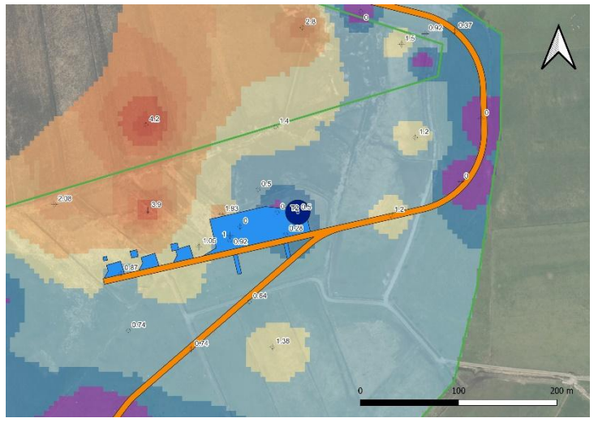


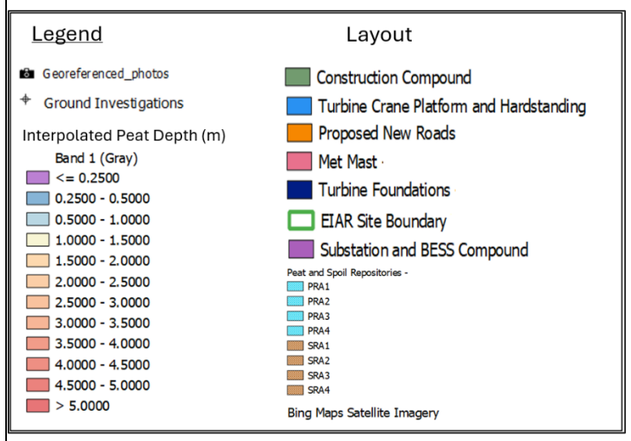


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 28thth of August 2024 and, 20th of February 2025 [GDG].
Geomorphology: Farmland comprising of sandy gravelly CLAY overburden.
Peat: No peat was recorded in this area
Instability evidence: No.

Table K- 2: Site reconnaissance of the Turbine 2 site.

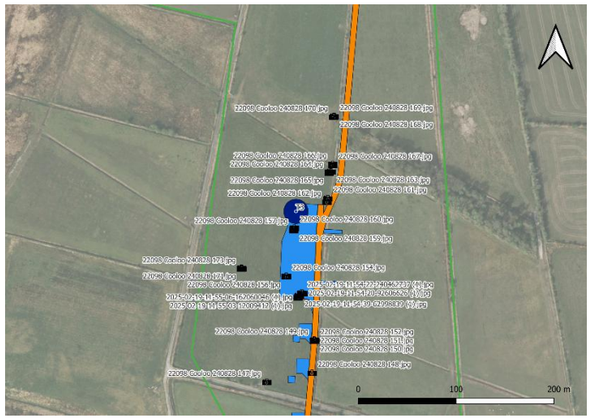


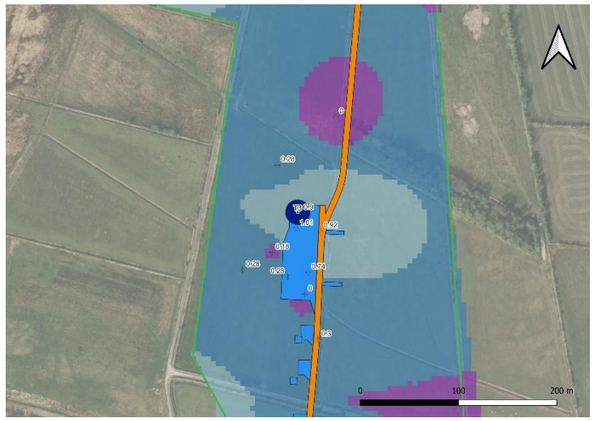


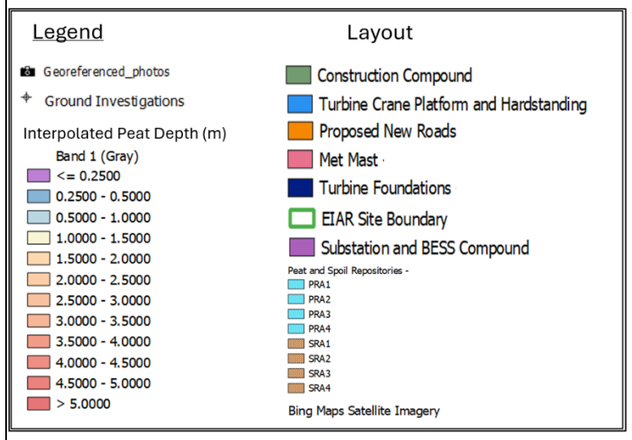


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 28th[th] of August 2024 and, 20[th] of February 2025 [GDG].
Geomorphology: T1 is located on a raised peat bog. Topography is flat.
Peat: The peat depth at T02 is 0.25 m to 1m and slope angle of 2.3 degrees.
Instability evidence: No.

Table K- 3: Site reconnaissance of the Turbine 3 site.

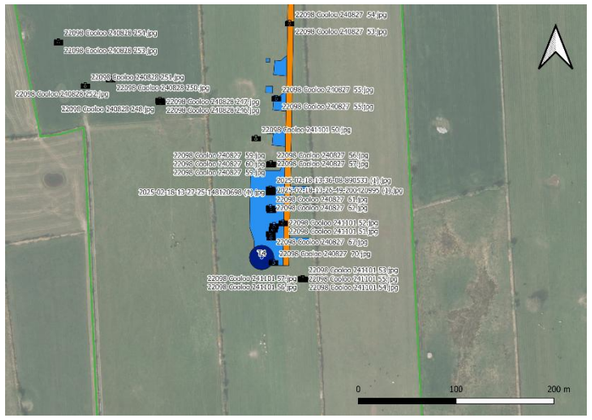


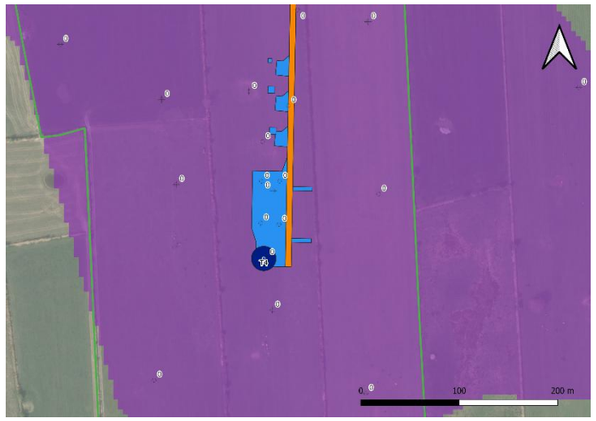


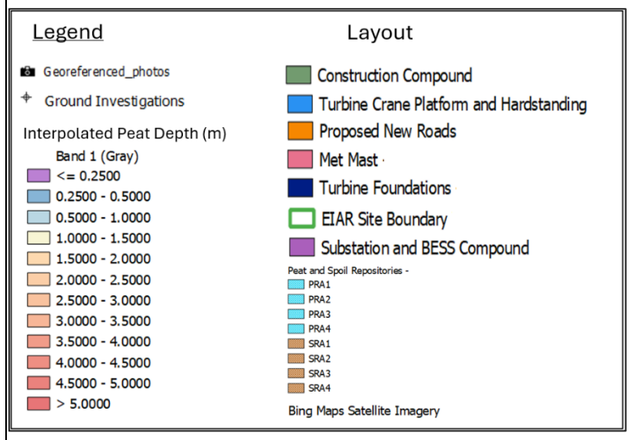


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 28th of August 2024 and, 20th of February 2025 [GDG].
Geomorphology: T3 is located on mixed flat farmland and peat area.
Peat: The peat depth at T03 is range from 0m to 1.0 m and slope angle of 0.5 degrees.
Instability evidence: No.

Table K- 4: Site reconnaissance of the Turbine 4 site.

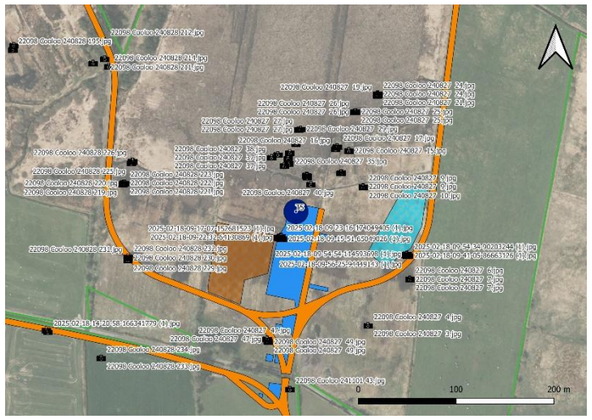


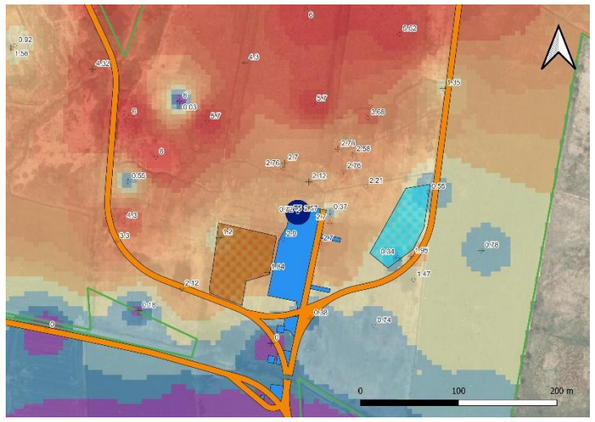


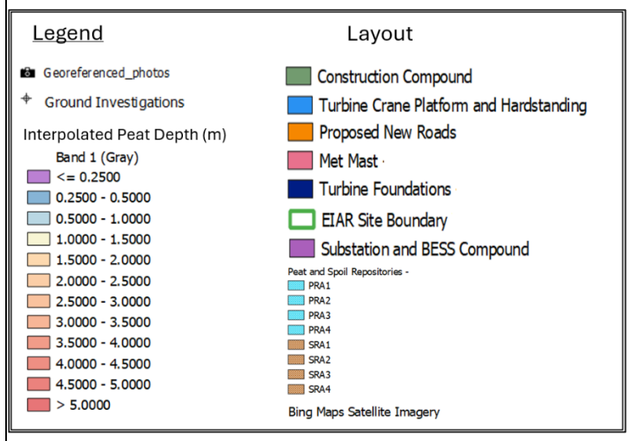


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 27th of August 2024 and, 18th of February 2025 [GDG].
Geomorphology: T4 is located on grass farmland. Topography is flat.
Peat: There is no peat recorded in this area.
Instability evidence: No.

Table K- 5: Site reconnaissance of the Turbine 5 site.

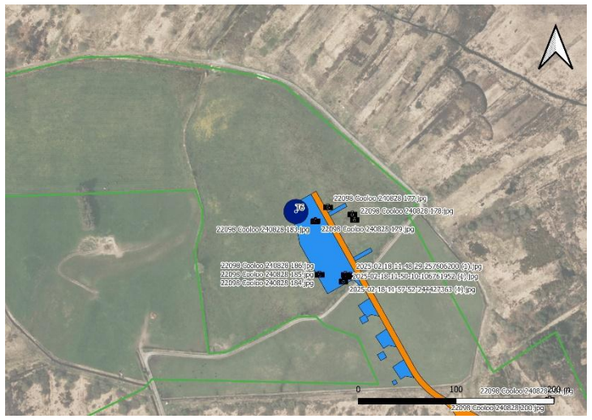


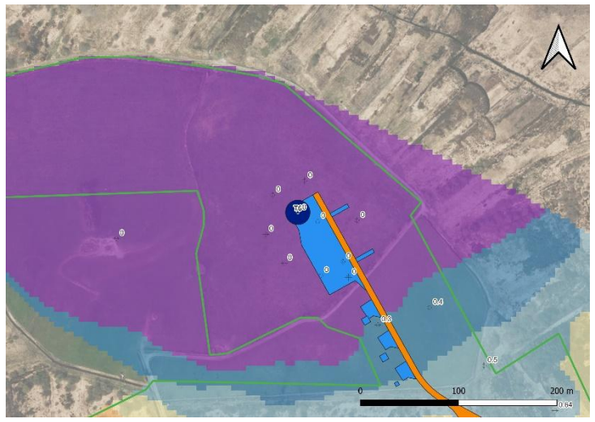


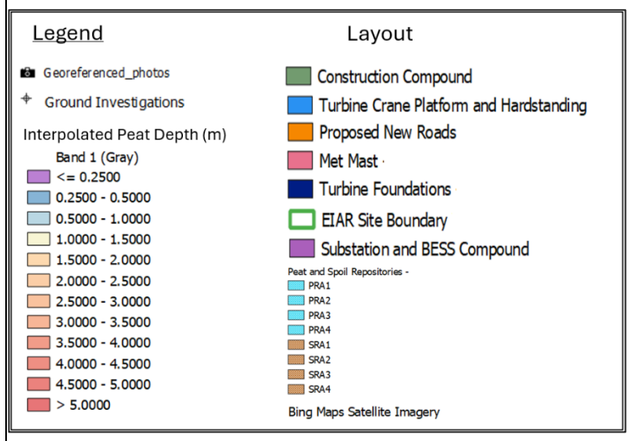


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 27th of August 2024 and 19th February 2025 [GDG]
Geomorphology: T5 is located on grass farmland and raised peat lands. Topography gently sloping south wards
Peat: Peat depth recorded at 0.72m and 2.9m: ~ average peat depth of 1.64m. Slope angle: 1.5º
Instability evidence: No.

Table K- 6: Site reconnaissance of the Turbine 6 site.







Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 28th of August 2024 and, 18th of February 2025 [GDG].
Geomorphology: T6 is located in farmland. Topography is low dipping.
Peat: Peat depth: ~ 0.0m. Slope angle: 1.7º.
Instability evidence: No.

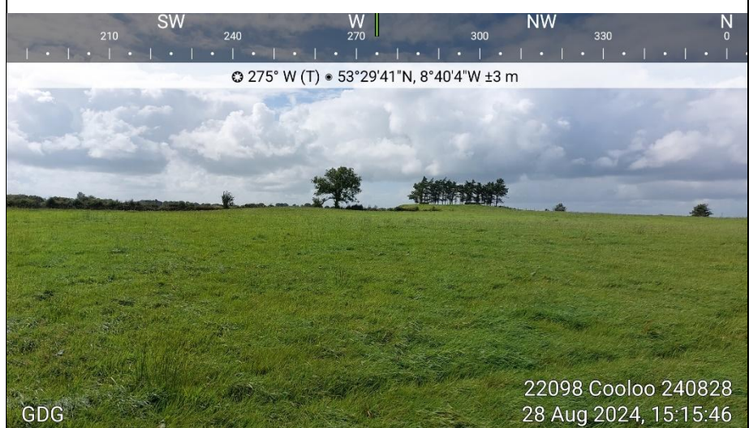
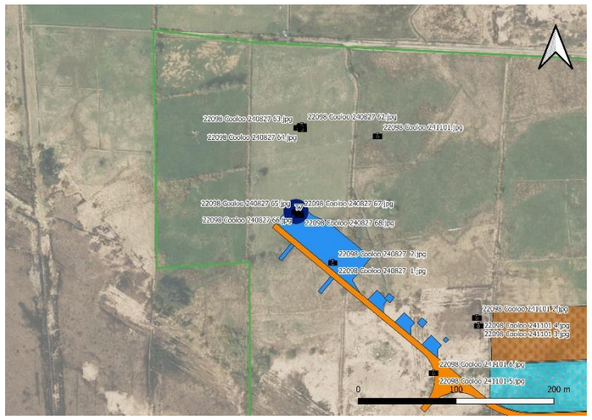
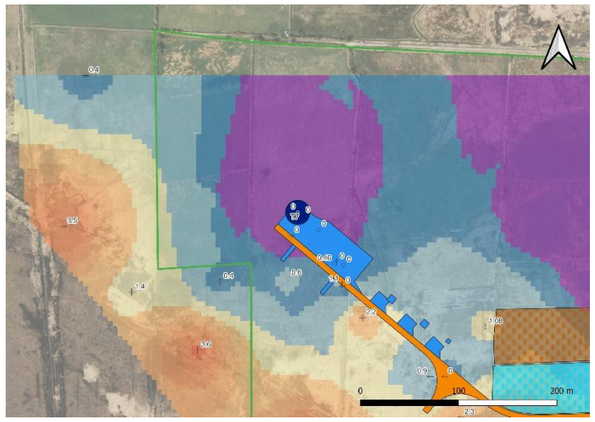
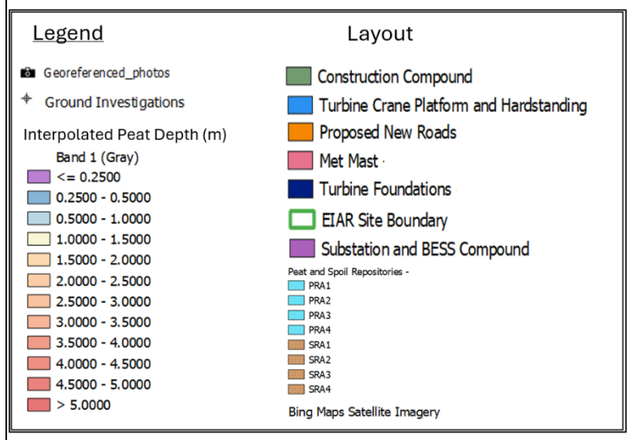


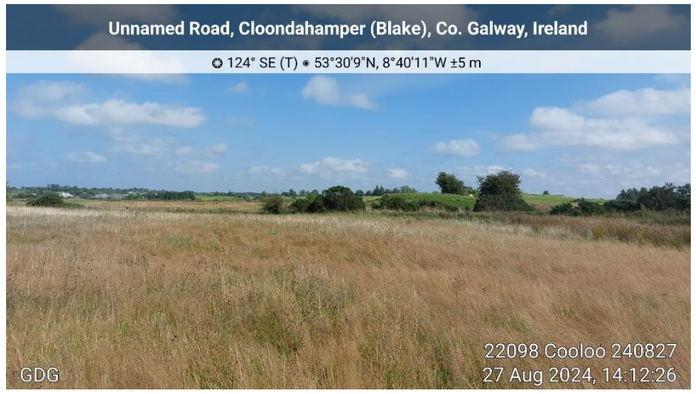
Table K- 7: Site reconnaissance of the Turbine 7 site.







Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 27th of August 2024 [GDG].
Geomorphology: T7 is located in farmland. Topography is flat
Peat: Peat depth: ~range from 0 to 0.46m. Slope angle: 1. 96º.Instability evidence:
Instability evidence: No.



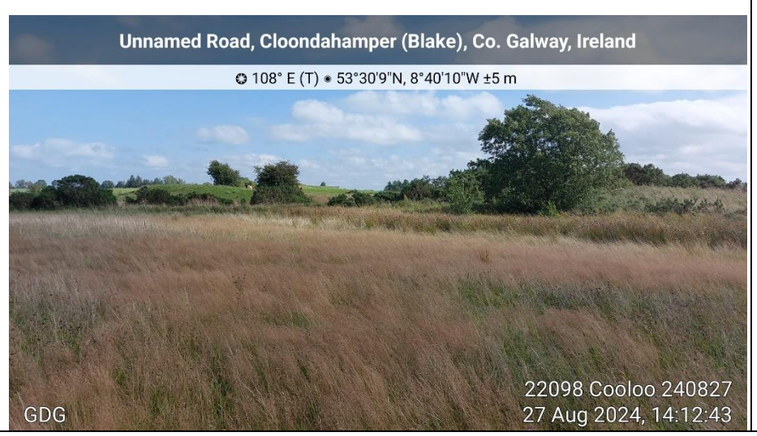
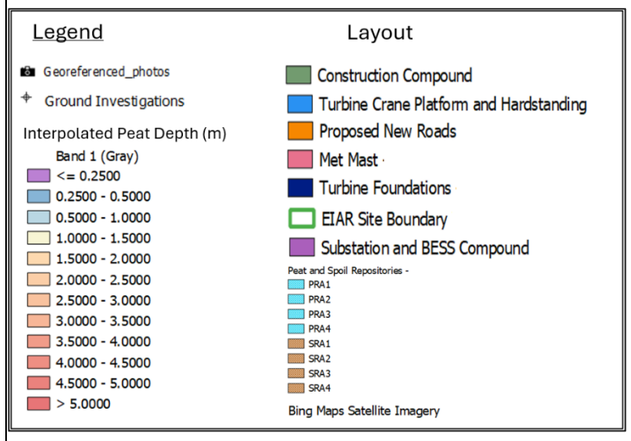
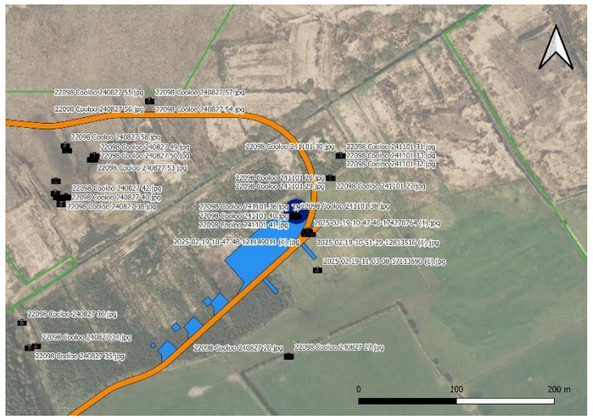


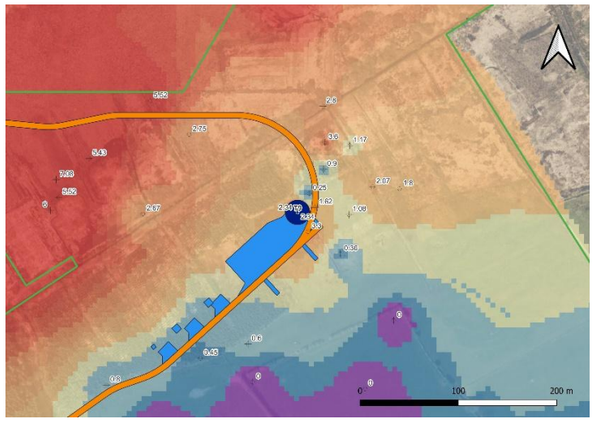
Table K- 8: Site reconnaissance of the Turbine 8 site.

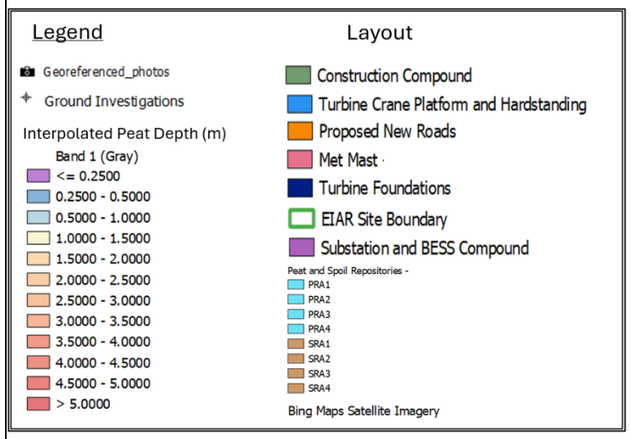


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 27th of August 2024, and the 19th February 2025 [GDG].
Geomorphology: T8 is located in farmland. Topography is flat.
Peat: Peat depth: is 0m.
Instability evidence: No.

Table K- 9: Site reconnaissance of the Turbine 9 site.

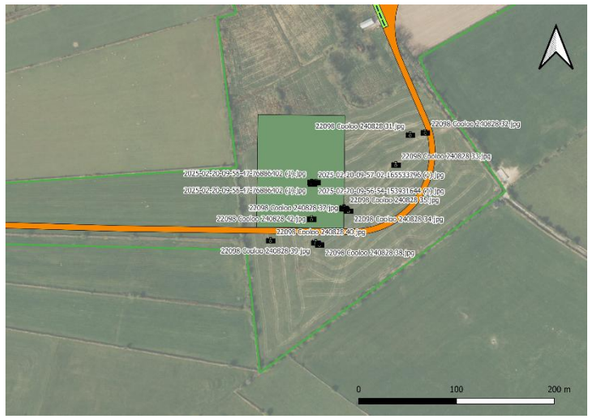


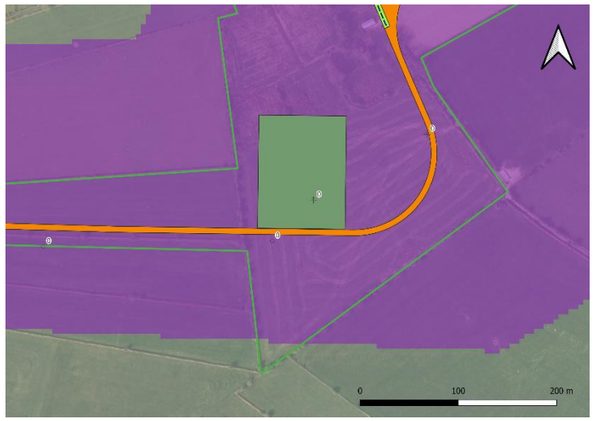


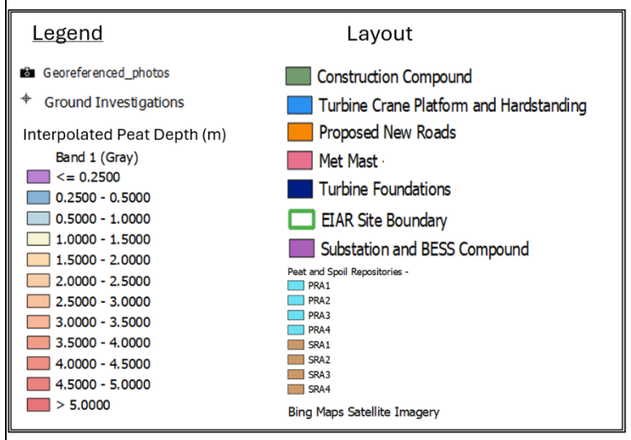


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 1st November 2024 and the 19th of February 2025 [GDG].
Geomorphology: T9 is located in peat dominant farmland. Coniferous forest 20m away.
Peat: Peat depth: ~ 2.34 to 3.3m. Slope angle: 0.9º
Instability evidence: No.

Table K- 10: Site reconnaissance of the Construction compound site.







Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 28th of August 2025, and the 20th February 2025 [GDG].
Geomorphology: The construction Compound is located in farmland. Topography is flat
Peat: No peat recorded on site
Instability evidence: No.

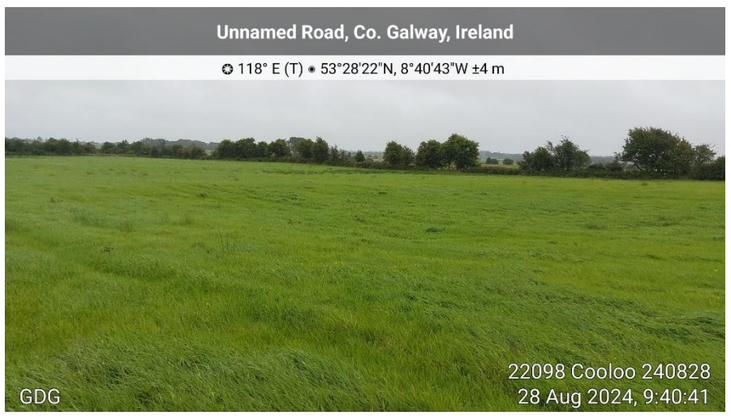
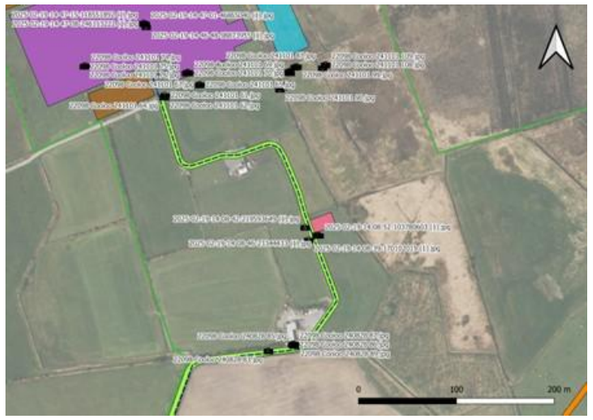
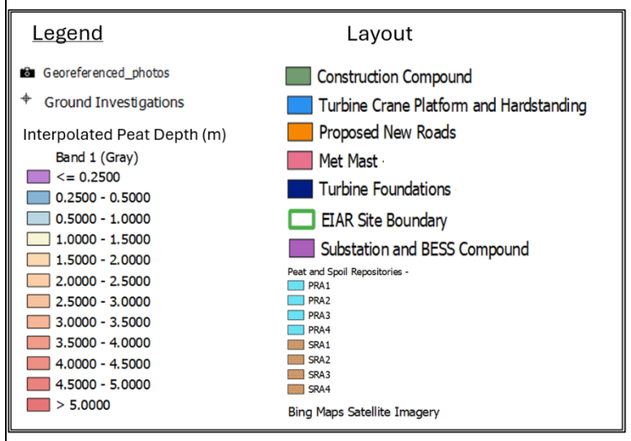


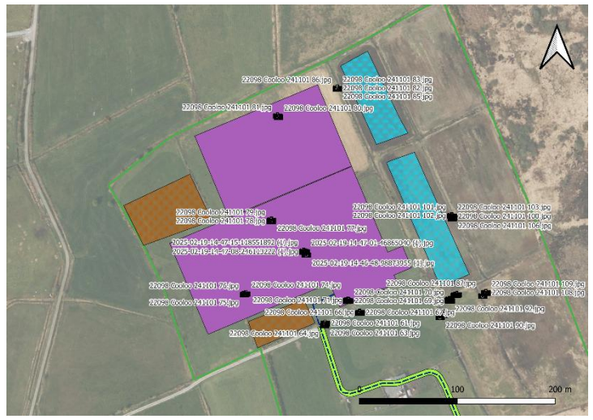
Table K- 11: Site reconnaissance of the Met mast.

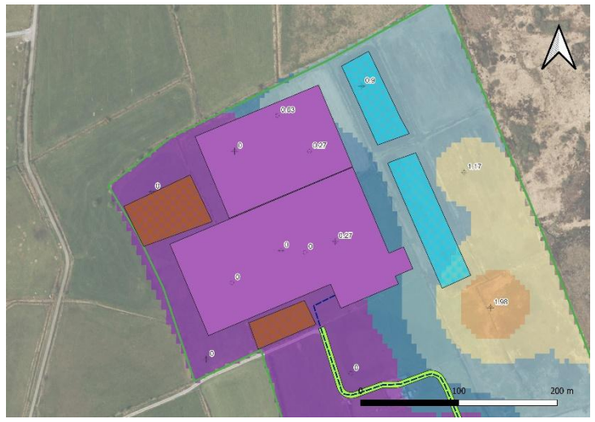


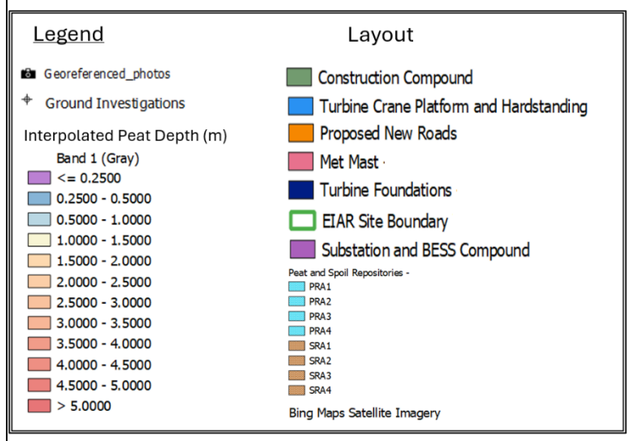


Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 19th February 2025 [GDG].
Geomorphology: The Met Mast is located in farmland. Topography is flat.
Peat: No peat recorded on site
Instability evidence: No.

Table K- 12: Site reconnaissance of the Substation & BESS Compound.







Description
Date of the satellite images: March 2022. [Bing Maps].
Date of the ground-based pictures: 1st of November h 2024, and the 19th of February 2025 [GDG].
Geomorphology: The Substation and BESS compound is located in farmland. Topography is flat.
Peat: No peat recorded at substation. A maximum of 0.7m of peat is recorded at the northern end of the BESS compound.
Instability evidence: No.

556,000

557,000

750,000

749,000

N

W

E

S

TPBP3

T7

TPT9

HSV01

TP07

T9

TPT6

T6

TPBP2

TP08

TP10

T8

TPT8

T5

TP06

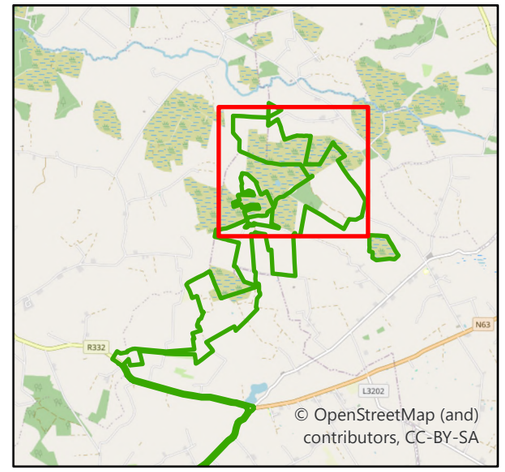
TP15

TP12

TPBP1

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Trial Pit
- Peat Probe
- Hand Shear Vane
- Borehole

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure K-1: GI Locations (inc PP) 1 of 3

File : 22098-GDG-02-GE4-MP-C-16

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG	Checked: AL

555,000

556,000

749,000

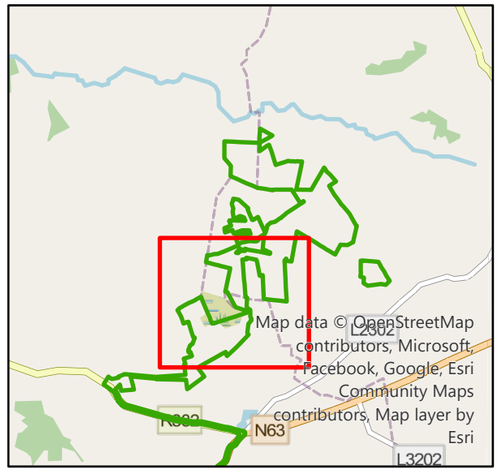
748,000

T5
TP06
TP15
TP12
TPBP1
TP11
TP01
TPT3
T3
TP02
TPT4
T4
HSV02
BH2
TP05
TPT2
TP03
T2
TP14
TP13
T1
TP04

N
W
E
S

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Trial Pit
- Peat Probe
- Hand Shear Vane
- Borehole

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure K-2: GI Locations (inc PP) 2 of 3

File: 22098-GDG-02-GE4-MP-C-17

Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG	Checked: AL

554,000

555,000

748,000

747,000

N

W

E

S

TP02

HSV02

BH2

TP05

TPT2

TP03

T2

TP14

TP13

T1

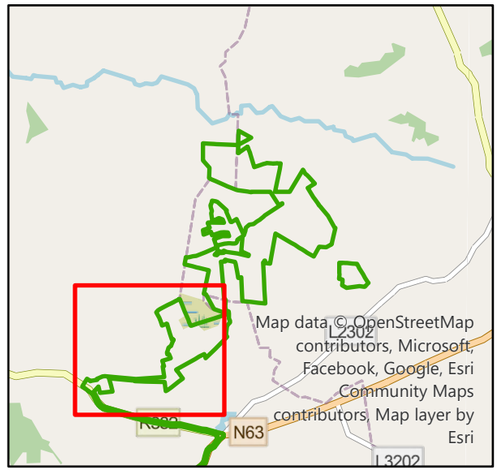
TP04

BH1

TP09

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Trial Pit
- Peat Probe
- Hand Shear Vane
- Borehole

Client: MKO	GDG Gavin & Doherty Geosolutions	
Project: Cooloo Wind Farm		
Figure K-3 : GI Locations (inc PP) 3 of 3		
File: 22098-GDG-02-GE4-MP-C-18		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 08/09/2025	Source: GDG	Checked: AL

556,000

557,000

750,000

749,000

N

W

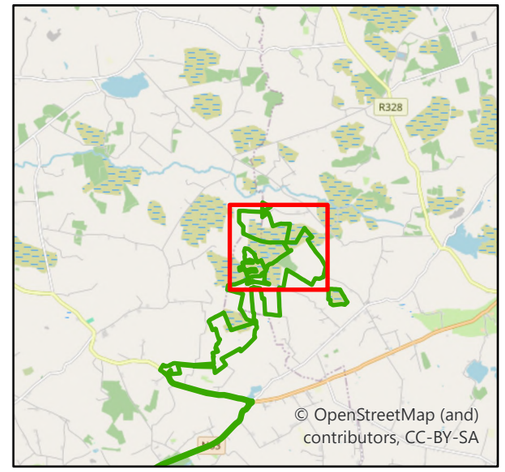
E

S

T9

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations
- GI Location Peat Depth (m)

Interpolated Peat Depth (m)

- No Peat
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure K-4: Interpolated Peat Depth (1 of 3)

File: 22098-GDG-02-PDI-MP-C-40

Sheet size: A3	CRS: 2157	Authored: CE
Date: 09/09/2025	Source: GDG	Checked: AL

555,000

556,000

749,000

748,000

T1

T2

T3

T4

T5

N

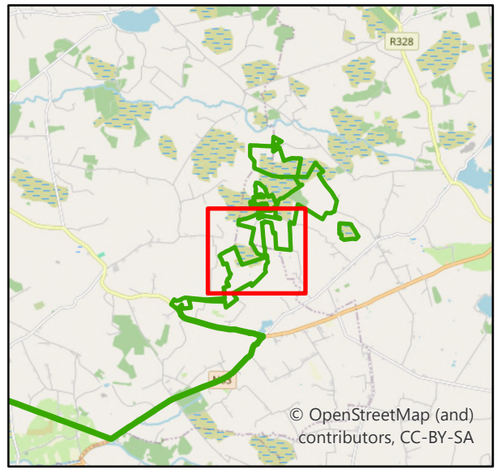
S

E

W

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Grid Connection Route
- Proposed New Roads
- Proposed Onsite Substation and Battery Storage Compound
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Route
- Proposed Turbine Hardstands
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Turbine Foundations
- GI Location Peat Depth (m)

Interpolated Peat Depth (m)

- No Peat
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure K-5: Interpolated Peat Depth (2 of 3)

File: 22098-GDG-02-PDI-MP-C-041

Sheet size: A3	CRS: 2157	Authored: CE
Date: 09/09/2025	Source: GDG	Checked: AL

554,000

555,000

748,000

747,000

N

W

E

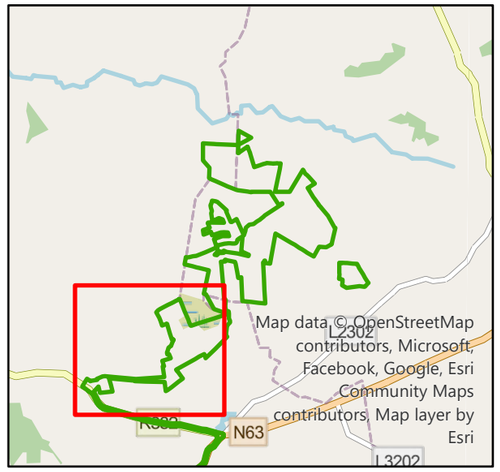
S

T1

T2

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- GI Location Peat Depth (m)

Interpolated Peat Depth (m)

- No Peat
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7

Client: MKO | GDG GAVIN & DOHERTY GEOSOLUTIONS

Project: Cooloo Wind Farm

Figure K-6 Interpolated Peat Depth (3 of 3)

File: 22098-GDG-02-PDI-MP-C-43

Sheet size: A3	CRS: 2157	Authored: CE
Date: 09/09/2025	Source: GDG	Checked: AL

K.1 TRIAL PIT LOGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TP01
Sheet 1 of 1

Project Name:	Cooloo Wind Farm	Project No. 22098	Co-ords: 556177.00 - 748660.00
			Level: m OD
Location:	Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00
Client:	MKO		Depth 2.80

Date: 18/02/2025
Scale: 1:25
Logged: PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.30			TOPSOIL comprise of soft brown sandy clay with grass rootlets
	0.80	B					Soft to firm mottled light brown slightly sandy gravelly cobbly SILT. Cobbles are sub-rounded of limestone.
	1.00		HSV 62kPa	0.90			Firm grey brown sandy gravelly cobbly CLAY with boulders 200-300mm in diameter. Cobbles and boulders are sub- rounded of limestone.
	2.00	B					
				2.75			Dark grey massive LIMESTONE
				2.80			End of Pit at 2.8m

1 2 3 4 5

Remarks: Terminated due to Bedrock. No groundwater encountered

Stability: Good

AGS

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Trial Pit Log

TrialPit No
TP02
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555570.00 - 748556.00	Date 19/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 2.60	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth	Type	Results				
				0.25			TOPSOIL comprise of soft brown sandy slightly gravelly clay with grass rootlets
	0.50		HSV 54kPa				Soft to firm brown grey slightly gravelly sandy cobbly CLAY. Cobbles are sub-rounded of limestone
	0.80	B					
				1.10			Soft to firm brown grey slightly sandy gravelly cobbly SILT with occasional boulders. Cobbles and boulders are sub-rounded of limestone.
▼	2.00	B					
				2.50			Grey massive LIMESTONE
				2.60			End of Pit at 2.6m

1
2
3
4
5

Remarks: Terminated due to possible bedrock. Moderate ingress groundwater

Stability: Poor - Collapse from 1m

AGS

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Trial Pit Log

TrialPit No: TP03
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555538.00 - 748001.00	Date 20/02/2025
Location: Cooloo, Co. Galway Ireland		Level: m OD	Scale 1:25
Client: MKO		Dimensions (m): 2.50 x 2.00 Depth 2.10	Logged PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.10			TOPSOIL comprised of clay, grass and reeds
▼	0.50	B					Firm dark brown oxidising to black very woody course fibrous wet PEAT. H1 B2 R3 W3 N5 A1
	1.00		HSV 20kPa	1.00			Soft grey silty, sandy GRAVEL with abundant boulders and cobbles. Cobbles and boulders are sub-rounded of limestone.
	1.50	B					
				2.00			Grey massive LIMESTONE
				2.10			End of Pit at 2.1m

1
2
3
4
5

Remarks: Terminated due to possible bedrock. Slow ingress of groundwater

Stability: Moderate

AGS

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Trial Pit Log

TrialPit No
TP04
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555302.00 - 747590.00	Date 20/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 1.00	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
	0.40	B					Soft to firm grey white slightly sandy, gravelly CLAY. Sand is fine to coarse.
	0.60		HSV 40kPa	0.60			Firm brown gravelly CLAY. Gravel is sub-rounded and comprise of limestone.
				0.75			Soft grey brown slightly sandy gravelly SILT with occasional cobbles. Gravel and cobbles are sub rounded of limestone.
	0.90	B		0.95			Weathered grey LIMESTONE. Heavily fractured limestone.
				1.00			End of Pit at 1.0m

Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Good

AGS

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GEOSOLUTIONS

Trial Pit Log

TrialPit No
TP05
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 554936.00 - 748146.00	Date 19/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 0.90	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 0.50	B	HSV 52kPa	0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
							Firm brown slightly gravelly , sandy SILT. Gravel is sub-rounded of limestone
	0.70	B		0.60			Loose grey sandy GRAVEL. Gravel is sub rounded to sub angular of limestone
				0.80 0.90			Grey massive weather LIMESTONE. Minor oxidation of fracture faces
							End of Pit at 0.9m

Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Good

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TP06
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556183.00 - 749155.00	Date 18/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00	Scale 1:25
Client: MKO		Depth 3.60	Logged PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							Firm to spongy dark brown/black very fibrous PEAT. Weak organic odour. H2 B2 F2 R2 W1 N5 A1
	1.00		HSV 20kPa	1.00			
	1.10	B					Plastic light brown pseudo-fibrous Peat. H5 B2 F2 R2 W1 N5 A1
▼							
				2.90			Very soft grey white sandy SILT. Possibly Marl.
	3.10	B					
				3.60			Grey massive LIMESTONE
				3.61			End of Pit at 3.6m

1
2
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5

Remarks: Terminated due to possible bedrock. Rapid ingress of groundwater

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP07
Sheet 1 of 1

Project Name:	Cooloo Wind Farm	Project No.: 22098	Co-ords: 556824.00 - 749835.00
			Level: m OD
			Date: 19/02/2025
Location:	Cooloo, Co. Galway Ireland	Dimensions (m):	2.50 x 2.00
			Scale: 1:25
Client:	MKO	Depth: 3.55	Logged: PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
							Sponge /plastic dark brown pseudo-fibrous PEAT . H5 B2 F2 R2 W1 N5 A1
	1.00		HSV 42kPa	1.00			Plastic brown pseudo-fibrous PEAT. H5 B2 F2 R2 W1 N5 A1
	1.50	B					
▼				3.30			Very soft greyish white slightly sandy CLAY (Marl). Sand is fine to medium.
	3.50	B		3.55			End of Pit at 3.6m

1 2 3 4 5

Remarks: Terminated due to very rapid water ingress. Rapid ingress of groundwater

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP08
Sheet 1 of 1

Project Name:	Cooloo Wind Farm	Project No.: 22098	Co-ords: 555699.00 - 749633.00
			Level: m OD
Date	18/02/2025		
Location:	Cooloo, Co. Galway Ireland	Dimensions (m):	2.50 x 2.00
Scale	1:25		
Client:	MKO	Depth	2.75
Logged	PK		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
▼	1.00 1.00	B	HSV 30kPa	1.10			Soft light brown slightly sandy gravelly cobbly CLAY with large boulders . Boulders are sub-rounded and 200-300mm in diameter of limestone.
	2.20	B					Soft-firm light brown very sandy very gravelly cobbly CLAY with boulders. Boulders and cobbles comprise of limestone.
				2.70 2.75			Grey angular gravel and cobbles (possibly weathered LIMESTONE) End of Pit at 2.8m

1
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Remarks: Terminated due to possible bedrock. Slow ingress of groundwater

Stability: Poor - Collapse from 0.5m

AGS

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Trial Pit Log

TrialPit No
TP09
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 554930.00 - 747229.00	Date 20/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 1.80	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
	0.50	B					Soft to firm slightly sandy, gravelly CLAY . Gravel is sub-rounded of limestone
				0.80			
	1.00		HSV 74kPa				Soft to firm brown sandy slightly gravelly cobbly CLAY. Gravel is sub-rounded of limestone.
	1.50	B					
				1.80			Grey massive LIMESTONE
				1.81			End of Pit at 1.8m

Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP10
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556912.00 - 749360.00	Date 19/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 2.70	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
	0.40	B		0.50			Soft brown slightly sandy slightly gravelly SILT. Gravel is sub-rounded. Sand is fine to coarse. Gravel is of limestone.
	1.00		HSV 96kPa				Firm brown grey slightly sandy gravelly cobbley SILT with occasional boulders. Boulders are sub-rounded of limestone
	2.00	B					
				2.70			Grey massive LIMESTONE
				2.72			End of Pit at 2.7m

1
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Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP11
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556197.00 - 748883.00	Date 18/02/2025
Location: Cooloo, Co. Galway Ireland		Level: m OD	Scale 1:25
Client: MKO		Dimensions (m): 2.50 x 2.00 Depth 2.35	Logged PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20			TOPSOIL comprised of brown sandy clay with grass rootlets
	0.80 0.80	B	HSV 30kPa	0.90			Soft to firm sandy slightly, gravelly SILT. Gravel is sub-rounded of limestone. Sand is fine to coarse.
▼	2.00	B					Very stiff grey brown slightly sandy, gravelly, cobbly CLAY with occasional boulders. Cobbles and boulders are sub-rounded of limestone
				2.35			Grey massive LIMESTONE
				2.45			End of Pit at 2.4m

1 2 3 4 5

Remarks: Terminated due to possible bedrock. Slow ingress of groundwater

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP12
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555943.00 - 749063.00	Date 18/02/2025
Location: Cooloo, Co. Galway Ireland		Level: m OD	Scale 1:25
Client: MKO		Dimensions (m): 2.50 x 2.00 Depth 3.20	Logged PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20			TOPSOIL comprised of soft brown sandy clay with grass rootlets
	0.80	B					Soft brown sandy, slightly gravelly SILT. Gravel is sub-rounded of limestone
	1.00		HSV 48kPa	1.00			Firm grey brown slightly sandy, slightly gravelly cobbly SILT with abundant boulders. Cobbles and boulders are sub-rounded of limestone
	2.40	B					
				3.20			Grey fractured LIMESTONE
				3.22			End of Pit at 3.2m

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Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Moderate

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TP13
Sheet 1 of 1

Project Name:	Cooloo Wind Farm	Project No.: 22098	Co-ords: 555411.00 - 747813.00
			Level: m OD
			Date: 20/02/2025
Location:	Cooloo, Co. Galway Ireland	Dimensions (m): 2.50 x 2.00	Scale: 1:25
Client:	MKO	Depth: 2.50	Logged: PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.20			TOPSOIL comprised of slighly sandy gravelly clay with grass rootlets
	0.40	B					Soft to firm light brown sandy slightly gravelly SILT. Gravel are sub-rounded of limestone
	0.50		HSV 38kPa	0.60			Loose to medium dense sandy, GRAVEL with abundant boulders. Boulders are 200-300mm in diameter of limestone.
	2.00	B					
				2.60			Grey massive LIMESTONE
				2.61			End of Pit at 2.5m

Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Very poor - Collapse from 1m

AGS

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Trial Pit Log

TrialPit No
TP14
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555104.00 - 747925.00	Date 19/02/2025
		Level: m OD	
Location: Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00 Depth 0.80	Scale 1:25
Client: MKO			Logged PK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 0.50	B	HSV 63kPa	0.15			TOPSOIL comprised of slightly gravelly slightly sandy CLAY
							Firm to stiff light brown slightly sandy sightly gravelly SILT with occasional boulders. Boulder and cobbles are sub-rounded of limestone.
	0.70	B		0.60			Firm dark brown silty sandy GRAVEL. Gravel and cobbles are sub-angular of limestone
				0.80 0.82			Grey brown weathered LIMESTONE. Oxidation on fracture faces and abundant fractures. End of Pit at 0.8m

Remarks: Terminated due to possible bedrock. No groundwater encountered

Stability: Good

AGS

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Trial Pit Log

TrialPit No: TP15
Sheet 1 of 1

Project Name:	Cooloo Wind Farm	Project No.: 22098	Co-ords: 556313.00 - 749138.00
			Level: m OD
Location:	Cooloo, Co. Galway Ireland		Dimensions (m): 2.50 x 2.00
Client:	MKO		Depth 3.15

Date: 18/02/2025
Scale: 1:25
Logged: PK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.30			Soft black peaty CLAY with pockets of white clayey marl
	1.00 1.00	B	HSV 12kPa				Sponge very fibrous woody PEAT with pockets of sand. H1 B2 R3 W3 N5 A1
				1.95			Grey sandy cobbly GRAVEL. Gravel and cobbles are sub-angular and sub-rounded of limestone.
▼	2.50	B					
				3.15 3.16			Grey massive LIMESTONE End of Pit at 3.2m

1 2 3 4 5

Remarks: Terminated due to possible bedrock. Slow ingress of groundwater

Stability: Good

AGS

TP01 - 1 of 2

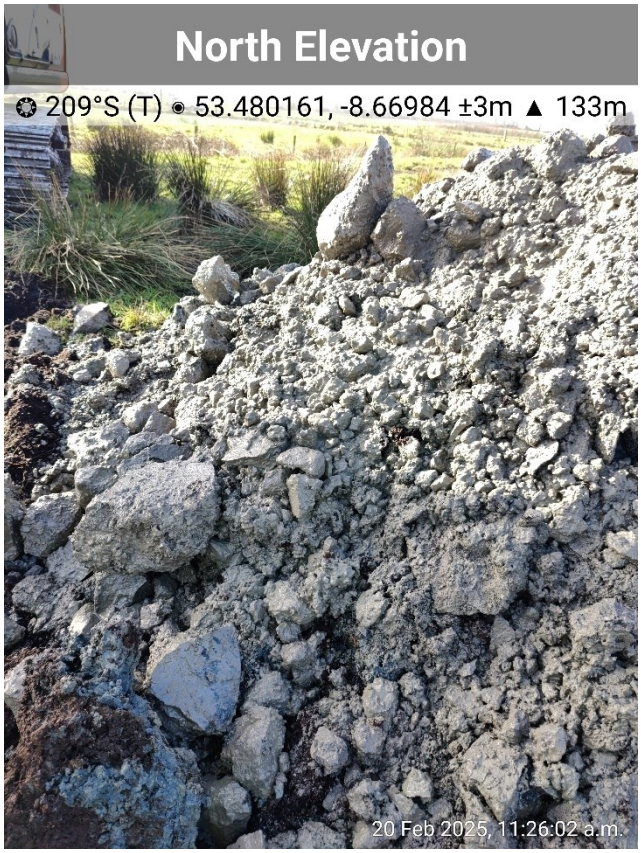
TP01 - 2 of 2

TP02 - 1 of 2

TP02 - 2 of 2

TP03 - 1 of 2

TP03 - 2 of 2



TP04 - 1 of 2

TP04 - 2 of 2

TP05 - 1 of 2

TP05 - 2 of 2

TP06 - 1 of 2

TP06 - 2 of 2

TP07 - 1 of 2

TP07 - 2 of 2

TP08 - 1 of 2

TP08 - 2 of 2

TP09 - 1 of 2

TP09 - 2 of 2

TP10 - 1 of 2

TP10 - 2 of 2

TP11 - 1 of 2

TP11 - 2 of 2

TP12 - 1 of 2

TP12 - 2 of 2

TP13 - 1 of 2

TP13 - 2 of 2

TP14 - 1 of 2

TP14 - 2 of 2

TP15 - 1 of 2

TP15 - 2 of 2

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Trial Pit Log

TrialPit No
TPBP1
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555689.00 - 749020.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 3.10	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown slightly sandy slightly gravelly CLAY. Sand is medium to coarse. Gravel is fine to coarse. Presence of pockets of black organic material at 0.8m
				0.80			Light brown slightly sandy gravelly SILT. High cobble content and some boulders. Gravel is fine to coarse, angular to subrounded. At 2.6m presence of large boulders (<0.6m) rounded to subrounded.
				3.10			End of Pit at 3.10m

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Remarks:

Stability:

AGS

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Trial Pit Log

TrialPit No: TPBP2
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555463.00 - 749672.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 3.00	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown slightly sandy gravelly silty CLAY. Sand is medium to coarse. Gravel is fine to coarse. Presence of boulders, rounded to subrounded.
				0.50			Grey slightly gravelly SAND with large boulders.
				3.00			End of Pit at 3.00m

Remarks:

Stability:

AGS

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Trial Pit Log

TrialPit No: TPBP3
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555352.00 - 750647.00 Level:	Date 31/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 1.93	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown peat.
				0.40			Firm light grey mottled yellow SILT.
				1.00			Grey slightly sandy gravelly CLAY. Sand and gravels are angular to subangular. Sand is medium to coarse, gravel is fine to coarse. Presence of boulders (0.3m). End of the TP due to rock head.
				1.93			End of Pit at 1.93m

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Remarks:

Stability:

AGS

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Trial Pit Log

TrialPit No: TPSSA
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 557466.00 - 749301.00 Level:	Date 31/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 2.80	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Peat with high root content.
				0.70			Light grey slightly sandy slightly gravelly SILT with some cobbles. Sand is medium to coarse, subangular to subrounded. Gravel is fine to coarse, subangular to subrounded.
▼				2.80			End of Pit at 2.80m

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Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPSSB
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 557383.00 - 748868.00 Level:	Date 31/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 2.10	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20			[TOPSOIL] Brown slightly gravelly slightly sandy CLAY. Gravel and sand are angular to subangular, fine to coarse.
							Grey slightly sandy very gravelly SILT with large angular to subangular boulders. Sand is medium to coarse. Gravel is fine to coarse, both angular to subrounded.
▼				2.10			End of Pit at 2.10m

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Remarks:

Stability:

AGS

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Trial Pit Log

TrialPit No: TPT2
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555608.00 - 748029.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 1.64	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Dark brown slightly mottled orange PEAT with high wood content
				0.50			Light grey slightly sandy clayey GRAVEL. Sand is medium to coarse, subangular to rounded. Gravel is fine to coarse, subangular to subrounded.
				1.10			Grey slightly sandy gravelly SILT. Gravel is fine to coarse, angular to subangular with few cobbles.
				1.64			End of Pit at 1.64m

Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPT3
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555566.00 - 748639.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 2.10	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown PEAT. Presence of roots and wood.
				0.90			Grey slightly sandy slightly gravelly SILT with some cobble content. Gravel is subangular to angular, fine to coarse.
				1.52			Grey SILT. Cobble content increases with depth.
				2.10			End of Pit at 2.10m

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Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPT4
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556170.00 - 748592.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 2.70	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.50			Orangish brown slightly gravelly CLAY. Gravel is fine to medium, angular to subangular.
							Brownish grey slightly sandy slightly gravelly CLAY. Presence of large boulders (<0.50m). Gravel and sand is angular to subangular. High water content.
				2.70			End of Pit at 2.70m

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Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPT6
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 555649.00 - 749698.00 Level:	Date 30/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 3.20	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Light brown CLAY.
				0.70			Grey gravelly SILT with cobble content. Gravel is fine to coarse, angular to subrounded. Pocket of organic material at 1m deep. Very large boulders subangular to rounded at 2.7m deep.
				3.00			Cobbles and boulders. Boulders are 0.2-0.5m subangular to subrounded. [Possible weathered bedrock]
				3.20			End of Pit at 3.20m

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Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPT8
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556994.00 - 749351.00 Level:	Date 31/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 3.50	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown gravelly CLAY. Gravel is fine to coarse, subangular to subrounded. Presence of rounded cobbles.
				1.00			Light grey slightly sandy gravelly CLAY. Sand is medium to coarse. Gravel is fine to coarse. Presence of large boulders (>0.5m) rounded to subrounded.
				3.50			End of Pit at 3.50m

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Remarks:

Stability:

AGS

GDG GAVIN & DOHERTY GEOSOLUTIONS

Trial Pit Log

TrialPit No: TPT9
Sheet 1 of 1

Project Name: Cooloo Wind Farm	Project No. 22098	Co-ords: 556825.00 - 749874.00 Level:	Date 31/08/2022
Location: Cooloo, Co. Galway Ireland		Dimensions (m):	Scale 1:25
Client: McCarthy Keville O'Sullivan Ltd. (MKO)		Depth 4.00	Logged IPP

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25			Black peat with high rootlet content. Strong odour.
				1.20			Cream slightly sandy SILT. Shell content.
▼				2.50			Very soft yellowish brown CLAY. Shell and root content.
				4.00			Very soft white SILT.
							End of Pit at 4.00m

1 2 3 4 5

Remarks:

Stability:

AGS

APPENDIX L FACTOR OF SAFETY

Table L- 1: FoS for Undrained Conditions

Proposed infrastructure	Slope	Cos Slope	Sin Slope	Undrained shear strength	Bulk unit weight of Peat	Peat depth	Factor of Safety	Surcharge	Factor of Safety with Surcharge	Slope
	(º)			Cu (kPa)	Y (kN/m^3)	(m)		(m)		Rad
T1	2.3	0.999	0.040	5	10	0.00	**N/A**	1	**12.47**	0.040143
T1 Hardstand	2.3	0.999	0.040	5	10	0.00	**N/A**	1	**12.47**	0.040143
T2	1.7	1.000	0.030	5	10	1.00	**16.86**	1	**8.43**	0.029671
T2 Hardstand	2.3	0.999	0.040	5	10	0.44	**28.30**	1	**8.66**	0.040143
T3	0.2	1.000	0.004	5	10	0.58	**205.81**	1	**75.55**	0.004189
T3 Hardstand	0.5	1.000	0.009	5	10	0.58	**98.79**	1	**36.26**	0.008727
T4	0.5	1.000	0.009	5	10	0.00	**N/A**	1	**57.30**	0.008727
T4 Hardstand	0.5	1.000	0.009	5	10	0.00	**N/A**	1	**57.30**	0.008727
T5	0.9	1.000	0.016	5	10	1.50	**21.22**	1	**12.73**	0.015708
T5 Hardstand	1.5	1.000	0.026	5	10	1.50	**12.74**	1	**7.64**	0.02618
T6	1.3	1.000	0.023	5	10	0.00	**N/A**	1	**22.04**	0.022689
T6 Hardstand	1.3	1.000	0.023	5	10	0.00	**N/A**	1	**22.02**	0.022689
T7	1.0	1.000	0.017	5	10	0.00	**N/A**	1	**30.16**	0.016581
T7 Hardstand	1.0	1.000	0.017	5	10	0.02	**N/A**	1	**29.64**	0.016581
T8	1.9	0.999	0.033	5	10	0.00	**N/A**	1	**15.09**	0.033161
T8 Hardstand	1.9	0.999	0.033	5	10	0	**N/A**	1	**15.09**	0.033161
T9	1.3	1.000	0.023	5	10	1.25	**17.64**	1	**9.80**	0.022689
T9 Hardstand	1.3	1.000	0.023	5	10	1.25	**17.64**	1	**9.80**	0.022689
Substation/BESS	1.0	1.000	0.017	5	10	0.10	**292.64**	1	**26.60**	0.017089
Construction Compound	1.2	1.000	0.021	5	10	0.00	**N/A**	1	**23.88**	0.020944
Met Mast	3.1	0.999	0.054	5	10	0.00	**N/A**	1	**9.26**	0.054105

$$F = \frac{c_u}{\gamma z \sin\alpha \cos\alpha}$$

Where,

F = Factor of Safety
c_u = Undrained strength
γ = Bulk unit weight of material
z = Depth to failure plane assumed as depth of peat
α = Slope angle

Undrained conditions

Table L- 2: FoS for Drained Conditions

Proposed infrastructure	Drained shear strength	Bulk unit weight of Peat	Peat depth	Bulk unit weight of water	Height of water table above failure surface	Slope	Cos Slope	Cos^2 Slope	Sin Slope	ϕ'	Tan ϕ'	**FoS**	Surcharge (m)	**FoS Surcharge**
	Cu (kPa)	Y (kN/m^3)	(m)	Y (kN/m^3)	(m)	(º)								
T1	4	10	0.00	9.8	0.00	2.3	0.999	0.998	0.040	25	0.466	**N/A**	1	**21.59**
T1 Hardstand	4	10	0.00	9.8	0.00	2.3	0.999	0.998	0.040	25	0.466	**N/A**	1	**21.59**
T2	4	10	1.00	9.8	1.00	1.7	1.000	0.999	0.030	25	0.466	**13.80**	1	**14.76**
T2 Hardstand	4	10	0.44	9.8	0.44	2.3	0.999	0.998	0.040	25	0.466	**22.87**	1	**15.05**
T3	4	10	0.58	9.8	0.58	0.2	1.000	1.000	0.004	25	0.466	**166.87**	1	**131.71**
T3 Hardstand	4	10	0.58	9.8	0.58	0.5	1.000	1.000	0.009	25	0.466	**80.10**	1	**63.22**
T4	4	10	0.00	9.8	0.00	0.5	1.000	1.000	0.009	25	0.466	**N/A**	1	**99.27**
T4 Hardstand	4	10	0.00	9.8	0.00	0.5	1.000	1.000	0.009	25	0.466	**N/A**	1	**99.27**
T5	4	10	1.50	9.8	1.50	0.9	1.000	1.000	0.016	25	0.466	**17.57**	1	**22.42**
T5 Hardstand	4	10	1.50	9.8	1.50	1.5	1.000	0.999	0.026	25	0.466	**10.55**	1	**13.45**
T6	4	10	0.00	9.8	0.00	1.3	1.000	0.999	0.023	25	0.466	**N/A**	1	**38.18**
T6 Hardstand	4	10	0.00	9.8	0.00	1.3	1.000	0.999	0.023	25	0.466	**14156.94**	1	**38.14**
T7	4	10	0.00	9.8	0.00	1.0	1.000	1.000	0.017	25	0.466	**N/A**	1	**52.25**
T7 Hardstand	4	10	0.02	9.8	0.02	1.0	1.000	1.000	0.017	25	0.466	**1373.75**	1	**51.36**
T8	4	10	0.00	9.8	0.00	1.9	0.999	0.999	0.033	25	0.466	**N/A**	1	**26.13**
T8 Hardstand	4	10	0	9.8	0.00	1.9	0.999	0.999	0.033	25	0.466	**N/A**	1	**26.13**
T9	4	10	1.25	9.8	1.25	1.3	1.000	0.999	0.023	25	0.466	**14.52**	1	**17.20**
T9 Hardstand	4	10	1.25	9.8	1.25	1.3	1.000	0.999	0.023	25	0.466	**14.52**	1	**17.20**
Substation	4	10	0.10	9.8	0.10	1.0	1.000	1.000	0.017	25	0.466	**234.66**	1	**46.14**
Construction Compound	4	10	0.00	9.8	0.00	1.2	1.000	1.000	0.021	25	0.466	**N/A**	1	**41.37**
Met Mast	4	10	0.00	9.8	0.00	3.1	0.999	0.997	0.054	25	0.466	**N/A**	1	**16.02**

$$F = \frac{c' + (\gamma z - \gamma_w h_w)\cos^2\alpha \tan\phi'}{\gamma z \sin\alpha \cos\alpha}$$

Where,

F = Factor of Safety
c' = Effective cohesion
γ = Bulk unit weight of material
z = Depth to failure plane assumed as depth of peat
γ_w = Unit weight of water
h_w = Height of water table above failure plane
α = Slope angle
ϕ' = Effective friction angle

Drained conditions

APPENDIX M SAFETY BUFFER ZONES AND PEAT STOCKPILE RESTRICTION AREAS

556,000

557,000

750,000

749,000

N

W

E

S

T7

T9

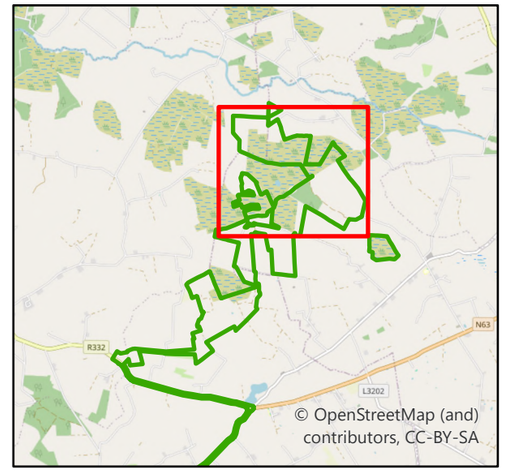
T6

T8

T5

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- Peat Stockpile Restriction Areas
- Safety Buffer Zones
- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Client: MKO / GDG Gavin & Doherty Geosolutions		
Project: Cooloo Wind Farm		
Figure M-1: Safety Buffer Zones and Peat Stockpile Restriction Areas (1 of 3)		
File: 22098-GDG-02-SBZ-MP-C-20		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 12/09/2025	Source: GDG	Checked: AL

555,000

556,000

749,000

748,000

T5

T3

T4

T2

T1

N

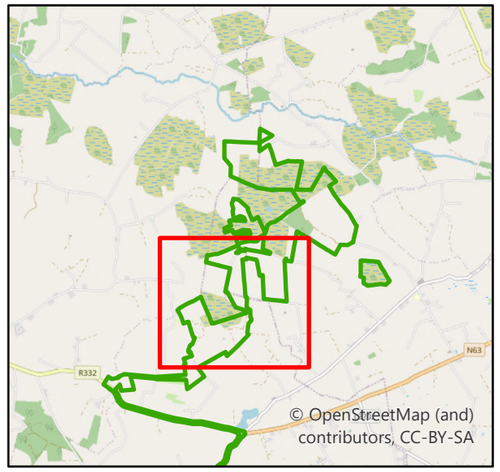
W

E

S

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- Peat Stockpile Restriction Areas
- Safety Buffer Zones
- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Client: MKO | GDG Gavin & Doherty Geosolutions

Project: Cooloo Wind Farm

Figure M-2: Safety Buffer Zones and Peat Stockpile Restriction Areas (2 of 3)

File: 22098-GDG-02-SBZ-MP-C-21

Sheet size: A3	CRS: 2157	Authored: CE
Date: 12/09/2025	Source: GDG	Checked: AL

554,000

555,000

748,000

747,000

N

W

E

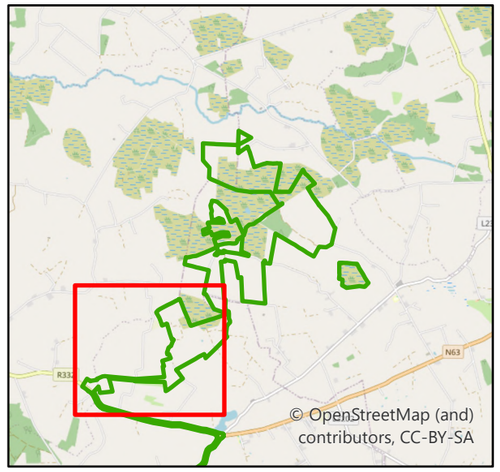
S

T2

T1

0 0.25 0.5 1 km

Maxar, Microsoft



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Foundations
- Proposed Turbine Hardstands
- Proposed New Roads
- Proposed Existing Roads to be Upgraded
- Proposed Met Mast
- Proposed Temporary Construction Compound
- Proposed Turbine Delivery Route
- Proposed Turbine Delivery Route Overrun Area
- Proposed Turbine Delivery Junction Accommodation Area
- Proposed Grid Connection Route
- Proposed Onsite Substation and Battery Storage Compound
- Peat Repository Area
- Spoil Repository Area

Client: MKO / GDG Gavin & Doherty Geosolutions		
Project: Cooloo Wind Farm		
Figure M-3: Safety Buffer Zones and Peat Stockpile Restriction Areas (3 of 3)		
File: 22098-GDG-02-SBZ-MP-C-22		
Sheet size: A3	CRS: 2157	Authored: CE
Date: 12/09/2025	Source: GDG	Checked: AL

APPENDIX N PSRA MATRIX

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine 2**	
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**	
Inspected on:	August 2024 to February 2025	
Inspected by:	CE	
Completed by:	PK	
Date:	Jun-25	

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			16.9	8.43	13.8	14.8	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat at 1.0m depth. Slope angle: 1.7º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	1	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP03 -presents PEAT from 0.1-1.0m .Sandy GRAVEL from 1.0-2.0m.
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Sharp contact between Peat and Gravel. No transition of peat into the gravel.
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Topography is flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	SW, S, SE				NA	SW, S, SE	W, E	NW, N, NE	1	1	1	SE
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	2	2	~360m
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Peat drainage located north(horizontal) , east(downslope) and south(horizontal)
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Dry heather				NA	Dry heather	Grassland	Wetlands	1	1	1	Edge raised bog. Heather, rushes and grass
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forest observed
	Peat workings	Peat cuts presence	-				NA	-	Cutaway / Turbary	Machine cut	1	1	1	Evidence of peat cutting -114m away
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	Evidence of peat cutting -114m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Local farming road present 70m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$	34
Max. possible	102
Hazard $_{0\text{-}1}$	**0.33**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.5m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Peat drainage ditches
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	No valley present within 500m
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.7º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Farming road 70m south of turbine
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Fair

Consequences $_{total}$	12
Max. possible	33
Consequences $_{0\text{-}1}$	**0.36**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		**Action required**
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating =	0.33	0.36	=	**0.12**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine 3**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			205.8	75.5	166.9	131.8	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 0.6m. Slope angle: 0.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	Nearest TP02 Records: Soft to firm brown grey slightly sandy gravelly cobbly SILT with occasional boulders. Cobbles and boulders are sub-rounded of limestone. Limestone at 2.5mbgl
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	2	2	4	Peat not recoded in TP02 (83m away), although peat was recordedat 0.9m with a Peat probe. Peat wetness not know althought the majority of the peat is slowly squeezing.
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	3	9	~450m from watercourse
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Moderate water ingress recorded at 2.0mbgl at TP02.
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	North drain is oblique and east drain is down slope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassy pastureland
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cuts
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cuts
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Solid road 90m to the west
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$	40
Max. possible	99
Hazard $_{0-1}$	**0.40**

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.6m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Minor field drainage ditches
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 0.2º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Minor unnamed track
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor road 92m west

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$	11
Max. possible	33
Consequences $_{0-1}$	**0.33**

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating =	0.40	0.33	=	**0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine 5**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			21.2	12.7	17.6	22.4	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth 1.5m. Slope angle: 0.9º
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	TP06 presents no topsoil
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	TP06 presents no topsoil
		Peat wetness	NA				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	2	2	4	TP06 presents no topsoil
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	No slope. Slope 5> 20 m north
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	NE
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	3	6	240m
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Rapid water ingress at 1.75mbgl
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	No evident surface water ponding
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drainage ditches present 20m north
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised Peat lands
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cutting present
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	Peat cutting present
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor road 160m south
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	

Hazard $_{total}$ 38

Max. possible 99

Hazard $_{0-1}$ **0.38**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat depth 1.5m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	drainage ditches 20m away
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 0.9º
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	Minor public road up till from T5
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	Farm out-houses	NA	Farm out-houses	-	Dwelling	1	1	1	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Fair

Consequences $_{total}$ 14

Max. possible 33

Consequences $_{0-1}$ **0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.38 0.42 = **0.16**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 6**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			N/A	22.00	N/A	38	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~ 0.0m. Slope angle: 1.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP08 records :Soft slightly sandy slightly gravelly CLAY to 2.7m.
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	Mo peat recorded in area
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Convex slope break downslope of T6 location
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	W, E				NA	SW, S, SE	W, E	NW, N, NE	2	1	2	East
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	3	9	380
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Slow water ingress at 1.0m bgl
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	NA				NA	Down slope	Varied / Oblique	Across slope	0	1	0	No observed drainage ditches within TP footprint
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	2	4	Generally grass land
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 46

Max. possible 106

Hazard $_{0\text{-}1}$ **0.43**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	0.0m peat depth
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Lake downslope.
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	Lake downslope.
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitve
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor road 5m away

Consequences $_{total}$ 10

Max. possible 33

Consequences $_{0\text{-}1}$ **0.30**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.43 0.30 = **0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 7**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			N/A	30.00	N/A	52	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 0m . Slope angle: 1.0º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	No TP complete in the area
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Not recorded in TP log
		Peat wetness	NA				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	No Peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	planar
		Distance to the convexity break (only if previous factor is Convex)	50 - 100 m				NA	> 100 m	50 - 100 m	< 50 m	2	1	2	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	3	9	330m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	NA				NA	Down slope	Varied / Oblique	Across slope	0	1	0	No observed drainage ditches within TP footprint
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Dry heather				NA	Dry heather	Grassland	Wetlands	1	2	2	Dry heather and grass land
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	Minor road 260m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 42

Max. possible 103

Hazard $_{0-1}$ **0.41**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	NA	NA	Small	Medium	Large	0	3	0	Peat depth: 0m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Lake downslope.
Proximity from defined valley (m)	< 200	NA	> 500	200 - 500	< 200	3	1	3	Lake downslope.
Downhill slope angle	Intermediate	NA	Horizontal	Intermediate	Steep	2	1	2	Slope angle: 1.0º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	Minor road 260m away

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0-1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.41 0.33 = **0.14**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine 9**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			17.6	9.80	14.50	17.20	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 1.25m. Slope angle: 1.3º
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Soft sensitive clay				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	3	1	3	TP07 records; 0.2 topsoil. Plastic brown pseudo-fibrous PEAT to 3.3mbgl. Very soft white silt from 3.3 to 3.55mbgl.
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Peat through topsoil.
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	Recorded as B2 in Von Post log
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	70m north
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	Rapid water ingress at 3.3m
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	drainage ditch down slope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Gernally grass land with rushes and peat on the surface
		Forestry (if applicable)	Good growth				NA	Good growth	Fair	Stunted growth	1	1.5	1.5	Foresty 20 m away
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	Area 200m away appears to be historically cut-over
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No remaining peat cuts.
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 39.5

Max. possible 100

Hazard $_{0-1}$ **0.40**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat depth: ~ 1.25m.
Downslope hydrology features	Minor undefined	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Water course 70 m away downslope
Proximity from defined valley (m)	NA	NA	> 500	200 - 500	< 200	0	1	0	
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Water course 70 m away downslope
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	

Consequences $_{total}$ 14

Max. possible 33

Consequences $_{0-1}$ **0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.40 * 0.42 = **0.17**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 2**	
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**	
Inspected on:	August 2024 to February 2025	
Inspected by:	CE	
Completed by:	PK	
Date:	Jun-25	

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			28.3	8.6	22.9	15.1	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat at 0.4m depth. Slope angle: 2.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	1	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP03 - presents peat from 0-1m , 1-2m sandy GRAVEL
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	No evidence observed
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Topography is flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	2	2	~300m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Peat drainage located north(horizontal) , east(downslope) and south(horizontal)
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Dry heather				NA	Dry heather	Grassland	Wetlands	1	1	1	Edge raised bog. Heather, rushes and grass
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forest observed
	Peat workings	Peat cuts presence	-				NA	-	Cutaway / Turbary	Machine cut	1	1	1	Evidence of peat cutting -80m away
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	Evidence of peat cutting -80m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Local farming road present 40m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$	32
Max. possible	102
Hazard $_{0-1}$	**0.31**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat at 1.0m depth
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Peat drainage ditches
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	No valley present within 500m
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 2.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Farming road 40m south of turbine
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Fair

Consequences $_{total}$	14
Max. possible	33
Consequences $_{0-1}$	**0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		**Action required**
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating =	0.31	0.42	=	**0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 3**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			98.7	36.3	80.1	63.2	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 0.6m. Slope angle: 0.5º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP02 Records: Soft to firm brown grey slightly sandy gravelly cobbly SILT with occasional boulders. Cobbles and boulders are sub-rounded of limestone. Limestone at 2.5mbgl.
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	2	2	4	Peat recorded in TPT3. Peat wetness not know althought the majority of the peat is slowly squeezing.
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	3	3	~450m from watercourse
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Moderate water ingress recorded at 2.0mbgl at TP02.
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	North drain is oblique and east drain is down slope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassy pastureland
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cuts
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cuts
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Solid road 90m to the west
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 33

Max. possible 99

Hazard $_{0\text{-}1}$ **0.33**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth: 0.6m.
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Minor field drainage ditches
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 0.5º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Minor unnamed track
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor road 92m west

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0\text{-}1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating =	0.33	0.33	=	**0.11**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 5**
Conditions:	Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			12.7	7.6	10.6	13.5	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth is 1.5. Slope angle: 1.5º
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	TP06 presents no topsoil
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	TP06 presents no topsoil
		Peat wetness	NA				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	2	2	4	TP06 presents no topsoil
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	No slope. Slope 5> 20 m north
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	3	6	290m
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Rapid water ingress at 1.75mbgl
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	No evident surface water ponding
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drainage ditches to the east and north at 5 and 20m respectively.
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised Peat lands
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cutting present
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cutting present
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor road 90 m south
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	

Hazard $_{total}$ 39

Max. possible 99

Hazard $_{0-1}$ **0.39**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat depth is 1.5.
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Drainage ditches 20m away
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.5º
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	Minor public road up hill from T5
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	Farm out-houses	NA	Farm out-houses	-	Dwelling	1	1	1	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Fair

Consequences $_{total}$ 14

Max. possible 33

Consequences $_{0-1}$ **0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.39 0.42 = **0.17**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 6**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value U	Value US	Value D	Value DS	0	1	2	3	Rating value	Weighting	Score	Comment
Factor of Safety			N/A	22.00	14156	38	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~ 0.0m. Slope angle: 1.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP08 records :Soft slightly sandy slightly gravelly CLAY to 2.7m.
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	Mo peat recorded in area
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Convex slope break downslope of T6 location
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	W, E				NA	SW, S, SE	W, E	NW, N, NE	2	1	2	East
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	3	9	380
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Slow water ingress at 1.0m bgl
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	NA				NA	Down slope	Varied / Oblique	Across slope	0	1	0	No observed drainage ditches within TP footprint
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	2	4	Generally grass land
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 46

Max. possible 106

Hazard $_{0\text{-}1}$ **0.43**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	0	1	2	3	Rating value	Weighting	Score	Comment
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	0.0m peat depth
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Lake downslope.
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	Lake downslope.
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitve
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor road 5m away

Consequences $_{total}$ 10

Max. possible 33

Consequences $_{0\text{-}1}$ **0.30**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.43 0.30 = **0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 7**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August t November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value U	Value US	Value D	Value DS	Rating criteria 0	1	2	3	Rating value	Weighting	Score	Comment
Factor of Safety			N/A	29.60	1373	51	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 0.02m. Slope angle: 1.0º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	No TP complete in the area
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	Not recorded by likely B2 peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	planar
		Distance to the convexity break (only if previous factor is Convex)	50 - 100 m				NA	> 100 m	50 - 100 m	< 50 m	2	1	2	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	3	9	330m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	NA				NA	Down slope	Varied / Oblique	Across slope	0	1	0	No observed drainage ditches within TP footprint
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Dry heather				NA	Dry heather	Grassland	Wetlands	1	2	2	Dry heather and grass land
		Forestry (if applicable)	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Evidence of cut 60m away
		Peat cuts vs contour lines	Oblique				NA	Perpendicular	Oblique	Parallel	2	1	2	Evidence of cut 60m away
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	Minor road 260m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 46

Max. possible 106

Hazard $_{0-1}$ **0.43**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria 0	1	2	3	Rating value	Weighting	Score	Comment
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth: 0.02m. Slope angle: 1.0º.
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Lake downslope.
Proximity from defined valley (m)	< 200	NA	> 500	200 - 500	< 200	3	1	3	Lake downslope.
Downhill slope angle	Intermediate	NA	Horizontal	Intermediate	Steep	2	1	2	Slope angle: 1.0º
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	Minor road 260m away

Consequences $_{total}$ 14

Max. possible 33

Consequences $_{0-1}$ **0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.43 0.42 = **0.18**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Turbine Hardstand 9**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value U	Value US	Value D	Value DS	0	Rating criteria 1	Rating criteria 2	Rating criteria 3	Rating value	Weighting	Score	Comment
Factor of Safety			17.6	9.80	14.20	17	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: 1.25m. Slope angle: 1.3º
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Soft sensitive clay				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	3	1	3	TP07 records; 0.2 topsoil. Plastic brown pseudo-fibrous PEAT to 3.3mbgl. Very soft white silt from 3.3 to 3.55mbgl.
		Peat fibres across transition to subsoil	No				NA	Yes	Partially	No	3	1	3	Peat through topsoil.
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	3	2	6	Recorded as B2 in Von Post log
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	90m north
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	Rapid water ingress at 3.3m
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	drainage ditch down slope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Rushes, grass and Peat.
		Forestry (if applicable)	Good growth				NA	Good growth	Fair	Stunted growth	1	1.5	1.5	Foresty 20 m away
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	Area 160m away appears to be historically cut-over
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No remaining peat cuts.
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor road 750m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 39.5

Max. possible 100

Hazard $_{0\text{-}1}$ **0.40**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	0	Rating criteria 1	Rating criteria 2	Rating criteria 3	Rating value	Weighting	Score	Comment
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat depth: 1.25m.
Downslope hydrology features	Minor undefined	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Water course 70 m away downslope
Proximity from defined valley (m)	NA	NA	> 500	200 - 500	< 200	0	1	0	
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Water course 70 m away downslope
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	minor road 750 m away

Consequences $_{total}$ 14

Max. possible 33

Consequences $_{0\text{-}1}$ **0.42**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.40 0.42 = **0.17**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**BESS Compound & Substation**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			293	26.6	235	46.1	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	1	1	Peat depth: 0.1m
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension cracks, step features, compression features).	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP05 indicates sandy silt to 0.6m and getting gravelly to 0.8m. Bedrock present from 0.8m bgl.
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	1	2	2	Minor peat depth. No visual evidence
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Slight convex present at substation
		Distance to the convexity break (only if previous factor is Convex)	< 50 m				NA	> 100 m	50 - 100 m	< 50 m	3	1	3	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	Two watercourse equal distance apart - 220m
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	0	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Pasture grassland
		Forestry (if applicable)	Good growth				NA	Good growth	Fair	Stunted growth	1	1	1	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Founded roads
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 25

Max. possible 66

Hazard $_{0\text{-}1}$ **0.38**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth: 0.1m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	NA
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	Minor slope to the north
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: avergae 2.6º. Minor areas in the BESS and compound with slope greater than 5º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Minor unnamed road
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Fair

Consequences $_{total}$ 12

Max. possible 33

Consequences $_{0\text{-}1}$ **0.36**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during construction.
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating =	0.38	0.36	=	**0.14**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**PRA 1**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			42.2	18.0	35.3	31.4	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.9m. Slope angle: 1.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g.	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No TP
		Peat fibres across transition to	NA				NA	Yes	Partially	No	0	1	0	No TP
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No TP in the area. Assumed peat wetness
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Flat
		Distance to the convexity break (only if previous factor is Convex)	< 50 m				NA	> 100 m	50 - 100 m	< 50 m	3	1	3	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	164m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grass land, heather and rush
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	No evidence of peat harvest
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No visible peat cuts
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor founded road
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 32

Max. possible 93

Hazard $_{0-1}$ **0.34**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	0.9m peat depth
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.2º. Gently sloping north
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Unnamed minor track
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0-1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.34 0.33 = **0.11**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**PRA 2**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			19.2	9.7	15.7	17.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.34-0.55 m. Slope angle: 1.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	TP15 No neaby trial pit. Sponge very fibrous woody PEAT with pockets of sand. H1 B2 R3 W3 N5 A1
		Peat fibres across transition to subsoil	Yes				NA	Yes	Partially	No	1	1	1	Subsoil appears to be mixed of peat and silt.. Material likely derived from drainage ditch arising.
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	B2 peat
	Topography	General curvature downslope	NA				NA	-	Planar	Convex	0	1	0	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	1	1	325m
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cutting present
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cuts paralle with contours
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	240m
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 29

Max. possible 93

Hazard $_{0-1}$ **0.31**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth: ~0.34-0.55 m.
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	200-300m
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.2º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	165m -up slope

Consequences $_{total}$ 12

Max. possible 33

Consequences $_{0-1}$ **0.36**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.31 0.36 = **0.11**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**PRA 3**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			46.1	20.5	37.0	35.8	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	No peat depth recorded in the direct area. Closest peat probe is 35m away with a depth of 1.17m. Slope angle: 1.15º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	No TP in the area
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	1	No TP in the area. Assumed peat wetness
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	200m
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	unknown
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Grass land with minor peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting presents
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting presents
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Founded roads
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$ 28

Max. possible 96

Hazard $_{0-1}$ **0.29**

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	No peat depth recorded in the dir
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.15º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$ 10

Max. possible 33

Consequences $_{0-1}$ **0.30**

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.29 0.30 = **0.09**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**PRA 4**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			30.4	13.4	24.8	23.5	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.4 m. Slope angle: 1.16º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No neaby trial pit
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	No neaby trial pit
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No TP in the area. Assumed peat wetness
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	240
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raisef peat area
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	No evidence in area. Cut present
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	77m
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$	30
Max. possible	93
Hazard $_{0-1}$	**0.32**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.4m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	200-300m
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.16º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	77m

Consequences $_{total}$	10
Max. possible	33
Consequences $_{0-1}$	**0.30**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.32 0.30 = **0.10**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**PRA 5**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			44.4	16.8	36.0	29.3	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.6 m. Slope angle: 1.7º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No neaby trial pit
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	No neaby trial pit
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No TP in the area. Assumed peat wetness
	Topography	General curvature downslope	NA				NA	-	Planar	Convex	0	1	0	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised Peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting in the area. Peat c
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	240 m
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$ 25

Max. possible 93

Hazard $_{0-1}$ **0.27**

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.6m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	200-300m
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.7º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	240 m

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0-1}$ **0.33**

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.27 0.33 = **0.09**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**SRA 1**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			37.5	17.6	30.6	31.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth approx: ~1.08 m. Slope angle: 1.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No neaby trial pit
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	No neaby trial pit
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No TP in the area. Assumed peat wetness
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No evidence in area. Cut present
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	70
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$ 26

Max. possible 93

Hazard $_{0\text{-}1}$ 0.28

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	200-300m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	>500
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	Slope angle: 1.16º.
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Sensitive
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	NA
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	70m

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$ 12

Max. possible 33

Consequences $_{0\text{-}1}$ 0.36

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.28 0.36 = **0.10**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**SRA 4**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			9.2	5.7	7.6	10.1	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~1.2 to 1.84m. Slope angle: 2.0º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Soft sensitive clay				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	3	1	3	No neaby trial pit. Likely peat
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	No neaby trial pit
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No neaby trial pit although assuming B2 peat
	Topography	General curvature downslope	NA				NA	-	Planar	Convex	0	1	0	Flat
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	200m
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water (water table level indicator)	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water ponding
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope, but varied orientations
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Historical Peat cutting preset. Act
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cutting
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Winter, Early Summer				NA	Spring	Winter, Early Summer	Late Summer, Autumn	2	1	2	Wost case estimate

Hazard $_{total}$ 30

Max. possible 93

Hazard $_{0\text{-}1}$ **0.32**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Medium	NA	Small	Medium	Large	2	3	6	Peat depth 1.2-1.84m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	200-300m
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 2.0º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	70m

Consequences $_{total}$ 15

Max. possible 33

Consequences $_{0\text{-}1}$ **0.45**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.32 0.45 = **0.15**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Access Track AL-2**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			587.0	32.0	470.0	57.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth at 0.74m . NE section of the road 20 m from raised bog. Slope angle 1.5º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP04 exhibits Soft to firm grey white sandy CLAY from 0.2 to 0.85mbgl, bedrock at 1.0m. TP13 Soft very sandy very cobbly CLAY from 0.2 to 2.6mbgl. Peat depth at 0.74m at the NE
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	NA				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	No peat within road section
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Slight dip within center of road.
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	Road crossing water course
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	Ponded in drains				NA	Localised	Ponded in drains	Springs	2	1	2	Road crossing water course
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassland
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 29

Max. possible 96

Hazard $_{0-1}$ **0.30**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	small
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Majority of road within bowl
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.5º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Unknown Paved road 20 m away

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0-1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.30 0.33 = **0.10**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Access Track AL-3**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			49.0	19.0	39.0	33.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ranges from 0.28m to 1.2 m. Slope angle: 1.7º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP03 records Soft grey very gravelly very sandy cobbly CLAY with abundant boulders from 1.0 to 2.0mbgl. Peat present form 0-1.0 mbgl
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	No evidense
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Von post log records value of B2, wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Planar
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	160m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water (water table level indicator)	Ponded in drains				NA	Localised	Ponded in drains	Springs	2	1	2	Minor water pooling in drains and peat areas
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Peat land and grassland
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cutting 60m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cutting 60m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	60 m from soild road
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 37

Max. possible 96

Hazard $_{0\text{-}1}$ **0.39**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth: ranges from 0.28m t
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.7º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	Minor road	NA	Minor road	Local road	Regional road	1	1	1	Minor road 60m from peat area
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor road 60m

Consequences $_{total}$ 13

Max. possible 33

Consequences $_{0\text{-}1}$ **0.39**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = azard * Consequences

Risk rating = 0.39 0.39 = **0.15**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-3b**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			165.0	11.7	132.0	20.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.3 m to 0.9mbgl. Slope angle: 3.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP02 aqnd TP12 records :Soft to firm brown grey soft to firm sandy gravelly slightly cobbly CLAY from 0.2 to 3.2mbgl.
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	peat not logged in TP. Likely B2, indicating wetpeat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	130m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassland and peat land
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 29

Max. possible 96

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{0-1}$ **0.30**

Consequence factors	**Value**	**Rating criteria**				**Rating value**	**Weighting**	**Score**	**Comment**
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Small	NA	Small	Medium	Large	1	3	3	Peat depth: ~0.3 m to 0.9mbgl.
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 3.2º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Road crossing unknow paved ro

Consequences $_{total}$ 12

Max. possible 33

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{0-1}$ **0.36**

Risk rating

Risk		**Action required**
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.30 0.36 = **0.11**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-4**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to February 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			11.0	5.7	9.0	10.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~1.95 m. Slope angle: 2.8º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP15 records :peat to 1.95m bgl. Grey sandy cobbly GRAVEL from 1.95 to 3.15m bgl.
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Von post log records value of B2, indicating dry peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Road is gently dipping down slope
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	170m
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water	Localised				NA	Localised	Ponded in drains	Springs	1	1	1	Minor water pooling in peat
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Peat area
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Machine cut				NA	-	Cutaway / Turbary	Machine cut	3	1	3	Peat cutting 70m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cutting 70m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 35

Max. possible 96

Hazard $_{0-1}$ **0.36**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Medium	NA	Small	Medium	Large	2	3	6	Peat depth 1.95m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 3.8º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	80m away

Consequences $_{total}$ 15

Max. possible 33

Consequences $_{0-1}$ **0.45**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.36 0.45 = **0.17**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-4 Float**	
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**	
Inspected on:	August to November 2024	
Inspected by:	CE	
Completed by:	PK	
Date:	Jun-25	

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			11.0	6.0	9.0	10.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ranges ~1.3 to 1.8 m. Slope angle: 1.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	No TPs within road section
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Likely B2 peat, indicating wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	planar
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	Road corssing water course
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassland
		Forestry (if applicable)	Fair				NA	Good growth	Fair	Stunted growth	2	1.5	3	forestry at northern section of road
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cut 20 m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	Peat cut 20 m away
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 35

Max. possible 96

Hazard $_{0-1}$ **0.36**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Medium	NA	Small	Medium	Large	2	3	6	1.3 to 1.8 m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	NA

Consequences $_{total}$ 16

Max. possible 33

Consequences $_{0-1}$ **0.48**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.36 0.48 = **0.18**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-4b**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			26.0	13.0	21.0	23.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0.8 to 3.3 m. Slope angle: 1.5º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP07 records :peat to 3.3m bgl
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Von post log records value of B2, indicating wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	planar
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	100m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Peat lands
		Forestry	Fair				NA	Good growth	Fair	Stunted growth	2	1.5	3	Forest
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 31

Max. possible 96

Hazard $_{0-1}$ **0.32**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Large	NA	Small	Medium	Large	3	3	9	Peat depth 3.3m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.5º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	NA

Consequences $_{total}$ 19

Max. possible 33

Consequences $_{0-1}$ **0.58**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.32 0.58 = **0.19**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-4b float**	
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**	
Inspected on:	August to November 2024	
Inspected by:	CE	
Completed by:	PK	
Date:	Jun-25	

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			26.0	13.0	21.6	23.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: range from 2.6 to 3.6 m ~ m. Slope angle: 0.9º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No TP completd in road section
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Likely B2, indicating wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Planar. Slight incline to the NW.
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	150m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Peat cutting in the NW and SE
		Peat cuts vs contour lines	Oblique				NA	Perpendicular	Oblique	Parallel	2	1	2	
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 34

Max. possible 96

Hazard $_{0\text{-}1}$ **0.35**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Large	NA	Small	Medium	Large	3	3	9	Peat depth: range from 2.6 to 3.
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 0.9º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	NA

Consequences $_{total}$ 18

Max. possible 33

Consequences $_{0\text{-}1}$ **0.55**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.35 0.55 = **0.19**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-4c**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			109.0	20.6	87.0	36.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~ range from 0.4 to 1.1 m. Slope angle: 2.0º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No TP completed in the area
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Likely B2, indicating Wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	Planar
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	200 - 300				NA	> 300	200 - 300	< 200	2	1	2	220m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Wetlands
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	50m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	50m away
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$	34
Max. possible	96
Hazard $_{0-1}$	**0.35**

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow (function of distance from nearest watercourse and peat depth in the area)	Medium	NA	Small	Medium	Large	2	3	6	Peat depth: ~ range from 0.4 to 1.1 m.
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 2.0º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Poor	NA	Good	Fair	Poor	3	1	3	NA

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$	16
Max. possible	33
Consequences $_{0-1}$	**0.48**

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating =		Hazard *	Consequences	
Risk rating =	0.35	0.48	=	**0.17**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-5**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to Febraury 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			812.0	20.8	650.0	36.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: range from 0 to 0.3 m. Slope angle: 1.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP08 records show : Soft-firm light brown very sandy very gravelly cobbly CLAY to 2.7m bgl
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Likely B2, indicating Wet peat
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Convex slope break within BP2
		Distance to the convexity break (only if previous factor is Convex)	< 50 m				NA	> 100 m	50 - 100 m	< 50 m	3	1	3	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	1	1	400m
		Surface moisture index (NDMI)	135 - 174				NA	0 - 96	96 -135	135 - 174	3	1	3	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Varied / Oblique				NA	Down slope	Varied / Oblique	Across slope	2	1	2	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassland with minor peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	No peat cutting
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	No peat cutting
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Crossing minor paved road
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 33

Max. possible 96

Hazard $_{0-1}$ **0.34**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.3m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Beside and crossing minor paved

Consequences $_{total}$ 12

Max. possible 33

Consequences $_{0-1}$ **0.36**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.34 0.36 = **0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-5 Float**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to Febraury 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			6.0	4.4	5.4	8.0	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: range from 1.3 to 4.6m. Slope angle: 1.3º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	2	Likely B2, indicating wet peat
	Topography	General curvature downslope	Planar				NA	-	Planar	Convex	2	1	2	planar
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	crossing water coarse
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Grassland				NA	Dry heather	Grassland	Wetlands	2	1	2	Grassland and peat lands
		Forestry	Fair				NA	Good growth	Fair	Stunted growth	2	1.5	3	North section of road covered b
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	30m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	30m away
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard $_{total}$ 36

Max. possible 96

Hazard $_{0\text{-}1}$ **0.38**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth: range from 1.3 to 4.
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 1.3º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	NA

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0\text{-}1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = azard * Consequences

Risk rating = 0.38 0.33 = **0.13**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-5b**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to Febraury 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			1.8	1.3	1.6	2.7	-	≥ 1.3	1.3 - 1.0	≤ 1.0	2	10	20	Peat depth: ~4.2 m. Slope angle: 3.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No TP completed in this area
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Likely value of B2, indicating wet peat
	Topography	General curvature downslope	NA				NA	-	Planar	Convex	0	1	0	
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	**Road section crosses water course
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	Ponded in drains				NA	Localised	Ponded in drains	Springs	2	1	2	Corssing water course
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Wet lands
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	Minor peat cutting >30m away
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	Peat cutting on flat terrain
	Existing loads	Roads	NA				NA	Solid	-	Floating	0	1	0	No existing tracks
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Wost case estimate

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Hazard $_{total}$ 38

Max. possible 96

Hazard $_{0\text{-}1}$ **0.40**

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Large	NA	Small	Medium	Large	3	3	9	Peat depth 4.2m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	Minor watercourse
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 3.8º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	NA

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequences $_{total}$ 16

Max. possible 33

Consequences $_{0\text{-}1}$ **0.48**

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision during
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.40 0.48 = **0.19**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-5b Float**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to Febraury 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			6.4	4.4	5.4	7.9	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~range from 2.1 to 6m . Slope angle: 2.2º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	NA				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	0	1	0	No TP completed in this area
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Not recorded in TP log
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Likely B2 peat , indicating wet peat
	Topography	General curvature downslope	NA				NA	-	Planar	Convex	0	1	0	
		Distance to the convexity break (only if previous factor is Convex)	> 100 m				NA	> 100 m	50 - 100 m	< 50 m	1	1	1	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	< 200				NA	> 300	200 - 300	< 200	3	1	3	150m
		Surface moisture index (NDMI)	0 - 96				NA	0 - 96	96 -135	135 - 174	1	1	1	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Peat area
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	20m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	20m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	60m from paved road
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Worst case estimate

Hazard $_{total}$ 30

Max. possible 93

Hazard $_{0\text{-}1}$ **0.32**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth: ~range from 2.1 to
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 2.2º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor unknow road 60m away

Consequences $_{total}$ 12

Max. possible 33

Consequences $_{0\text{-}1}$ **0.36**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.32 0.36 = **0.12**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-6b**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August to November 2024
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			25.0	5.3	20.7	9.3	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~0-0.38 m. Slope angle: 3.8º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP06 is 74m away. TP records peat from 0-2.9mbgl with very soft CLAY from 2.9 to 3.6m.
		Peat fibres across transition to subsoil	Partially				NA	Yes	Partially	No	2	1	2	Partially
		Peat wetness	Slowly squeezing				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Von post log records value of B2, indicating wet peat
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Convex slope break within BP2
		Distance to the convexity break (only if previous factor is Convex)	NA				NA	> 100 m	50 - 100 m	< 50 m	0	1	0	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	1	1	310m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Grassland with minor peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	NA				NA	-	Cutaway / Turbary	Machine cut	0	1	0	88m away
		Peat cuts vs contour lines	NA				NA	Perpendicular	Oblique	Parallel	0	1	0	88m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor unknown road 10m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Worst case estimate

Hazard $_{total}$	29
Max. possible	96
Hazard $_{0\text{-}1}$	**0.30**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth 0.38m
Downslope hydrology features	Minor undefined watercourse	NA	Bowl / contained	Minor undefined watercourse	Valley	2	1	2	Minor watercourse
Proximity from defined valley (m)	> 500	NA	> 500	200 - 500	< 200	1	1	1	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 3.8º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	Minor unknown road 10m away

Consequences $_{total}$	11
Max. possible	33
Consequences $_{0\text{-}1}$	**0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.30 0.33 = **0.10**

Peat Stability Risk Assessment (PSRA)

Cooloo Wind Farm

Location:	**Acces Track AL-6c**
Conditions:	**Undrained (U), undrained surcharge (US), drained (D), drained surcharge (DS)**
Inspected on:	August 2024 to Febraury 2025
Inspected by:	CE
Completed by:	PK
Date:	Jun-25

Hazard factors			Value				Rating criteria				Rating value	Weighting	Score	Comment
			U	US	D	DS	0	1	2	3				
Factor of Safety			9.0	5.5	7.5	9.8	-	≥ 1.3	1.3 - 1.0	≤ 1.0	1	10	10	Peat depth: ~2.7 m. Slope angle: 2.0º.
Secondary factors	Slide history	Distance to previous slides (km)	NA				NA	5 - 10	< 5	On site	0	2	0	Nearest slide >15km away
		Evidence of peat movement (e.g. tension	NA				NA	-	-	Yes	0	2	0	No evidence observed
	Subsoil conditions (visible in trial pits)	Subsoil type	Gravel / Firm glacial till				NA	Gravel / Firm glacial till	Smooth rock	Soft sensitive clay	1	1	1	TP06 is 74m away. TP records peat from 0-2.9mbgl with very soft CLAY from 2.9 to 3.6m.
		Peat fibres across transition to subsoil	NA				NA	Yes	Partially	No	0	1	0	Partially
		Peat wetness	Dry / Stands well				NA	Dry / Stands well	Slowly squeezing	Extremely wet / Undiggable	0	2	0	Von post log records value of B2, indicating wet peat
	Topography	General curvature downslope	Convex				NA	-	Planar	Convex	3	1	3	Convex slope break within BP2
		Distance to the convexity break (only if previous factor is Convex)	< 50 m				NA	> 100 m	50 - 100 m	< 50 m	3	1	3	
		Slope aspect (for high latitudes in northern hemisphere)	NA				NA	SW, S, SE	W, E	NW, N, NE	0	1	0	
	Hydrology	Distance from watercourse (m)	> 300				NA	> 300	200 - 300	< 200	1	1	1	310m
		Surface moisture index (NDMI)	96 -135				NA	0 - 96	96 -135	135 - 174	2	1	2	
		Surface water	NA				NA	Localised	Ponded in drains	Springs	0	1	0	No evident surface water
		Evidence of piping (subsurface flow)	NA				NA	-	-	Yes	0	1	0	Not observed
		Significant surface desiccation (previous summer was dry?)	NA				NA	-	-	Yes	0	1.5	0	Not observed
		Existing drainage ditches	Down slope				NA	Down slope	Varied / Oblique	Across slope	1	1	1	Drains generally oriented downslope
		Annual rainfall	1000 - 1400 mm/yr				NA	< 1000 mm/yr	1000 - 1400 mm/yr	> 1400 mm/yr	2	1	2	
	Vegetation	Bush	Wetlands				NA	Dry heather	Grassland	Wetlands	3	1	3	Raised peat
		Forestry	NA				NA	Good growth	Fair	Stunted growth	0	1.5	0	No forestry
	Peat workings	Peat cuts presence	Cutaway / Turbary				NA	-	Cutaway / Turbary	Machine cut	2	1	2	5 m away
		Peat cuts vs contour lines	Parallel				NA	Perpendicular	Oblique	Parallel	3	1	3	5 m away
	Existing loads	Roads	Solid				NA	Solid	-	Floating	1	1	1	Minor unknown road 10m away
	Time of year for construction		Late Summer, Autumn				NA	Spring	Winter, Early Summer	Late Summer, Autumn	3	1	3	Worst case estimate

Hazard $_{total}$ 35

Max. possible 96

Hazard $_{0\text{-}1}$ **0.36**

Hazard	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Consequence factors	Value	Rating criteria				Rating value	Weighting	Score	Comment
		0	1	2	3				
Volume of potential peat flow	Small	NA	Small	Medium	Large	1	3	3	Peat depth: ~2.7 m
Downslope hydrology features	Bowl / contained	NA	Bowl / contained	Minor undefined watercourse	Valley	1	1	1	
Proximity from defined valley (m)	200 - 500	NA	> 500	200 - 500	< 200	2	1	2	>500
Downhill slope angle	Horizontal	NA	Horizontal	Intermediate	Steep	1	1	1	Slope angle: 2.0º.
Downstream aquatic environment	Sensitive	NA	Non-sensitive	Sensitive	Drinking water supply	2	1	2	Sensitive
Public roads in potential peat flow path	NA	NA	Minor road	Local road	Regional road	0	1	0	NA
Overhead lines in potential peat flow path	NA	NA	Phone lines	Electricity (LV)	Electricity (MV, HV)	0	1	0	NA
Buildings in potential peat flow path	NA	NA	Farm out-houses	-	Dwelling	0	1	0	NA
Capability to respond (access and resources)	Fair	NA	Good	Fair	Poor	2	1	2	NA

Consequences $_{total}$ 11

Max. possible 33

Consequences $_{0\text{-}1}$ **0.33**

Consequences	
0.0 - 0.3	Negligible
0.3 - 0.5	Low
0.5 - 0.7	Medium
0.7 - 1.0	High

Risk rating

Risk		Action required
0.00 - 0.20	Negligible	Normal site investigation
0.20 - 0.40	Low	Targeted site investigation, design of specific mitigation measures. Part time supervision during construction.
0.40 - 0.60	Medium	Avoid construction in the area if possible. If unavoidable, detailed site investigation and design of specific mitigation measures. Full time supervision
0.60 - 1.00	High	Avoid construction in this area.

Risk rating = Hazard * Consequences

Risk rating = 0.36 0.33 = **0.12**

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